What is Anxiety?

by

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Abstract

In psychology, *anxiety* is used as an umbrella category term to refer to three distinct phenomena: transitory episodes of anxiety ('state anxiety'); a more stable disposition to experience these episodes ('trait anxiety'); and the 'anxiety disorders'. Although *anxiety* is widely used across psychology, our current understanding of this category is based on unsupported assumptions. Therefore, the aim of this thesis is to provide a novel, interdisciplinary understanding of the psychological category of *anxiety.*

The prevailing view in psychology is that *anxiety* forms a disunified and heterogenous category. However, in Chapter 1, I reject this prevailing assumption by arguing that *anxiety* forms a unified kind. To do this, I argue there is a set of distinctive reliably projectable properties that can be found across the category of *anxiety*. In Chapter 2, I argue that the constituents of *anxiety* (state anxiety, trait anxiety, and the anxiety disorders) can also be categorised together in virtue of a shared biological function. This function is the detection of and response to uncertain threats in our environment. In this way, I argue that *anxiety* forms not only a unified kind, but a biological functional kind. In Chapter 3, I argue that *anxiety* is also a strong candidate for natural kindhood. However, I argue that more empirical work must be done to firmly establish *anxiety* as a natural kind category. While taxonomizing *anxiety* is key to our metaphysical understanding of it, to provide a full picture, we must also consider its constituent parts in more detail. Therefore, in Chapter 4, I turn to consider normal and abnormal episodes of anxiety. I argue that the two lay on a multidimensional spectrum and can be delineated by four independent, but often co-occurring properties. These are: how proportionate the episode is to the objective threat that has provoked it; how physically and socially disabling the episode is; how mentally manageable the episode is; and lastly, how phenomenologically intense the episode is. In Chapter 5, I introduce a sub-category of *anxiety* in the form of *medicalized anxiety* which is comprised of both abnormal episodes of anxiety and the anxiety disorders. The development of this sub-category means that in folk psychology, a dichotomy emerges between normal anxiety and *medicalized anxiety*. In Chapter Six, I employ corpus linguistics to analyse our expressions of normalised and *medicalized anxiety*. I show that, generally, we use 'to be anxious' to convey normalised experiences of anxiety. Contrastingly, to convey medicalized experiences, we objectify our anxiety, using the phrase 'to have anxiety'. To conclude the thesis, in Chapter 7, I argue that while using this objectified language to describe our medicalized experiences of anxiety may be beneficial to reduce our feelings of blame, it may also stand as an obstacle to treatment and reduce our sense of agency.

For my family.

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Contents

List of Figures and Tables

Introduction

§1.1 What is anxiety?

Across lay discourse, psychology, and psychiatry, *anxiety* is used as an umbrella term to refer to a host of distinct phenomena. For example, there is the normal, fleeting anxiety that we feel before an exam, or before the first day at a new job. In contrast though, 'anxiety' can also refer to a crippling and debilitating state that may prevent someone from leaving the home, or that they find difficult to mentally manage. In addition, there is also the 'anxiety' we talk about when we describe ourselves as "an anxious person" (e.g., Edelmann, 1992: 2), referring to a relatively stable trait to regularly experience anxious states. Lastly, there are also the psychiatric conditions of the 'anxiety disorders'.

Psychologists note that these distinct experiences are then all bound together under the umbrella heading of *anxiety*, leading to what anxiety pioneer Charles Spielberger refers to as "the semantic confusion that now plagues the field" (Spielberger, 1972a: 8). But, what really is *anxiety*? And how do the apparently distinct phenomena captured by this umbrella term relate, if at all? The primary aim of this thesis is to answer these pressing unanswered questions by combining philosophy with psychological, psychiatric, and linguistic methods.

§1.2 The philosophy of anxiety

While the philosophy of anxiety is rarely considered in its own right, it has a rich and complex history hidden in the fields of existentialism and the philosophy of mind broadly construed. However, there are two starkly distinct philosophical approaches to understanding anxiety: the continental approach, and the analytic approach. Although the majority of this thesis will take the analytic approach, understanding the continental approach, and how the analytic approach differs, is key to understanding the gaps in the extant literature that this thesis seeks to fill. Consequently, I begin the thesis with a brief overview of the continental approach, the extant analytic approach, and the key metaphysical questions they leave us asking.

§1.3 Anxiety from a continental perspective

Traditionally, when considered from a philosophical perspective, anxiety has been the focus of the continental, phenomenological philosophers.[1] In this section, I briefly outline the continental approach, and the important assumptions these philosophers accept.

Across continental approaches to anxiety, there are two significant features which will differ from the methodology I will adopt for the thesis. The first is that continental philosophers accept the background assumption that anxiety is a sort of *mood,* rather than a transitory state or emotion. By 'mood', they

[1] There are some philosophers of anxiety who mesh the boundaries of the continental and analytical approaches together, like that of Matthew Ratcliffe. However, the prevailing standard in the philosophy of anxiety is to adopt the phenomenological method.

mean to say that anxiety is a sort of background feeling (or constellation of feelings) which frame our experiences. The competing theories of anxiety then revolve around *how* this background feeling shapes our subjective experiences. For example, one of the most notable theorists, Søren Kierkegaard (1813-1855/1980), viewed anxiety a lens through which we achieve an awareness of the freedom of human existence. To explain this, he provides the example of a man overlooking a cliff edge (1980: 61). He argues that anxiety is the background feeling which arises from knowing one is free to jump despite the overwhelming fear of falling (ibid). That is, very simply put, anxiety acts as a sort of revelatory force which shows us the wide array of possibilities open to us.[2]

The second important feature of continental approaches to the philosophy of anxiety is that these authors most often treat normalised and abnormal sorts of anxiety as distinct, and in isolation from one another. That is, continental authors tend to choose to *either* focus on normalised notions of anxiety or opt to consider clinical conceptions in more detail, but rarely the two together.[3] For example, contemporary continental philosophers who do this are the likes of Dylan Trigg (2013, 2017a/b, 2018a/b, 2022) and Matthew Ratcliffe (with Sam Wilkinson) (e.g., Ratcliffe & Wilkinson, 2016). Most prominently across their work, these philosophers tend to focus on the phenomenology of the more clinical side of anxiety (in the form of the anxiety disorders), while still accepting the assumption that these are *moods.* For instance, Trigg most often focuses on the phenomenology of the anxiety disorder 'agoraphobia', a clinical diagnosis which involves anxiety surrounding wide open spaces (e.g., 2013, 2017a/b, 2018a). Across these works, Trigg describes how the subjective experience of anxiety, in the form of agoraphobia, shapes the ways in which we experience the world, and the ways in which we understand ourselves.

§1.4 Anxiety from an analytic perspective

Despite its origins in the continental tradition, the philosophy of anxiety has more recently come into the analytic sphere. [4] In this section, I will outline the background assumptions adopted by analytic philosophers of anxiety and how extant research in this area largely focuses on epistemic and moral questions, leaving key metaphysical questions unanswered.

Generally, analytic approaches to philosophy reject the continental assumption that anxiety is a sort of background enduring mood. Instead, the analytic philosophers of anxiety most often rely on the psychological notion of anxiety as some sort of *emotion,* or transitory state.[5]

[2] This is merely one interpretation of Kierkegaard's work. For a more detailed analysis on the concept of anxiety in Kierkegaard, see Grøn (2008); part I of Tsakiri (2006); and Beabout (1996).
[3] As we will see later in the thesis, there are abnormal sorts of anxiety which are distinctly not clinical in nature. However, continental philosophers of anxiety overlook this notion in favour of considering clinical forms.
[4] Although it should be noted that analytic philosophy of anxiety is still niche.
[5] To avoid committing to a theory of emotion, from here on, I will solely be referring to this sort of anxiety as a state.

However, much like the continental approaches, analytic philosophers of anxiety follow the tradition of separating normal anxiety out from its abnormal or clinical counterparts, treating them as largely isolated from one another. In the investigation of these distinct sorts of anxiety, the analytic authors tend to focus on two distinct sorts of questions about anxiety: epistemic and moral questions.

Epistemic analytic questions about the state of anxiety ask what we can learn from our experiences of it. For example, these include questions like whether anxiety can be useful for our epistemic enquiries, or whether experiences of anxiety can provide us with knowledge that we otherwise would not have. In this way, authors ask whether anxiety creates a position of epistemic privilege. A prominent name in this area is Jennifer Nagel (2010), who argues that anxiety regulates our thinking to help determine how much evidence is required for a decision to be made. Essentially then, anxiety is an epistemic tool for decision making. Additional contributors in this area, who often develop upon Nagel's initial ideas, include the likes of Vazard (2018, 2021) and Newton (2022).[6]

Aside from epistemic questions, contemporary analytic philosophers of anxiety also tend to focus on questions surrounding the morality of anxiety. Most often, these moral questions aim to determine whether the normal, transitory state of anxiety has any kind of intrinsic or instrumental value in our lives. For example, regarding the instrumental value of anxiety, Hookway (1999) argues that anxiety provides us access to normative standards we cannot otherwise articulate. Developing on this idea, Lacewing (2005) argues that recognising one's anxious feelings when reflecting on our own emotional responses helps us to determine which of these responses are (in)appropriate. In terms of intrinsic value, Kurth (2018a/b) argues that being anxious about something (like a decision we have made, or an action we have executed) shows we are of moral character because it shows we care about doing the right thing.

Although epistemic and moral questions about anxiety are clearly important, one key area of anxiety research that is lacking concerns metaphysical questions about the nature of anxiety. This is because questions about what anxiety is, whether there are distinct sorts of anxiety, and how these sorts of anxiety relate to one another, if at all, have largely been left unanswered.[7] Instead, our metaphysical understanding of anxiety is based on unsubstantiated assumptions which now permeate across psychology and psychiatry.

The problem with this extant gap in the literature is that our metaphysical understanding of anxiety not only affects the way we theorise about it but guides the way in which we investigate and intervene with this phenomenon. For example, much like the philosophical approaches to anxiety that we have seen in

[6] It should be noted that Vazard deals with a more clinical form of anxiety in focusing on obsessive compulsive disorder.

[7] While some initial metaphysics of anxiety is being done by Kurth (2018b), his work adheres to the analytic standard and only considers a single conceptualisation of anxiety (as a normalised, transitory state), setting notions of abnormal and medical anxiety aside.

this section, current psychological and psychiatric practise generally treats normalised and abnormalised instances of anxiety in isolation from one another.[8] However, if a metaphysical analysis can show that these two sorts of anxiety are not only related, but share important unifying properties, then it implies that they ought to be investigated in conjunction rather than in isolation like current standards would dictate. Discoveries like this unification ought to revolutionise the way we investigate anxiety across these fields, with the potential to improve intervention outcomes and the psychological well-being of those experiencing anxiety.

§1.5 Thesis aims

To fill the extant metaphysical gap in the literature, the primary aim of this thesis is to provide a novel account of the nature of the psychological category of *anxiety*. To do this, I will be examining the category of *anxiety per se* and potential ways we can taxonomize this category; the relation between normal, abnormal, and medical anxiety; how we express these experiences in naturally occurring language; and the practical implications of doing so. Due to the lack of extant debate in the philosophy of anxiety, to answer these questions, I take the approach of applying the tools of analytic philosophy to the fields of psychology, psychiatry, and linguistics.

§2.1 Chapter One: The Unification of Anxiety

As mentioned earlier in the introduction, in psychology, *anxiety* is used as an umbrella term which covers three distinct sorts of anxiety: state anxiety (transitory episodes); trait anxiety (which involves the disposition to experience these episodes); and the anxiety disorders (which involve a collection of these episodes over a given time period). A significant consequence of this is that psychology widely accepts the tacit assumption that the category of *anxiety* is heterogenous and disunified. While the view that *anxiety* is a disunified category is widespread and commonly accepted in psychology, it is based upon the assumption that there is no distinctive set of properties that we can consistently find across the members of this category.

In chapter one, I will reject this assumption by arguing that *anxiety* forms a unified category. To do this, I identify a distinctive set of reliably projectable properties that can be found across state anxiety, trait anxiety, and the anxiety disorders. I begin by establishing a primary commonality across these three sorts of anxiety in the form of a singular threat detection and response processing system which I deem 'the anxiety system'. I aim to show that it is through this anxiety system that we can unify the category of *anxiety*. This is because I argue the proposed anxiety system possesses a distinctive set of four reliably projectable properties. These properties are: the detection of and response to uncertain physical and social threats within one's environment (function); perceptual biases towards potentially threatening stimuli (attention); the activation of the autonomic nervous system culminating in a

[8] In most psychological works on anxiety, there will be a section dedicated to normalised anxiety and then a section dedicated to examining anxiety disorders, with little work on how the two relate, or shade into one another.

constellation of somatic changes (physiology); and risk assessment, minimisation, or avoidance (behaviour). I argue that state anxiety, trait anxiety, and the anxiety disorders are fully constituted by this anxiety system. Given this constitutional relation, these three distinct sorts of anxiety then also must possess the distinctive set of functional, attentional, physiological, and behavioural properties. As we can reliably project this set of distinctive properties across each member of the *anxiety* category, I argue that *anxiety* forms a unified category, overturning the common consensus in psychology.

§2.2 Chapter Two: Anxiety as a Unified Kind: Functional Kindhood

Contrary to the popularly accepted assumption across psychology, chapter one establishes that there is unity across the category of *anxiety.* However, while identifying this homogeneity is an important step in understanding *anxiety,* the metaphysical picture of this category is incomplete. This is because we still do not know what sort of category *anxiety* is. That is, we do not know the ways in which we can group the unified phenomena of state anxiety, trait anxiety, and the anxiety disorders together. To make progress in understanding and taxonomizing the metaphysics of the category more clearly, this is a necessary step. Therefore, in chapters two and three, I examine what sort of kind *anxiety* forms.

In chapter one of the thesis, I outlined a proposed function of anxiety in the form of the detection of and response to uncertain threats within our environment. In chapter two, I turn to consider this function in more detail to determine whether state anxiety, trait anxiety and the anxiety disorders can be grouped together in virtue of it. In this way, I ask whether anxiety forms a functional kind. As *anxiety* is generally considered to be a biological phenomenon, chapter two focuses specifically on determining whether *anxiety* forms a biological functional kind (where biological entities are grouped together in virtue of a shared function).

To do this, I adopt Buller's (1998) weak historical notion of function. According to Buller's account, for the anxiety system to have the function of detecting and responding to uncertain threat, it must have an evolutionary history of producing an effect that contributes to the survival of the organism, thus promoting the reproduction of such a system. I argue that the effects which contribute to the organism's survival are the cluster of the attentional, behavioural, and physiological properties we saw in the first chapter. Turning to consider the category of *anxiety,* as the components of the category (state anxiety, trait anxiety, and the anxiety disorders) are all fully constituted by the anxiety system proposed in chapter one and examined here, they therefore all share the same common biological function. In this way, the category of *anxiety* can be considered to be a biological functional kind.

§2.3 Chapter Three: Anxiety as a Unified Kind: Natural Kindhood

Although conceptualising *anxiety* as a biological functional kind can be a useful way to understand the category, it is not the only way to taxonomize it. Another important, but distinct, way of categorising *anxiety* is to consider whether it forms a natural kind: a category that can support our epistemic practises

of explanation, projection, and prediction. In this way, natural kind categories allow us to justify our inductive inferences.

While there are a multitude of accounts for how natural kind categories can provide this justification, for this thesis, I adopt Boyd's homeostatic property cluster account (Boyd, 1989). Boyd argues that to be a natural kind category, the category must feature a clustering set of reliably projectable properties which are underpinned by a causal mechanism. It is then this causal mechanism which will allow us to justify our epistemic practises of explanation, projection, and prediction across the category members.

Adopting Boyd's property cluster account, I argue that *anxiety* is a strong candidate for natural kindhood. This is because, as we have seen across the first chapter, *anxiety* features a clustering set of distinctive reliably projectable properties in the form of the functional, attentional, behavioural, and physiological properties. By appealing to extant neurobiological research, I argue that we have strong evidence for a mechanism that causally underpins the functional, physiological, and behavioural properties in the form of the neural region the 'bed nucleus of the stria terminalis' (BNST). While more empirical research is required to determine the causal relation between the BNST and the attentional properties, I conclude that *anxiety* is a strong candidate for natural kindhood.

§2.4 Chapter Four: Normal versus Abnormal Anxiety

To fully understand *anxiety,* it is important to consider its constituent elements in more detail. Therefore, the fourth chapter of the thesis returns to the notion of state anxiety in the form of the normal and abnormal episodes of anxiety. Although these two sorts of anxiety are the fundamental expressions of the anxiety system being realised, the metaphysical relation between normal and abnormal episodes of anxiety has rarely been discussed in extant psychological or philosophical literature. This means that our understanding of (ab)normal anxious episodes, and, importantly, how to delineate them, is left wanting. Therefore, this chapter outlines properties by which one can delineate between normal and abnormal episodes of anxiety.

The chapter begins with a definition of abnormal as distinctly not medical, but rather as an undesirable deviation from the ordinary or usual. While unusualness can be determined at the societal and the individual level, the methods of delineation in this chapter will be compatible with either approach. I argue that due to (ab)normal episodes of anxiety sharing a core of functional, attentional, physiological, and behavioural properties, the key difference between them is the way in which this core manifests. In this way, the best way to conceptualise (ab)normal episodes of anxiety is as laying on a multi-dimensional spectrum. By multi-dimensional, I mean that there are four distinct, but often co-occurring properties (or dimensions) which we can use to determine where on this spectrum the episode ought to fall. These properties are how proportionate the anxious episode is to the objective threat that has evoked it, how physically and socially disabling the episode is, how mentally manageable the episode is, and lastly, how phenomenologically intense the episode is. To conclude the chapter, I synthesise these four

properties, and finally turn to consider how the non-medical concept of abnormal anxiety then matches up with the anxiety disorders.

§2.5 Chapter Five: The Medicalization of Anxiety

Up to this point in the thesis, the focus has been on the psychological category of *anxiety*, which is comprised of (ab)normal episodes of anxiety, trait anxiety, and the anxiety disorders. However, in psychology, as well as across lay discourse, there is another important anxiety concept that requires understanding and explaining, that of *medicalized anxiety*. So, what is *medicalized anxiety*? And how does it metaphysically relate to the psychological category of *anxiety* that we have considered so far? Chapter five aims to answer these pressing questions.

To do so, we first must primarily understand the process of medicalization itself. By considering the approaches of Zola (1972, 1982, 1983) and Conrad (1992; Conrad & Schneider, 1980a/b), I conceptualise medicalization as the process by which problems become medically framed, as suitable for clinical investigation and intervention. Through this process of medicalization, I argue that abnormal episodes of anxiety become conceptually blurred with the anxiety disorders. What emerges from this conceptual blurring is *medicalized anxiety*, a sub-category of *anxiety* which is comprised of abnormal episodes of anxiety as well as the anxiety disorders. A key implication of the emergence of the category of *medicalized anxiety* for lay understanding is that this sub-category then becomes posed dichotomously with the notion of normalised anxiety. The chapter concludes with a comparison of the characteristics of these two apparently dichotomous sorts of anxiety: normalised anxiety and *medicalized anxiety*.

§2.6 Chapter Six: "You Don't Have Anxiety, You're Just Anxious": The Distinction Between Being Anxious and Having Anxiety.

In the sixth chapter, I take a distinct methodological approach by employing the field of corpus linguistics. This chapter therefore can also be read as a stand-alone linguistic study.

Although folk psychology maintains the distinction between normal and *medicalized anxiety* examined in chapter five, psychologists have noted that a key problem in disambiguating experiences of the two is that we can use the same language to express experiences of both sorts of anxiety (e.g., Rycroft, 1968; Edelmann, 1992). However, at present, there are no real-world studies of whether we *do* use the same language to express these two sorts of experiences, or whether there is a nuanced difference. The problem with this is that identifying a distinction in the way we talk about normal anxiety in contrast to *medicalized anxiety* can provide some insight into the psychological well-being of the person experiencing the anxiety (hereafter, the Experiencer). It also could provide promising groundwork to develop a linguistic tool for intervention. Therefore, in chapter six of the thesis, I employ corpus linguistics to determine whether there is any distinction in the language we use to express our

experiences of normalised anxiety compared to our experiences of *medicalized anxiety.* To do this, I analyse and compare uses of the phrasal constructions 'to be + anxious' and 'to have + anxiety'.

The findings of the analysis show that there *is* a nuanced distinction in our expressions of normalised versus *medicalized anxiety* that has been thus far overlooked. Generally, when we want to convey a more normalised anxiety experience, we will express this through the phrase 'to be + anxious'. In contrast, 'to have + anxiety' is more often used to convey medicalized experiences. One vital implication of this is that when we hear those using the 'have + anxiety' phraseology, we ought to be more sensitive to their potential struggles with anxiety and navigate our interpersonal relations more sympathetically rather than trying to downplay their anxious experiences as something normal and universal.

§2.7 Chapter Seven: What is at Stake When We Objectify Anxiety?

The findings of the discourse analysis of chapter six clearly demonstrate a conceptual shift occurs when we begin to consider anxiety in a medicalized framework. Generally, we move from conceiving normal anxiety as an internal process we experience to *medicalized anxiety* as more of an object-like entity (in a move I deem as 'objectification'). An important implication of this objectification is that it allows for the conceptualisation of the anxiety experience as something separate from ourselves. This separation between the self and the experience is a well-established feature of medicalized discourse (e.g., Fromm, 1976; Malson et al., 2004; Hunt & Brookes, 2020).

In the seventh chapter of the thesis, I argue for the potential effects that the objectification of *medicalized anxiety* can have on Experiencers. I argue that through the separation between the self and the anxiety experience which objectification makes possible, the Experiencer can reapportion responsibility away from themselves. As the avoidance behaviour characteristic of *medicalized anxiety* often means we fail to fulfil our social duties, in apportioning the responsibility for these duties away from the Experiencer, it allows them too to apportion blame for these failures away from themselves, avoiding blame's characteristic "sting" (Pickard, 2011). The benefit of this is that by avoiding the negative affect associated with blame, this reapportioning then ought to ease the Experiencers' psychological well-being. However, I argue that we ought to be cautious about engaging in objectified language. This is because I argue a more debilitating long-term effect of the separation between the self and the anxiety experience that objectification allows for is that it can remove the responsibility necessary for successful outcomes of intervention and hamper the agency of the Experiencer. The result of this is a problematic overall increase in anxiety levels and psychological distress for the Experiencer. The chapter concludes with potential future studies to determine the extent to which the proposed effects hold in real-world cases.

Conclusion

Through these chapters, I hope to make some important steps towards building a desperately needed metaphysical picture of the category of *anxiety*. To conclude the thesis, I outline the further questions that have arisen in my attempts to provide a novel metaphysical account of *anxiety*, paving the way for future research and developments in the field of the philosophy of anxiety.

Chapter One: The Unification of Anxiety

Introduction

In psychology, anxiety is widely considered to be an ambiguous and opaque concept.[9] This is because the term 'anxiety' is used as an umbrella term which can refer to three distinct phenomena. The first are transitory episodes of anxiety, like the fleeting nerves felt before an exam or the first day of a new job (often referred to as 'state anxiety').[10] The second is the disposition to experience these transitory states, like when we say we 'are anxious people' (or 'trait anxiety'). Lastly, 'anxiety' can refer to the psychiatric concept of the anxiety disorders. What emerges from this umbrella usage is the category of *anxiety*, constituted by state anxiety, trait anxiety, and the anxiety disorders. While this category is hugely important and commonly used across psychology, we lack a metaphysical understanding of the category itself and how its constituents relate to one another, if at all.

Across psychology, it is widely, tacitly assumed that the category of *anxiety* is heterogenous and disunified. That is, psychology assumes that state anxiety, trait anxiety, and the anxiety disorders which constitute the category do not share a distinctive set of properties which we can reliably and consistently project across them. The primary aim of this chapter is to challenge this assumption by arguing that there is homogeneity across the category of *anxiety*. To do this, I will argue state anxiety, trait anxiety, and the anxiety disorders share a distinctive set of reliably projectable properties which allows the category to be unified. By challenging the prevailing assumption in psychology through a metaphysical analysis of the *anxiety* category, I aim to show that psychology is working with false assumptions, and ultimately that it must revise its conceptualisation of *anxiety* to reflect the unity across the category.

To make this argument, I begin by outlining the widely accepted assumption in psychology and psychiatry that *anxiety* is disunified. In §1, I define a unified category as one where members share a set of distinctive reliably projectable properties and motivate why it is a problem if *anxiety* does not form a unified category in this way. In §2, I argue that state anxiety, trait anxiety, and the anxiety disorders are constituted by a singular threat processing system (hereafter 'the anxiety system'). If one can establish that such a system possesses a common set of reliably projectable properties, then state anxiety, trait anxiety, and the anxiety disorders which are constituted by this system can be unified in the same way. Therefore, to argue that the anxiety system possesses a distinctive set of reliable projectable properties, I begin by outlining the system itself. By appealing to extant empirical research, I argue that the anxiety system possesses a distinctive set of reliably projectable properties in the form of functional, attentional, physiological, and behavioural properties. With this clear, in §3, I then

[9] Evidence of this will be further presented throughout this chapter but can be found in most psychological works on anxiety (e.g., Lewis, 1967; Rycroft, 1968; Edelmann, 1992). It can also be found in neurobiological works on anxiety (e.g., LeDoux, 2015), and analytic philosophical works on the topic (e.g., Kurth, 2018b).

[10] As will become clear, the identification and naming of these distinct sorts of anxiety was made commonplace by Charles Spielberger (1966).

establish how state anxiety, trait anxiety, and the anxiety disorders are fully constituted by the anxiety system that features this distinctive set of reliably projectable properties. To conclude the chapter, I address a challenge that, due to their persistent nature, the anxiety disorders are not constituted by the anxiety system, but rather involve an enduring background sort of anxiety. I argue that although this challenge may seem compelling, the assumed persistence of the anxiety disorders is an illusion caused by the repetition of anxious episodes over a period of time. As anxious episodes are merely the expression of the anxiety system being activated, we can therefore equate the anxiety disorders with the collective activations of the anxiety system over time. In this way, one can establish that the anxiety disorders are indeed constituted by the anxiety system and thus can be unified under the *anxiety* category.

As I will establish that the constituent members of the *anxiety* category (state anxiety, trait anxiety, and the anxiety disorders) are all constituted by a singular anxiety system which possesses a distinctive set of reliably projectable properties, this category is unified and homogenous, overturning the prevailing psychological assumption.

§1.1 Introducing the psychological category of *anxiety*

As mentioned in the introduction to the thesis, psychology widely accepts the view that the category of *anxiety* is disunified and homogenous. In this section, I begin with an explanation of how this prevailing view has developed, and the foundations it is built upon. Following this, I outline the three proposed constituent elements of the category of *anxiety*: state anxiety, trait anxiety, and the anxiety disorders.

The assumption that *anxiety* is a disunified and heterogenous category foundationally stems from the widespread documentation that the term 'anxiety' can refer to a host of distinct phenomena. (e.g., Lewis, 1967; Rycroft, 1968; Spielberger, 1966; Edelmann, 1992; LeDoux, 2015; Kurth, 2018a/b).[11] For example, these authors note that 'anxiety' can refer to the fleeting anxious feelings one experiences prior to a novel experience, (e.g., 'I feel anxious, it is my first day of work'), more persistent character traits (e.g., 'I am an anxious person'), and the often debilitating experience of anxiety disorders, (e.g., 'I have crippling social anxiety disorder'), to name a few.[12]

In an attempt to disambiguate these kinds of use cases, psychologist Charles Spielberger differentiated between two sorts of anxiety: 'state anxiety' and 'trait anxiety' (Spielberger, 1966). Let's consider these in turn, starting with state anxiety.

[11] While these have been previously mentioned in the introduction of this thesis and this chapter's introduction, it is repeated here for ease of exposition.

[12] The prototypical examples presented in this chapter and throughout the thesis are inspired by the empirical work carried out for the sixth chapter of the thesis which explores real-world linguistic expressions of anxiety experiences.

The most common form of state anxiety is what are generally considered to be 'normal', transitory episodes of anxiety. To understand this, throughout the thesis, I will refer to two paradigmatic examples of normal, episodic anxiety, one where the threat is of a social nature, and the other of a physical nature, but both where the threat is uncertain. The first is that of 'Billy and the exam'.

> Billy and the exam: Imagine Billy, a year 11 student who is about to sit his first ever GCSE examination. While preparing to enter the examination room and flicking through his revision notes, he becomes anxious. He notices his hands are slightly sweaty and shaky, and his heartrate has increased. When he enters the exam hall, his anxious episode promptly subsides, and he is able to complete his exam.

Secondly, let's explore a case where the uncertain threat is more physical in nature. Let's call this 'Jerry and the mountains'.

> Jerry and the mountains: Jerry is hiking through the forest in the Carpathian Mountains. During his venture, he sees a dark shadow moving in the depths of the forest. Although distant, he perceives this large figure as a predatory animal but cannot ascertain what that animal is. Upon perceiving this animal, Jerry becomes anxious, experiencing a rapid heart rate at the thought of being pursued by a predator of some kind. He anxiously looks around for signs of the animal.

Additional cases of normal anxiety include, but are not limited to, the episodes felt on the first day of a new job, or just before giving a presentation. All of these, by their transitory, episodic nature, would be considered instances of 'state' anxiety.

However, while psychological literature usually uses the term 'state anxiety' to solely refer to normalised transitory episodes, I argue that it ought to also include *abnormalised* episodes of anxiety. While the nature of these sorts of episodes, as well as the distinction between normal and abnormal episodes of anxiety more broadly, will be explored in much further detail in chapter four, it is important to have a foundational understanding of abnormal episodes to continue.

In the field of the medical humanities, since the 1970s, philosophers have been attempting to delineate the bounds between the normal and the abnormal in relation to health (healthy versus unhealthy; ordered versus disordered) (e.g., Boorse, 1977; Glackin, 2010; Wakefield, 1992; Walker & Rogers, 2018; Cooper, 2020). In psychology, the distinction between the normal and the abnormal most often concerns human behaviour (e.g., Adams, Bernat, & Luscher, 2001; Sue, Sue, & Sue, 2006).[13] But, despite their distinct focuses, at the core of these distinctions is a judgement on how we ought to be living in terms of what is best for us within a given society, whether that is for our biological survival, for our mental well-being, or for an amalgamation of the two. That is, we make a judgement about what the desirable

[13] (This is not an error, there really are three Sues).

way of living ought to be and deem deviations from this as undesirable. In the cases where something has been designated as an undesirable way of living, it would seem that intervention becomes largely beneficial (in the sense that it can address the undesirability directly, pointing the person experiencing the issue towards the desirable way to live). Therefore, I take abnormal anxiety to be cases where the anxiety has been deemed to be undesirable in some way and would consequently largely benefit from intervention to address this undesirability.[14]

However, it is important to note that a key differentiation between my conceptualisation of abnormal anxiety and the lay understanding of 'abnormal anxiety' is that mine is distinctly separate from medicalized notions (i.e., notions of symptoms, and disorders).[15] This means that when I say that intervention would be beneficial, I am distinctly not making the claim that the anxiety here is 'disordered' or would warrant diagnosis. Rather, that the person experiencing the abnormal episode of anxiety would largely benefit from some form of help *per se* to live the desirable way. Accordingly, the intervention methods to be implemented for abnormal episodes of anxiety need not be *medical* (like pharmaceuticals or prescribed by medical personnel), although this may be appropriate. Instead, intervention methods could be non-clinical such as lifestyle changes like exercise or increased social inclusion, for instance.

With this fundamental understanding clear, I present two paradigmatic examples of abnormal anxious episodes in the form of 'Charlie and school' and 'Becky and the mole'. These will also be referred to throughout the thesis.

> Charlie and school: Charlie, a year 11 pupil, is about to leave the home in the morning to attend school. However, upon opening the door, Charlie becomes anxious, and experiences a sudden choking sensation, alongside chest pain, shaking, dizziness, and an overwhelming sense of dread which prevents him from leaving the home and attending school. Imagine that he is not diagnosed with a disorder and that this is the first time an episode like this has ever occurred for him. In this case, he would not warrant a diagnosis given the lack of persistence of the episode, but it seems that intervention in this case would be beneficial to return him to his usual functioning and enable him to go to school.

[14] In chapter four, we will see that this undesirability can be based on four distinct, but often co-occurring, properties. These are: how proportionate the episode is to the objective threat that has provoked it (proportionality); how physically or socially disabling the episode is (disability); how mentally manageable the episode is (mental management); and lastly, how phenomenologically intense the episode is (phenomenological intensity).

[15] The relation between abnormal episodes of anxiety and the anxiety disorders will become clear in section 2 of this chapter. Chapter four considers the concepts of normal and abnormal episodes of anxiety in much more detail, outlining their features and how they can be distinguished from one another. Chapter five then turns to consider this notion of *medicalized anxiety* more broadly.

> Becky and the mole: Consider the case of someone, Becky, who has seen a new mole on her leg that she has never noticed before, which is irregular in colour and shape.[16] Upon seeing this mole, Becky's heart rate increases rapidly, and she feels as if she cannot breathe. Her stomach begins to cramp. She feels that she cannot stop worrying about the nature of this particular mole, checking the borders of it with a torch, as well as taking a multitude of photos of it on her phone. After checking the rest of her body for any different or additional blemishes, she begins avidly researching on the internet all about moles and spends the next hour or so anxiously learning about what they ought to look like, comparing the internet photos with the ones she has just taken. After an hour or so, her heart rate finally returns to its regular resting rate.

Given the inclusion of abnormalised episodes like Charlie's and Becky's in my conceptualisation of state anxiety, when referring to this phenomenon throughout this thesis, I opt for the broader term of 'episodic' anxiety, to ensure both normalised and abnormalised anxiety states are captured.

Now let's turn to consider 'trait anxiety'. While this sort of anxiety will be examined in further detail later in the section, I now give a brief overview. The term 'trait anxiety' is used to refer to the disposition to experience anxious states (whether these episodes are normal or not) (Spielberger, 1966, Spielberger et al., 1983). Unlike state anxiety, trait anxiety is a relatively stable personality characteristic which relates to the tendency to perceive scenarios as threatening, and, as such, experience an anxious episode (e.g., Spielberger et al.,1983). It is important to note therefore that everyone has some level of trait anxiety (as we are universally disposed to anxious states). However, some are more disposed than others. In this way, psychologists posit a distinction between 'high' and 'low' trait anxiety (Spielberger, 1966; Spielberger, Gorsuch, & Luschene, 1983). If one has 'high' trait anxiety, this means they are more likely to perceive threats where others would not, and therefore, are more likely to experience frequent anxious episodes. If one has 'low' trait anxiety, they are less likely to do so, and therefore, less likely to experience anxiety states.

While the state/trait distinction of Spielberger identified two sorts of anxiety covered by the umbrella category of *anxiety*, it did not fully complete the picture. This is because aside from state and trait anxiety, in psychology and across lay discourse, 'anxiety' is also often used as a shorthand to denote a set of clinical diagnoses referred to as 'anxiety disorders'. Anxiety disorders are clinically characterised as "marked anxiety" which usually persists across a period of six months or more (e.g., American Psychiatric Association (APA), 2013).[17] Examples of currently recognised disorders include: generalized anxiety disorder, social anxiety disorder, agoraphobia, specific phobias, and separation anxiety disorder, to name a few. These individual disorders are clinically individuated by characteristics

[16] By mole, I am referring to melanocytic naevi of the skin and not to the small furry mammal (which arguably could be equally as distressing for her).
[17] This is for adults. The designated period is often shorter for minors.

like the triggering stimuli (e.g., social situations in those with social anxiety disorder, APA, 2013: 202-203), or additional features like panic attacks (like in panic disorder, APA, 2013: 208-209)). It is important to note that the inclusion of individual disorders under the umbrella heading of 'anxiety disorders' is not fixed but is revised as the new iterations of diagnostic manuals are produced. For example, consider the 'go-to' manual for diagnostic criteria for psychiatric conditions: the Diagnostic and Statistical Manual of Mental Disorders (DSM, APA, 2013). In previous iterations of this manual, like the DSM-IV (APA, 1994), obsessive compulsive disorder (OCD) was categorised under the heading of 'anxiety disorders'. However, in the most recent iteration (the DSM-5), OCD falls outside of this category, and has its own place in the diagnostic criteria under the heading of 'Obsessive-Compulsive and Related Disorders' (APA, 2013; see Bartz & Hollander, 2006; Stein et al. 2010; Bienvenu et al. 2012 for this debate).

Essentially then, in psychology, there are three sorts of anxiety which are bound together under the umbrella heading: state, trait, and anxiety disorders, as can be seen in figure 1.[18]

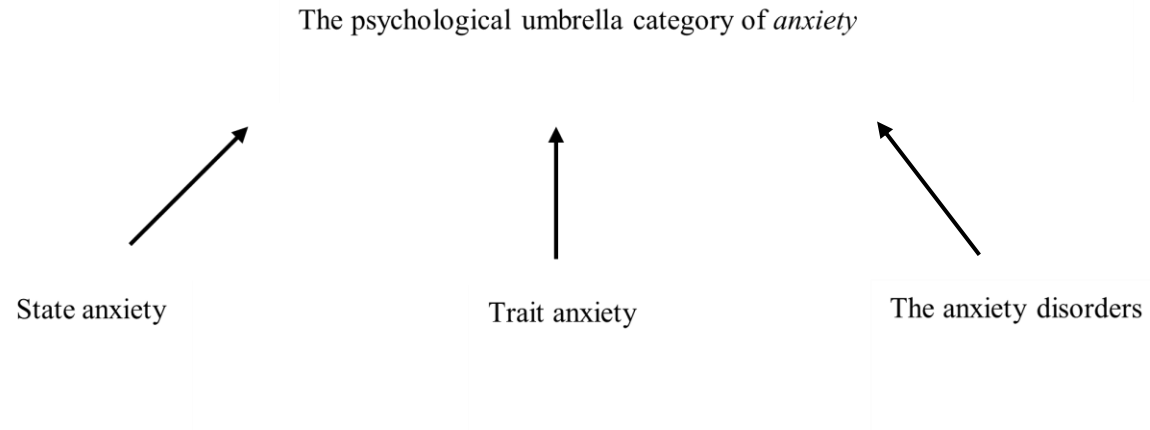

Figure 1. Components of the psychological category of anxiety.

The arrows are intended to indicate a constitutional relation.

§1.2 The question of unity

The consequence of collating the distinct phenomena of state anxiety, trait anxiety, and the anxiety disorders under the umbrella heading of *anxiety* is that contemporary philosophy of anxiety, psychology, and psychiatry have seemingly accepted the assumption that *anxiety* forms a heterogenous and

[18] While other disciplines may argue there are other sorts of anxiety aside from state, trait, and the anxiety disorders, for the purposes of this thesis and for the sake of clarity, I focus solely on the psychological conception.

disunified category (e.g., Kurth, 2018b). But, what does it mean for something to be unified, and why is it problematic if *anxiety* is not unified in this way? This section aims to answer these two questions.

Although there are a variety of ways that unity can be determined, for the purposes of this thesis, I take a unified category to be one where the category members possess a distinctive set of reliably projectable properties (although these properties are not *necessary* for category membership). To explain this further, let's break unity down into its constituent parts: reliable projectability, distinctiveness, and then consider why these properties are not necessary for membership.

Firstly, let's consider the notion of a reliably projectable property. While the notion of a projectable property is most often employed in the literature on scientific induction, this chapter will solely focus on the unification claim.[19] To say that a property is projectable is to talk about the likelihood of its instantiation across unobserved members of the category. For example, in saying that an individual octopus is likely to possess the property of eight limbs, I am projecting this property onto the category member (the octopus). Following the likes of Griffiths (2004a, 2004b) and Goodman (1954), for this projection to be *reliable*, the likelihood of the property being instantiated must be significantly higher than chance. For example, returning to the case of the octopus, we can say that the property of having eight limbs can be *reliably* projected because it will be incredibly likely that unobserved members across this category will possess this property. Therefore, a reliably projectable property is a property that we can consistently and repeatedly find across individuals within the same category.

To go a step further, for a category to be unified, it must be that the set of reliably projectable properties are distinctive to the category. That is, the properties which are reliably projectable must be definitive of the group in question, rather than being largely applicable across a much broader group (a super set). To see how this applies, let's first consider a widely accepted unified category like that of *octopus*. Across the category of *octopus*, we can identify a set of distinctive reliably projectable properties from prototypical examples of the category. The most obvious property that we can identify across paradigmatic cases of *octopus* is that of eight limbs.[20] Other properties within the projectable set include additional physical features, like three hearts, bulbous heads, and a beak-like mouth, as well as behavioural adaptations like changing their shape to fit their environment and, very often, the ability to eject ink in the presence of predators.[21] *Prima facie,* this property set is distinctive to the category of *octopus* in that this set is not shared by individuals outside of this group. For instance, a very simplistic example of this is that while other similar, but distinct categories like *squid* and *cuttlefish* share some

[19] The discussion of induction, and how it relates to the notion of a natural kind, will then be addressed in chapter three.
[20] Limbs is used rather than direct references to arms (of which they have six), legs (of which they have two) or tentacles (of which they have none, contrary to popular folk belief). The limbic constitution of an octopus also differs from the limbic constitution of other molluscs like squid, which have ten limbs.
[21] It is important to note that this is an exemplary list, rather than an exhaustive one.

of these properties (like the ability to camouflage and eject ink), they have ten limbs, rather than eight.[22,23]

It is important to emphasise that while it is highly likely that we will be able to reliably project the properties of a unified category across its members, these properties are not *necessary* for category membership. To understand how this is the case, return to the unified category of *octopus.* Now, consider the case of the wonderfully named 'flapjack octopus'. This octopus, found in the deep-sea, does not possess the ability to release ink.[24,25] However, although this property is not reliably projectable in this case, it does not mean that the flapjack octopus is no longer a genuine member of the category *octopus*, or that the category itself is no longer unified. In the case of the flapjack octopus, it is very likely we will be able to find many of the other of the reliably projectable properties, like having eight limbs, three hearts, and a beak-like mouth.

So, to briefly summarise, to be unified, a category must possess a distinctive set of reliably projectable properties (although these properties themselves are not necessary for unity).

To understand the notion of unity further, I now present an example of a widely accepted disunified category, which is that of *colic* in medicine. *Colic*, when employed medically, is an umbrella term applied across a collection of instances of non-descript pain or discomfort. For example, 'baby colic' is the name given to periods where babies persistently cry for no clear reason and are often hard to settle. In contrast, 'renal colic' refers to pain in the urinary tract. Additionally, *colic* is also used in veterinary medicine to describe the abdominal pain experienced by horses (e.g., 'equine colic'), usually as a result of gastrointestinal issues. Across these sorts of *colic*, there are no distinctive reliably projectable properties we can identify that would unify the individual cases together. For example, the bodily region that is affected differs across the sorts of colic (e.g., non-descript for baby colic, while it is confined to the urinary tract for renal colic and is located in the gastrointestinal tract for equine colic). In addition, the causal structures which underpin the distinct sorts of colic also differ. In the case of baby colic, the cause often cannot be identified, whereas in renal colic, the cause is often the presence of kidney stones or similar obstructions within the urinary tract. The only commonality between the distinct sorts of colic outlined here (baby colic, renal colic, and equine colic) is seemingly a vague sort of pain or discomfort. That is, it seems that the only property we can reliably project across distinct instances of *colic* is some discomfort.

[22] Eight arms and two tentacles is the most common format.
[23] Another key distinction between them regards their genomic profile, which also will be reflected in their differing distinctive reliably projectable properties.
[24] If unfamiliar with the flapjack octopus, it is what the pink octopus character 'Pearl' in Finding Nemo is apparently physically modelled after. Regrettably in the film, she does ink for comic effect, but this is *not* biologically accurate.
[25] Flapjack octopuses are so-called because they often flatten like a pancake (which are named flapjacks in the United States).

However, although this discomfort *is* reliably projectable, it is not distinctive enough of the category to mean that the category can be unified. For example, ailments like toothaches, headaches, and earaches, also involve some sort of pain and discomfort, but are not usually considered to be instances of *colic*. In this way, the property of pain situates *colic* as a member of a much larger super-set. Therefore, given that *colic* does not possess a distinctive set of reliably projectable properties, it is a disunified category.

§1.3 The importance of unity

Using the case of *colic* outlined in the previous section, I will now present the importance of determining the unity of *anxiety* from both a psychological and philosophical perspective.

As we saw in the previous section, *colic* is used as an umbrella term to capture a distinct array of nondescript pain conditions, including baby colic, equine colic, and renal colic. From this, medicine widely accepts the view that this category is disunified, sharing no distinctive reliably projectable properties. A consequence of this is that, in practical medicine and medical research, these distinct sorts of colic are treated in isolation from one another as their own conditions. For example, there are no extant studies investigating both baby colic and renal colic.

Similarly, across psychology and psychiatry, *anxiety* is used as an umbrella term to capture three distinct sorts of anxiety: state anxiety, trait anxiety, and the anxiety disorders. Much like with *colic*, the prevailing assumption that follows from this is that *anxiety* is heterogenous and disunified. Following this, the current practise in psychology and psychiatry is to treat the distinct sorts of anxiety in isolation from one another. However, the understanding that *anxiety* forms a disunified category is based on a metaphysical assumption. If we can overturn this assumption, then there are significant implications for the way in which *anxiety* ought to be investigated. Rather than treating the distinct sorts of anxiety in isolation, unity across the category suggests that the distinct sorts of anxiety should instead be investigated in conjunction with one another. That is, identifying unity across *anxiety* not only impacts our understanding but could transform the way in which we investigate and approach this phenomenon. For example, it could lead to improvements in our understanding of the point at which intervention becomes warranted, as well as the efficacy of distinct methods of intervention itself. This then could have a significant positive impact on the psychological well-being of society. From this, the practical importance of assessing and identifying the unity of the *anxiety* category ought to be clear.

On a more theoretical note, addressing whether the category of *anxiety* forms a unified kind or not is a central metaphysical question which yet has not been answered. In fact, to understand *anxiety* from a metaphysical perspective at all, it is the first question that must be answered. This is because if *anxiety* is unified, we can then further examine questions like what sort of unified category it forms (like whether it forms a functional or natural kind) and gain deeper insights into how the distinct sorts of anxiety relate, if at all. However, if it is indeed disunified as the psychologists would have us believe, then the metaphysical picture of *anxiety* becomes inherently more complex, as each individual aspect

would need to be considered. Therefore, to provide a metaphysical picture of the category of *anxiety*, determining whether it is unified is vital.

§2.1 The challenge

In this section, I begin my challenge of the assumption that *anxiety* forms a disunified category by primarily arguing that state anxiety, trait anxiety, and the anxiety disorders are fully constituted by the same foundational core. If one can establish that this shared foundational core possesses a distinctive set of reliably projectable properties, then we will be able to unify the category of *anxiety* accordingly.

Central to the assumption that *anxiety* is disunified is the notion that this category is constituted by three disparate phenomena: state anxiety, trait anxiety, and the anxiety disorders. However, despite the *prima facie* difference between these components, I argue that they all are constituted by one foundational core which is then applied in three distinct ways. This is what I will refer to as 'the anxiety system'. That is, I will argue that state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by a singular threat detection and response system (the anxiety system). I argue that as this system possesses a distinctive set of reliably projectable properties, it allows us to unify state anxiety, trait anxiety, and the anxiety disorders together under the category heading of *anxiety*. Consequently, the difference between state anxiety, trait anxiety, and the anxiety disorders are superficial additions to this core anxiety system.

§2.2 The Anxiety System

To understand how the psychological category of *anxiety* can be unified through a singular anxiety system, we must first outline and understand this system, and the reliably projectable properties it possesses. Therefore, I begin with an exposition of my proposed anxiety system.

Across cognitive science, there is a keen interest in the ways in which systems process the information around them.[26] In this way, I take a system to be a liberal term to refer to any such process which takes input information and transforms it in some way to direct for a particular output, as this is largely compatible with the competing approaches.[27]

Following from this definition, I argue that from extant psychological literature, we can identify an 'anxiety system'. On my account, the anxiety system is essentially a threat detection and response mechanism for uncertain threats in our environment. The system receives sensory information through

[26] For example, Marr's tri-level hypothesis about the ways in which these systems are processing information (Marr, 1982).

[27] In cognitive science, there is extant debate about what ought to count as a system. I avoid committing to either position by taking a very liberal approach. If one wishes to reject that the anxiety system outlined here truly is a formal 'system', then one is welcome to refer to it as a mechanism or any such other term which conveys it as taking input information, processing it, and producing a set of output directions.

the perceptual system and assesses it for threats to then coordinate appropriate corporeal and behavioural responses when threats are detected, as seen in figure 2.

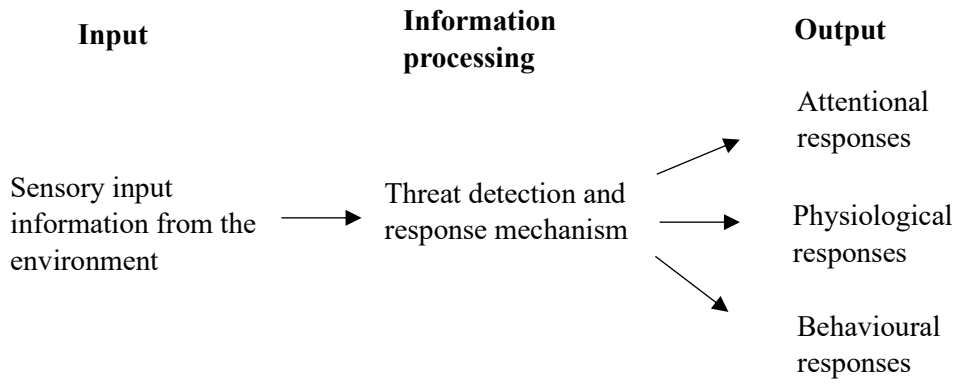

Figure 2. The proposed anxiety system.

A key area of interest for cognitive scientists regards the *function* of such proposed systems, which brings us to the first proposed reliably projectable property of the anxiety system, the functional property.

Across psychological research on anxiety, there is widespread agreement that the function of anxiety is to detect and respond to uncertain threats (e.g., Gray, 1982; Marks & Nesse, 1994: 4; LeDoux, 2015; Kurth, 2018b: 34). Before I explain this function in more detail, it is important to draw attention to the two competing schools of thought in relation to the philosophy of biological function: historical accounts (which largely rely on appeals to evolution, e.g., Neander, 1991; Millikan, 1989, 1995; Papineau, 1993) and ahistorical accounts (which do not require evolutionary commitments, but instead consider things like maintaining a goal state (e.g., Boorse, 1976) or increasing our life chances (e.g., Canfield, 1964; Ruse, 1971; Horan, 1989)).[28] While these accounts will be examined in significantly more detail in chapter two, it is important to note that the proposed function of anxiety as a threat detector mechanism is compatible with both historical and ahistorical accounts of function. That is, the identification of the functional property here is not contingent on the background understanding of function one adopts.

For now, assume that the function of the anxiety system is to detect and respond to uncertain threats.[29] The emphasis on uncertainty of the threat in question is important, as psychology largely accepts that this is what importantly distinguishes anxiety from other mental states/behavioural dispositions, like fear (c.f., Freud, 1936; May, 1977; LeDoux, 2015: Kurth, 2018b).[30] While fear is generally thought to

[28] See Wouters (2005) for an overview of the function debate.
[29] The strength of this assumption will be analysed and assessed in the following chapter.
[30] It is important to note that I do not commit to there being a definitive distinction between fear and anxiety. However, this is just to convey how fear and anxiety are distinguished in the extant psychological literature.

involve the perception of *known* threats, anxiety is largely thought to involve the perception of *uncertain* threats. Although the precise nature of the threats which evoke anxiety may be uncertain, they will generally fall into categories of physical or social threats (or both). Physical threats are those that pose a risk to the physical safety, integrity, and survival of the Experiencer. For example, a cliff edge represents a physical threat in the sense that falling could lead to broken bones or even death. As humans are social animals, we are also susceptible to social threats, like that of ostracization and social exclusion from the community (e.g., Baumeister & Tice, 1990). By being outside of a community or society, humans then also become more vulnerable to physical threats without others to protect them or aid them.

From this, we can identify the *functional* property of the anxiety system, which I will argue is reliably projectable: to detect and respond to uncertain physical and social threats within our environment. The reliability of this function can be determined when we consider that it is the consensus across competing accounts of anxiety in psychological literature. Although this proposed function is most commonly linked to evolutionary and behavioural anxiety theorists, it can also be found in the works of competing cognitive theorists who largely oppose behaviouralist positions (e.g., Oatley & Johnson-Laird, 1987; Eysenck, 1992: 4). The commonality between these otherwise opposing positions lends support to the view that this proposed function is reliably projectable across genuine instances of the category.[31]

To fulfil the function of detecting threats effectively, it is primarily necessary to determine whether a threat is present in one's environment in the first instance. This then brings us to the second set of properties which can be reliably projected onto the anxiety system: *attentional* properties. These attentional properties involve the narrowing and widening of perception biased towards threatening stimuli.

Before we consider these attentional properties in turn, we first need a clear understanding of how attention is being used in this context. When referring to attention, I am specifically talking about an endogenous form of attention, where our perception is focused in a top-down manner, instructed to attend to a particular location or biased towards certain stimuli.[32] This stands in contrast to exogenous attention, where external stimuli automatically direct our perception towards it in a bottom-up manner. (For example, a loud crash will divert our attention towards it automatically, without top-down instruction to do so). While both forms of attention may be recruited in the case of anxiety, here I focus on the endogenous instances as these are the most salient for detecting and responding to *uncertain* threat (and therefore, for anxiety). The final consideration before I describe the attentional properties in detail is that in saying that these attentional properties can be reliably projected onto anxiety, it is simply to say that attention is recruited by anxiety, rather than attention forming a sub-component of anxiety.

[31] Whether it is the function or not will be examined in the next chapter.
[32] For more on the distinction between endogenous and exogenous attention, see Posner (1980); Posner & Cohen (1984); and Carrasco (2011).

With this clear, we can now turn to how this endogenous attention is recruited when the anxiety system is activated.

A key aspect of the attentional properties of anxiety are the dispositions which heighten the identification of threat: attentional biases to threat (perceptual narrowing) and hypervigilance (perceptual widening) (Wieser et al., 2009).[33] Let's consider each in turn.

Perceptual narrowing refers to the disposition to hone in on potential threats in the environment. That is, threats should stand, or "pop", out in the environment, to allow for ease of identification (Kurth 2018b: 35). The reliable projectability of this perceptual narrowing in normal anxiety is evidenced through dot-probe studies (e.g., MacLeod, Mathews, & Tata, 1986; Mathews & MacLeod, 2002). In such a study, participants are sat before a screen and told to focus on an indicator in the middle of the screen. Once focused, participants are briefly shown a threatening stimulus on one side of the screen and a non-threatening stimulus on the other. The locations of these stimuli on the screen will be randomised. After the disappearance of the stimuli, a 'dot' appears in the location of one of the stimuli. The participant must record the location of the dot, while the person administering the study measures the time the participant takes to locate the dot. The findings of these studies reliably show that the reaction times of the anxious subjects were lower than that of the non-anxious subjects in identifying the location of the dot on the threatening stimulus. That is, for the anxious subjects, the threatening stimuli 'popped out' more than for the non-anxious subjects, meaning they could locate them at a faster rate. These results have been found across a variety of dot-probe studies (see Bar-Haim et al, 2007 for a meta-analytic study). The replicability of these results supports the reliable projectability of the attentional bias to threatening stimuli for the anxiety system.

To further support this reliable projectability, it has been found that when faced with a situation of ambiguity, this attentional bias towards threat primes the organism to identify the situation as representing threat, rather than not (Baumeister et al., 2001; Leahy, 2002). This is because for the anxious individual, the ambiguous situation 'pops' out as being unusual or potentially threatening so they respond as if it were a threat.

Contrasting perceptual narrowing, hypervigilance primes the organism to widely scan the environment for threats. This is to identify potentially threatening scenarios and respond accordingly before they can manifest further. Empirical evidence for this sort of hypervigilance in anxious subjects can be found through rapid eye studies. These studies aim to determine the rate at which the subject scans the environment around them (e.g., Eysenck, 1992; see Richards, Benson, Donnelly, & Hadwin, 2013 for an overview of such studies). These studies found that generally, anxious individuals display an increased rate of environmental scanning than their non-anxious counterparts, supporting the hypothesis

[33] The nomenclature of 'perceptual narrowing' and 'perceptual widening' has been added to aid the understanding of the difference of these two distinct biases.

that anxious individuals engage in hypervigilant behaviour (ibid). Essentially, through this increased eye movement, anxious individuals should be able to detect developing threats at a greater rate than those with slower eye movements. The empirical support for hypervigilance in anxious subjects thus supports the notion that this is a reliably projectable property that we can attribute to the anxiety system.

Although a narrowing and broadening of attention seemingly conflict, a combination of perceptual narrowing and widening are evolutionarily important for the identification and response to developing threats as they appear. This can then (at least partially) explain why they are reliably projectable attentional properties of anxiety. Even if one later rejects the proposed function of anxiety as a threat detection and response mechanism, the extant empirical evidence for the attentional properties supports their reliable projectability independently.

For this threat detection system to work effectively, it must prime the organism to respond to the threats the system has identified. This then leads us to the next set of reliably projectable properties: the physiological changes associated with an episode of anxiety. To prepare the body to respond to the perceived threat, the sympathetic faculty of the autonomic nervous system is aroused, producing a constellation of changes including, but not limited to, an increased heartrate (often causing palpitations, light-headedness, or spinning sensations), an increase in the galvanic skin response (sweating), rapid breathing, and often a choking sensation in the throat (e.g., Hoehn-Saric & McLeod, 2000: 217-218; LeDoux, 2015: 234). There also can be gastrointestinal changes like stomach cramps, nausea, diarrhoea, and sickness. These physiological changes then allow the organism to distribute the bodily resources in a way that will be most evolutionarily appropriate to respond to the perceived threat. For example, imagine running has been unconsciously determined to be the optimal response to the threat. In this situation, the inhibition of the digestive system caused by the sympathetic nervous system allows for blood flow to be redirected from the gut to the legs, allowing for improved muscle function. It is important to note that some of the physiological changes associated with the activation of the sympathetic nervous system may go unnoticed by the Experiencer. For example, one may not be aware of an increased heart rate, or of an increase in sweating. Obviously, this does not negate their presence. The physiological changes associated with the sympathetic nervous system have been well-documented as established anxiety outputs across decades of research (e.g., Kurth, 2018b; LeDoux, 2015; May, 1977 for overviews), lending to their reliable projectability.

The fourth and final set of reliably projectable properties which we can ascribe to the anxiety system are the behavioural properties which are those actions that aim to address the uncertain threat. These involve the actions of risk assessment, minimisation, or avoidance (e.g., Kurth, 2018b: 34), which I will now explain in turn.

While some level of risk assessment will be carried out unconsciously by the attentional processes, risk assessment also involves a more active component of information gathering (e.g., Blanchard,

Blanchard, & Rogers, 1991; Blanchard et al. 2011). I argue that information gathering serves two main purposes in relation to threat detection. Firstly, by gathering more information about the nature of the threat in question, we minimise the level of uncertainty that the threat represents. If the uncertainty around the threat decreases, then the anxiety episode itself ought to reduce (e.g., Kurth, 2016). To understand this, reconsider the exam case. In this instance, one can reduce the uncertainty the exam poses by gathering information like by looking at past papers to attempt to find out how difficult the exams usually are, and what content is usually on these exams. With all this additional information, the exam poses a lesser level of uncertainty, and therefore should evoke less anxiety in the Experiencer. Secondly, if we know more information about the threat at hand, we will be able to calculate a more optimal response to this threat which will increase the likelihood of survival. For example, reconsider the case of Jerry who is hiking through Carpathian Mountains. As mentioned, when hiking, he sees the silhouette of an animal figure in the woods, but cannot ascertain what exactly the animal is. Judging by the size of the animal, and the region Jerry is in, it is likely that the animal could be a brown bear or a wolf.[34] If the animal approaches and it is a wolf, then the best action for Jerry to take is to maintain eye contact to prevent an attack and protect himself. However, if it is actually a brown bear, then making eye contact is likely to provoke an attack. Instead, for brown bears, he ought to avoid eye contact at all costs. Therefore, to understand the best action to take to address the threat in question, it is evolutionarily adaptive for Jerry to ascertain as much information about the animal prior to the threat developing and the animal approaching. To do this, he engages in risk assessment behaviours by consciously scanning his environment for evidence of the animal, including any sounds he can hear, and identifying paw tracks in the dirt. (Typically, a brown bear paw will have five toe pad markings, whereas a wolf will only have four). [35] With the risk assessed, Jerry can then minimise it by taking appropriate action. Empirical evidence for this sort of information gathering about anxiety-provoking situations is well-documented across psychological research, supporting its reliable projectability (see Blanchard, Blanchard, & Rogers, 1991; Blanchard et al., 2011 for an overview).

This then leads us to the final behavioural property: risk avoidance in the form of avoidance behaviour. Avoidance behaviour is where the organism actively avoids the stimuli they perceive as threatening, most usually by removing themselves from the situation entirely. For example, in the case of Jerry, one way in which he can engage in this kind of typical avoidance behaviour is by leaving the area in which the threat has been perceived. That is, he could choose to hike in the opposite direction with the aim of removing himself from the presence of the threat. A consequence of this avoidance behaviour is that the physiological changes experienced by the anxious individual subside as the threat has been successfully avoided. Across psychological research, avoidance behaviour is widely accepted as a key output when

[34] The European lynx is also common in this area. However, given the size of the animal Jerry sees, it is more likely to be a larger predator, like the wolf or bear.
[35] In this instance, we would also expect to find Jerry displaying the unconscious attentional dispositions of the bias to threat and hypervigilance.

the anxiety system is activated. This is likely because avoiding the triggering stimulus avoids the potential threat it posed (Bandura, Blanchard, & Ritter,1969).[36] This then supports the view that avoidance behaviour is a reliably projectable property for the anxiety system.

With these explained, a summary of the reliably projectable properties of the anxiety system is as follows:

> Functional: To detect and respond to uncertain or indiscernible physical or social threats within one's environment.
>
> Attentional: The narrowing and widening of the perceptual system biased towards threatening stimuli.
>
> Physiological: The activation of the sympathetic nervous system resulting in its associated physiological changes.
>
> Behavioural: The assessment, minimisation, or avoidance of the threat in question to reduce the level of uncertainty.

Essentially then, to summarise, the anxiety system takes in sensory information about the environment around the individual, assessing it for uncertain physical and social threats. When such threats have been perceived, the system then directs for the appropriate attentional, physiological, and behavioural properties to be expressed to address the threats.

§3.1 The anxiety system as the unifying core

Although the reliable projectability of the functional, attentional, physiological, and behavioural properties of the anxiety system show that it can be unified *per se*, the argument for the unification of the category of *anxiety* is currently incomplete. This is because for state anxiety, trait anxiety, and the anxiety disorders to be unified together under the umbrella category of *anxiety*, it must be the case that these three apparently distinct sorts of anxiety *also* feature this distinctive set of reliably projectable properties.

In this section, I will begin by establishing that state anxiety, trait anxiety and the anxiety disorders are fully constituted by the anxiety system. In this way, the key distinction then between the three sorts of anxiety are, in fact, merely the ways in which we are talking about this system, and the differences are then superficial additions to it (like additional contextual information). From this, we can then move to argue that, as state anxiety, trait anxiety, and the anxiety disorders are all constituted by the anxiety

[36] Avoidance behaviour is often talked about in clinical terms as a feature of many of the anxiety disorders (e.g., Barlow, Chorpita, & Turovsky, 1996; Tellegen, 1985). However, it is important to note that this does not inherently make the behaviour *per se* pathological or disordered in any way.

system, they too feature the distinctive set of functional, attentional, physiological, and behavioural reliably projectable properties. Thus, the three sorts of anxiety can be unified under the *anxiety* heading.

§3.1 The anxiety system and state anxiety

To start, let's consider how state anxiety is constituted by the anxiety system. As mentioned in §1.1, in psychology, 'state anxiety' is used to refer to normal and non-medical abnormal episodes of anxiety which occur transitorily. I argue that these episodes are essentially instantiations of the anxiety system being activated. To understand this, let's consider two cases of state anxiety, one normal and one abnormal, to see how they can be equated to the activation of the anxiety system, and thus, feature the distinctive set of functional, attentional, physiological, and behavioural reliably projectable properties. Start by reconsidering 'Billy and the exam' from §1.1 where Billy became anxious prior to his mathematics exam.

Firstly, it seems as though we can reliably project the functional property of threat detection and response onto Billy in this case. The examination itself clearly poses uncertainty, as he does not know what questions are going to come up and how well he will be able to answer them within the given timeframe. However, this *per se* does not really seem to be a *threat*. In this case, the potential threat posed by the exam is more about what could happen if the exam goes awry, or if he fails to succeed. For example, there is the potential threat to Billy's future prospects. He knows that he requires the minimum of a C-grade equivalent to get into his choice of college and to gain a place at university later down the line. If he fails the examination, this will potentially change what and where he is able to study. So, there is the potential threat to his career which he has not even started yet. Additionally, there are wider socially based pressures, like that of not wanting to disappoint himself, or his teachers and family by failing to perform as they are expecting. This then seems like there is the potential threat of losing some kind of social status within his family. Through his anxiety, it seems as though he is detecting one or more of these sorts of social threats. In this way, we can see that Billy's anxiety is effectively the anxiety system being realised and coming into action.

Moving on to consider the outputs of the anxiety system being realised, we can consider the attentional properties. While these are harder to ascertain, given their unconscious nature, I argue that it is likely these are also active. One example of this which I am sure is not far-fetched is the more acute awareness of the ticking of the clock in the exam hall, a consequence of the increased attentional bias towards threat. The third sorts of properties to consider are the physiological properties, involving the autonomic nervous system activation. These are evident through Billy's elevated heartrate and sweaty palms. The final set of properties to consider are the behavioural ones of risk minimisation, assessment, and avoidance. In this case, one could interpret Billy as minimising the risk by flicking through his notes prior to the exam, an act of attempting to avoid the risk of failure. Additionally, the more he knows, the less uncertain the exam ought to be (as he will hopefully then be able to answer more questions).

However, in this case, admittedly it is difficult to determine the causal ordering of whether these behaviours prompted the anxious response, or whether they were a result of it. Overall, it seems that the four reliably projectable properties can be projected onto the case of Billy and his normal anxious response.

Now, let's consider an abnormal case to see how, despite being abnormal, this episode can also be equated with the activation of the anxiety system. Reconsider the case of Charlie and school from §3.1 where Charlie became abnormally anxious prior to attending school. I argue one of the most salient ways to establish that the anxiety system is being activated in this case is that Charlie has perceived leaving the home as a threatening scenario and is responding accordingly. For example, he may perceive that he may embarrass himself at some point. Therefore, for Charlie, the anxious reaction in this case is fulfilling the function of identifying and responding to an uncertain threat. While it is difficult to determine Charlie's attentional biases, one way in which the bias towards threat is potentially evident is that Charlie has perceived leaving the house as a threat in the first instance. In terms of people with agoraphobia who experience abnormal episodes like Charlie's regularly, they perceive non-threatening scenarios, like leaving the home, as posing a threat, suggesting an increase in attentional bias toward threat (e.g., Holmes, Nielsen, & Green, 2008). Next, considering the physiological properties, in this case, it is evident that we can project them onto the case of Charlie. This is because the choking sensation, as well as the other somatic changes of the shaking, dizziness, and tightness of the chest, are all typically associated with the activation of the sympathetic nervous system. While these kind of acute activations of the autonomic nervous system are often referred to as 'anxiety attacks' or 'panic attacks', they are no different in pure physiological terms to the activation of the nervous system in normalised anxiety episodes.[37] That is, an anxiety attack is *still* an activation of the sympathetic nervous system, but a significantly more intense or prominent one than we see in normal episodes of anxiety. Anxiety attacks like the one outlined here are often predictors of the risk of anxiety disorders developing (e.g., Bailie & Rapee, 2005), and thus can be inferred as features of abnormal anxious episodes (as these are what occur in the transition from normal anxiety to the anxiety disorder diagnosis level). From this, there is clear empirical support evidencing the reliability of the projectability of this physiological property. Lastly, regarding behavioural properties, Charlie is displaying the ultimate form of risk minimisation, risk avoidance, in not leaving the home. By staying inside, he is not exposing himself to the potential threats he has perceived at all. Empirically, it is well-documented that those who experience more abnormalised episodes of anxiety exhibit this avoidance behaviour, habitually avoiding the stimuli that has triggered, or does trigger, these episodes (e.g., Rosebrock et al., 2022). With all these things considered, it then seems like all four properties can be reliably projected onto this

[37] The qualitative differences between these two instances will be examined in more detail in chapter four, when I consider differences between normal and abnormal episodes of anxiety.

paradigmatic case of abnormal anxiety. In this way, we can see how Charlie's anxiety can also be equated to the activation of the anxiety system.

As state anxiety can be equated to the activation of the anxiety system, it then follows, as we have seen, that these activations will also possess the distinctive set of functional, attentional, physiological, and behavioural reliably projectable properties.

§3.2 The anxiety system and trait anxiety

Now, let's turn to consider 'trait anxiety'. *Prima facie,* trait anxiety seems to pose a problem for the unification claim, as, across psychological literature, it is often posed dichotomously to state anxiety. If state anxiety are the instantiations of the anxiety system being activated and trait anxiety is contrasted against it, rather than as complementing it, or being constituted by it, then it seems like trait anxiety poses a problem for our unification argument. However, I will argue this is rather a false dichotomy, as trait anxiety is also fully constituted by the anxiety system. The distinction therefore lies in how we talk about the anxiety system in this case.

As mentioned earlier in the chapter, across psychology, 'trait anxiety' *per se* most often refers to the disposition to perceive situations as threatening, and thus respond accordingly. Before arguing that trait anxiety is fully constituted by the anxiety system, we must first briefly distinguish between two sorts of questions we can ask about a disposition. The first is a metaphysical question about what it means for an Experiencer to have a disposition like trait anxiety. The second is an epistemic question about how we know how disposed an Experiencer is to become anxious (which I will refer to as their 'dispositional sensitivity').[38] While I will very briefly consider the metaphysical question, I will primarily focus on the epistemic question. This is because I argue that it is this question which will illuminate the constitutional role of the anxiety system for trait anxiety.[39]

Psychology and psychiatry widely accept the position that everyone is disposed to experience normal anxiety, as it is a universally experienced state across humans. In this way, we all 'have' some level of trait anxiety. However, while we are all disposed to becoming anxious, some are clearly more disposed than others. That is, there is clearly a difference in Experiencer's dispositional sensitivities. As such, psychologists (like that of Spielberger, 1966; Spielberger, Gorsuch, & Luschene, 1983) posit a distinction between two distinct sorts of trait anxiety: 'high' trait anxiety and 'low' trait anxiety, which

[38] Firstly, this nomenclature is not of my own devising. The reason for adopting this terminology here is its widespread use across psychiatry in regard to trait anxiety (e.g., Schmidt, Lerew, & Jackson, 1997). The broad notion of a kind of dispositional sensitivity is a more general concept. For example, determining how likely a certain glass is to smash is to determine its dispositional sensitivity to fragility.

[39] The philosophical literature on dispositions is vast (see Martin, 2007 for a full account). While trait anxiety is central to understanding the psychological category of *anxiety*, it will not largely feature across the rest of this thesis. In this way, I opt to present a simplification of this disposition which should be sufficient to understand how this sort of anxiety fundamentally features episodes of anxiety.

was briefly mentioned earlier in this chapter.[40] If someone has 'high trait anxiety' then they are likely to perceive situations as threatening, and therefore are likely to experience frequent anxious episodes. In contrast, if one is said to have 'low' trait anxiety, then they are less likely to perceive situations as threatening, and thus, less likely to have frequent anxious episodes. So, for example, someone who is said to have 'high' trait anxiety is likely to perceive ambiguous stimuli as threatening and respond with an anxious episode at a greater rate than someone who has 'low' trait anxiety. In terms of dispositional sensitivity then, one can have a 'high' sensitivity (in the case of high trait anxiety) or a 'low' sensitivity (in the case of low trait anxiety).

Given this distinction between low and high trait anxiety, the interest of psychologists and psychiatrists is in answering the epistemic question about how we can determine an Experiencer's dispositional sensitivity. In this section, I argue that this notion of dispositional sensitivity is what sheds light on how trait anxiety is constituted by the anxiety system. This is because in asking what someone's dispositional sensitivity to anxiety is, we are essentially asking the question of how sensitive the *system* is (i.e., how likely it is that it will activate).

To understand this, we need to primarily understand more about the dispositional nature of trait anxiety and the way it is currently measured in psychology and psychiatry. Across philosophical literature on dispositions, it is largely accepted that dispositions have manifestations (the effect of the disposition being realised), and stimulus conditions (which elicit these manifestations).[41] For trait anxiety, I argue that the manifestations are the episodes of anxiety and the stimulus conditions are situations which represent uncertain threat, eliciting an anxious response.[42] So, for example, consider someone who experiences an anxious episode prior to sitting an examination. This person possesses the disposition to become anxious in the face of uncertainty. The uncertainty of the exam stands as the stimulus condition, while the anxious episode is the manifestation of that disposition.

Importantly for applied psychology and psychiatry, these manifestations (in the form of episodes of anxiety) are central in the way we measure and assess trait anxiety in Experiencers. This is because episodic anxiety is necessary to practically delineate between high and low trait anxiety. For example, consider the most widely used and largely accepted measure for trait anxiety: the State Trait Anxiety Inventory (STAI) (Spielberger et al.,1983). The STAI is a list of self-reported measures which aim to determine two things: the Experiencer's anxious feelings *at the present moment* (to assess their 'state anxiety'), and how anxious the Experiencer generally feels (to assess their 'trait anxiety'). In essence though, what the trait anxiety portion of the questionnaire is attempting to determine is how often the Experiencer experiences episodes of anxiety over a given period of time. This is because this

[40] I repeat it here for ease of exposition, given how central it is to the arguments being made.
[41] For example, see the collection of papers in Marmodoro (ed, 2010).
[42] Some stimulus conditions may be more specific, but the generalised condition of uncertain threat will always be present for any case of genuine anxiety.

measurement will indicate how disposed they are to becoming anxious in the first instance. In this way, it is the measurement of the manifestations which provides us with epistemic access to the dispositional sensitivity of the Experiencer. As previously mentioned, it is this sensitivity which psychologists and psychiatrists are actually interested in.

However, I argue that in asking about someone's 'dispositional sensitivity to anxiety' what we actually want to know is *how sensitive the anxiety system is* to activate. That is, we are essentially asking how likely is it that the anxiety system itself will perceive input stimuli as threatening. This then directly maps with our understanding of high and low trait anxiety. To say someone has 'high' trait anxiety is simply to say that their anxiety system is more likely to perceive incoming stimuli as threatening compared to someone with 'low' trait anxiety. In this way, trait anxiety is merely a distinct way of talking about that same core anxiety threat processing system. Rather than asking *whether the anxiety system has been activated* (in the case of state anxiety), talk of trait anxiety essentially asks *how likely it is that it will be activated.* To gain this epistemic information, we look to the manifestations of the disposition, which are simply instantiations of the anxiety system being activated. For this to make coherent sense, it must be the case that trait anxiety is itself constituted by the anxiety system in the first instance.

As trait anxiety is constituted by the anxiety system, then it follows that it must also feature the reliably predictable properties of function, attention, physiology, and behaviour. Through these shared reliably projectable properties, we can unify state anxiety and trait anxiety together under the umbrella heading of *anxiety*.

§3.3 The anxiety system and the anxiety disorders

Finally, let's turn to consider the anxiety disorders and how they can be unified under the *anxiety* heading through the shared reliably projectable properties.

I argue that the key to establishing that the anxiety disorders are fully constituted by the anxiety system is to first understand the notion of persistence in the characterisation of anxiety disorders. As we have seen in the clinical characterisation of the anxiety disorders in §1.1, they are characterised as "persistent" (APA, 2013: 189). However, while this challenge will be dealt with more directly and in greater detail in section four, for now, I will explain why the notion that anxiety disorders are persistent is not, in fact, a problem for the view that they are foundationally constituted by the anxiety system.

The characterisation of the anxiety disorders as persistent is not to suggest that there is a singular phenomenon of anxiety which persists over time, but to convey the idea that anxiety disorders involve *collections of episodes of anxiety* which are *persistently abnormal* over a designated period (like that of six or more months, as is the usual denoted timeframe in diagnostic criteria, e.g., APA, 2013). For a diagnosis, rather than experiencing one abnormal episode of anxiety, the Experiencer must experience

multiple and frequent abnormal episodes over a given period of time. The notion of persistence therefore is not to suggest that there is one continuing experience of anxiety over time, but that the episodes of anxiety are frequent, occurring more often than not. For example, in the case of social anxiety disorder, the diagnostic criteria states that the individual must experience "marked…anxiety…in which the individual is exposed to possible scrutiny by others", and that this anxiety should be persistent, "typically lasting for 6 months or more" (APA, 2013: 202). What this means is that the abnormal episodes of anxiety must be triggered by social stimuli, and this abnormal response to social stimuli must continue to occur over a period of six months or more, rather than occurring as a one-off or only rarely. That is, the notion of persistence is used to convey the notion that the response to social stimuli is continuously abnormal.

To understand this, let's consider and compare two cases: those of Jade and Sarah. Jade and Sarah are two young women who have just started similar graduate roles at a big consultancy firm. Over a six-month period, they are both faced with a large number of social situations where they will be under scrutiny, including wide-scale graduate onboarding where they will have to meet other new members of the team; client interactions; presentations; and more general corporate events. Across this six-month period, let's say that Jade becomes abnormally anxious prior to one or two of the social interactions, but on the whole, her anxious reactions, if anxiety is provoked at all, are otherwise normal.[43] However, on the contrary, over these six months, Sarah *always* becomes abnormally anxious when faced with the different social events she is required to attend. This abnormality persists across the period without faltering. For the sake of simplicity, let's also stipulate that Sarah does not become anxious generally outside of these social situations. The persistence of Sarah's anxious episodes here relates to the fact that her anxious responses to the relevant triggering stimuli (the social events) are persistently abnormal. When we then compare the two cases, for Jade, it seems that as the abnormality of her anxious experiences over the six months is inconsistent, she would not fulfil the criteria for a social anxiety disorder diagnosis. Sarah, on the other hand, would, as she experiences marked anxiety in anticipation of social events that is persistently abnormal (assuming she also fulfils the other necessary diagnostic criteria).

Through this example, it should become clear that the anxiety disorders can more precisely be characterised as a series of abnormal episodes over a given period of time. In addition to this characterisation's inclusion in the DSM, it is also reflected in alternative diagnostic criteria like the most recent edition of the World Health Organization's International Statistical Classification of Diseases and Related Health Problems (e.g., International Classification of Diseases, Eleventh Revision (ICD-11), (WHO, 2019: 6B00-6B03). The commonality between the DSM-5 and the ICD-11 is an indication that

[43] It is important to note that the normal/abnormal distinction is not binary, despite it potentially reading as such here. This will become much clearer in the fourth chapter.

the notion of anxiety disorders involving collations of episodes is the common, tacit consensus in psychiatry.

So, if the anxiety disorders can more accurately be characterised as a series of abnormal episodes of anxiety over a given time period, then I argue it becomes clearer to see how they are fundamentally constituted by the anxiety system. In this case, it works similarly to state anxiety. The abnormal episodes are simply the instantiation of the anxiety system being activated, while the persistence conveys the idea that this instantiation is happening more frequently than not (and that the activations are occurring *abnormally* in some way).

The way in which we then distinguish the anxiety disorders from one another is based upon superficial contextual information about situations in which the anxiety system is being activated, like in social situations for the case of social anxiety disorder (e.g., APA, 2013: 202), or additional features like panic attacks. However, these superficial additions importantly do not negate that the anxiety disorders are all still constituted by the singular anxiety system first outlined earlier in the chapter.

Consequently, as the anxiety disorders can be equated to a collection of instantiations of the activation of the anxiety system over time, and these instantiations feature the reliably projectable functional, attentional, physiological, and behavioural properties, then so too do the anxiety disorders. In this way, we can unify the anxiety disorders under the *anxiety* umbrella heading.

§4.2 A potential challenge from generalised anxiety disorder

Now, I turn to consider the unification of the anxiety disorders and a potential challenge to the view that anxiety disorders are fully constituted by the anxiety system, and thus can be unified.

For the anxiety disorders to be unified under the *anxiety* umbrella, it must be the case that they can be equated to a collation of the activation of the anxiety system as outlined in the previous chapter. This is because, as we have seen, it is this anxiety system which possess the reliably projectable properties of function, attention, physiology, and behaviour, allowing us to unify the category.

However, to truly establish that the anxiety disorders are constituted by the anxiety system, we must first meet a challenge posed by the clinical group of those who suffer from generalised anxiety disorder (or GAD) regarding the episodic nature of this condition. In this section, I examine this challenge and argue that although it has a *prima facie* intuitive pull, it can effectively be addressed, and does not undermine the unity of *anxiety* proposed in this chapter.

The challenge is as follows. Those who suffer from GAD may argue that the foundational basis of the proposed unity is unfounded in their cases, as they would argue their experience of anxiety is not consisted by the activations of the anxiety system (i.e., abnormal episodes) over time, but rather is continual and persistent. That is, they believe they are ‘anxious all the time’. For example, in the linguistic data that was analysed for chapter six, authors spoke about “having anxiety that **never stops**”

or anxiety that seemingly persists "**all day, every day**" (Kilgarriff et al., 2014). Additionally, across clinical testimonials, GAD sufferers often say that they are not experiencing anxious episodes, but instead live with a kind of 'background anxiety' that they believe will not go away.[44] In this way, it seems like it is distinctly not the anxiety system being activated, but another phenomenon entirely. If this is the case, then *anxiety* cannot be unified in the way I have laid out.

So, let's consider their challenge. Generalised anxiety disorder is an anxiety disorder which is typically characterised by 'excessive worry' about a variety of different objects or events, including but not limited to health, working, and schooling (e.g., APA, 2013; 222; WHO, 2019). As mentioned in the previous paragraph, those who suffer from this condition often report feeling anxious 'all the time'. However, I argue that the view that those diagnosed with such a condition are not experiencing episodes of anxiety, but rather are anxious 'all the time' is merely an illusion caused by repeated anxious episodes which occur in rapid succession. For example, imagine someone is anxious about starting their new job next week. In ruminating about all the things involved in starting the job, they begin the cycle of anxious episodes. Let's say that the first anxious episode occurs because the Experiencer has perceived the social threat of not knowing anybody and having to establish themselves in the community without any support from colleagues they do not know. This may be perceived unconsciously, when the Experiencer is ruminating about the job, or consciously as an imagined scenario. When this threat is perceived, the anxious response is prompted, and a combination of the functional, attentional, physiological, and behavioural properties are evoked. Let's call this 'anxious episode one'. However, as this anxious episode is beginning to dwindle, the Experiencer perceives a secondary threat of potentially getting lost and being late. This would then put them in bad stead with their new boss and potentially could hinder their career before it has really even begun. Although this threat is perceived *during* the latter stages of anxious state one, it produces an additional anxious response. Let's call this 'anxious episode two'. The problem, however, is that as anxious episode two occurred while anxious episode one was also occurring, it created the illusion that there was only one anxious episode (anxious episode one) that was merely persisting over time. When these anxious episodes occur in rapid succession, the result is the illusion that the anxiety is never ending, and thus is not transitory. This also can explain the phenomena of 'background anxiety' where low level threats are being perceived and responded to, but in an unconscious way such that the anxious episode is seemingly maintained. In reality, it is a number of episodes occurring sequentially.

One way the transitory nature of the anxiety experienced by those suffering from generalised anxiety disorder can be determined clinically is to identify times at which the Experiencer feels calm or does

[44] Evidence of this was found across the linguistic data analysed for chapter six (e.g., Kilgarriff et al. 2014), where multiple authors wrote about anxiety persisting across lifetimes or not ceasing. Speaking to clinicians currently working in the NHS, they confirm that these testimonies are still rife across this demographic group (people with generalised anxiety disorder).

not feel anxious. For example, from the testimony of those with generalised anxiety disorder, times at which they feel calm include when with family members, friends, pets, or in places they feel safe and secure, like in their rooms or beds.[45] From this, we can say with some confidence that their anxiety must occur transitorily to allow for this *absence* of anxiety. As their anxiety is constituted by episodes of anxiety, it shows that this apparent GAD challenge is not a problem for the unified view.[46]

As the anxiety disorders, including generalised anxiety disorder, have the foundational basis of abnormal episodes at their core, it seems that we can equate them to the collation of the activation of the anxiety system over time. Given this is the case, we will be able to project the four properties of function, attention, physiology, and behaviour onto the anxiety disorders, unifying them under the *anxiety* umbrella.

§4.3 The unified category of *anxiety*

With this clear, we can now see how we can establish the unity of the psychological category of *anxiety.* Recall primarily that this category is formed of three sorts of anxiety: state anxiety, trait anxiety, and the anxiety disorders. Each of these sorts of anxiety is fully constituted by the anxiety system. This anxiety system possesses a distinctive set of reliably projectable properties in the form of function, attention, physiology, and behaviour. Given that state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by the anxiety system itself, they consequently must feature the reliably projectable properties. In this way, we can say that the category of *anxiety* is unified. In establishing this unification, I thus reject the prevailing view in psychology that this category is heterogenous and disunified.

Conclusion

This chapter stands as an important step in challenging the prevailing view in psychology and psychiatry that *anxiety* does not form a unified category. I argued that the apparently disparate phenomena bounded under the umbrella heading of anxiety (state anxiety, trait anxiety, and the anxiety disorders) share a foundational core of a threat detection and response system (the anxiety system). This anxiety system possesses a distinctive set of reliably projectable properties. These are: the detection of and response to uncertain or indiscernible threats within one's environment (function); the narrowing and widening of perceptual biases towards threat (attention); the activation of the autonomic nervous system producing physiological changes like an increased heartrate, sweating, nausea, etc. (physiology); and risk minimisation, assessment, or avoidance (behaviour). However, for the category of *anxiety* as a whole to be unified, it must be the case that we can establish that state anxiety, trait anxiety, and the anxiety

[45] This is from both the linguistic data and from informal consultations with clinicians.

[46] While the consequence of this view is that Experiencers are mistaken about their phenomenological lives, I think it can be reframed in a way that is beneficial for them. This is because in understanding that one is not arbitrarily anxious, but instead, is unconsciously perceiving and responding to a multitude of threats, it prompts an assessment of the issues going on in one's life. Addressing the many stresses faced could then actually help reduce the anxiety experienced and accordingly the psychological wellbeing of the Experiencer.

disorders possess this set of distinctive reliably projectable properties. I argued as state anxiety, trait anxiety, and the anxiety disorders are fully constituted by the anxiety system; these properties can also be reliably projected onto them. In this way, *anxiety* forms a unified category, opposing the consensus in psychology.

With this unified understanding of anxiety, we are now in a stronger place both metaphysically and empirically. On a metaphysical basis, determining the unity of *anxiety* provides us with a greater insight into the ways in which the distinct sorts of anxiety ought to be categorised, as a single unit rather than as disparate and heterogenous phenomena. The implication of this for psychology, psychiatry, and, of course, philosophy, is that a shift must occur in how we investigate this unified phenomenon. While the tradition across these fields is to investigate state anxiety, trait anxiety, and the anxiety disorders as separate, isolated entities, the unification posited here between these phenomena suggests that we ought to be investigating the constituents of this category in conjunction with one another, as a single, whole unit. Essentially then, by overturning the consensus in psychology about the unity of *anxiety,* it paves a new way to conduct our enquiries, and should lead to more avenues for research into this phenomenon. For example, this unity is likely to allow us to create connections between the sorts of anxiety that may otherwise have been missed. This could then have significant impacts for our methods of intervention, with room to make them more effective, tailored directly towards influencing the reliably projectable properties that unify *anxiety*.

Chapter Two: Anxiety as a Unified Kind: Functional Kindhood

Introduction

In the first chapter of the thesis, I overturned the prevailing view in psychology that *anxiety* is disunified and heterogenous by arguing that this category is, in fact, unified. I argued that the constituents of the category (state anxiety, trait anxiety, and the anxiety disorders) are fully constituted by a singular anxiety system. I argued that this system possesses the reliably projectable properties of function (the detection of and response to uncertain threats in one's environment), attention (perceptual widening and narrowing biased towards threat), physiology (the changes associated with the activation of the sympathetic nervous system), and behaviour (risk assessment, minimisation, or avoidance).[47] As state anxiety, trait anxiety, and the anxiety disorders are all constituted by the anxiety system, by extension they too also possess these reliably projectable properties. In this way, we can unify them together as a homogenous category: *anxiety*.

However, while identifying this unity across the category is an important and key step in understanding the metaphysics of *anxiety*, the picture is not yet complete. This is because while the unification of *anxiety* can tell us common properties across the members of the category, it cannot tell us what sort of category it is. While there is an array of ways to taxonomize the category of *anxiety,* in this chapter, I explore whether state anxiety, trait anxiety, and the anxiety disorders can be grouped together in virtue of a shared function. In this way, I ask whether *anxiety* forms a functional kind.

In the philosophical literature on functional kinds, there is a distinction between artifact kinds, which regard man-made objects like corkscrews, can-openers, and helmets, for instance, and biological kinds, which regard biological entities like organic matter and psychological states. As *anxiety* is generally considered to be a biological category, I thus narrow the focus of this chapter to be whether the unified category of *anxiety* also forms a biological functional kind. To determine the biological function of something, there are two distinct positions one could adopt: historical accounts, where the function must be tied to evolutionary history (e.g., Millikan, 1989; Buller, 1998); and ahistorical accounts, where evolution is not necessitated, but instead appeal to some form of utility (e.g., Boorse, 1976; Adams, 1979; Horan, 1989). While I believe that the arguments presented in this chapter will be compatible with both approaches, I will explore the biological function of anxiety through Buller's (1998) weak historical account of function. In doing so, I argue that the unified category of *anxiety* forms a biological functional kind.[48]

[47] This use of the conjunction is not to imply that all properties are necessary. As we have seen in chapter one, it could easily be the case that an episode of anxiety only features two or three of these properties. However, in an anxious episode with a perfect set of properties, we ought to find all four properties.

[48] An area for future research would therefore be determining whether this function truly is compatible across ahistorical approaches.

The chapter is laid out as follows. I begin the chapter by providing a succinct account of the unification argument from the first chapter, so that the properties of the anxiety system are clear, as these will be central to the arguments in this chapter. In §2, I then introduce the notion of a functional kind, where individuals are grouped together in virtue of a shared function, and briefly summarise the distinction between artifact and biological functional kinds. To conclude this section, I outline the importance of determining the biological functional kindhood of *anxiety* for both our metaphysical considerations for taxonomizing the category and for our practises around managing and mitigating anxiety.

To effectively determine whether *anxiety* forms a biological functional kind, it is primarily important to understand what it means for something to have a biological function. Therefore, in §3, I begin by outlining the distinction between historical and ahistorical accounts in more detail and motivate exploring the function of *anxiety* through Buller's (1998) weak historical account. On this account, to have a biological function, the anxiety system must have an evolutionary history of producing an effect that contributes to survival and the reproduction of such a system.[49] In this section, in accordance with this weak historical notion, I propose the biological function of the anxiety system to be the detection of and response to uncertain physical and social threats within one's environment as first proposed in chapter one. I will argue that this role is realised by the cluster of attentional, physiological, and behavioural properties outlined in the first chapter. To conclude this section, I explicitly outline the evolutionary history of this function, aligning it with Buller's (1998) account.

In the final section of the chapter, I turn to the notion of biological functional kindhood. For *anxiety* to be a biological functional kind, it must be the case that its constituent members (state anxiety, trait anxiety, and the anxiety disorders) share a common biological function. I argue that as state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by the anxiety system, then these members share the same biological function. In this way, we can establish *anxiety* as a biological functional kind. To conclude the chapter, I consider malfunctioning anxious episodes, like those found across the anxiety disorders, and argue that they can be incorporated into the biological functional kind of *anxiety.*

§1.1 Anxiety as unified

In chapter one of the thesis, I imposed order on the chaos of three distinct sorts of anxiety found across psychological literature: state anxiety, trait anxiety, and the anxiety disorders, in attempts to establish unity across this group. In doing so, I argued that all three of these sorts of anxiety are constituted by a singular anxiety system. This system possesses a set of clustering reliably projectable properties, which are the following:

[49] The motivation for choosing both a historical account, and a distinctly weak notion, are made explicit in §3. Briefly, this is to do with the strength of historical accounts in accommodating malfunctioning instances.

Functional: To detect and respond to uncertain or indiscernible physical or social threats within one's environment.

Attentional: The narrowing and widening of the perceptual system biased towards threatening stimuli.

Physiological: The activation of the sympathetic nervous system resulting in its associated physiological changes.

Behavioural: The assessment, minimisation, or avoidance of the threat in question to reduce the level of uncertainty.

Given that state anxiety, trait anxiety, and the anxiety disorders *all* are fully constituted by the anxiety system which possesses these reliably projectable properties, I argued that, through this, *anxiety* can be considered a unified category.

§1.2 Taxonomizing anxiety

As a key part of determining the unity of *anxiety,* in chapter one of the thesis, I argued that the anxiety system possesses the function of form of detecting and responding to uncertain threats within one's environment. In this chapter, we will consider this functional property in more detail and determine whether the constituent members of the *anxiety* category (state anxiety, trait anxiety, and the anxiety disorders) can be categorised together in virtue of this shared function. In this way, I ask whether *anxiety* forms a functional kind.

§2.1 An overview of functional kinds

A functional kind is where individuals are grouped together in virtue of sharing a common function, even if they do not share other common properties.[50] When considering the function of something, there are two sorts of questions we can ask: what it *does* (i.e., what functions it performs), and secondly, what sort of purpose it has (i.e., why it performs the way it does). For the purposes of this chapter, I am interested in this latter sense of function. To understand this, it is primarily important to establish the distinction between the *role* being fulfilled (the function), and the *realiser* which executes this function (how the function is fulfilled). For instance, consider a popular example in the functional literature of the category *can-opener* (e.g., Millikan, 1989: 295; Kingsbury, 2006: 23). The functional role of a can-opener is, unsurprisingly, to open cans, and there are a multitude of ways that this can be realised. For example, historically, can-openers were merely sharp metal blades that one could use to score around the can's lid and subsequently manually pry it open. More contemporarily, we have can-openers which are a combination of metal and plastic, with metal gear-like blades to cut around the lid of the can. In fact, some of these now are entirely automatic, opening the can with a single touch of a button.

[50] See Fodor (1997) for a more detailed discussion of functionalism.

Using this example of the can-opener, we can see how a functional role can be multiply realisable through different material compositions.[51] That is, the function can be executed in a variety of ways. The key implication of this then is that individuals within the functional kind can have different properties from one another. For example, returning to the *can-opener* case, the solid metal can-openers are likely to be heavier than their plastic counterparts, or differ across other properties like their durability or how ergonomic they are to use. What allows us to categorise an old-fashioned metal can-opener with a single blade, a hybrid metal and plastic can-opener with a twisting lever, and a fully automatic can-opener under the umbrella category of *can-opener* is that they all share the same functional role despite their differing properties.[52] That is, despite the physical heterogeneity between these sorts of can-openers, they can be unified under the category of *can-opener* through their shared functional role.

It is important to note that when discussing functional kinds, there is a distinction between *artifact* functional kinds, and *biological* functional kinds. Artifact functional kinds are where artificial, or man-made, objects like can-openers and corkscrews are categorised together in virtue of their function. Contrastingly, biological functional kinds are where distinctly biological phenomena, like organisms' characteristics, organic matter, or psychological states, are categorised together in terms of sharing a common function. For example, a biological functional kind would be something like the *eye*. The functional role of the eye is to see, providing visual information to the brain (vision). Consider a human eye, a goat eye, and a fly eye. A human eye features a distinctive, round pupil, which regulates the amount of light which can enter the eye, in contrast with a goat eye which features a horizontal, slit-like pupil, or a fly eye, where there is no pupil at all. However, despite their compositional differences, human eyes, goat eyes, and fly eyes can all be categorised together under the biological functional kind category of the *eye* as they all share the same biological function: providing vision.

As *anxiety* is widely accepted to be biological, this chapter will solely focus on biological function in particular.[53] Given this, I will focus specifically on accounts of biological function to determine whether *anxiety* forms a *biological* functional kind.

[51] While multiple realisability is controversial (see Shapiro, 2000), I am not committed to a strong notion of multiple realisability. In this way, the primary argument of this chapter also does not rely on this notion should one reject it.

[52] As will become evident, functional kinds can also share properties, but this is neither necessary nor sufficient if the function is not shared also.

[53] While some accounts of function attempt to address both artifact and biological function (e.g., Nanay, 2010, 2013), the tradition in function literature is to address solely one sort of function. Given this, an account of artifact function may not be applicable to biological entities, or vice versa. This then motivates focusing on accounts of biological function in particular.

§2.2 Why functional kinds matter

When it comes to categorising psychological particulars, like episodes of anxiety, grouping them together in terms of a shared function can be incredibly useful. This is because understanding the functional role of psychological phenomena can help us recognise, navigate through, and deal with these particular experiences in that the functional role aims to explain *why* they are happening.

For example, take the case of an abnormal episode of anxiety, where someone is struggling to leave the home due to the intensity of their anxious experience.[54] In chapter one, I proposed the function of *anxiety* as the detection of and response to uncertain threats within one's environment. If we accept this assumed function, we can use it to help the Experiencer understand their abnormal experience. This is because we can explain that this person is perceiving something about leaving their house as threatening, and their body is trying to keep them safe from whatever this threat may be. By helping the person who cannot leave their home understand that their anxiety is fulfilling this function (or perhaps that it is malfunctioning in that it is overworking), it may help them gain some perspective on the situation at hand. If they can then understand what it is about the scenario that they were perceiving as threatening, they may then be able to reassure themselves that it is either not threatening (noise) or represents a smaller threat than they have perceived. In this way, they should be able to reduce the intensity of their anxiety.

§3.1 Biological function

To determine whether *anxiety* is a biological functional kind, we must first determine the biological function of the anxiety system. To do this though, we need to understand what it means for something to have a biological function.

As previously mentioned, theories of biological function are usually divided into two camps: historical accounts (where the function must be tied to evolutionary history), and ahistorical accounts (where evolution is not required, but rather appeal to some form of utility).[55] While the function of an anxious episode proposed in this chapter may well be compatible with an ahistorical account, I will explore anxiety's function through Buller's (1998) weak historical account.[56]

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[54] As mentioned, abnormal does not entail that a diagnosis is warranted, or that the anxiety is necessarily medical in any way.

[55] For an overview of historical versus ahistorical accounts of biological function, see Wouters (2005). For specifically historical accounts of function, see Millikan (1984, 1989, 1996); Buller (1998); and McLaughlin (2001), to name a few. For an ahistorical approach that focuses on the function contributing to a goal-state, see Nagel (1961); Boorse (1976); and Adams (1979). For an ahistorical approach that focuses on increasing the life chances of the organism, see Ruse (1971); Horan (1989); and the modal account of Nanay (2010, 2013).

[56] This is not to dismiss ahistorical accounts. The arguments of this chapter do not hinge upon the specific account of function chosen. Instead, I believe that the account of anxiety's function outlined here will be compatible with ahistorical approaches or alternative historical accounts. As mentioned, demonstrating this compatibility is an area for future research.

Before outlining what this weak account entails, I will now motivate exploring anxiety's function through a historical account over an ahistorical account. The most salient reason for doing this is that historical accounts are widely praised for their intuitive ability to accommodate for malfunctioning instances, where instantiations do not perform the function in the usual or expected way (e.g., Millikan, 1989; Sullivan-Bissett, 2017).[57,58] For *anxiety*, as we will see in more detail in the final section of this chapter, including malfunctioning instances within the category is hugely important. This is because, across both psychology and psychiatry, there is widespread agreement that anxiety *does* malfunction. For example, in instances where it fails to effectively detect threats, or where it responds in a way that is inappropriate, much like in the cases of the anxiety disorders. In these instances, intuitively across these distinct fields, we still want to say that these are genuine instances of anxiety. In this way, if *anxiety* does form a biological functional kind, we want these malfunctioning instances to be accounted for and incorporated within the kind. Therefore, we want an account of biological function which can intuitively incorporate these sorts of malfunctioning instances.

The main reason historical accounts can deal with malfunctioning instances so well is because they essentially 'fix' the function of something.[59] That is, because the function of the biological entity is grounded in evolutionary history, it does not change with context. What this means is that something can still be said to have the function even if it does not perform it (or fails to execute it effectively), like in the case of malfunctioning instances. For example, consider the *kidney,* whose biological function is widely accepted to be the filtering of the blood. On a historical account, the broad reason that kidneys have this function is because they have an evolutionary history of filtering the blood effectively. Now consider a malfunctioning kidney which can no longer do this effectively, like in the case of kidney disease or failure. On a historical account, we could still say that this malfunctioning kidney has the biological function of filtering the blood. This is because, although the malfunctioning kidney is not performing the function effectively, it still has an evolutionary history of producing the effect of filtering blood which contributes to the survival of the organism. From this, it ought to be clearer how historical accounts of function, fixed through evolutionary history, can intuitively account for malfunctioning instances which are so important for the case of *anxiety*.

While ahistorical accounts of function may well be able to accommodate malfunctions, the way in which they could do so is not always intuitively obvious. In this way, it is not *prima facie* obvious that malfunctioning instances of anxiety would still be considered to possess the same proposed function on these accounts. This is because ahistorical accounts do not fix the function of a biological entity but

[57] This is distinctly not to say that ahistorical accounts cannot account for malfunction. I make no such commitments. Instead, it is merely to highlight that historical accounts are often praised for how well they can accommodate malfunctioning instances as they fix the function through a relation to evolutionary history.
[58] Despite historical accounts being praised for handling malfunction, they are not without criticism (see Davies, 2001). For a defence of historical accounts in this regard which directly tackles Davies' concerns, see Sullivan-Bissett (2017).
[59] For a longer discussion on this notion of a fixed function, see Nanay (2010).

instead, view the functions as context dependent. For example, consider an ahistorical account like a life chances approach (e.g., Horan, 1989) which broadly argues that to have a certain function (F), the biological entity (x) must contribute to the overall life chances of the organism at a higher rate than if it did not have the function.[60] That is, for anxiety to have the function of detecting and responding to uncertain threat, it must make us more likely to survive than if we did not have it. The problem is that on this account, it is unclear that a malfunctioning instance of anxiety contributes to our life chances. For example, take the case of Charlie and school from earlier in the thesis. In this case, if we assume that the function of anxiety is to detect and respond to uncertain threat, then it is clear that Charlie's anxiety is malfunctioning in that it has detected non-threatening stimuli (school) as a genuine threat and responded accordingly. Due to the avoidance behaviour, Charlie isolates himself and stays home. Now imagine that Charlie's anxiety continues to malfunction in this way, and he never leaves the home due to it (as is the case with people with severe agoraphobia (see Marks, 1970; Asmundson et al., 2014)). From a purely biological standpoint, this is clearly hampering his life chances. For example, if he never leaves the home, he cannot realistically find a mate, and is significantly less likely to be able to find things like employment.[61] In this example, the malfunctioning case is clearly not increasing his life chances. If anything, in that instance, it seems the malfunctioning instance is really doing the opposite and is detracting from his life chances. As such, we would not be able to say that his anxiety has the function of detecting and responding to uncertain threats.

It is not to say that a malfunctioning instance like this could never be captured by an ahistorical account should one be developed which seeks to account for malfunction, just that it is not intuitively obvious that it can, unlike with the historical approaches. Therefore, each instance of anxiety seemingly would need to be analysed to determine whether it possessed the proposed function or not.

While the arguments of this chapter do not inherently depend upon a historical account of function, given their intuitive account of malfunction, I will use them to explore the function of *anxiety*. I will now outline the *weak* account of biological function I will be using to do so, explain how it differs from stronger accounts, and motivate the choice to focus on the weaker notion. To conclude this section, I then explain how a weak notion of biological function can appropriately and intuitively deal with malfunctioning cases.[62]

On a weak historical account, a biological entity can have the function F if it has an evolutionary history of producing an effect (or effects) which contributes to survival and thus the reproduction of the biological entity itself (e.g., Buller, 1998). For example, consider the eye of a crocodile. In addition to

[60] This has been simplified.
[61] Arguably he could do these things online. However, in never leaving the home, it is unlikely he will be able to form strong bonds and do these things with great success.
[62] The argument will also apply to stronger accounts (as they rely on the same fundamental principle, the evolutionary history, to accommodate for malfunctions).

the usual upper and lower eyelid, crocodiles possess a distinctive 'third eyelid', a thin membrane called the nictating membrane which can pass across the open eyeball. This membrane has an evolutionary history of protecting and moistening the eyeball while the crocodile is submerged. This adaptation also means that the crocodile can see its prey underwater, increasing its hunting capabilities, and thus its survival. The consequence of this adaptation is then that crocodiles with the nictating membrane survive, passing their genetics on and thus reproducing this trait in future generations. On a weak account then, we can say that the biological function of the crocodile third eyelid is to protect and moisten the eyeball while maintaining vision.

In contrast, strong historical accounts argue that for a biological artefact to have the function F, it must be the case that the biological artefact contributes to the continued survival of the organism *and also* has beaten competing variations (e.g., McLaughlin, 2001: 106). To understand this, consider the *Chaetodera laetescripta* beetle (more commonly known as a tiger beetle) found in the Japanese Archipelago. In a 2020 study, Yamamoto and Sota found that these beetles display a specific black and white colour pattern in this region which more closely matches the unique geography of the terrain, rather than other variants of colours the tiger beetle can display (Yamamoto & Sota, 2020). This variation then increases the camouflage of the beetle, and, accordingly, its survivability. So, in this case, according to a strong historical account, the biological function of the colour pattern is to camouflage the beetle. This is because this camouflage not only contributes to the beetles' continued survival but has also beaten competing variants to do so.

The key difference then between the weak historical account and these stronger accounts is that a weak historical account does not necessitate that the biological entity has surpassed some competing variant. While the biological function of *anxiety* that I will propose in this chapter may be compatible with a stronger historical account, I will be exploring it through a weaker notion of biological function. This is primarily because firmly establishing competing variants for something as complex as an anxious episode is a mammoth, interdisciplinary task, requiring extensive psychological, neurobiological, and anthropological study. However, due to the limitations of space and time, this is simply outside of the scope of this thesis. Therefore, to establish that *anxiety* forms a biological functional kind on a historical account, I adopt a weak notion of biological function.[63] Establishing the weak biological function of *anxiety* will then lay down the foundations to build a strong account of *anxiety's* biological function should we then want to do so.[64]

[63] It is important to note that strong accounts of biological function do not necessarily *require* the identification of the competing variant. As such, it would be sufficient on a strong account to merely say that if anxiety has an evolutionary history, it follows that it has beaten competing variants in the first instance. However, I think it would be an interesting endeavour if we were to actually identify such a variant. It is therefore my view that an independent project identifying potential competing variants could follow as future research.

[64] A prospective area for future research therefore may involve determining whether there are competing variants, and what these may entail. However, doing so would only strengthen the argument that *anxiety* forms a biological functional kind, rather than weakening the argument that I present here.

§3.2 The biological function of anxiety

In this section, I provide an argument for the biological function of the anxiety system according to a weak historical account of biological function. To do this, I begin by outlining the proposed function itself, in the form of the detection of and response to uncertain threats within one's environment, before turning to consider how this role is realised in the case of the system being instantiated. Once the role and realiser relation is clear, I will then demonstrate how this function fulfils the criteria for weak historical biological function that was proposed in the previous section.

In accordance with the functional properties of anxiety as outlined in the previous chapter, I argue that the biological function of the anxiety system is the detection of and response to uncertain physical and social threats within one's environment. This, in essence, is the proposed functional role of anxiety. However, as we have seen in earlier sections, for a complete picture of function, we need to consider both the role and the realiser of the function. While the role is the function itself, I argue that the realiser in this case takes the form of the other three clustering properties: the attentional, physiological, and behavioural properties. Let's consider each of these in turn, and how they realise the proposed function of threat detection and response.

As mentioned in the first chapter of the thesis, the attentional properties are key in detecting threats in our environment specifically for the reason that they are biased towards it. That is, through the perceptual widening (hypervigilance) and attentional biases narrowing towards threat, we have a much greater chance of detecting the threats within our environment. Essentially, our bodies are being tuned to detect threats such that they can respond rapidly should one manifest.

Once this threat has been detected by the perceptual system, as seen in the diagram of figure 3, the physiological and behavioural properties are activated in order to respond to that threat in whatever way is deemed effective by the system. It is important to note that while the attentional properties are key in detecting a threat in the first instance, they are also important for sustained threat detection, continuing to detect more threats in one's environment in a process referred to in the literature as 'alerting' (see Horvitz, Jacobs, & Hovel, 1999). This then creates a feedback loop, as indicated by the blue arrow in figure 3.

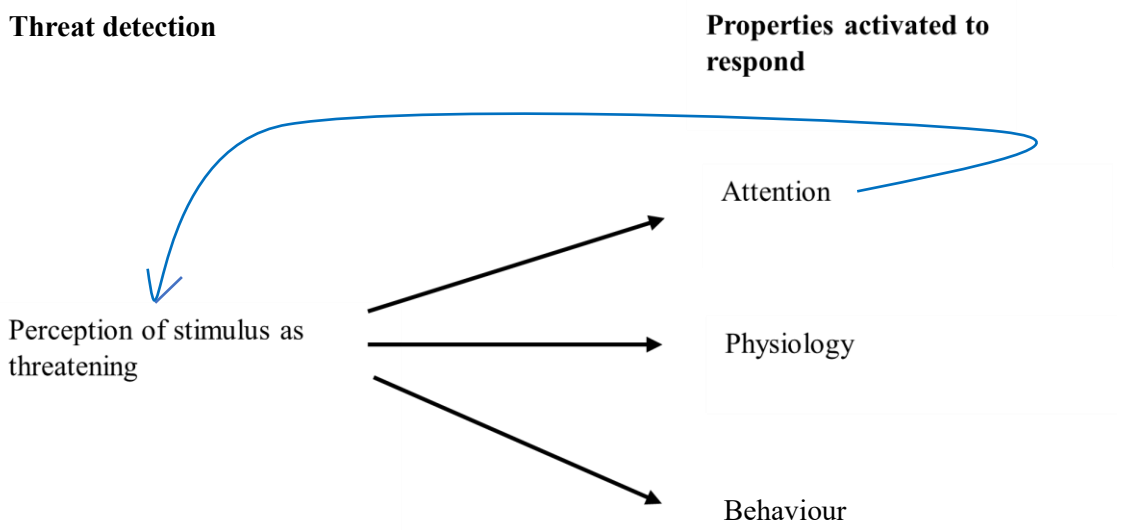

Figure 3. The casual relation between anxiety's function and the projectable properties of attention, physiology, and behaviour.

To elaborate, when the perceptual system of the organism identifies the threat in the environment, this continues the attentional biases towards that threat to ensure that the organism stays aware of the threat that could manifest. This is of great importance given the uncertain nature of the threats associated with anxiety, as there are obviously a variety of ways in which these threats could unfold.

Given these uncertain threats, the body must then be primed to act to appropriately to respond to the threat that has been detected and fulfil the functional role. This is where the physiological properties in the form of the activation of the sympathetic nervous system is key. These somatic changes prepare the body to deal with the threat in whatever way is calculated as biologically adaptive (often referred to as the fight, flight, or freeze response across fear and anxiety literature (e.g., Bracha, 2004)). Lastly, to maximise the chances of avoiding harm from the threat that has been perceived, the organism must act in whatever form is appropriate (e.g., epistemic actions that will minimise the threat being realised, or avoiding the threat, as we saw in the first chapter). This is then the behavioural properties being instantiated.

It is important to note that for the function to be effectively executed, it is the *cluster* of properties which are involved, rather than any individual one of these properties. To understand this, consider the following example. Imagine you are about to give a big presentation on something you know little about in front of a field of experts. In this case, you have perceived the genuine threat of the scenario in that you could embarrass yourself and lose credibility with the audience. As such, you become anxious and

experience the physiological changes of a rapid heartrate, sweaty palms, and a choking sensation in the throat. However, imagine in this case that you do not express any of the behavioural properties usually associated with anxiety. You do not try to minimise the threat in any way (for example, by rehearsing or by studying the topic in question). In this way, the threat clearly is not being responded to as there is no minimisation that the threat will manifest. Although the cluster of properties is not being expressed in this case, this does not mean that the function is not being fulfilled at all. Rather, in cases such as these where the cluster of properties is not present, the function is simply not being effectively or perfectly executed.

With this clear, the functional role and realiser of the anxiety system looks like the following:

> Role: The detection of and response to uncertain social and physical threats within one's environment.
>
> Realiser: the clustering of the attentional, physiological, and behavioural properties which unify *anxiety*.

However, for this function to adhere to Buller's (1998) weak historical account, it must be the case that this anxiety system has an evolutionary history of producing an effect (or effects) which contribute to survival and thus the reproduction of the system itself.

To understand this, let's break the anxiety system down into the following parts: the effect that anxiety produces, how this effect and the anxiety system more generally contributes to survival, and then the issue of the reproduction of the anxiety system.

The effect that the function of anxiety produces is simply the effects of the realiser of the role in the form of the attentional, physiological, and behavioural properties.[65] That is, it is the following changes which occur:

> Attentional: perceptual narrowing and widening biased towards threatening stimuli.
>
> Physiological: the changes associated with the sympathetic nervous system which prime the body to address the perceived threats.
>
> Behavioural: risk assessment, minimisation, or avoidance. Essentially, the actions one takes in attempts to avoid the perceived threat from manifesting.

I argue that it is these properties, i.e., the realiser of the function, which contribute to the continued survival of the organism. To understand how this is the case, let's first start with the case of physical

[65] One may argue that the realiser of the role is, instead, some physical mechanism which is responsible for these properties, like the bed nucleus of the stria terminalis (BNST) that we will see in the following chapter. I am hesitant to commit to this being the case, should a stronger candidate for the functional role realiser emerge (such as a distinct neurobiological correlate), or the wider centralised amygdala.

threats and set social threats aside for now. Recall from chapter one that physical threats are those which pose a danger or harm to the corporeal integrity of the organism. In this case, let's consider a fully realised scenario so one can see explicitly how the effects that anxiety produces can contribute to someone's continued survival. This is the example of the hooded figure:

> Hooded figure: Imagine you are a young woman walking down a narrow, unlit alleyway through a park at night. The path is gravelly, and on either side of you, there are tall brick walls, separating the two sides of the park. There are no houses nearby, and there is clearly no one walking ahead of you. You do not have any communication devices on you, like a mobile phone or smartwatch. As you are walking down the alleyway, you hear what sounds like crunching gravel, as if someone is walking behind you. You turn around and see a dark, hooded figure following you and see they are closing in.

Now, let's consider a normal anxious response to this:

> Upon perceiving the hooded figure, you become anxious. Your heartrate greatly increases, and you speed up your walk to a jog, ensuring you are faster than the hooded figure, eager to leave the narrow walkway as soon as possible to get to the lit road at the far end ahead of you.

This scenario clearly poses a level of uncertain threat. You do not know who the hooded figure is, and you do not know their intentions. While they could just be an innocent passer-by, they equally could be out to harm you. In this case, your anxiety is providing you with an effect that will help you to avoid the harm that the uncertain threat (the figure) poses. For example, by activating the sympathetic nervous system and releasing adrenaline, increasing your heartrate, your body is primed to engage in the faster walk to reach safety sooner. Your split-second decision to flee is, in fact, the manifestation of the behavioural response. That is, in this case, fleeing the scene has been unconsciously calculated as the most appropriate way to minimise the threat being realised and you coming to harm. In essence, the effect of the realisers fulfilling the functional role of detecting and responding to this threat give you a much higher chance of surviving the threat should it manifest.

To really understand this, let's flesh this scene out further. Imagine that the hooded figure is an axe murderer who seeks to slash the first person who comes across their path. In this instance, that person is you, walking down the same path as them, albeit further ahead. However, consider in this second case, that you do *not* get anxious upon perceiving the figure. That is, you do not perceive them as an uncertain threat and, as such, do not produce an anxious response at all. So, rather than speeding up your walk, you stay at the pace you are going at, while the hooded figure catches up to you. When they do eventually reach you, the harm will befall onto you, and you will be murdered.

Although perhaps far-fetched, this example clearly does demonstrate that when the function of anxiety is effectively executed, it can help us mitigate the physical harm posed by uncertain threats, and thus

contributes to our continued survival. This is then one of the key effects that the function of anxiety produces.

However, it is important to note that the functional role of the anxiety system being realised can also be beneficial for our continued *social* survival. That is, the function of the anxiety system as a threat detection and response mechanism additionally produces effects which can help prevent us from facing social threats like ostracization and exclusion (e.g., Baumeister & Tice, 1990). To understand how this is the case, consider the following example.

> Imagine you are a year 6 student at primary school. With your group of close friends, you have been assigned a big class project in lieu of any end of school exams where you must research a topic of your choosing. You are all passionate about space and space travel and have decided that you will complete your project on this. A few months into the project, your teacher has just told you that one person from each group has to be nominated to give a presentation about your chosen topic in front of the whole school as part of the big end of year assembly. You have been nominated. You become anxious as you want to do yourself and your friends proud, but lots could go wrong.

This scenario clearly represents a genuine social threat of ostracization. If you do not perform well in the group assembly, it could be the case that your friends feel let down and upset by you. In extreme cases, they could cut you from the friend group, leading to ostracization and exclusion.[66] The effect of perceiving these threats, and your anxious response, is to prepare the presentation very thoroughly. To minimise the chance that the presentation could go badly, and the risk of letting your friends down, you practise the presentation and ensure that you feel confident in knowing what you are going to say.

While the anxiety system and its associated risk minimisation cannot guarantee that exclusion will not happen, it does decrease the chance of the threat coming to fruition. Therefore, it seems that the effect of the function of anxiety being fulfilled can also contribute towards our social survival, as well as our physical.

The final thing when determining the biological function of anxiety is whether the effect we have established here then further contributes to the reproduction of the anxiety system itself.

The reproduction of the anxiety system across future instances, and future generations, follows from the adaptive effects it produces. This is because if the attentional, physiological, and behavioural properties of anxiety are successful in contributing to our physical and social survival in the face of threatening stimuli, then those with anxious reactions to threatening stimuli will be more likely to

[66] You have got to remember, they're 10-11. Who knows what they are capable of.

survive than those without.[67] Following from this, the anxiety system will be reproduced in future generations, due to its adaptive success in previous generations.

From this, I hope it has become clear that detecting and responding to uncertain physical and social threats within one's environment can be considered to be the anxiety system's biological function on at least a weak historical account.[68]

§4.1 The category of *anxiety* as a biological functional kind

While up to this point we have determined the biological function of the anxiety system *per se*, for the category of *anxiety* to be a biological functional kind, it must be that the members of the category share this biological function. That is, we must establish that the constituents of the category *anxiety* (i.e., state anxiety, trait anxiety, and the anxiety disorders) all share the biological function of detecting and responding to uncertain threats in one's environment.

For *anxiety*, I argue that the way in which we establish this shared function is through the unification of the category. As we saw in chapter one of the thesis, the constituent members of the category of *anxiety* (state anxiety, trait anxiety, and the anxiety disorders), are all fully constituted by the anxiety system. In this chapter, I have argued that this anxiety system possesses the biological function of detecting and responding to uncertain threat within one's environment. As state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by the anxiety system, it follows that they also share the same biological function. Given they all share the same biological function, they can then be categorised together in virtue of this function. In this way, *anxiety* can be considered to be a biological functional kind.

§4.2 Malfunctioning instances

However, while the anxiety disorders are constituted by the anxiety system *per se*, the system seems to malfunction very often, as mentioned in §3.1. Consequently, *prima facie*, one may argue that the anxiety disorders pose a problem for *anxiety* to be considered a biological functional kind. This is because if the malfunctioning episodes of anxiety cannot be considered to have the same biological function as regular episodes, then they cannot be contained within the same functional kind. Therefore, the anxiety disorders which are constituted by these malfunctioning instances of anxiety would also lay outside of the functional kind outlined in the previous section. In this section, I challenge this *prima facie* concern by considering these malfunctioning instances in more detail, arguing that they still can be considered part of the biological functional kind category of *anxiety*.

[67] This requires a caveat. As will become clear, this is only to a certain extent. However, in this case, we are talking about the function *when executed effectively.*

[68] This is obviously conditional on the weak historical account of biological function. However, I believe it will be compatible with both a strong historical and ahistorical account also.

When we reconsider the function of anxiety, there are two distinct ways in which it can malfunction. If the function of anxiety is to act as a threat detection and response mechanism, then it seems to follow that the two ways in which it could malfunction are: firstly, a failure in the threat detection, and secondly, a failure in the threat response. Let's take each of these in turn.

The failure to detect threats is an interesting case that requires examining in more detail. This is because *prima facie* there are two distinct ways in which the detection of threats can malfunction: the first is where the mechanism is *overworking* and detects non-threatening stimuli (noise) as threatening and responds accordingly. Less commonly, the second way the threat detector mechanism can malfunction is where it is *underworking* and fails to detect threats that are genuinely there.[69] Let's consider each in turn.

The first sort of threat detection malfunction regards the *overworking* of the mechanism where non-threatening stimuli are detected as threatening and responded to accordingly. For example, consider someone who becomes anxious at the sight of a life-size toy tiger which poses no real harm or threat to them. In this case, imagine that we genuinely do have an instance of anxiety, in that we have the attentional, physiological, and behavioural properties being activated in response to a perceived threat, but it is malfunctioning in that the threat that has been perceived is actually noise rather than a genuine threat. *Prima facie,* this case of anxiety is not truly fulfilling the function of detecting to and responding to uncertain threats in one's environment, given the non-threatening nature of the toy tiger. However, we still want to include it within the biological functional kind category of *anxiety.* This is because although the anxiety in this instance is not performing the function in the typical way, it is still performing in a way that is evolutionarily beneficial. This is what Randolph Nesse (2005, 2019) deems 'the smoke detector principle' (SDP). It is better for a smoke detector to activate in the case of a false alarm, than to not activate in the face of a genuine fire. The same is true of anxiety: it is more evolutionary beneficial to detect non-threatening stimuli as a threat, and respond accordingly, than to miss a genuinely threatening stimulus and be at risk. So, given that these instances of overworking mechanisms still have the same evolutionary history as normally functioning anxiety, anxiety which malfunctions in this way still ought to be considered to have the same biological function. If this is the case, then this sort of malfunctioning anxiety can be included in the biological functional kind.

Although we are most accustomed to dealing with overworking mechanisms, the second sort threat detection malfunctions regard the *underworking* of the mechanism. These are particularly interesting cases because if *no* threat is being detected, and accordingly, there is *no* threat response, then in fact, no anxiety is present at all. In this case, we have an absence of anxiety. This is not problematic for my account or for the status of the biological functional kind, as anxiety failing to be performed in

[69] There is also the case of the threat detector underworking where it detects high-level threats as low-level threats. However, in practise, this is essentially to say that the response level is inappropriate given the level of objective threat. Therefore, I consider this when I talk about malfunctions in the threat response.

circumstances in which it ought to have been performed does not change the function of anxiety *per se.* To understand this, return to the example of the kidney. A body without kidneys at all does not have any bearing on the function of the kidney *per se* either. Using this analogously, malfunctioning instances where there is no threat detected at all are not an issue for the function of anxiety or for the biological functional kind.

Now, let's turn to consider malfunctions in the threat response. These would include instances where the threat is not responded to appropriately (or at all).[70]

As we have seen in chapter one, while it is ideal to have the combination of the attentional, physiological, and behavioural properties for an instance of anxiety, all three of these properties are not required for the anxiety system. However, given this, it may mean that the threat cannot be responded to appropriately. For example, consider the hooded figure scenario in the earlier section where you are being followed down a narrow path. Imagine in this instance that the attentional and physiological properties are activated, priming you to act, but the behavioural properties do not effectively activate. That is, you take no action to mitigate the risk from realising. In this case, the anxiety is malfunctioning in that it is not responding to the threat appropriately to keep you from the harm realising. However, while the function is not being sufficiently fulfilled, this does not mean that this is not a genuine case of anxiety, or that it should not be categorised within the biological functional kind. This is because it still has the same evolutionary history as the properly functioning cases. Instead, it is merely an instance where the function is being poorly executed.

From this section, the importance of including instances where the anxiety system is malfunctioning and how they fit within the biological functional kind of *anxiety* ought to be clear.

Conclusion

One of the key steps in creating a picture of the metaphysics of *anxiety* is not simply determining that it is a unified category, but understanding the sort of category it forms. In this chapter, I have argued that the category of *anxiety* forms a biological functional kind by appealing to a weak historical account of biological function. To do this, I began by considering the biological function of the anxiety system. I argued its function is as a threat detection and response mechanism for uncertain physical and social threats within one's environment. While this stands as the functional role of anxiety, the way it is most commonly realised through the cluster of the attentional, physiological, and behavioural properties. In realising the functional role, these clustering properties work together, producing the effect which contributes to the survival of the organism, whether that is in avoiding physical or social threats. When

[70] These cases are then also parallel to cases where the threat detector has miscalculated the level of threat posed by the stimulus as representing a lower level of threat than there objectively is. This is because, in these cases, the response will be inappropriate in the same manner. Therefore, for the sake of brevity, these sorts of cases have been omitted.

these threats are successfully avoided, this then promotes the reproduction of this anxiety system in future instances and across future generations, establishing the evolutionary history of the function. In this way, the function of anxiety fulfils the weak notion of historical function outlined in the chapter.

However, to determine that *anxiety* as a category forms a biological functional kind, I then had to establish that this biological function is shared across the category. The way this was achieved was by appealing to the unification of the previous chapter. As state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by the anxiety system which has the function of detecting and responding to threats in our environment, then these three sorts of anxiety can be said to have the same function. Given this, then we can effectively say that *anxiety* can be considered to be a biological functional kind. Although the malfunctioning cases found in the anxiety disorders posed a *prima facie* challenge for establishing *anxiety* as a biological functional kind, I addressed this by appealing to evolutionary history to argue that these malfunctioning cases still possess the same function at their core.

Categorising *anxiety* as a biological functional kind has important implications for our psychological and psychiatric practises. This is because by understanding the functional role of anxiety, and how it is realised, we can then use this information to help us investigate *anxiety.* Importantly, the functional role will aid us in recognising instances of anxiety. Additionally, by categorising state anxiety, trait anxiety, and the anxiety disorders together in virtue of a common function, we may begin to see important key similarities between these phenomena that have previously been overlooked. These similarities could then be key for developing and implementing more effective methods of intervention to alleviate anxiety which are aimed more directly at this function.

In the following chapter, I turn to consider whether the biological functional kind of *anxiety* is also a suitable category for natural kindhood.

Chapter Three: Anxiety as a Unified Kind: Natural Kindhood

Introduction

In chapter two, I turned to consider what sort of category the unified kind of *anxiety* might be. By arguing that the constituent members of state anxiety, trait anxiety, and the anxiety disorders share the biological function of detecting and responding to uncertain threats, I argued that *anxiety* is a biological functional kind. However, aside from functional kinds, there is another sort of category that is of great metaphysical interest: natural kinds. While there are competing accounts of natural kindhood, I broadly take a natural kind to be a category which supports the epistemic practises of explanation, projection, and prediction.[71] That is, it is a category where we can justify our inductive inferences and generalisations about unobserved members of the category. When it comes to *anxiety*, being able to justify our generalisations and make predictions is hugely important. This is because, across psychiatry, psychology, and in folk psychology too, we inherently rely on inferences about how episodes of anxiety will manifest and the ways in which we will be able to 'treat', manage, or alleviate them. However, if *anxiety* is not a natural kind, then these sorts of generalisations and predictions are unsupported and cannot be rationally justified. Given how often we rely on them, this is clearly problematic. In this chapter, using extant neurobiological research, I will argue that while *anxiety* is a strong candidate for natural kindhood, to truly establish it as such, more empirical research is needed.

The chapter is laid out as follows. In §1, following the works of P. D. Magnus (2015), I distinguish between two sorts of questions about natural kinds: taxonomic questions, which essentially ask what sort of category a natural kind is, and how they differ from arbitrary categories; and ontological questions, which ask how these categories are realised. In this section, I outline my broad understanding of a natural kind: as a category that supports the epistemic practises of explanation, projection, and prediction. With this clear, in §1.2, I provide both metaphysical and practical motivations for considering the natural kindhood of *anxiety* in the first instance. Having motivated the chapter, in §2.1, I turn to consider the ontological question of how natural kind categories can support the epistemic practises of explanation, projection, and prediction by outlining two distinct approaches: an essentialist approach, and a property cluster approach. By demonstrating its merits, I will then adopt Boyd's (1989) homeostatic property cluster (HPC) account. On this account, to be a natural kind, a category must have a clustering set of reliably projectable properties which are causally underpinned by a homeostatic mechanism. It is this causal mechanism which allows us to justify our epistemic practises. In the final section of the thesis, §3, I argue that *anxiety* is a strong candidate to be an HPC kind. To do this, I re-outline the set of reliably projectable properties we first saw in chapter one and argue that a good candidate for the causal mechanism which underpins them is the area of the brain called the bed nucleus of the stria terminalis (BNST). While there is strong neurobiological research supporting the causal

[71] This is compatible with an array of approaches to the natural kindhood of biological phenomena like Devitt (2008), Griffiths (1997), and Taylor (2023) to name a few.

relation between the BNST and the functional, physiological, and behavioural properties, more empirical research is required to establish that the BNST causally underpins the attentional properties. If this empirical work can be achieved, then we can say that the biological functional kind of *anxiety* is also a natural kind. However, until then, it is simply a strong candidate for natural kindhood.

§1.1 Natural kinds broadly

In the second chapter of the thesis, I introduced a way to taxonomize *anxiety* in virtue of sharing a common function. Now, I turn to consider a distinct way to taxonomize a category: as a natural kind.

When we consider natural kind categories, following the works of P. D. Magnus (2015), there are two distinct sorts of question we can ask. The first are *taxonomic* questions, which essentially aim to determine what it is that makes a category a natural kind (versus arbitrary kinds, or other sorts of kinds like functional kinds). The second set of questions are *ontological* questions which ask about what it is that realises the categories. With these two questions distinguished, in this section, I aim to provide a taxonomic account of natural kindhood, before then turning to consider the ontological question in more detail in §2.

I take a natural kind category to be one that supports the epistemic practises of projection, explanation, and prediction.[72] Broadly, the practise of projection involves making inferences about what properties we are likely to find instantiated across category members, or what properties are likely to co-cluster with other properties. Explanations are then theories we generate which aim to explain why these properties are instantiated, or theories about why an object behaves the way it does.[73] From these explanations, we will then be able to develop important methods of intervention. Lastly, predictions involve theorising about how an object is likely to behave. By supported, I mean that a natural kind category provides some sort of ontological grounding such that these epistemic practises can be rationally justified.

In this way, a natural kind category addresses Hume's problem of induction where we have no rational basis for making generalisations about unobserved particulars (or groups of particulars) from the particulars that we can and have observed (Hume, 1739-40/2009; Goodman, 1954). That is, natural kind categories provide the rational basis for engaging in these kinds of inductive epistemic practises. In §2, I will examine two arguments for how these categories can support these practises and thus provide this rational basis.

Once these questions have been addressed and the conceptualisation of natural kindhood that I adopt for this thesis becomes clear, I will then turn to the question of whether *anxiety* can be considered to be a natural kind category.

[72] This is a largely uncontroversial and accepted view of natural kinds (e.g., see Taylor, 2023).
[73] I adopt a very loose definition of object such that it encompasses organisms, entities, and activities.

§1.2 Why natural kindhood matters

Given that I have already established that the category of *anxiety* forms a biological functional kind, a *prima facie* question one may have is whether it is really necessary or warranted to take the additional step and determine whether *anxiety* is also a natural kind. In this section, I will motivate asking such a question.

While biological functional kind categories will often be the sort of categories which do support the epistemic practises of explanation, projection, and prediction, and thus, can also be considered natural kinds, it does not necessarily follow that all biological functional kinds are also natural kinds.

To see how this is the case, and thus motivate a further need to examine the natural kindhood of *anxiety*, consider the following example of the biological functional kind of the *tongue*. The biological function of tongues is generally accepted to be aiding the digestion of food. Now consider the difference between a human tongue and a chameleon tongue regarding their length, texture, and speed, as seen in table 1.

	Adult human tongue	**Adult chameleon tongue**
Length	Relatively short	Relatively long (1-2 times body length)
Texture	Dry texture	Sticky texture
Speed	Relatively slow propulsion out of the mouth	Fast propulsion out of the mouth

Table 1. The differences between the human tongue and the chameleon tongue.

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The differences between the members which constitute the biological functional kind of *tongue* seen in table 1 mean we cannot make justified explanations, projections, and predictions across this category. For example, we cannot predict how a chameleon tongue will act by examining human tongues alone, or how fast a chameleon tongue will be able to dart out and catch prey on the basis of observing human tongues. As the category of *tongue* does not support these epistemic practises, it simply cannot be a natural kind. From this example, it ought to be clearer that biological functional kindhood does not entail natural kindhood.

Therefore, given this lack of entailment, the question of whether the biological functional kind of *anxiety* is the sort of category that can support the epistemic practises of explanation, projection, and prediction is left unanswered. Consequently, from a purely metaphysical standpoint, an additional examination of the taxonomy of *anxiety* is required to determine whether it is also a natural kind.

However, an additional motivation for examining the natural kindhood of *anxiety* stems from the way it is currently used in psychiatry. Current psychiatric approaches to *anxiety* inherently rely on the

epistemic practises of projection, explanation, and prediction to develop and implement methods of intervention for the anxiety disorders. This is because to develop a method of intervention that is applicable across multiple individual cases of anxiety disorders (like social anxiety disorder, for instance), one is assuming that these cases will be relevantly similar. That is, we are *projecting* that they will possess particular properties. In developing a method of intervention, we must make *predictions* to establish how the anxiety is likely to behave and respond to certain stimuli (like pharmaceuticals, or behavioural therapies). In essence, for the anxiety disorders, psychiatrists are continually engaging in the epistemic practises of projection, explanation, and prediction to be able to theorise about them and provide effective methods of intervention for them. The problem is that, at present, without establishing *anxiety* as a natural kind, these epistemic practises are not rationally justified. Put bluntly, the explanations, projections, and predictions that we currently make using this category are rationally no more than educated guesses. This is clearly problematic for the status of psychiatry.

Given that psychiatric practise heavily relies on explanation, projection, and prediction, establishing *anxiety* as a natural kind would provide justification for these practises, rather than them being unsupported or being made on the basis of assumptions.

§2.1 Theories of natural kindhood

With the motivation for establishing the natural kindhood of *anxiety* clear, in this section, I return to the ontological question of what it is that realises the natural kind. To do this, I consider two opposing views for how the epistemic practises of explanation, projection, and prediction are supported by the category. The first is to take an essentialist position (e.g., Devitt, 2008), and the second is to adopt a property cluster view, like that of the homeostatic property cluster (HPC) view of natural kinds (Boyd, 1989, 1991, 1999a/b, 2003, 2010a/b, 2013). I will then be adopting this latter approach when examining the natural kindhood of *anxiety.*

§2.2 Essentialism

I begin by considering an essentialist account. Essentialists argue that to be a natural kind, category members must share a distinctive necessary and sufficient property (or properties) (e.g., Devitt, 2008). It is then this identified property (or essence) which then allows us to justify our epistemic practises of projection, explanation, and prediction.[74]

To explain, consider the common example used in the natural kinds literature of *gold*. Across observed particulars of this category, we can identify a set of reliably projectable properties: they conduct heat and electricity (conductivity), they can be hammered without breaking (malleability), and can be drawn into a wire (ductility). The reason that they have these properties is because of their shared atomic structure of 79 protons and 79 electrons. For the essentialist, this property is identified as the necessary

[74] Remember this identified property (or essence) must be necessary and sufficient.

and sufficient property for category membership. That is, to be a member of the category *gold*, a particular must have this atomic structure.

Across science and technology, we frequently rely on explanations, projections, and predictions about unobserved members of the category *gold.* For example, in technology, we tacitly predict that gold will conduct electricity whenever we use it in electronics like circuit boards. For the essentialist, the reason this prediction is rationally justified is because, to be a member of the category *gold,* the particular must have the atomic structure of 79 protons and 79 electrons. As we have seen, it is this atomic structure which causes the conductivity of gold. Therefore, given that the unobserved particulars of gold necessarily have this atomic structure, they also will have the reliably projectable property of conductivity. As our explanations, projections, and predictions about *gold* can be rationally justified through the identified necessary and sufficient properties, the essentialists conclude that it is a natural kind category.

However, within the natural kinds literature, a common complaint regarding essentialist positions is that necessitating properties is too strong a demand, especially for biological and psychological categories where natural mutations and deviations are likely.[75] While I will not examine these problems here for reasons of space, I will consider one of the alternative positions that emerged: property cluster accounts.[76]

§2.3 Property cluster accounts

The most prominent property cluster account is the homeostatic property cluster (HPC) account of Richard Boyd (1989, 1991, 1999a/b, 2003, 2010a/b, 2013). Across philosophical literature on natural kinds, there is now an overwhelming consensus to adopt Boyd's HPC view for psychological faculties like emotions (Griffiths, 1997; Taylor, 2020), perception (Taylor, 2023), and consciousness (Irvine, 2013, Shea, 2012), to name a few. Therefore, given the prevalence of the HPC account, even if it turns out to be false, it is still interesting to determine whether *anxiety* could be considered to be an HPC kind. Consequently, for the purposes of this chapter, I will assume the HPC view of natural kinds.

On Boyd's HPC account (1989), a natural kind category is where the members share a cluster of reliably projectable properties which are causally underpinned by a homeostatic mechanism. To understand this, let's break this down into its component parts, starting with the reliably projectable properties.

To say that something is a cluster of reliably projectable properties, as we have seen in chapter one, is to say that there is a collection or set of properties which can be found instantiated across the category members at a rate that is significantly higher than chance (Boyd, 1989, 1991). To understand this, reconsider the example of the adorably named 'flapjack octopus' which we encountered in the first

[75] Although unpopular, essentialism is not entirely dead in the natural kinds philosophy. For a defence, see Devitt (2008).
[76] For a summary of problems with essentialism, see Taylor (2020).

chapter of the thesis (with the scientific name *Opisthotheuthis californiana*). When we examine multiple potential members of this category, we can identify a clustering set of reliably projectable properties that are common across them. These include physical characteristics like eight limbs, three hearts, bulbous heads, a beak-like mouth, and fins above their eye sockets which have an 'ear-like' appearance. In addition, there are also behavioural characteristics, like the ability to camouflage, changing their shape to adapt to their environment. So, from examining individual members of the category, we can determine a set of reliably projectable properties as a primary step to determining natural kindhood.

It is important to note, though, that on the HPC account, while these properties are reliably projectable, they are not necessitated, meaning not *all* of the reliably projectable properties must be instantiated for the individual to be a member of the kind, or for the kind to be natural (Boyd, 1989). In this way, the HPC account differs from that of essentialism, and is more accommodating for biological kinds where natural variations are likely to occur. For example, returning to the octopus case, if an octopus only had seven limbs, rather than eight, due to a boating accident, for instance, this octopus could still be considered a genuine member of the category. In this way, the HPC account is less stringent than its essentialist counterpart and is more appropriate for the classification of biological and psychological taxa, explaining its prevalence.

With this clear, we can now turn to the latter half of Boyd's argument, where these reliably projectable properties must be causally underpinned by a homeostatic mechanism. The reason for this additional criterion is that reliably projectable properties alone are insufficient to support the epistemic practises of explanation, projection, and prediction (and, as such, constitute a natural kind). To understand this, and therefore understand the need for the mechanism on the HPC account, consider the following example. Take the example of the category *fruit*, including members like peaches, mangoes, apples, and pumpkins to name a few. Across this category, we can identify a set of distinctive reliably projectable properties:

1. Edible flesh.
2. Internal seeds (or one larger seed).
3. From a flowering plant.

These properties are reliably projectable in that we can find them across the category members at a rate far higher than chance. In addition, they are distinctive in that this is how, in botanical studies and folk discussion, we tend to differentiate between the category of *fruit* and the category of *vegetables*. However, although this category features a clustering, distinctive set of reliably projectable properties, it does *not* support the epistemic practises of explanation, projection, and prediction. For example, by observing a fruit like a peach, we cannot then turn to predict what a different member of the category, like an apple, will be like. Consider if we applied downward pressure to both fruits. While a peach is likely to bruise and squish, an apple is more likely to withstand the pressure, showing how we cannot

make predictions justifiably across this category. If the category does not support the epistemic practises of projection, explanation, and prediction, then it simply cannot be a natural kind. So, while the category of *fruit* does possess a set of distinctive reliably projectable properties, it does not form a natural kind. In this way, it ought to be clear that reliably projectable properties alone are insufficient for us to justify our epistemic practises, and thus for a category to be considered a natural kind.

To support the epistemic practises, and thus for the category to be an HPC natural kind, there must be an additional factor. This is where Boyd (1989) introduces the 'homeostatic mechanism'. For now, set the homeostatic element aside to focus on the notion of a 'mechanism'.

Although key to the HPC account, Boyd is vague, and the precise determination of 'mechanism' is ill-defined. While the notion of a mechanism is contentious, I adopt Illari and Williamson's (2012) broad definition that:

> "A mechanism for a phenomenon consists of entities and activities organised in such a way that they are responsible for the phenomenon."
>
> (Illari & Williamson, 2012: 120).

The reason for adopting this account is that it provides a definition which is largely compatible with the array of definitions found in the literature (see Illari & Williamson, 2012, for an overview of mechanism definitions). On this account, a mechanism can be said to underpin the reliably projectable properties if it is organised in such a way that it is responsible for them. For example, the mechanism behind the circulatory system can be said to be the heart, as the heart is causally responsible for pumping blood around the body (and thus, for the circulatory system itself).[77]

With this made clearer, we can now turn to consider what Boyd might mean by 'homeostatic'. I take homeostatic to mean that this mechanism must contribute in some instance to the maintenance of a goal state to further survival, in line with the lay understanding of homeostasis. In this way, although Illari and Williamson's (2012) definition of a mechanism is sufficiently liberal, I focus on biological mechanisms rather than aiming to encompass sociological or economic factors. While these factors inevitably play an important causal role in *anxiety*, they do not sufficiently meet the homeostatic condition. Therefore, when considering a potential causal homeostatic mechanism that can underpin the reliably projectable properties of *anxiety*, I aim to determine whether there is some biological entity, like a neurobiological correlate, which causally underpins them. This is also because if we can establish the natural kindhood of *anxiety* through this strongest notion of mechanism, then we are also likely to be able to do so on much more liberal accounts.

[77] Mechanisms *per se* do not need to be biological. For example, the causal mechanism behind a traditional analogue clock are the cogs which, when wound, power the hands. However, given that *anxiety* is a biological functional kind, I solely will consider biological mechanisms in the following sections.

With this in mind, let's briefly consider an example of a homeostatic mechanism. To do this, consider a single property: the colour-changing camouflage property of a cuttlefish. The homeostatic mechanism that causes the skin of the cuttlefish to change colour is likely to be a set of chromatophores, which are cells responsible for the pigment of the skin in many animals (like the cuttlefish). So, in essence, given that the chromatophores are causally responsible for the colour change in the skin, we can say that they are the mechanism which underpins them. For wider sets of properties, the causal mechanism may be something more complex, like neurobiological pathways, or the organisms' genome.

The importance of this causal mechanism for Boyd's account of natural kinds is that it is this mechanism which rationally justifies the explanations, projections, and predictions we can make across the category in question. This is because the causal mechanism provides us with an ontological explanation for why the reliably projectable properties are instantiated in the particular, and thus, why they are likely to be instantiated in unobserved members of the category.

To understand this, before we move on to consider *anxiety,* let's return to the example of the *flapjack octopus*, a species of deep-sea octopus. In this case, as we have seen, across this species we have a cluster of reliably projectable properties including, but not limited to, eight limbs, three hearts, bulbous heads, 'ear-like' fins on their heads, and the ability to flatten themselves as camouflage. For this example, assume that the causal mechanism that is responsible for these properties is a specific genomic profile which is shared across the category of *flapjack octopus.*[78,79] That is, this genomic profile is causally responsible for the properties, explaining why they reliably occur. Therefore, for future unobserved cases, if they share this causal mechanism, and have the same genomic profile, then it is extremely likely that they will also share the reliably projectable properties outlined above.

Given that this causal mechanism explains the instantiation of the properties, it allows us to rationally justify the epistemic practises we engage in when it comes to theorising about unobserved particulars. For example, I am rationally justified in predicting that future, unobserved cases of *flapjack octopus* are likely to have 'ear-like' fins on their head on the basis that the unobserved particulars share the same underlying causal mechanism (in their genomic profile) as the observed cases do. That is, the causal mechanism ontologically grounds the reliably projectable properties, allowing us to rationalise the explanations, projections, and predictions we make about them. According to this example, as the *flapjack octopus* shares a clustering set of reliably projectable properties that are causally underpinned by a homeostatic mechanism, this category fits the criteria for a natural kind on the HPC account.[80]

[78] This is to say that their genes are relevantly similar, not that they all have identical genes, in the same way that homosapiens have a specific genomic profile.
[79] This is not to commit to this definitively being the case.
[80] Again, I do not commit to this conclusion. However, Boyd did support the view that biological species were strong candidates for natural kindhood and applied the HPC account accordingly.

To briefly summarise then, to be an HPC kind, a category must share a clustering set of distinctive reliably projectable properties which are underpinned by a mechanism which is causally responsible for them.

§3.1 *Anxiety* as a candidate for natural kindhood

With this clear, let's now turn to sketch out what it would take for *anxiety* to be considered a natural kind category on Boyd's HPC account (Boyd, 1989).

According to the HPC account of natural kinds, for *anxiety* to be a natural kind, it would have to involve a clustering set of reliably projectable properties, and a homeostatic causal mechanism which is responsible for those properties. So, with these criteria clear, let's take each in turn.

In the first chapter of the thesis, I established that the category of *anxiety* is unified by a distinctive set of reliably projectable properties: functional, attentional, physiological, and behavioural properties. While the detail of these properties will not be repeated here, briefly they are the following:

> Functional: The detection of and response to uncertain or indiscernible physical or social threats within one's environment.
>
> Attentional: The narrowing and widening of the perceptual system biased towards threatening stimuli.
>
> Physiological: The activation of the sympathetic nervous system resulting in its associated physiological changes.
>
> Behavioural: The assessment, minimisation, or avoidance of the threat in question to reduce the level of uncertainty.

As such, through this set of distinctive reliably projectable properties, it is clear that the first criterion for HPC natural kindhood of a clustering set is fulfilled.

However, as we have seen in the example of *fruit* in the section above, the reliably projectable properties of *anxiety* alone are not sufficient to support our epistemic practises of projection, explanation, and prediction. For this to occur on the HPC account, and thus, for *anxiety* to be a natural kind, these properties must be underpinned by a homeostatic mechanism which is causally responsible for them. I argue that we can identify a strong candidate for this causal mechanism in the form of the bed nucleus of the stria terminalis (BNST) (Kurth, 2018b: 40, LeDoux, 2015: 105-108; Avery, Clauss, & Blackford, 2016).[81,82] Using extant neurobiological research, I argue that while there is compelling evidence for

[81] See Kurth (2018b) for an argument of how the homeostatic mechanisms underpinning anxiety and fear differ.
[82] This is not to say that the BNST is the *only* mechanism that causally underpins anxiety. If the BNST is involved, we would also expect other aspects of the extended amygdala, like the nucleus accumbens (NAcc) to also play an important role. See LeDoux (2015) for a full explanation.

the BNST underpinning the functional, physiological, and behavioural properties, more empirical research is required to establish it as causally underpinning the attentional properties. I will now outline how the BNST underpins the functional, behavioural, and physiological properties in turn.[83]

The BNST is an inherently complex limbic structure which is (at least partially) responsible for processing *uncertain* threats (Davis, Walker, & Lee, 1997, Davis, Walker, Miles, & Gillon, 2010; Davis, 2006; Walker, Miles, & Davis, 2009).[84] In this way, it can be said to underpin the functional properties of *anxiety.* This is because, essentially, there is widespread neurobiological agreement that the BNST is a brain structure which is organised in such a way that it is *responsible* for the functional property of anxiety: detecting and responding to uncertain threats within our environments.

When we consider the outputs of the BNST, we can see how this brain structure is a good candidate for the mechanism underpinning the reliably projectable properties of behaviour and physiology.[85] This is because, while the functioning of the BNST is multifaceted, it importantly connects to two significant systems: the autonomic nervous system, and behavioural defences (LeDoux, 2015: 106). Let's take each of these BNST outputs in turn.

As mentioned, a significant output of the BNST is the autonomic nervous system, meaning it is causally responsible for many of the somatic changes associated with an anxious episode that we saw in the first chapter. One way in which this occurs is that the BNST contains something called corticotropin-releasing hormone (CRH), which is key in regulation of the heart rate. Neurobiological studies, like that of Nijsen et al. (2001), show that the CRH released in the BNST increases the heartrate of rats during periods of induced anxiety. From these studies, we see that activity in the BNST directly corelates with an increased heartrate found in anxiety (and, as such, the physiological properties). In addition, there is evidence that the BNST also has causal effects on the brain areas which control blood pressure (see Giancola et al., 1993) and the digestive system (see Gray & Magnuson, 1987; Hopkins, 1987). In this way, there is empirical support that the BNST instructs for the somatic changes outlined in chapter one of an increased heartrate, palpitations, dizziness from blood pressure changes, and things like nausea and vomiting. From these studies, there is clear empirical support for the BNST causally underpinning the autonomic responses which map with the physiological properties of *anxiety*.

Aside from the physiological properties, there is strong neurobiological evidence to suggest that the BNST causally underpins the behavioural properties of *anxiety* (Kurth, 2018b: 44; Kim et al, 2013; Jennings et al., 2013). For example, recent neurobiological imaging of the BNST has suggested that it

[83] As mentioned, while there is still debate about the nature of the mechanism, if anything is to count as a mechanism in this instance, surely the brain system does. Given this, my account will be compatible with much weaker notions of mechanism which include things like socio-economic concerns.
[84] This then differs from an alternative neural region, the central nucleus of the amygdala, which deals with more known or direct threats (Davis, 1989; Gewirtz et al., 1998).
[85] I will turn to consider attention in the next section.

is fine-tuned to instruct for *different* behavioural responses (in the form of risk assessment and minimisation) based on the input stimuli it receives (see Jennings et al., 2013, Kim et al. 2013 for the full studies). What this means then is that it can instruct for different sets of behavioural responses based on calculated appropriateness for the situations in question. This is important when we consider that *anxiety* deals with both physical and social threats, which will require distinct sorts of behavioural responses. For example, someone who is giving a presentation and is therefore faced with the potential social threat of embarrassing themselves will require a particular set of actions to minimise this threat from realising. These sorts of risk minimisation actions may include practising their presentation in front of a mirror or running their presentation by a friend. This is then clearly very distinct from someone who is facing a physical threat, like the person who is being followed down an alleyway that we saw in the previous chapter. In that case, minimising the risk may involve more motor-based actions, like running away. Through its fine-tuning, the BNST can instruct for these different sort of risk minimisation behaviours, causally underpinning the behavioural properties of *anxiety* that we saw in chapter one.

Consequently, using this neurobiological support, it seems that we have a strong case to establish that the BNST is essentially acting as a causal catalyst for the activation of the physiological and behavioural properties that unify *anxiety*. By causally underpinning them in this way, the BNST then stands as a good candidate to say that the reliably projectable properties of anxiety are ontologically grounded. Through this ontological grounding, we could then engage in the epistemic practises of projection, explanation, and prediction in a way that is justified. That is, the *reason* that we are likely to find the properties of physiology and behaviour across the category of anxiety is because they are caused and grounded by the BNST, whose function is directly linked to uncertain threat response.

However, while neurobiological literature clearly establishes that the BNST plays an important role in causally underpinning the *response* to the threats detected, what about the threat detection itself? That is, does the BNST causally underpin the attentional properties of perceptual narrowing and widening biased towards threat which allow us to detect the threats in the first instance? In the following paragraphs, I will outline how the BNST could do so, but argue that more empirical work must be done to firmly establish the causal relation between the BNST and the attentional properties, and thus to establish *anxiety* as a natural kind.

To answer this question, let's first return to the notion of the attentional properties outlined in chapter one. The attention that is recruited when anxious is the perceptual narrowing and widening biased towards threatening stimuli in our environment. Across psychological literature on attention, as we saw in chapter one, there is widespread agreement that it can be exogenous, where the attention is automatically directed by an external stimulus, or endogenous, where attention is directed towards a goal (see Posner & Cohen, 1984). The attentional biases towards threatening stimuli (i.e., the instruction

to attend to potentially threatening stimuli in the environment) is a top-down instruction, and an example of endogenous attention. For the BNST to causally underpin the attentional properties, it is sufficient to establish that it can underpin this sort of endogenous attention. Given this, I will explore how the BNST could cause an attentional shift biased towards threat on the basis of a prior instruction (like previous threats detected in the same environment).

I argue that from extant neurobiological research, we can find some initial support for this idea. When a threat is perceived by the sensory systems, this information is then processed by what LeDoux (2015) deems the higher-order cortex of the brain, which is comprised of the pre-frontal cortex and the hippocampus. The pre-frontal cortex deals with executive cognitive processing, including things like decision making and importantly, providing top-down instructions for our attention. A key facet of hippocampal activity is environmental mapping, storing information about our surroundings, including the presence of threats (LeDoux, 2015: 106). So, when threatening stimuli is perceived, the location of the threat in the environment is stored in the hippocampus, and the information is then essentially passed across to the BNST. The BNST then connects to the autonomic nervous system to coordinate the physiological responses, and the behavioural systems to execute risk minimisation or assessment responses. To understand this, see the green arrow of figure 4 which outlines this process.[86]

[86] For those colourblind, the green arrow is the long, continuous arrow around the outer edge of the diagram.

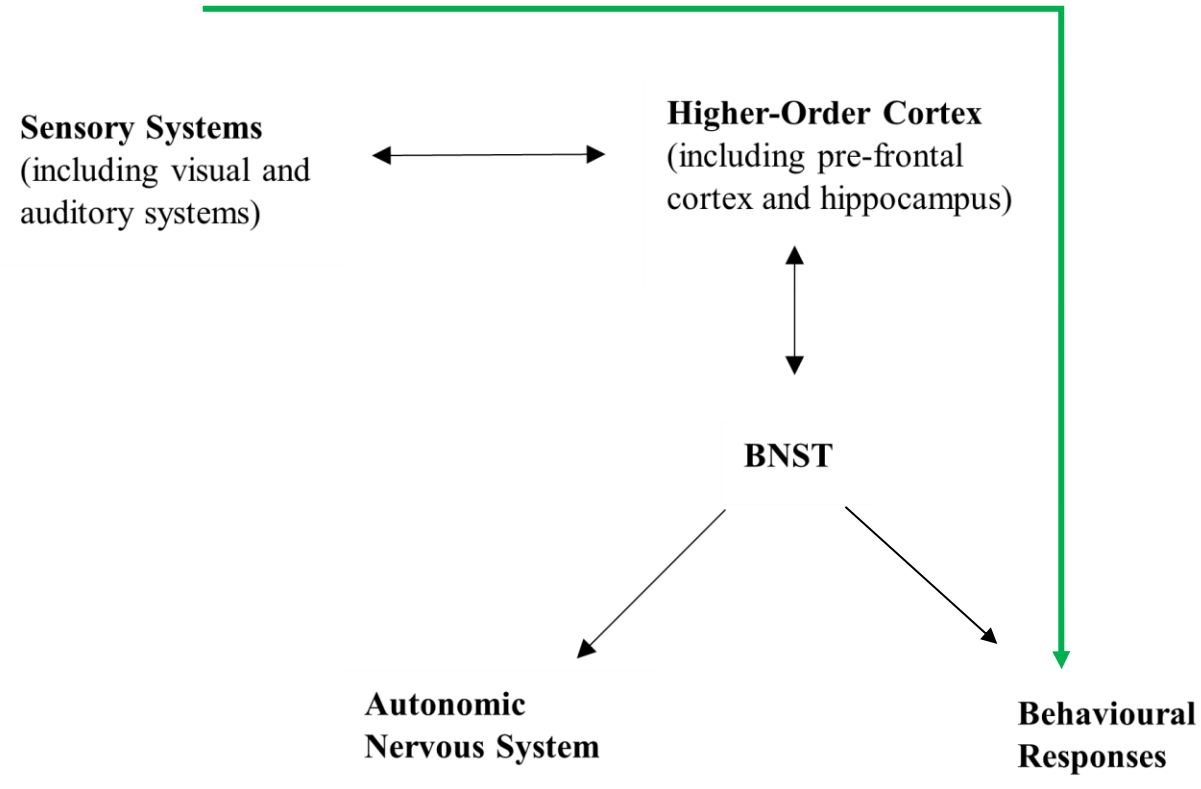


Figure 4. The neural connections to the BNST (adapted from LeDoux, 2015: 105). The green arrow indicates the usual causal relay.

However, a key problem with this for establishing the BNST as the mechanism which causally underpins the attentional properties of anxiety, and thus allows us to establish it as a natural kind, regards causal ordering. This is because *prima facie* it seems that that causal relation between the attentional properties, which seek to detect the threats in the environment, and the BNST is such that the bias towards threat would prompt the activation of the BNST, rather than the BNST causally underpinning the attentional properties of *anxiety*.

While this is a *prima facie* problem, I argue that it can feasibly be addressed when we consider the processing loop that the BNST is part of. The key function of the BNST is to process uncertain threats in our environment and attentional biases towards threat play an important role in doing so. Therefore, I argue that given the bi-directional relation between the BNST and the higher-order cortex, the BNST may be causally responsible for providing the higher-order cortex with the information to then order a top-down attentional shift towards threatening stimuli. That is, the BNST would essentially be the causal catalyst for the attentional shift, while the pre-frontal cortex (as well as the environmental map

in the hippocampus) would instruct for the attentional shift to be executed. To understand this process, see the red arrow in figure 5.[87]

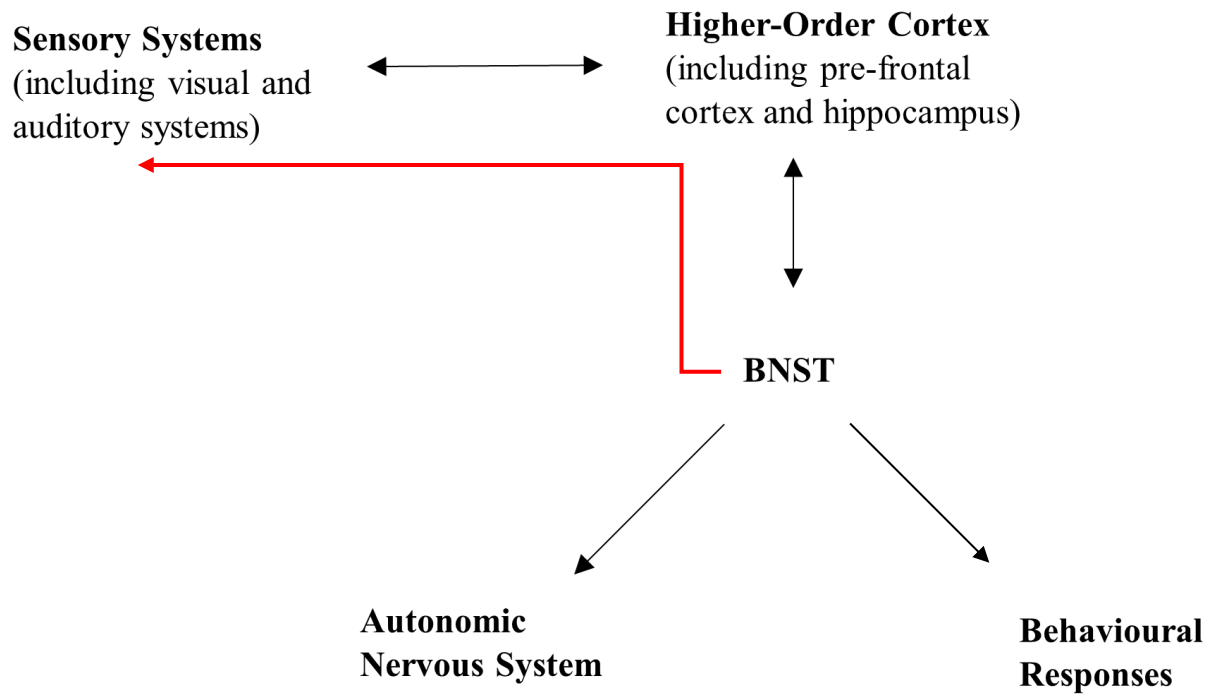


Figure 5. The proposed neural feedback loop (adapted from LeDoux, 2015: 105). The red arrow indicates the proposed causal relay.

Extant neurobiological research posits that there are important feedback, or 'processing', loops from the BNST back in to the visual cortexes of the brain (see LeDoux, 2015: 222). These loops allow for perpetuated threat perception and response, supporting the feasibility of the loop outlined in figure 5. Furthermore, research in neurobiology posits that there is a causal relation between the extended amygdala (of which the BNST is a component part) and increased attention and vigilance (e.g., Davis & Whalen, 2001; Fox et al., 2015; Lebow & Chen, 2016).

However, while promising, more empirical work is required to conclusively establish the that the BNST does provide the pre-frontal cortex with this information. This is because for *anxiety* to be a natural kind, we need conclusive empirical evidence which demonstrates that the attentional properties are causally underpinned by a mechanism like the BNST.

Consequently, while we currently have strong empirical evidence suggesting the BNST causally underpins the functional, physiological, and behavioural properties of anxiety, we lack strong evidence

[87] For those colourblind, the red arrow is the long arrow that connects the BNST to the sensory systems.

establishing the causal underpinning of the attentional properties. This means that, at present, we cannot firmly establish the BNST as the causal mechanism for natural kindhood. However, if it were the case that the BNST could be firmly established as the causal mechanism which underpins the attentional properties of *anxiety*, then it seems that the biological functional kind category of *anxiety* could also be considered a natural kind. For now, it is simply a strong candidate for natural kindhood.

Conclusion

In this chapter, I aimed to establish whether the biological functional kind of *anxiety* should also be considered to be a natural kind category. In this way, I aimed to determine whether *anxiety* can support the epistemic practises of explanation, projection, and prediction. While I outlined two distinct ways of determining natural kindhood, in the form of essentialism and a property cluster account, I adopted Boyd's homeostatic property cluster account (HPC) of natural kinds (1989). This is because it is the prevailing account for determining the natural kindhood of biological and psychological categories. As *anxiety* has been established to be a biological functional kind, it seems fitting then to use the HPC account.

For *anxiety* to be a natural kind on the HPC account, it requires a clustering set of reliably projectable properties which are causally underpinned by a homeostatic mechanism. For *anxiety*, as the clustering set of properties has been well established across chapters one and two of the thesis, I argued that the best candidate for this causal mechanism is the BNST area of the brain. This is because the BNST is responsible for dealing with uncertain threats and coordinating the corporeal response to these threats. Although neurobiological work supports the position that the BNST is a strong candidate to underpin the reliably projectable properties of function, physiology, and behaviour, more empirical work is required to determine whether it also underpins the attentional properties.

If we can establish the BNST can underpin the clustering property set, or identify a stronger candidate to do so, then I argue that we could firmly establish *anxiety* as a natural kind category. If we can do this, then we can posit that *anxiety* is the sort of category that science ought to be investigating, given that our inductive practises regarding this category could then be rationally justified. However, at present, it seems that the biological functional kind of *anxiety* remains merely a strong candidate for natural kindhood.

Chapter Four: The Distinction Between Normal versus Abnormal Anxiety

> "Anxiety has been conceived of as an exclusively undesirable and abnormal phenomenon, as a frequently normal and useful one, or as both, as in the distinction between normal and neurotic anxiety."
>
> Cattell & Scheier, 1958: 352

Introduction

In chapter one, I argued that anxiety can be unified by focusing on the anxiety system. However, as noted, the way we evidence the activation of such a system is through the expression of normal and abnormal episodes of anxiety. Now, it is time to analyse the distinction between these two sorts of episodes in more detail. Since Freud's (1926) distinction between *objective* and *neurotic* anxiety, psychology continues to maintain a distinction between a normal sort of anxiety that does not require intervention, and an abnormal sort of anxiety that does. In fact, contemporary psychiatry is built upon this understanding.[88] Setting psychiatry aside and focusing on the psychology and metaphysics of *anxiety*, across the extant literature, the relation between these normal and abnormal episodes of anxiety is very rarely discussed. The problem with this is that the question of how we can distinguish between (ab)normal episodes and determine the point at which intervention would be largely beneficial is left open. If the distinction between normal and abnormal anxiety is based upon the appropriateness of intervention, then increasing our understanding of how and why this is the case may mean that intervention can be provided at an earlier stage, improving the well-being of people. Therefore, the primary purpose of this chapter is to address this gap in the literature by examining the relation between normal and abnormal episodes of anxiety. I argue that there is a set of four independent, but co-occurring properties which we can use to distinguish the two. While I will outline these properties and the potential merits of using them, it is important to note that I will not be championing one method of delineation over the other.

I begin the chapter in §1 by defining abnormality in a way that is distinctly not medical, but instead, captures a kind of unusualness in accordance with the usage throughout the thesis. I argue that, depending on the goals of delineating between the normal and abnormal, there are two ways this unusualness can be determined. Firstly, at a social level, where something is identified as usual in relation to a given reference class. Or, secondly, at an individual level, where something is unusual for the Experiencer in relation to their own relevantly similar experiences. While it is important to recognise

[88] For now, I set notions of psychiatry and medicine aside. Instead, across this chapter, I commit to the position that abnormal anxiety regards unusualness. In this way, abnormality is not necessarily medical and should not be thought of as such. This is key in differentiating between (ab)normal episodes of anxiety, the notion of *medicalized anxiety* that we will see in the following chapter, and the anxiety disorders. This will be further substantiated in the first section.

these two distinct approaches, the methods of delineating normal from abnormal anxiety I present throughout this chapter are compatible with either approach. With the conceptualisation of abnormal clear, in §1.2, I turn to consider the relation between normal and abnormal episodes of anxiety. While normal and abnormal anxious episodes share the common unifying core of functional, attentional, physiological, and behavioural properties, the key difference between them is the way in which they manifest. In this way, I argue that (ab)normal episodes of anxiety lie on a multidimensional spectrum, with normality at one end, and extreme abnormality at the other.[89] By multi-dimensional, I mean that there are four distinct, but often co-occurring, properties (or dimensions) that can be used to determine where on the spectrum an anxious episode falls. In §2, I argue that the episode falls more towards the abnormal end if it: (1) is disproportionate to the objective threat that evoked it (proportionality), (2) inhibits the day-to-day activities of the Experiencer (disability), (3) is not mentally manageable (mental management); or (4) is phenomenologically intense (phenomenological intensity). With these individual properties explained, in §3, I provide a synthesis of how these properties may interact when they co-occur, and how we can then determine (ab)normality in these kinds of cases. In this section, I outline how these properties regularly co-occur, arguing that while there are clear cut cases of abnormal anxiety, due to the spectral nature of the distinction between the two sorts of episodes, there may be some grey cases of anxious episodes that are harder to distinguish. Finally, while the notion of medical anxiety was set aside as to not confuse the chapter, to conclude, I turn to consider how the anxiety spectrum aligns with the clinical concept of the anxiety disorders. By doing so, I hope to create a more complete picture of *anxiety* as a complex, but unified category.

[89] As will become clearer, this is not to suggest that the spectrum is linear.

§1.1 Abnormal *need not be* medical

Before I analyse the ways in which normal and abnormal episodes can be distinguished, it is important that we recall the distinct way in which the term 'abnormal' is being used.[90] In lay discussions of anxiety, abnormal anxiety tends to be conceptualised in a medical way (e.g., as symptoms of anxiety disorders, or as the disorders themselves). For example, a simple Google search of 'abnormal anxiety' returns many hits specifically about the anxiety disorders. In psychological literature, 'abnormal' anxiety being eclipsed by the notion of *medicalized anxiety* is widespread.[91] However, as we will see throughout this chapter and the next, I argue that confusing abnormal anxiety with medical notions muddies the waters between the more nuanced concepts and experiences of anxiety. That is, I argue that abnormal, when used in relation to anxiety, is not necessarily medical in any way. Given this, an important associated question then arises: how can we determine the point at which this abnormal anxiety becomes medical, or warrants diagnosis? For now, I set this question aside to be dealt with both at the end of this chapter and in more detail in the next. Consequently, I ask you, the reader, to do the same, and set medical notions, diagnoses, and the anxiety disorders aside until the concepts of normal and abnormal episodes have become clearer.

Given that abnormal across the thesis is not intended to be medical, recall that instead, I define abnormal in the sense of indicating something that is *out of the ordinary* or *unusual* which has been deemed as an undesirable way of living. As such, it seems that such a case would largely benefit from intervention to return the Experiencer to a desirable way of living (i.e., to directly address whatever it is that is undesirable about the experience at hand).[92] From this, there are two levels at which something can be unusual. Firstly, there is the societal level, where an experience is unusual compared to the relevantly similar experiences of the society in which the Experiencer finds themselves in.[93] Secondly, something can be unusual at the individual level, where the experience is unusual compared to other similar experiences of the Experiencer throughout their life. Whether something is unusual at the societal or individual level is generally dependent upon the goals of those measuring abnormality. For example, governmental bodies are more likely to be interested in abnormality at the societal level.[94] As I do not want to commit to either a societal or individual notion of abnormality, the properties outlined in this chapter to delineate abnormal episodes from normal ones are compatible with either approach.

[90] This was originally outlined in chapter one but must be echoed here as this abnormality is key to this chapter.
[91] Like in the works of leading anxiety researchers like Dan Stein and Randolph Nesse (2015). While Stein and Nesse are critical of the approaches of contemporary psychiatry in delineating normal from abnormal, they nevertheless tend to equate abnormal with medicalized notions of anxiety.
[92] Accordingly, we have also deemed the usual as something desirable.
[93] As we will see later in this chapter, the 'society' is essentially any identified reference class.
[94] For a more in-depth understanding of these positions, it may be helpful to read the literature on naturalistic versus normative approaches to understanding mental disorder (e.g., Boorse, 1977; Wakefield, 1992; Wakefield, 2014). While they do not directly map, they do deal with distinct ways to determine abnormality which may be beneficial.

§1.2 Four properties for delineation

With that clear, we can now move to consider the distinction between normal and abnormal episodes of anxiety. I argue that, due to their shared core of functional, attentional, physiological, and behavioural properties that we originally saw in the first chapter of the thesis, the differences between (ab)normal episodes of anxiety relate to the ways in which they manifest, rather than the two sorts of episodes being substantively different kinds of phenomena.

On this basis, I argue that (ab)normal episodes will often shade into one another, without clear-cut boundaries between them. In this way, I argue the best conceptual framework for delineating between (ab)normal episodes of anxiety is to consider this (ab)normality as lying on a multidimensional spectrum, with normality at one 'end' and abnormality at the other.[95] By *multi-dimensional*, I mean that there are multiple distinct ways of determining how (ab)normal episodes of anxiety differ and shade into one another rather than through one singular property (on a mono- or one-dimensional spectrum).

Accordingly, to determine where an anxious episode falls on this spectrum, I argue that there are four separate, but often co-occurring, properties (or dimensions) which we use to determine the desirability of the anxiety experience. That is, there are four properties which we can use to distinguish normal from abnormal which I will outline in turn across the following sections of the chapter.[96] Briefly, they are the following:

1. '**Proportionality'** to threat, where the more disproportionate to the objective threat that has evoked the anxious episode, the more abnormal the episode is.
2. '**Disability'**, where the more the anxious episode interferes with the day-to-day activities of the Experiencer, the more abnormal the episode is.
3. '**Mental management'**, where the less cognitively manageable the episode is, the more abnormal it is.
4. '**Phenomenological intensity'**, where the more intense the episode feels, the more abnormal it is.

I will take each property in turn, explaining how they can be used to distinguish normal episodes from abnormal episodes. As these properties are all distinct manifestations of the same core experience, it is important to note that many of the differences between the individual properties are only slight. The differences will be identified and explained where relevant.

[95] Recall that the use of the term 'end' does not imply that this spectrum is linear. 'End' here is used to designate the outer part of the spectrum.

[96] Evidence for the co-occurrence of the properties will be further substantiated in the synthesis section towards the end of the chapter.

§2.1 Proportionality to threat

The first property that can be used to distinguish normal from abnormal episodes of anxiety, and thus determine where the experience sits on the anxiety spectrum, is what I have deemed 'the proportionality criterion'. This method analyses the relation between the expressed reaction of the Experiencer and the objective threat which has evoked it. This is achieved by using statistical averages to determine what the 'normal' proportionate response ought to be, and any deviations from this (following the likes of Boorse, 1977).[97] The general principle from this is then: the more disproportionate the anxious reaction, the further along the spectrum it falls.

Before outlining and examining the proportionality criterion in detail, one must first understand its developmental origins. Using the relation between the anxiety reaction and a triggering stimulus in the distinction between normal and abnormal anxiety originated in the works of Sigmund Freud in his distinction between 'objective' and 'neurotic' anxiety (Freud, 1926). For Freud, 'objective anxiety' was considered normalised and did not require intervention. Contrastingly, 'neurotic anxiety' was abnormalised, and required intervention (for him, in the form of psychoanalysis). Freud argued this on the basis that while objective anxiety has a clear external triggering stimulus, neurotic anxiety comes from within, seemingly unprovoked by anything (ibid). That is, neurotic anxiety is neurotic (or abnormal) in virtue of there being no triggering stimulus to have caused the anxiety reaction in the first instance.

The method of using the presence of an external triggering stimulus to delineate normal from abnormal anxiety was then carried forward by anxiety pioneers Cattell and Scheier (1961). Cattell and Scheier referred to anxiety that had not been provoked by a clear external triggering stimulus as 'free-floating', or 'unbounded' anxiety, viewing this as an abnormal sort of anxiety (e.g., Cattell & Scheier, 1961:16). This is then contrasted with the more 'bounded', 'normal' anxiety, which is clearly triggered by, and directed towards, a particular event, or object. For example, an anxious episode which occurs prior to an examination or a presentation would be considered normal, 'bounded' anxiety on Cattell & Scheier's account, whereas anxiety which seemingly occurs out of the blue while sat at home lying on the sofa would be considered 'unbounded', abnormal anxiety. On this account, similar to that of Freud, the differentiating factor between normal and abnormal anxiety is whether the reaction is evoked by a genuinely threatening stimulus (normal) or not (abnormal).

[97] While I will present this property here in a way that determines proportionality on a societal level, it is important to note that this need not be the case. Following the same principles outlined in this section, one could determine whether an Experiencer's anxious episode is proportionate in comparison with other similar anxious episodes they have experienced. That is, using proportionality to delineate normal from abnormal episodes is compatible with an individualistic approach. It is presented in a societal way to firstly demonstrate that there are societal level approaches, but also because this is the standard in extant literature when the notion of 'excessive' anxiety (i.e., disproportionate anxiety) is discussed.

However, while Freud's initial theory is still echoed across more contemporary psychology and psychiatry, if we are to use it to determine abnormality, it requires supplementation to capture all paradigmatic cases of abnormal anxiety.[98] This is because we want our method of delineation to capture intuitively abnormal episodes of anxiety where there is a clear external triggering stimulus. This is made most clear when we consider one of the intuitively abnormal cases discussed in detail in chapter one: Becky and the mole. In this example, Becky noticed a strangely shaped mole which made her intensely anxious for an extended period. In this case, it is clear that there is an external triggering stimulus for the anxiety in the form of the mole. Not only that, but the stimulus *does* pose some level of genuinely uncertain threat as this mole *could* be malignant. So, in this case, we have an anxious response to a genuinely threatening external stimulus. Yet, despite this genuine stimulus, there is still something about Becky's anxious response that makes us intuitively want to say it is more on the abnormal end of the anxiety spectrum. Therefore, there must be another, more salient criterion that distinguishes the sort of anxious episode that Becky is having from 'normal' worries about the general state of our health.

To capture these sort of intuitively abnormal cases where there is a genuinely triggering stimulus, what I have explicitly deemed the 'proportionality criterion' emerged. The premise central to the proportionality criterion is that normalcy is determined on the basis of whether the reaction to said stimulus is proportionate to the threat that has evoked it (e.g., Spielberger, 1966: 10; Lewis, 1967; May, 1977: 208; Bolton & Hill, 1996: 342). It is important to note that this measures the *objective* threat posed before the Experiencer, rather than the way in which they have perceived the stimulus as a threat. The more disproportionate the reaction, the more abnormal it is. So, applying this to the spectral view of anxiety, the proportionality criterion would be conceptualised as follows:

> Proportionality: the more disproportionate the anxiety reaction is, the further along towards the abnormal end of the spectrum it falls.

Determining whether something is proportionate is neither an easy nor straight forward task as this proportionality must be measured in some way. While there are a variety of measures that one could use, the importance for the proportionality criterion is that it relies upon ascertaining *statistical averages to determine 'normal' functioning* (e.g., Boorse, 1977).[99] To make more sense of this criterion, I will outline a way proportionality to threat can be determined that relies upon averaging the temporal duration of Experiencers' anxious episodes. Duration has been identified as an example measure for ease of exposition and, more importantly, because lessening the duration of anxious episodes is often referenced in 'treatment' plans for abnormal anxiety. This suggests a direct correlation between the

[98] Evidence of this prevalence can be found implicitly in many psychological works, like that of Kimmel & Brennan (1981) and LeDoux (2015), to name a couple.

[99] Proportionality can be cashed out in a variety of ways. For example, something could be disproportionate in the sense that it causes more psychological distress on average, or more interference in one's day-to-day activities. These are kept separate for the sake of clarity. Instead, these are addressed as independent criteria in the following sections.

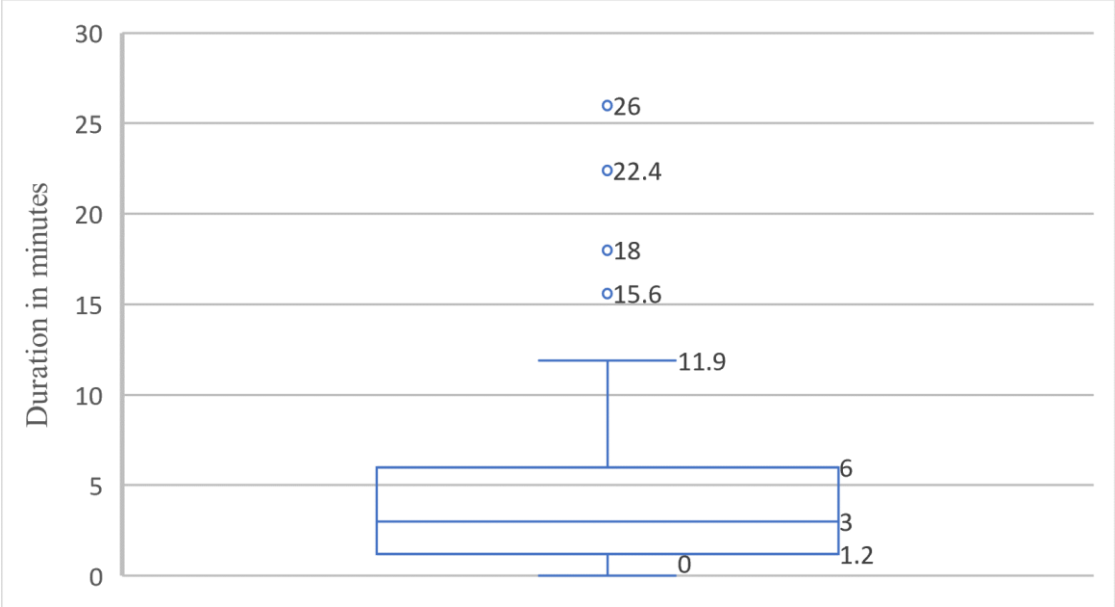
requirement for intervention and long durations (see the Maudsley prescribing guidelines by Taylor, Barnes, & Young, 2018).

To explain this clearly, I will present a fully realised example of Billy and the exam that I first presented in chapter one and determine the proportionality of his anxious reaction. For the purposes of this example, imagine that Billy's anxious episode lasts 3 minutes in total. In this scenario, we want to formally know whether Billy's anxious episode is proportionate to the threat posed by the triggering stimulus (the exam), and therefore, determine whereabouts the episode ought to fall on the anxiety spectrum.[100]

The first step in determining whether something is proportionate in this way is to identify a reference class to compare Billy's anxiety against. Taken from the work of Christopher Boorse, a pioneer in formally delineating normal from abnormal in health, a reference class is a "natural class of organisms of uniform functional design" (Boorse, 1977: 562) like that of age, sex, and racial group within a given society. Although the notion of a reference class has faced criticism (see Cooper, 2020) and will be further examined at the end of the chapter, the inclusion of a reference class is necessary to quantitatively compare individuals while also capturing potential sociocultural differentiations in threat responses across distinct contexts. For example, the uncertain threat of a great white shark potentially being in an expanse of coastal water is a much greater genuine threat for someone living in Gansbaai, South Africa, compared to someone in Grimsby, England.[101] The difference in the reference class will then inevitably change the calculated proportionality. When we then go to consider the reference class to calculate the proportionality of Billy's anxiety, we want to know if his exam anxiety is proportionate for students like him who are sitting those exams. So, in this case, let the reference class be year 11 mathematics GCSE students in England in the year the measurements are taken (e.g., 2022).[102] As such, the resultant proportionality will be what the 'normal' anxious response is for someone of that age group and status.

[100] One may argue that we have an intuitive/instinctual answer to whether this is proportionate or not. However, our interest here is how proportionality can be determined in a formal way.
[101] Gansbaai is known for having a large population of great white sharks. Grimsby, however, is not.
[102] As GCSEs differ across the devolved nations of the United Kingdom, the particular reference class in this instance is narrowed to reflect this. However, in other examples, it may be okay to widen the class outwardly to the whole of the UK if there is a significant enough similarity between the cases being compared.

Once the reference class has been identified, the next step to determine proportionality is to measure the temporal durations of the anxious episodes of the individuals who constitute the reference class. That is, we measure the length of the anxious episodes experienced by all and any of the year 11 GCSE mathematics students who sit the same exam. After recording these results, we then collate them and find the average length of time the students were anxious for, and plot this on a graph.[103] To understand this, refer to the hypothesised box and whisker graph, as seen in figure 6.[104]



The box created by such a graph then allows us to set a statistically determined threshold to establish

Figure 6. Hypothesised box and whisker graph demonstrating the average temporal duration of anxiety episodes prior to the mathematics GCSE in year 11 students in England.

what counts as a proportionate reaction to this particular stimulus. Any reaction which falls within the determined threshold (box) can be considered a proportionate reaction and would therefore fall toward the normal end of the spectrum. The closer to the actual average, which is indicated by a horizontal line within the box (3 minutes), the closer to the normal end of the spectrum. So, when looking at the example realised in figure 6, a duration of 5 minutes would be considered normal, but a reaction of 4 minutes would be considered more normal, as it is closer to the mean. Accordingly, anything that falls outside of this threshold is then considered disproportionate and would therefore then fall further along the abnormal spectrum. Within this, the more disproportionate the episode (i.e., the more standard deviations away from the threshold), the further along the abnormal spectrum it is. Consequently, when looking at the example realised in figure 6, a duration of 10 minutes would be considered abnormal, but the anomalous reaction of 26 minutes would be considered more abnormal, given that it falls further

[103] In my example, I have used a box and whisker style plot, as this provides the kind of statistical threshold framework I am looking for. However, other methods are available, and may be preferable given certain limitations.

[104] As there is no real-world empirical data to ascertain accurate numbers, all numbers in the graph are hypothesised. In this case, the importance is to convey an understanding of how this kind of statistical system would work, rather than conveying true to life data.

from the average duration. So, returning to the example of Billy with a reaction time of 3 minutes, we can determine from this graph that his anxious reaction would be considered within the normal threshold.

While we are most accustomed to the idea of disproportionate anxiety being *excessive* (statistically higher than the mean), as seen in chapter two, one important implication of the proportionality criterion that should not be overlooked is that this account can accommodate for cases where the anxiety is *insufficient.* As also mentioned in chapters one and two, the function of anxiety is to detect and respond to uncertain threats within our environment in accordance with evolutionary principles. An implication of this then is that if we do not respond to a genuinely threatening stimulus in our environment (either physical or social), we are susceptible to the harms it poses in a way that is maladaptive. As mentioned in chapter two, this is the threat detector *underworking.* For example, studies have shown that in mice, a brain parasite called Toxoplasma gondii inhibits the threat detector mechanism so intensely that the mice are no longer averse to the smell of feline urine (an indication of the presence of one of their predators) (Ingram et al., 2013).[105] Rather than retreating from the urine, as they would under normal circumstances, the parasite-infected mice approach it, essentially leading them "into the jaws" of their predators (ibid). In this instance, to keep them safe from the threat, they needed an anxious response in the first place. Subsequently, on the proportionality account, to capture this maladaptive, insufficient anxiety reaction, anything that falls *below* the threshold is also disproportionate, and therefore abnormal on this account. When considering this against figure 6, this means that any duration that lasts for less than 1.2 minutes ought to be considered on the abnormal end of the spectrum.

With the concept of proportionality clear, I will now move to consider why one may be motivated to use this particular criterion. The primary motivation for the proportionality criterion is that it can appropriately deal with cases outlined in §2.1 where there is a triggering stimulus, but we still intuitively want to say that the response is in some way abnormal.

To see how this works, reconsider the case of Becky who is anxious about her mole. According to the proportionality criterion, we would compare the length of her anxious response to that of the reference class (i.e., women of a similar age within the same society who come across a new mole on their body). In this hypothetical, we likely would find that on average, despite representing a genuine threat, most people would not be anxious for as long as Becky has been. Therefore, on this account, her response seems to be disproportionate to the threat that has evoked it and would be considered on the abnormal end of the spectrum.

An additional benefit of the proportionality approach is that abnormal anxiety can then be quantitatively assessed, which is often a useful tool in terms of implementing intervention methods. Those who require

[105] What makes this an instance of *anxiety*, rather than fear, is that the threat posed by the cat is uncertain, as it is not immediately perceivable within the environment of the mice.

intervention can be identified in a direct fashion, which theoretically then ought to increase the speed at which it can be provided. For example, in the case of the calculated exam anxiety, with the consent of the participants, we can identify the people who fall outside of this spectrum quantitatively and so can provide them with any additional tools they may need to address their abnormal anxiety episode. Relating back to the graph in figure 6, the anomalous cases, like that of 18, 22.4, and 26, for example, are presented to us, without having to go further investigating for abnormality.

While proportionality is a popular way to delineate normal from abnormal episodes of anxiety in psychological literature, I will now outline one potential problem with this approach, which regards the notion of the reference class.[106] Although it must be noted that the proposed problem here is not a problem with the concept of proportionality as a way to distinguish between normal and abnormal *per se*, it becomes a problem when attempting to practically apply this property. A key problem with determining a reference class is establishing which variables ought to be controlled for, and which to allow variation upon. For example, reconsider the example of Billy and his exam. In that case, we set restrictions on the age of the reference class (year eleven students), the temporal location of the reference class (2022), the spatial location of the members of the class (living in England), and a contextual restriction which related the reference class to the anxiety-provoking situation in question (students sitting the mathematics exam). However, we equally could have included restrictions on the sex or the race of the reference class. The problem here is that by introducing additional restrictions, the resultant graph will obviously change, given the different inputs. Consequently, the determined threshold for (ab)normality will then differ, meaning that the position of Billy's reaction time on the threshold will also change in accordance with the new threshold. For example, it may be that females in year eleven are anxious for significantly longer than their male counterparts. If this were the case, by removing females from the equation (given that Billy is male, and his comparative reference class with a restriction on sex would then only be male, year 11 mathematics GCSE students in England), the overall average of the anxious durations ought to fall. If we imagine that Billy's anxious episode does not fall, it could be that his reaction time of 3 minutes now lays *outside* of the determined threshold, making it more of an abnormal response. The key problem here then really is establishing what particular restrictions ought to be set on the reference class to begin with, which will vary depending on the goals of those wanting to establish what is (ab)normal.

While there are clear issues with the notion of a reference class, as mentioned earlier in this section, they are important for establishing *some sort* of socio-cultural context in which to assess the (ab)normality of the anxiety.

[106] Obviously, this is not a problem if we use proportionality at an individual level. For now, let's focus on a more societal level approach, in accordance with naturalist frameworks like that of Boorse (1977) that we have been using up to now.

§2.2 Disability

Another property that can be used to differentiate normal from abnormal episodes of anxiety is that of disability. Essentially, the principle is as follows: the more disabling the anxious episode, the further along the abnormal end of the spectrum the episode falls.

Across philosophical literature, there are competing conceptual models for the notion of disability.[107] For example, those following the views of Boorse (1977) argue that disability should be cashed out in terms of impairments to 'normal' functioning (i.e., statistical differences in functioning), much like the proportionality criterion. Contrastingly, there are well-being accounts which centre more around the subjective experience of the Experiencer. These accounts, like that of Savulescu & Kahane (2011: 45), argue that disability is when physical or psychological properties of the Experiencer causes them a "significant reduction" of well-being.

While the disability debate is far from solved, the importance for this chapter is that disability *per se* is a property by which one can determine where on the anxiety spectrum a particular episode of anxiety falls. Given the competing models of disability, it means this could be executed in a variety of ways. For the sake of brevity, following the more subjective-focused notion of disability provided by the World Health Organisation (Üstün, 2010), here I provide one explanation of the way in which disability can be used to make this distinction that ought to be compatible across a number of competing frameworks. Importantly, one does not need to accept this definition of disability to use disability as the distinguishing criterion in the normal/abnormal anxiety distinction. Consequently, in this chapter, I opt for a loose notion of disability which broadly equates to the *social and physical incapacitation* to carry out some action that the Experiencer volitionally wants to do caused by the internal experience in question.[108] This conception essentially examines the externally observable behaviours of the Experiencer to determine whether they have been incapacitated in any way.

Based on the notion of disability adopted by the World Health Organisation (Üstün, 2010), I argue there are six main domains in which an Experiencer can be disabled, a brief breakdown of which can be found in table 2. Note that in the domains presented here, the first domain (D1) has been edited to refer solely to externally observable behaviours, and any internal, cognitive processes found in the original WHO disability standards like 'cognition' and 'concentrating' have been omitted. These mental facilities have been separated out in order to make the distinction between the notion of disability discussed here and the property of mental management, which will be explained in a later section, clearer.

[107] Outlining all of the kinds of disability accounts, and the nuances of this debate, is outside of the scope of this thesis. Therefore, I provide a brief outline of two distinct models of disability one could use.
[108] Internal here is not meant to indicate that it is mental, merely that it comes from the Experiencer, rather than from an external force. This causal relation will be further substantiated in the following sections.

	Domain name[109]	**This domain asks about incapacitation in:**
D1	Communication	Communication, including learning, understanding others, and abilities to create and hold conversation.
D2	Getting around	Standing and walking for periods of time, as well as moving around inside and outside of the home.
D3	Self-care	Looking after oneself, like abilities to wash, dress, and feed oneself.
D4	Getting along with people	The relationships we are able to make and maintain with others, including strangers, existing friendships, and sexual relations.
D5	Life activities	The timeliness, prioritisation, and completion of tasks like household chores and in relation to employment and schooling.
D6	Participation in society	More general areas of life, like community engagement and general day-to-day effects of one's health condition. Emotional and financial consequences.

Table 2. The six main domains in which an Experiencer can be disabled.

To see how an anxious episode can be disabling across these domains, reconsider the example of Charlie and school initially outlined in chapter one where his anxiety meant that he was unable to attend. In this case, the anxious episode is disabling Charlie across various domains, like getting along with people (D4) and life activities (D5). This is because, by avoiding school due to the anxiety, Charlie cannot form and maintain important interpersonal relationships with his school peers which could then lead to an increase in social isolation and ostracization. In terms of life activities, if he cannot leave the home, he clearly cannot complete his tasks that schooling would provide (like classwork, coursework, and testing, etc.).

It is important to note that for each episode of anxiety, much like in Charlie's case, the Experiencer can be disabled across multiple domains. While it is not necessary for multiple domains to be affected for the episode to be considered disabling, the level of overall disability caused by the episode increases the more domains that are affected. Therefore, the disability criterion can be formulated in the following way:

> Disability: The more disabling the anxiety episode is, the further along the anxiety spectrum it falls.

[109] The headings are the official headings found within the WHODAS 2.0. The explanation that follows is a brief paraphrasing of the distinct subheadings (D1-D6) (Üstün, 2010). Recall that mental faculties have been omitted.

The causal connection between the anxious episode in question and the disability is of utmost importance. For an episode of anxiety to be considered *disabling*, it must be the case that there is a direct causal link between the anxious episode and the incapacitation rather than this being caused by something independent of the anxiety reaction. One way in which this causal connection can be determined is to consider ways in which the incapacitation could be avoided, for example, by establishing whether changing external factors changes the incapacitation experienced (e.g., Cooper, 2020: 157). An example of this is provided by philosopher of psychiatry, Rachel Cooper, in her explanation of internal versus external problems where she considers a "petite woman [who] struggles to use tools designed for big men" (Cooper, 2020: 156). In this case, if we accept the underlying assumption that using the tools is something that the petite woman wishes to do (to fix a cabinet, for instance), then she is clearly incapacitated in this action. By considering the ways in which this incapacitation can be ameliorated, we can determine whether it is internally or externally caused. It seems that if we changed external factors and made tools which were suitable and small enough, the petite woman could use the tools effectively and would no longer be incapacitated. So, in this case, it seems like the incapacitation is externally caused.

However, now let us consider a case where the petite woman is experiencing an episode of anxiety. During this episode, her hands are shaking so much that she cannot use the tools she wishes to use as they require a level of manual dexterity that she currently cannot achieve. Even if we made the external changes of making the tools smaller or more ergonomic for her use, she still would be incapacitated due to the anxious episode. In this case then, as the anxiety seems to causally contribute to the incapacitation, we can consider it disabling.

With the notion of disability clearer, I now turn to consider how we can use this criterion more practically to determine where along the anxiety spectrum a particular episode may fall. Let's return to the examples of 'Jerry and the mountains' and 'Charlie and school' first outlined in chapter one. Firstly, reconsider the example of Jerry who becomes anxious upon perceiving a silhouette of an animal in the woods. Although it could be said that the anxiety episode interferes with the activity in that he pauses to scan his environment for information about the animal, it is not disabling in that it does not incapacitate or *prevent* him from completing his hike. In this case, given that this episode is minimally disabling for the Experiencer, it seems that the episode ought to sit more toward the normal end of the spectrum.

Compare this then with the example of Charlie where he was incapacitated in attending school, forming, and maintaining friendships, and fulfilling his potential. In this case, we can safely assume it is the anxiety preventing his school attendance, rather than him being prevented by anything else (like a parent). As Charlie's anxious episode here is causing such a high level of disability for the Experiencer, it clearly ought to fall further along the abnormal end of the anxiety spectrum on this account.

One benefit of identifying disability as a property to distinguish between normal and abnormal cases is that when it comes to intervening in the abnormal cases, the aim is clear: to return or restore the abilities that have been revoked from the Experiencer to allow them to continue their day-to-day activities. This then not only makes developing intervention methods easier, but it also ought to increase overall efficacy, as we have a clear target to address. For example, in the case of Charlie who is unable to go to school, direct intervention would look at ways of addressing his anxiety such that he then feels he will be able to undertake the task of leaving the home and attending school.

§2.3 Mental management

An alternative property one can use to determine where on the (ab)normal spectrum an anxious episode lies is that of mental management, i.e., how psychologically manageable the episode personally is for the Experiencer.

To begin, let's look more closely at the concept of mental management before turning to consider how we can use it to delineate between the (ab)normal anxious episodes, and the motivation for using such a criterion. Mental management refers to the capacity to engage in cognitive activities, like memory, concentration, and absorbing new information, for example. When anxious, the activation of the sympathetic nervous system, in addition to the shift in attentional biases, mean that the cognition of the Experiencer may be affected. For example, in attempts to assess the threat level posed by the anxiety-provoking stimuli, the combination of the perceptual biases and activated sympathetic nervous system may cause the Experiencer to focus in on negative thoughts which occur during the anxious episode (e.g., Derakshan & Eysenck, 2009). Therefore, a key area of mental management refers to the Experiencer's ability to control any cognitive worries or negative thoughts that may occur when they become anxious. It is this element of mental management that I will focus on for the rest of this section to fully realise the examples.[110]

While mental management is similar to the disability criterion in that it involves incapacitation, the distinction between them is that while disability regards external, observable incapacitation, mental management involves internal, private, and cognitive incapacitation. That is, while one may seem like they are not incapacitated externally, because they can go about their usual daily activities, it may still be that they cannot mentally manage the experience due to an incapacitation in their cognitive abilities. For example, consider Sally, a primary school teacher with two children of her own. Although she experiences many anxious episodes, she continues to teach and look after her children, making them dinner, and putting them to bed. Externally, she is not disabled by her anxious episodes, as she is still able to complete her day-to-day activities. However, mentally, it is a very different story. When she becomes anxious, she cannot stop the negative thoughts and worries that occur. For example, after dropping her children off at school, she worries about their safety, and she imagines a variety of

[110] This obviously does not negate the other elements that mental management could refer to.

scenarios in which her children find themselves in danger or hurt. While she knows that this is unlikely, and the children are being cared for, she cannot stop these imaginations from occurring and cannot focus on anything else. So, although she can carry out her tasks physically due to their routine nature, mentally she cannot think about anything else. So, in this case, while she is not being physically or socially disabled, she cannot mentally manage her anxious episode. This then ought to highlight the realistic differences between the disability criterion and that of mental management.

With this set, let's now turn to consider how we can use the mental management criterion to distinguish between (ab)normal episodes of anxiety. Essentially, the principle is: the less mentally manageable the anxious episode, the more abnormal the episode is. Therefore, the mental management criterion for distinguishing between normal and abnormal episodes can be formulated as follows:

> Mental management: The less mentally manageable the anxious episode is, the closer to the abnormal end of the spectrum the episode falls.

To fully understand this, return to the example of Becky who becomes anxious when she notices a new, strange mole. During this anxious episode, Becky finds it difficult to take her mind off the mole, worrying about its nature and inspecting it in great detail. She then begins to construct 'what if' scenarios, like what if the mole is cancerous and she has to go into hospital to have it removed, or, in a worst-case scenario for Becky, what if the cancerous cells of this mole have spread across her body? The more she focuses on these thoughts, the worse they become, eventually spiralling out of control. That is, she cannot think about anything other than the anxiety-provoking situation unfolding. She cannot mentally manage her thoughts about the apparent threat that she has perceived. According to the mental management account, Becky's anxiety in this case would be considered more abnormal because she is struggling to mentally manage the episode.

The most obvious motivation for determining normalcy through assessing the extent to which the Experiencer can mentally manage the anxious episode is that it adheres to the most popular method of intervention for anxiety: cognitive behavioural therapy (CBT) (Beck, Emery, & Greenberg, 1985). The main purpose of contemporary CBT is to provide the Experiencer with apt mechanisms to mentally manage worries or ruminations for times when anxious episodes occur or before they take hold (ibid; e.g., Hofmann & Asmundson, 2017). Over a typical course of CBT, one way in which this is achieved is by teaching the Experiencer ways in which to change their thinking processes when faced with anxiety-provoking situations. For example, the Experiencer is taught to consider the ways in which they are cognitively interpreting scenarios, often referred to in the literature as a sort of 'cognitive restructuring' or 'cognitive reframing' (e.g., Beck, Emery, & Greenberg, 1985; Clark, 2013). For example, consider the anxiety-provoking situation of a presentation at school. The Experiencer is taught that when the situation occurs, instead of focusing on all of the threats that could manifest, and the things that could go wrong, to actively imagine the presentation going well. This should then allow the

Experiencer to mentally manage the anxious reaction, preventing the focus on the negative thoughts and the cognitive spiralling that this would entail. The aim of this intervention is not to reduce the anxious episodes *per se*, but to make them more manageable. So, if we define abnormality in terms of the point at which intervention would be largely beneficial, and the most effective and widely used form of intervention is that of increasing the Experiencer's ability to mentally manage the anxious episode(s), then the motivation for using the mental management criterion as a way to determine where on the anxiety spectrum an episode falls is surely evident.

While mental management can be an intuitive way to differentiate between normal and abnormal cases of anxiety, it is not without its problems. One of the most salient problems with doing so is that it can lead to the mis-categorisation of cases where the anxious episode is mentally managed through otherwise harmful actions. By harmful action, I mean any such action, mental or physical, which could lead to further psychological distress, injury, or fatality. One such action is what is referred to in psychological literature as non-suicidal self-injury (NSSI), which involves the "direct, deliberate destruction of one's own body tissue in the absence of suicidal intent" (Nock & Favazza, 2009: 9). This includes self-harm through actions like cutting, scratching, burning, or otherwise damaging the skin.[111] For those who cannot control their mental worries when anxious, the physical pain that occurs when engaging in NSSI acts as an interruption to this thought pattern. Essentially, as noted by participants in a review of clinical self-harm studies (e.g., Gratz, 2003), the act of the injury, potentially in accordance with the pain, stands as a distractive mechanism to manage the spiralling negative thoughts which were otherwise unmanageable.

However, the problem with this is that, through this destructive mechanism, the anxiety of the Experiencer becomes mentally manageable. Often, these NSSI behaviours will also be prophylactic, keeping the Experiencer calm and the anxiety from appearing at all. The reason the use of NSSI to mentally manage anxious episodes is problematic is because it then leads us to the unintuitive consequence that as the resultant anxiety is mentally manageable, it ought to be considered more towards the normal end of the spectrum, and no intervention would be required. However, in this case, it seems that intervention surely would be beneficial, as by intervening with the anxiety in this case, we can prevent further harms. What this means is that while our intuition wants to determine this episode as abnormal (and therefore, warrants intervention), the mental management criterion designates it as more normal (and therefore, would not warrant intervention).

One could argue that this problem is only in virtue of assessing the (ab)normality of the anxiety post the implementation of mental management strategies and that it can be circumnavigated by considering how well the anxiety is managed *prior* to the implementation of any strategies. However, I argue that

[111] Some interpretations of NSSI also include the abuse of alcohol and other drugs. For this section, I will only be focusing on bodily injury.

this would capture far more episodes of anxiety under the abnormal heading than we would intuitively want. For example, it would have the unintuitive conclusion of rendering the outcomes of CBT as ineffective as the management techniques learnt through CBT would no longer be relevant to the normality of the episodes.

To mitigate this counterintuitive problem, when it comes to using mental management as a property to distinguish normal from abnormal cases of anxiety, we ought to also consider the actions the Experiencers are using to manage their anxious episodes. If these mechanisms in themselves cause harm to the Experiencer, the anxiety episode still ought to be considered as more abnormal, despite the appearances that the Experiencer is mentally managing them.

§2.4 Phenomenological intensity

The final property one can use to use to distinguish normal from abnormal episodes of anxiety is the phenomenological intensity of the episode, i.e., how intense the anxiety *feels* for the Experiencer.

Phenomenological intensity is essentially the extent to which the Experiencer *feels* anxious. It is a raw, qualitative, and subjective assessment of how the episode is manifesting. The underlying principle of using the phenomenological intensity of the experience to then determine where on the spectrum an anxious episode falls is that the more intense the experience feels, the further along the abnormal end of the spectrum it ought to fall. This is then formulated as follows:

> Phenomenological intensity: The more intensely the anxiety episode is felt, the more abnormal the episode is, and the further along the spectrum it ought to fall.

The motivation for using phenomenological intensity as a criterion to delineate between normal and abnormal episodes of anxiety comes from the foundation upon which the normal/abnormal distinction is based. If normal and abnormal are broadly distinguished by the appropriateness of intervention, it makes sense that the more phenomenologically intense the experience, the more intervention is required (and therefore, transposing across, the more abnormal it is). This accords with how we similarly treat phenomena like pain in medicine.[112] By using pain semi-analogously, I explain how we can use the phenomenological intensity of the anxious episode to determine where on the normal/abnormal spectrum it ought to fall.

Although there is not a 'normal' sort of pain, determining the extent to which intervention is required for pain is usually on the basis of the intensity of the experience. To do this, an important step is being able to convey this phenomenological intensity in a measurable way. One way in which this can be achieved is through the use of proxy scales which allow this subjective feeling to be converted into a comparable and measurable quantity. For example, a popular tool to measure the phenomenological

[112] The nature of pain, especially in the philosophy of emotions, is a highly complex issue which is outside of the scope of this thesis. In comparing pain with anxiety, I am not arguing that the two are necessarily similar. The comparison is merely to highlight the similarity in measuring a subjective, felt phenomenon like intensity.

intensity of pain is the Wong-Baker pain rating scale (Wong & Baker, 2001) which involves a series of faces appearing increasingly upset.[113] In clinical settings, like within the National Health Service (NHS) in the United Kingdom, a spectrum of faces is then often presented in traffic light colours, as seen in the interpretation presented in figure 7.[114]

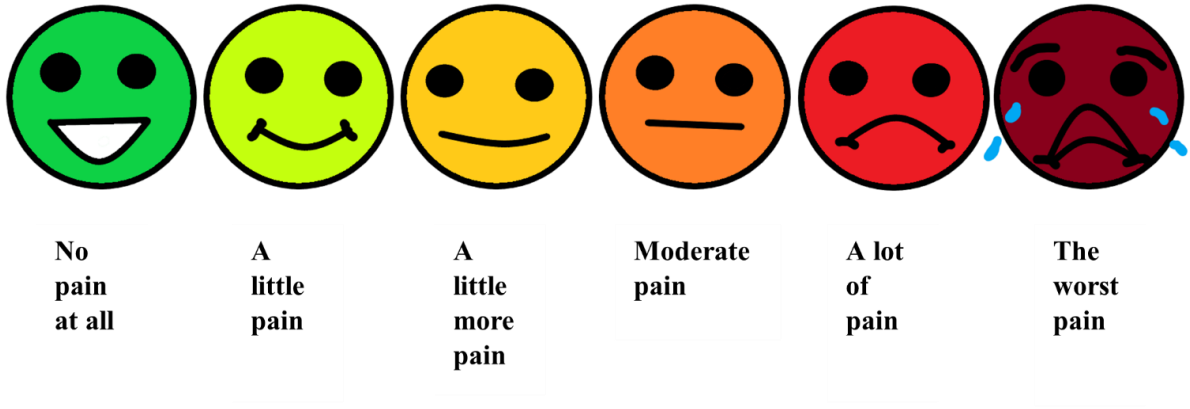


Figure 7. An example of a potential pain rating scale inspired by the Wong-Baker FACES scale (Wong & Baker, 2001) and the NHS standard.

Using this tool, the person assessing the pain of the Experiencer first shows them this set of faces and subsequently asks them to indicate the intensity of their painful experience by pointing at the face which accords most with how they feel. For instance, if they feel moderate pain, they may point to the orange face, indicating 'moderate pain', whereas if they feel that they are in a very intense level of pain, they will indicate this by pointing at the maroon 'the worst pain' face. The underlying principle is then the closer to the 'worst pain' face at the end of the scale, the more intervention will be largely beneficial or required for these Experiencers.[115] For example, one of these intervention methods for pain specifically may be that they require stronger painkillers, or more frequent doses.

Applying this principle across to the phenomena of anxiety, if we wanted to ascertain the phenomenological intensity of someone's anxious episode, we could use a similar (or potentially even the same) proxy tool. That is, someone experiencing what they feel is a moderately intense episode of

[113] This is one example of a visual tool. There are also verbal and written tools, like numerical pain rating scales (e.g., the Numerical Rating Scale 11) (see Williamson & Hoggart, 2005 for an overview).
[114] For those who are red/green colourblind, please note that the faces from left to right shade from a dark green into a lighter green, to yellow, to orange, to red, and lastly to a dark red or maroon colour. These colours are in accordance with current practise and are not of my own devising.
[115] It goes without saying that in practical medicine, determining the point of intervention and what specific intervention is required is obviously far more nuanced. This does not negate that the overall principle that pain intervention methods follow is essentially 'the more pain they are in, the more intervention they would largely benefit from'.

anxiety is likely to rate their episode in accordance with the left-hand side of the scale (e.g., the green and yellow faces). Whereas, if they were experiencing a very intense episode, they would be more likely to rate their anxiety according with other end of the scale (e.g., the red and maroon faces). From this, we can then map their experiences directly onto the intensity facet of the anxiety spectrum. That is, the faces towards the left-hand side of the rating scale would then accord with the more normal end of the spectrum, whereas the faces towards the right-hand side would accord more with the abnormal end.

A benefit of mapping the proxy tool with the anxiety spectrum is that we can then use it to understand the extent to which the Experiencer requires intervention. Essentially, much like with pain, the more phenomenologically intense the anxious reaction is, the more intervention we should provide the Experiencer.

§3.1 Synthesis

With the notions of proportionality, disability, mental management, and phenomenological intensity clear, I now turn to consider how these properties may co-occur and how we can distinguish between normal and abnormal anxious episodes when this co-occurrence arises.

To begin, I argue that these properties often co-occur. Although abnormal anxiety *per se* is not clinical, established evidence of the co-occurrence of many of the properties can be found in clinical studies of those experiencing anxious episodes. For example, people who experience anxious episodes reliably provoked by social situations often experience phenomenologically intense, mentally unmanageable episodes, which can then also be debilitating, causing them to avoid social interactions altogether (e.g., Zamorski & Ward, 2000; Lochner et al., 2003). The most salient reason for this co-occurrence is due in part to the similarities of the properties outlined. As mentioned, the properties all relate to the manifestation of the unified core of functional, attentional, physiological, and behavioural properties, intimately tying them together and allowing for the co-occurrence to occur. So, for instance, it may be that the reason that the episode is mentally unmanageable is, in fact, because it is phenomenologically intense. Or the Experiencer may be socially incapacitated (and therefore, disabled on this account) because they find the anxiety to be mentally unmanageable. Consequently, it is unsurprising that we often find that these properties co-occur.

The question that then arises is, given that there are times when multiple properties are evident in people's anxious experiences (e.g., when it is disproportionate and phenomenologically intense, or where it is both socially and mentally incapacitating), what property should we then use to make the distinction between normal and abnormal? I argue that in these cases, the abnormality of the episode is often evident in virtue of these properties being displayed. That is, because it would fall on the abnormal end of the spectrum according to more than one property, it seems that we can confidently argue that such an episode ought to be considered abnormal, without the need to prioritise one property over another. A clear example of this evident in real world cases are those who experience 'anxiety attacks',

which is the name colloquially given to episodes of anxiety which are phenomenologically intense and sudden. These intense episodes of anxiety are often hard to mentally manage, and can be debilitating, preventing the Experiencer from engaging in any of their usual activities. For example, it may be that the Experiencer must leave the situation in which they are in (like leaving a group event or party). In cases such as these, where the manifestation of the properties is externally obvious, it seems intuitively evident that this ought to be considered as falling towards the more abnormal end of the spectrum in virtue of the properties it displays.

However, I argue that due to the spectral nature of (ab)normal anxiety, there are grey cases of anxiety which leave us in a slightly epistemically uncertain position regarding the nature of the episode. This problem arises when we have properties that conflict, leaving the (ab)normality of the anxious episode ambiguous. For example, consider the following case. Keep this one in mind, as we will return to it in the following section too. Imagine Martin, a PhD student who is about to engage in a public speaking event, presenting his research to his peers. Before the presentation, Martin experiences an anxious episode that lasts an hour in length. It is not disabling (he is able to continue all his social events), it is mentally manageable, and it is not phenomenologically intense. When we then compare Martin's reaction to others in his reference class (let's say the other PhD students in his year), it seems that, on a societal level, Martin's anxious episode lasts significantly longer than the rest of his year. That is, when all the durations are charted, it is clear that, compared to his peers, Martin is reacting disproportionately to the stimuli he is being presented with (the public speaking scenario). However, imagine that this is simply the way that Martin reacts to *all* anxiety-provoking stimuli. That is, his base level anxious reaction is to have an hour-long anxious response.[116](Remember, his response is not disabling, mentally unmanageable, or phenomenologically intense.) If we apply the proportionality account to disambiguate Martin's anxious experience, it seems that it ought to fall more towards the abnormal end of the spectrum, given that it is disproportionate to his peers. However, as Martin's anxious episode is not disabling, is mentally manageable, and is not phenomenologically intense, according to these properties, it ought to fall more towards the normal end of the spectrum. Clearly here, there is conflict between the properties. In this case, it would seem that Martin's anxiety is an example of a grey case where it is neither clearly normal nor abnormal intuitively, nor according with the four outlined properties of this chapter. The consequence here is that due to the epistemic uncertainty about the nature of Martin's anxiety, it is unclear whether we ought to intervene in this case or not.

I argue that in these grey cases, while we cannot determine which end of the spectrum the episode is more aligned to, when it comes to the practicality of the situation, we ought to err on the side of caution and act as if it were more abnormal. Accordingly, if there is a suspicion that an Experiencer's anxious episode could be abnormal, we ought to intervene to assist them with their anxious episodes even if we

[116] Note that this then means that at an individual level, Martin's anxiety would not be considered disproportionate. Here, we are only concerned with the societal-level account.

cannot establish exactly where on the spectrum the episode lays, acknowledging the ambiguity of their episode. This is because if these sorts of ambiguous episodes continue to occur without any intervention, they surely could become more problematic further down the line, requiring more intervention (and therefore, additional resources).

§4.1 The anxiety disorders

This then brings me on to the topic to conclude the chapter, considering how the notions of normal and abnormal episodes of anxiety then relate to the broader clinical concept of the anxiety disorders.

Abnormality, as defined in chapter one and throughout the thesis, has always been emphasised as a non-medical entity *per se*, but it is clearly involved in clinical processes like the diagnosis of anxiety disorders. So, how does this non-medical notion of abnormal anxiety relate to the clinical concept of the anxiety disorders?

Although I make no hard commitments to psychiatric models of anxiety disorders, here I present how the arguments of this chapter accord with current psychiatric practise. As mentioned in chapter one, current psychiatric practise demands that the anxiety which constitutes anxiety disorders is "persistent" (APA, 2013: 189; WHO, 2019). However, all this means is that there are regular, and usually reliable, abnormal episodes of anxiety over a defined period of time (usually six months or longer, but this varies disorder to disorder). The individual disorders are then differentiated through clinical features that are usually superficial additions to the episodes, like the stimuli that reliably elicit them (e.g., social situations in social anxiety disorder, or specific events and situations like blood or animals, APA: 2013).

However, I argue that it is not as simple as merely counting up the number of episodes over this time. It must be the case that the episodes which constitute this collection are more abnormal than normal on average, and, according to the most recent DSM (DSM-5, APA, 2013) and ICD (ICD-11, WHO, 2019), *must be disproportionate* to the stimulus at hand. This means that the majority of episodes being considered over the six-month (or so) period must display disproportionality, as well as at least one of the other three properties of disability, mental management, and phenomenological intensity. The motivation for the necessitating the proportionality criterion for a clinical diagnosis is to avoid the over-medicalization of temporary, intense anxiety reactions to stimuli that arguably deserve such a reaction. To explain this, I present the example of 'war mother'.[117]

> War mother: At the time of writing, in August 2022, Ukrainian territory is being invaded by Russian forces and many civilians are being caught in the line of fire. Let's then consider a mother who is living with her child in a basement of a house in Kyiv, while her husband fights on the front line. For brevity, let's call her 'war mother'. Imagine that for the next few months,

[117] Please note, as mentioned, this example was written in August of 2022. While the circumstances around this example are very real, the mother in the example is fictitious.

> war mother regularly experiences deeply phenomenologically intense anxious episodes about whether her family is safe, and whether they will continue to be so. When these anxious episodes occur, she finds them mentally difficult to manage, but she continues on for the sake of her child. For the sake of the example, let's imagine the situation in Ukraine continues for the next six months, and over this time, the threat posed by Putin and his army remains high, continuing with drone attacks and threatening nuclear warfare. War mother continues to be incredibly anxious.

In this case, the anxiety experienced by war mother does seem to be abnormal when we apply the properties of mental management and phenomenological intensity, and they are affecting her well-being in a clearly negative way. Given the abnormality of these episodes then, it does seem that she would largely benefit from intervention to ease her worries (making the anxiety more mentally manageable), and to alleviate the intensity of her anxiety episodes. However, while *war mother's* anxiety may be abnormal, and warrant intervention, it would *not* warrant a diagnosis. This is because it fails to fulfil the proportionality criterion. To see how this is the case, we would first have to determine the reference class that war mother belongs to. Although we have seen the problems with determining reference classes in §2.1, it seems that the class of 'Ukrainian mothers in August of 2022' would suffice. As per this criterion, we would then measure the length of the anxious episodes of this reference class and plot them on a graph similar to that of the Billy example in §2.1. Given the severity and volatility of the political, environmental, and social situation the reference class faces, it seems that the majority of this reference class would experience anxious episodes a similar length to that of war mother. That is, she would fall *within* the threshold. According to the proportionality account, if the anxious episode falls within the determined threshold, then it is more towards the normal end of the spectrum. Therefore, on this account, we would have to conclude that war mother's anxious episode would be considered normal. And for good reason, given that the anxiety-provoking stimulus represents not only a genuine threat, but a high level of threat at that. Their families are all at a high risk of injury or death in their situation. Despite the fact that war mother's anxiety has been occurring for six months or more and fulfils the criteria of mental management and phenomenological intensity, as it does not fulfil the necessary proportionality criterion, it would then not warrant a clinical diagnosis.

It is important to note here though that while proportionality is a necessary condition for the diagnosis of the disorders, it is not a sufficient property. That is, the anxiety must be disproportionate *and* be either causing social and physical incapacitation, be mentally unmanageable, or phenomenologically intense for a diagnosis. Reconsider the example of Martin, the PhD student who became anxious prior to presentations for extended periods of time which were disproportionate when compared to similar anxious episodes across his reference class. I stated that, for Martin, this was his usual response to this kind of anxiety-provoking situation, meaning it would reliably and consistently occur if he were to engage in this kind of activity. Let's say it is a particularly busy period in his research area, meaning he

has to present his research very frequently across the following six months. This means that, over a six-month period, he will continue to have these seemingly disproportionate responses on the proportionality account. In this case, although Martin has been reacting disproportionately to stimuli for a period over six months, given that it does not affect him across any of the other three properties of disability, mental management, or phenomenological intensity, he would not warrant a diagnosis. This then shows how the proportionality criterion alone is not sufficient for a diagnosis, even if it has been persistent over time.

Obviously, the more abnormal the individual episodes across those six months, the more a diagnosis would be warranted from a clinical perspective. This then accords with current psychiatric practise, which loosely says that the anxiety forming anxiety disorders, in addition to the six month criteria, should be "excessive" (APA, 2013: 189) (e.g., disproportionate) and, within the diagnostic criteria for the individual conditions, must "cause clinically significant distress or impairment" (e.g., APA 2013: 197) (e.g., the distinct properties of mental management, phenomenological intensity, and disability).[118] My argument then is an extension and more detailed exposition which accords with these initial psychiatric ideas.

For example, to see how this would work, I present the following case. Reconsider the example of Charlie, first presented in chapter one. To avoid confusion though, I call this example Charlie*.

> Charlie*: Let's imagine that over the course of six months, Charlie* finds that he is regularly experiencing these kinds of disabling anxious episodes such that he finds he now struggles to regularly attend school each morning. Occasionally, he has days where he is less anxious, but he is anxious more days than he is not.

In this case, the majority of Charlie*'s anxious episodes can be determined to fall more towards the abnormal end of the spectrum. Therefore, given these, it seems that according to current psychiatric practise, Charlie* warrants a diagnosis of an anxiety disorder. The particular diagnosis of the disorder in question would then be at the discretion of the individual practitioner on the basis of a more detailed examination of his anxious episodes. For example, it could be that Charlie* is diagnosed with social anxiety disorder if it can be determined the object of his worries is the social side of school. Alternatively, given Charlie*'s struggles to leave the home, he may be diagnosed with agoraphobia, as this fits the paradigmatic clinical profile for this disorder (e.g., APA, 2013: 217).

Compare this then to the original case of Charlie, but where his disabling anxious episode prior to leaving the home for school was, in fact, a one off, as it is in the original example. Across the following six months, Charlie still occasionally becomes anxious, but none of these episodes can be determined as falling on the more abnormal end of the anxiety spectrum by using the four properties of

[118] This line is taken directly from specific phobia but is found across the anxiety disorders.

proportionality, disability, mental management, and phenomenological intensity. Although the individual abnormal episode itself would still largely benefit from intervention, Charlie here would not warrant a diagnosis for an anxiety disorder.

There is obviously much more nuance that comes with the diagnosis of an anxiety disorder, but the aim here is not to nuance out the diagnostic process, but merely to show how the (ab)normal spectrum fits with the psychiatric method.

So, briefly to summarise, for a diagnosis of an anxiety disorder, the anxious episodes must be persistently disproportionate (over a designated period) and *also* at least one of the following: disabling, mentally unmanageable, or phenomenologically intense.

Conclusion

This chapter aimed to fill the gap in the extant literature regarding the metaphysical nature of normal and abnormal episodes of anxiety. While in chapter one we saw that episodes of anxiety were unified in that they share the common set of reliably projectable functional, attentional, physiological, and behavioural properties, the question of how we then distinguish normal from abnormal episodes was left unanswered. In this chapter, I argued that the distinction between them is the way in which they manifest across four properties, and as such, it can be argued that they lay on a multi-dimensional spectrum. I outlined the properties to make this distinction: proportionality to the objective threat (proportionality); the impact that the anxious episode has on the day-to-day activities of the Experiencer (disability); the extent to which the Experiencer can mentally manage the anxious episode (mental management); and, finally, the phenomenological intensity of the anxious episode (phenomenological intensity).

A key part of the distinction between normal and abnormal anxiety episodes is that they lie on a spectrum, meaning that while most cases will cluster around the two extreme 'ends', the point at which the normal blends into the abnormal is vague. This means that there will be 'grey cases' of anxiety, which leave us in a state of epistemic uncertainty about their nature. In these cases, to prevent them from worsening, potentially leading to the development of anxiety disorders, we ought to err on the side of caution and provide appropriate intervention.

While the majority of this chapter firmly separated the abnormal from the medical, the final section sought to bring these two notions together, understanding how abnormal episodes are key in the diagnosis of the anxiety disorders. In the next chapter, we will see how in lay discourse, and now more frequently even across psychological discourse, the two distinct notions of abnormal episodes and the anxiety disorders meld together to form a new umbrella category entirely: *medicalized anxiety*.

Chapter Five: The Medicalization of Anxiety

> "Medicalization consists of defining a problem in medical terms, using medical language to describe a problem, adopting a medical framework to understand a problem, or using a medical intervention to "treat" it".
>
> Conrad, 1992: 211.

Introduction

Up to this chapter in the thesis, I have argued that the unified, biological functional kind of *anxiety* is formed of three distinct sorts of anxiety: (ab)normal episodes, trait anxiety as a disposition to experience these episodes, and anxiety disorders which involve a collation of abnormal episodes over a given time period. While this captures the psychological notions of anxiety, we do not yet have a complete picture of what the category of *anxiety* entails. This is because, in this chapter, I propose a sub-category of *anxiety* which emerges through the process of medicalization. Medicalization is the process by which a problem becomes framed in a medical way, entering the jurisdiction of the medical profession to 'treat' it (e.g., Zola, 1972; Conrad, 1992, 2005, 2007). Through this process, I argue that abnormal episodes of anxiety become conceptually merged together with the anxiety disorders to create a new category: *medicalized anxiety*. While discussions of *medicalized anxiety* are rife across lay discourse, this category has been underexplored in philosophical and psychological literature. However, understanding the medicalization of anxiety, how the category of *medicalized anxiety* emerges, and how it relates to the sorts of anxiety we have seen thus far, is important for creating a whole metaphysical picture. Therefore, these will be the primary aims of this chapter. In achieving these aims, we will then have a greater understanding of the medicalization of anxiety which can stand as a foundational steppingstone in understanding wider implications and questions about the construction of the anxiety disorders further down the line.

The chapter is laid out as follows. In §1, I outline distinct definitions of medicalization as a concept in its own right, including its developmental origins and what it involves. With this clear, I present a key case study of the medicalization of a common social problem: grief. I argue that there are some clear parallels in the medicalization of grief that we will see later apply to the process of medicalizing abnormal anxious episodes. In §2, I turn to consider the medicalization of anxiety specifically, outlining how the concept of *medicalized anxiety* emerges as a new umbrella category which consists of two of the sorts of anxiety phenomena examined in the previous chapters: abnormal anxiety episodes as well as the anxiety disorders. I argue that while *medicalized anxiety* emerges as a new category, it is simply a sub-category of *anxiety.* In this way, it does not affect the taxonomy of *anxiety* that we have seen thus far in the thesis of *anxiety* as a biological functional kind. A key implication of the emergence of *medicalized anxiety* is that, in lay discourse, it is most often posed as dichotomous with normalised

anxiety. Therefore, to conclude the chapter, I outline the characteristic features of both normalised anxiety and *medicalized anxiety* to understand the key differences between them. These will be essential for chapter six, where lay expressions of both normalised and *medicalized anxiety* are analysed.

Although throughout this chapter I consider the process of medicalizing anxiety and what the outcome of doing so would look like, I do not at any point consider the *legitimization* of the medicalization of anxiety (i.e., whether it *ought* to be medicalized, and associated questions like whether any sort of anxiety is a genuine pathological entity or not). This is outside of the scope of this thesis. The importance here, and for future chapters, is identifying the sorts of anxiety that are categorised in a medicalized way, how they relate to non-medical instances, and how we can identify times where medicalization has occurred (i.e., characteristics of *medicalized anxiety*).

§1.1 Why consider medicalization?

While the topic of medicalization is most often found in sociological literature, it has great philosophical relevance for this thesis. This is for two separate, but related reasons, which will form the basis of this chapter. The first is that I argue that the category of *medicalized anxiety* that emerges through the sociological process of medicalization is being used as an umbrella term to capture both individual abnormal episodes of anxiety and the anxiety disorders, rather than being used to denote a singular phenomenon. The second philosophical implication is that this lay category does not undermine any of the categorisations of anxiety that I have delineated in the previous chapters of the thesis. By the end of this chapter, it should become clear that while the category of *medicalized anxiety* is distinct from the concepts of (ab)normal anxiety, trait anxiety, and the anxiety disorders, it is still compatible with this breakdown, first proposed in chapter one.

Essentially, we are interested in understanding how laypeople are conceptualising the metaphysics of anxiety and why this view is so widespread. If we can understand why people have adopted a metaphysical picture that does not map with the one proposed in chapters one to four, we can then address this in a more direct way.

With the philosophical motivation for considering medicalization now clear, let's now turn to consider the concept in more detail, understanding its origins and establishing its prevalence across folk psychology.

§1.2 Medicalization as a concept

To understand the concept of *medicalized anxiety*, the first step is understanding developments of the concept of medicalization as a process in the first instance, and its significance. By the end of this section, it should become clear how medicalization works, to then apply it to usually non-medical states like grief, and then abnormal anxiety later in the chapter.

The concept of medicalization explicitly emerged in sociological work of the late 1970s and 1980s, but early developments of the ideas can be found in the works of authors like Jesse Pitts (1968) and Eliot Freidson (1970). Although there are a number of relevant authors in medicalization literature, including Ivan Illich (1976), and Michael Foucault (1973, 1977), in this section, I will mainly focus on the positions of Irving Zola (1972, 1982, 1983); and Peter Conrad (1975, 1992, 2007). This is because when it comes to explicit discussions of medicalization, Zola and Conrad continue to be the most prominent authors in the field. Let's begin then with Zola's account.

Fundamentally, Zola (1972, 1982, 1983) argues that medicalization is the process of "making medicine and the labels "healthy" and "ill" *relevant* to an ever-increasing part of human existence" (Zola, 1972: 487). That is, what it means to be *ill* is socially constructed by applying labels to distinct experiences. This means that too much, or equally too little, of a certain behaviour can be deemed medical if the relevant labels are applied (Zola, 1982: 49). For Zola, the most salient element of the medicalization process is the political undertone of this construction, and the way in which applying these labels is an act of controlling society at large, echoing the earlier works of Pitts (1968). That is, by making something the jurisdiction of the medical profession, it is a way of governing people, heavily encouraging them to change the ways in which they live their lives in the pursuit of 'health' (or the avoidance of 'illness') (Zola, 1972: 493).[119] For example, when being overweight (or 'obese') is labelled as an 'illness', people then will inevitably change the ways they are living in response to this. One such change may be that they become aware of calories and restrict food to ensure they stay a "healthy" weight (whatever that is labelled to be). Additionally, from this then comes the potential for an increase in social judgement of others, labelling *them* as "healthy" or "ill", rather than labelling their designated affliction. However, while this is an important implication of medicalization, this does not mean that achieving social control is always intentional by those engaging in the discourse (Zola, 1972). It may be that social control emerges as an unintentional consequence. Zola importantly noted that this labelling (medicalization) need not be carried out by the medical profession itself, but occurs across society, and therefore involves multiple social actors.

Developing upon the works of Zola, sociologist Peter Conrad began expanding the conceptualisation of medicalization. One of his most seminal works in this area, 'Medicalization and Social Control' (1992), compiled medicalization research across the 1980s, including his own with Joseph Schneider (Conrad & Schneider, 1980a/b), to give an overview on the current concepts of medicalization and provide his own, more nuanced take on the process. In this work, he presents the following definition of medicalization, which I will subsequently adopt throughout the thesis.

[119] This process also creates and re-positions social responsibilities in relation to the newly labelled 'ill'. For more on these sorts of responsibilities, see Parsons (1951).

> "Medicalization consists of defining a problem in medical terms, using medical language to describe a problem, adopting a medical framework to understand a problem, or using a medical intervention to "treat" it"
>
> (Conrad, 1992: 211).

To understand Conrad's definition, we must first ascertain what is meant when he refers to a 'problem' (ibid). Although central to his definitions of the process of medicalization, Conrad is vague about what constitutes a problem (arguably intentionally, given the nature of medicalization). In many of the 'problems' explicitly discussed by Conrad, like "homosexuality, opiate addiction, [and] hyperactivity" (e.g., Conrad, 1992: 213), they often relate to human behaviours. However, in line with my definition of abnormal, I take a problem to mean anything that has been deemed as going against what is believed to be a preferable way of living by the society in question. That is, it is something that would largely benefit from intervention for the sake of improved well-being (whether that is mental, physical, or both). Note that in this particular definition of medicalization offered by Conrad, he does not commit that the problem must be non-medical to begin with.[120] The implication of this then is that if one takes a naturalistic or realist approach to the problem, and determines that it *is* medical in nature, for example, by somehow identifying biological impairment of some sort, the act of medicalization could still occur, despite the problem being medical prior to the medicalization. For example, take hyperactivity in children that is treated as deviant, then medicalized in the form of 'attention deficit hyperactivity disorder' (ADHD). If we were to then find out that the root cause of this hyperactivity was the degeneration of a certain neural pathway, then it seems as if the problem were medical to begin with.[121] For the purposes of this thesis, the implication of adopting Conrad's account of medicalization is that if one approaches it with the view that abnormal anxiety is, inherently, a medical problem in the first instance, then the move of medicalization can still occur. If, in contrast, it is not a medical problem to begin with, the move of medicalization makes it seem so through the conceptual change.[122]

With this definition clear, we can now move to understanding the process of medicalization itself. This is necessary to then understand how non-medical abnormal episodes of anxiety become medicalized, and thus, how the umbrella category of *medicalized anxiety* emerged in lay discourse.

In his further work, Conrad (2007) argues that there are three distinct levels at which the process of medicalization occurs: conceptual, institutional, and interactional. At the conceptual level, medical vocabulary is used to define and describe entities that would otherwise not be considered within a

[120] This is not true across Conrad's work as a whole, as he does often refer to these problems being non-medical in nature. However, for the reasons evident in the text, I adopt the definition presented here specifically.
[121] This obviously is with the caveat that one accepts that this is how one ought to be defining medical problems. Whether it is or is not is outside of the scope of the thesis.
[122] As mentioned in the introduction to this chapter, I will not be committing to either position. Remember, the 'problem' being referred to here would be *abnormal* episodes of anxiety we have seen throughout the thesis so far, whatever form they may take, and distinctly not the normal episodes of anxiety.

medical framework. For example, a really simplified example of the move from describing something in lay terms to medical terms is that of a runny nose. In medical terms, this problem is most often referred to as 'rhinorrhoea'. This term is then often also described as a 'symptom' or as 'symptomatic' of a larger medical condition like viral infections (influenzas, coronaviruses, etc.). By reconceptualising the runny nose through this medical vocabulary, we are situating the problem within a medical framework. This kind of conceptual medicalization can be achieved by any member of society and is not limited to medical personnel. Contrastingly, at the institutional level, medical personnel become key actors, as this refers to cases where medical professionals take authority over non-medical personnel in decision making. That is, medical researchers become 'experts' in the identification of the problem at hand that non-medical personnel ought to turn to for guidance. The final level at which medicalization can occur is the interactional, which involves one-to-one interactions between medical personnel, like doctors, psychologists, psychiatrists, and therapists, and their patients. In this setting, the medical professional redefines the social problem as a distinctly medical problem. This is achieved either through a direct diagnosis of a certain condition, or by the medical personnel providing some form of 'treatment' for the problem at hand. For example, imagine someone has gone to the doctor and explains that they have been having trouble sleeping, often finding it difficult to fall asleep or waking up frequently during the night. While this may have a totally normal, and non-medical cause, for example, increased stress at home or work, doctors may frame the problem in a distinctly medical way through the diagnosis of 'insomnia', prescribing a course of sedatives to 'treat' the problem (e.g., Moloney, 2017; Moloney, Ciciurkaite, Brown, & Foley, 2019: 1).

Echoing Zola (1972), Conrad promoted the idea that medicalization is not merely the works of the medical profession but involves a whole host of actors across society. In his analysis with Schneider (Conrad & Schneider, 1980a), further insight into who these kinds of actors might be was provided. They argued that involvement occurs across three distinct levels, the macro-, meso-, and micro-. According to Gabe (2013: 49), who expanded upon Conrad & Schneider's original ideas, macro- actors are those who are on the national level, so include national organizations like governments. While the meso-level is still societal on the whole, it is on a smaller scale than the macro-level, and, as such, is likely to include local organizations. For example, this could include local trusts which specialise in the area the problem is being defined in. So, for example, in the case of medicalized emotions, they will be medical trusts that deal with 'mental health conditions'. Lastly, at the micro- level are interactions between individuals, which is where we would find the medicalization that occurs in events like patient-doctor interactions, like in the aforementioned insomnia example.[123]

In fact, given the plurality of these levels, Conrad supports Zola's idea that the medical profession need not be involved in the process of medicalization at all (Conrad, 1992: 210). For example, medicalization

[123] This is not to necessarily say they are *diagnosing* the patient, just that this interaction brings sleeplessness within the medical framework.

often occurs at the micro- level in interactions between laypeople, without the involvement of the medical profession. (This then means that when we turn to consider the medicalization of anxiety later on, it may occur without the involvement of medical professionals). For example, anecdotally, a popular trend at the moment on social media involves the medicalization of character traits as being indicative of neurodivergence like autism, Asperger's syndrome, or ADHD.[124] As an example, some content creators are pushing the idea that behaviours like 'singing while doing tasks' is not only deviant but is indicative of something clinical. To further understand the importance of lay people in the development and maintenance of the medicalization of many 'normal' problems, see Busfield (2017).

With the definition of medicalization and some of the actors involved in the process clear, I will now turn to consider how the process of medialization actually occurs. This is clearly an integral step in understanding the medicalization of abnormal anxious episodes, and how the category of *medicalized anxiety* emerges.

To address this, Conrad and Schneider present a five-step theoretical model based on existing cases of medicalization (Conrad & Schneider, 1980a: 266-277), which is summarised below. While this is not necessarily the process that all medicalized entities under-go, it provides a good template which I will later use to explain the medicalization of anxiety. The title used by the authors is in italics, with my interpretation of these steps in plain text that follows.

1. *"Definition of behaviour as deviant."*

This involves the establishment of the problem as somewhat undesirable, or abnormal in some way. While Conrad and Schneider use the term 'deviant' throughout, for the purposes of this thesis, I use the term 'abnormal', in line with the conceptions of non-medical, abnormal anxiety outlined in chapters one and four. At this level, the actors involved in the medicalization need not be involved in the medical profession. For example, it can happen at a societal level, where members of a community assign deviancy to a certain behaviour, as we saw in the ADHD example.

2. *"Prospecting: medical discovery."*

This is where the "discovery" of the identified abnormality is announced in a medical publication or at a medical conference. The notion of 'prospecting' refers to the idea that the medical discovery is something that is likely to become established, but without certainty. This hedging language, rather than describing the discovery as something that is being *implemented* or *established* is important for two key reasons. The first is that it may well be that the claims of medicalization are later rejected or refuted.

[124] To understand this further, see Yeung, Ng, & Abi-Jaoude (2022). For popular articles, see those of Hayley Taylor (7News, 2022), James Greig (i-D, 2023) for further information.

Secondly, the prospected discovery requires a larger scale acceptance *outside* of the realm of academia (so, in societal and legal spheres) to enter into society and be truly established.

3. *"Claims-making: medical and non-medical interests."*

Claims-making denotes the move from the purely academic presentation of the "discovery" to the public sphere. At this stage, the claims-making is open to "both medical and non-medical interests" and can be made at any of the levels we have seen in the previous paragraphs (macro-, meso-, or micro-) (Conrad & Schneider, 1980a/b). The medical claims-makers are generally medical research professionals who assign themselves to the study of the abnormal problem in question. However, at this stage, these medical professionals are not usually medical doctors or psychiatrists, but rather academic researchers in medical fields. In positioning themselves in this way, these medical researchers seek to establish themselves as "experts" on the problem at hand (in attempts to add authority to their claims).[125]

"Non-medical claims-making groups" are those who lobby and campaign for the abnormalities to be recognised. These include the pharmaceutical industry, who develop or market drugs targeted at specific problems (the claims being made); governments who seek to recognise these 'medical' problems; and societal organisations set up specifically to support or tackle the 'problem' at hand. One example of this can be taken from the medicalization of the menstrual cycle. In the early 1930s, the changes caused by hormonal fluctuations (like mood swings, headaches, and pain) prior to menstruation began to be framed as a medical problem which required 'treating' in the form of 'premenstrual tension' or 'premenstrual syndrome' (see Frank, 1931 and Greene & Dalton, 1953 respectively). As a result of this medicalization gaining traction, the National Association for Premenstrual Syndromes (NAPS) was founded to research and disseminate information about this new 'syndrome'.[126]

What unifies medical and non-medical claims-making groups together is the common interest in the establishment of the claims being made as medical, and accordingly, the pursuit of achieving acceptance and widespread support for their claims. To achieve this, claim-makers will often come together to disseminate their claims through targeted conferences or programmes which centre around the problem at hand. Both the medical and non-medical claims makers must then attempt to legitimize the designation of the abnormality as medical.

4. *Legitimacy: securing medical turf*

The act of legitimization is to appeal to the state to recognise the medical conceptualisation of the problem at hand. This is where medicalization becomes not only a social issue, but a *legal* issue also. This is because the most prominent "arenas of challenge", i.e., the places to secure the medical turf,

[125] This attempt may be fully conscious or unconscious.
[126] The NAPS was founded in 1984 and continues to support women to this day. For more information, refer to https://www.pms.org.uk/about-us/.

identified by Conrad and Schneider, primarily are courts of justice (Conrad & Schneider, 1980a). The reason for this is that the ultimate goal of legitimization through the courts is to establish or set in motion laws that recognise the 'medical abnormality' as such. Doing so will subsequently provide authority to the medical profession in the management/treatment/overseeing of this abnormality. In this way, as noted by Zola (1972), this legitimization provides the medical profession and the legal system more generally some social control over the people experiencing these issues. However, this social control is not all bad, as legitimizing the medical problem also then allows Experiencers to access support, funds, or government assistance with their conditions. For example, the state accepting the deviant condition as a legitimate illness allows the Experiencer to access things like disability support from the government if they cannot work.

5. *Institutionalization of a medical deviance designation.*

The step of institutionalization provides a "fixity and semipermanence" (Conrad & Schneider, 1980a: 270) of the abnormality as officially medical. Conrad and Schneider identify two distinct types of institutionalization: codification and bureaucratization (ibid).

Codification is when the problem is accepted in official medical terms. For example, through the publication of an official diagnosis for the problem in question. Conrad and Schneider identify the Diagnostic and Statistical Manual (DSM) published by the American Psychiatric Association (APA) as a key place where codification occurs in regard to 'mental' or 'psychiatric' conditions. For non-psychological or psychiatric states, the International Classification of Diseases (ICD), published by the World Health Organisation (WHO, 2019), is a key player.

Bureaucratization, on the other hand, involves the "creation of large-scale organizations" (Conrad & Schneider, 1980a: 270) which aim to research, support, and largely invest in the medicalized problem. For example, an act of bureaucratization is the creation of the "National Institute of Mental Health" (NIMH) (ibid) whose support takes the form of additional research which props up the idea that the abnormal problem is distinctly medical in nature. Additionally, they provide the public access to more information on the medicalized 'condition', including 'symptomatology' and the kinds of appropriate treatment options.

To summarise, the five steps are as follows:

1. Definition of behaviour as deviant.
2. Prospecting a medical discovery.
3. Medical and non-medical claims-making.
4. Legitimization: securing medical ground.
5. Institutionalization: codification and bureaucratization.

It is important to note though that medicalization is *not* a binary process. That is, it is not the case that something, like anxiety, is either medicalized or not medicalized. Instead, medicalization occurs in varying degrees (e.g., Conrad, 1992). So, while the medicalization process begins with the first step of denoting a problem as deviant, it is only the extent to which something has been medicalized that can be assessed, rather than whether it *has* or *has not*. When it comes to the medicalization of anxiety, which will be discussed in more detail from §2.1 onwards, questions therefore regard *the extent* to which it has been medicalized.

This also then leaves room for the process of *de*medicalization, where a problem moves away from the jurisdiction of the medical profession.[127] This is of great importance when it comes to large societal-wide changes in how we view a certain 'problem'. This is no more obvious than when we consider diachronic approaches to homosexuality. Historically speaking, in the Western world, homosexuality is a key example of the medicalization of something people viewed as a 'problem'. It was designated as a deviant way of living, and in 1968, was listed in the second iteration of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II) as a disease (APA, 1968). In this way, the medicalization of homosexuality became legitimized and codified, being incorporated into our medical frameworks as something that required 'treating'.[128] However, over the course of time, a shift occurred to reject the idea that homosexuality is a medical entity that ought to be 'treated'. Instead, through the process of *de*medicalization, society began to reconceptualise homosexuality instead as a natural part of the complexity of human life (although there is still a way to go to have this be the default understanding). As a part of this process, both the DSM (III-R) and the WHO's ICD (ICD-10) were updated to reflect the changing consensus and remove homosexuality as a diagnosable disease in 1987 and 1993 respectively (APA, 1987; WHO, 1993).[129]

An important element of medicalization noted by Conrad is that it is often conveyed in a negative light (Conrad, 1992: 209, 223). While there are a multitude of reasons for this, the two most significant are that medicalization is often criticised for the over-medicalization of normal 'problems in living' (e.g., Szasz, 1960), or for the social control of people that medicalization brings with it, as noted by Zola (1972). A key example of this across the extant literature is the medicalization of menstruation (e.g., Kaufert & Gilbert, 1986; Tiefer, 1995; Lippman, 2004; Wood, Koch, & Mansfield, 2007; Chrisler & Gorman, 2016), where authors have noted women become detrimentally subject to social control and viewed as 'deviant' despite the 'problem' in question (menstruation and its associated hormonal changes) being an inherently normal part of living. However, Conrad notes that despite the bad reputation that medicalization has, it is not *necessarily* problematic or harmful. In fact, medicalization

[127] The notion of demedicalization is equally complex and is considered in depth by Conrad (1992).
[128] This, very regrettably, is something we do still see today in places which have rejected the demedicalization of homosexuality. A common 'treatment' in these cases is the so-called 'conversion therapy' which seeks to convert those subjected to it to heterosexuality.
[129] For a more detailed analysis of the *de*medicalization of homosexuality, see Drescher (2015).

can bring benefits to those subjected to it, even if they are not involved in the medicalization process. The potential benefits and drawbacks of conceiving anxiety in a medicalized way will be explored in the final chapter of the thesis. For now, the importance is understanding what medicalization is, and *how* abnormal anxiety, as a non-medical experience, becomes medicalized.

The notions of medicalization examined here continue to be of key importance when considering the delineation between normal life experiences, abnormal manifestations of these experiences, and the point at which it becomes medically framed.[130] While this chapter will specifically argue that this is true of anxiety, it continues to be applicable to a host of problems that are being framed within medical contexts. To fully understand how the process of medicalization works in practicality, and how it continues to be relevant today, in the next section, I present a contemporary case of medicalization from the extant literature: the medicalization of grief. This simplified example will then stand as a parallel case for the medicalization of anxiety, which will then be explained in more detail from §2.1 onwards.

§1.3 Established examples of medicalization

The well-established medicalization of grief can help us to understand the medicalization of anxiety. Therefore, in this section, I outline how the traditionally non-medical emotional state of grief is becoming medicalized.

Grief is the complex emotional state felt when we are faced with personal loss.[131] This could be loss through death, or non-death loss, like the loss of a relationship, job, or other important aspect of one's life. Most commonly, this manifests as an intense sadness, emptiness, or agony, but can also involve a plethora of other sorts of feelings like anger and frustration (e.g., Ekman, 2007). While grief is a universal part of life, in recent years, it has been of great prominence in the public sphere with the Coronavirus leading to excess deaths globally, and the death of the monarch in the United Kingdom. This initiated an official period of national mourning, with many grieving across the nation and the Commonwealth.

However, despite the universality of grief, recent developments in medicine have begun to medicalize this otherwise normal part of life.[132] The first step of this medicalization is the designation of a sort of grief that is somewhat deviant, or otherwise abnormal. This is evident in one of the gold standards in psychiatry for outlining the diagnostic criteria for mental conditions, the latest iteration of the DSM, the DSM-5. Traditionally, in previous iterations of the DSM, the criteria for major depression have included something called a 'bereavement exclusion' (e.g., DSM-III, APA, 1980; DSM-III-R, APA, 1987; DSM-

[130] See Busfield (2017) for a contemporary review of why medicalization continues to be relevant in modern society.
[131] There is debate about the nature of grief, i.e., whether it ought to be considered an emotion or not. However, this debate is outside of the scope of this thesis. I present it as an emotion purely in accordance with lay understanding of this experience, as a normal, transitory state.
[132] In this section, my aim is only to briefly outline contemporary moves in the medicalization of grief. For a more detailed analysis of this, see Wada (2022).

IV, APA, 1994). The bereavement exclusion means that someone whose intense sadness is due to a personal loss would not qualify for the diagnosis of major depressive disorder. Essentially, as their grief could be linked clearly to a cause, explaining their deep sadness, it would exclude them from the diagnosis. However, in the most recent iteration of the DSM (DSM-5) (APA, 2013), this bereavement exclusion has been removed. By removing this constraint, those in a period of grieving, provided they sufficiently fulfil the remaining criteria (like intense sadness for most of the day, most days; apathy; low energy levels, etc. (e.g., APA, 2013: 160-161)), could be diagnosed with major depressive disorder. This then marks an important initial step in the medicalization of grief, by breaking down the separation between the normal state of grief and psychiatric diagnoses.

In accordance with removing the bereavement criterion, the DSM-5 also includes a characterisation of abnormal (but medicalized) grief which closely maps with the properties of proportionality, disability, mental management, and phenomenological intensity which demarcated abnormal anxiety, as identified in chapter four (see APA, 2013: 790). For example, the criteria state that over 12 months must have elapsed since the death of the close relation, or six months if the Experiencer is a child (APA, 2013: 790-791). Much like with the abnormal anxiety that we saw in chapter four, this is indicative that proportionality is important to the normal/abnormal division for grief. This is also echoed in the criterion that the grief must *exceed* what is culturally or religiously expected for the individual (Criterion E: ibid), emphasising the importance of the proportionate relation. In addition, the proposed diagnostic criteria suggest that this abnormal grief may be disabling in some ways: like causing isolation (C9), or "difficulty engaging in activities, pursuing relationships, or planning for the future" in C12 (APA, 2013: 790). Clearly then, this abnormal grief is incapacitating the Experiencer in some way such that they cannot go about their daily activities. Lastly, the abnormal grief may be phenomenologically intense, in that it involves "significant distress" (APA, 2013: 791).[133] What makes this a step of *medicalization* rather than a simple delineation of normal from abnormal is the suggestion that this abnormal grief is suitable for clinical attention in the form of a proposed disorder, 'Persistent Complex Bereavement Disorder' (PCBD).

In the DSM-5, PCBD features as a condition that may be a focus for clinical attention through its designation as a V code (e.g., APA, 2013).[134] When we reconsider Conrad & Schneider's (1980a) steps for medicalization, the identification of PCBD as something relevant for future clinical work is reminiscent of the prospecting of medical discovery and attempts for legitimization of this medical

[133] While these properties may make grief *abnormal*, they do not necessarily make it medical, disordered, or clinical. For this to be considered a mark of medicalization, this abnormality must then be conceived of in a distinctly medical way (either through the use of medical language or situating it within a medicalized contexts as it is in the DSM-5). Clearly here, in a medical manual, this abnormality is being conceived of as distinctly medical.

[134] V codes are simply ways to flag conditions that may be clinically relevant for future study.

entity. Essentially, it is a move to say that there is a medical entity, in the form of PCBD, that requires investigation, with the intention of establishing it as a set disorder.

Taking this a step further and institutionalising a form of grief as a medical entity in its own right is the establishment of a specific grief disorder: prolonged grief disorder (WHO, 2019). This new disorder features as a codified disorder in the most recent iteration of the International Classification of Diseases (ICD-11). Similar to the proposed PCBD, prolonged grief disorder is the term for grief that exceeds the culturally expected period, causing feelings like general apathy towards life, loneliness, isolation from others, and emotional numbness, to name a few criteria (e.g., WHO, 2019). However, the key difference between PCBD and prolonged grief disorder is that the latter is now institutionally established and accepted. Essentially, it is at the next stage of medicalization than PCBD. By codifying grief in this way, in the words of Granek (2010), grief then becomes "privatized, specialized, and [something suitable to be] treated by mental health professionals" (Granek, 2010: 46). This then clearly contrasts the non-medical conception of grief as a normal, universal state which is usually dealt with without the aid of the medical profession.

The result of this medicalization process is that we then have two distinct sorts of grief: grief as a normal response to loss in life, and grief as a medical entity that warrants intervention. In this way, the example of grief similarly reflects the *lay* conceptions of anxiety that emerge: anxiety as a normal response to uncertainty in life, and a sort of anxiety as a medical entity that warrants intervention. With that in mind, let's now turn to consider the medicalization of anxiety.

§2.1 Medicalization of anxiety

Much like grief, normal episodic anxiety is a universally experienced response. However, as we have seen in chapters one and four, there are times where this normal response becomes distinctly abnormal (when it is disproportionate, disabling, hard to mentally manage, or phenomenologically intense). In this section, I turn to consider how we get from these abnormal episodes of anxiety to the concept of *medicalized anxiety*. I will argue that the emergent concept of *medicalized anxiety* forms a broad umbrella category comprised of both abnormal anxiety episodes as well as the anxiety disorders.

However, before we get to that stage, we must start with the process of how anxiety, as a transitory response to uncertain threat within one's environment, becomes medicalized in the first instance. That is, how we get from normal anxiety to the concept of *medicalized anxiety*. While the precise process may slightly differ, I argue that there is a broad skeleton process that occurs when anxiety becomes medicalized. To understand and outline this process, let's return to Conrad and Schneider's (1980a) theoretical model of the medicalization process outlined in §1.2.

The first step in this process was the definition of some behaviour as abnormal or deviant in some way. For clarity, the steps will be presented in the same way as I have presented Conrad and Schneider's

process in §1.2, with the titles of each step in italics and the explanation of how this applies to *medicalized anxiety* in plain text.

1. *"Definition of behaviour as deviant."*

In the first instance, problematic anxiety is identified and delineated from normal episodes. The origin of this is arguably Sigmund Freud's (1926) delineation between 'normal' anxiety and a deviant form which he referred to as 'neurotic' anxiety that we saw in chapter four. Early psychological researchers in anxiety, like that of Cattell and Scheier (1958; 1961), and Rollo May (1977), then developed upon Freud's notion of normal and neurotic anxiety in maintaining the distinction between a normal sort of anxiety that does not warrant intervention and a kind of 'deviant' form which does. In the fourth chapter of the thesis, I have defined this problematic anxiety in terms of abnormality rather than explicitly being referred to as either "problematic" or "deviant" and outlined four properties to distinguish it from the normal sort of anxiety. These properties were: if the episode is disproportionate to the stimulus that evokes it (proportionality), if it incapacitates the Experiencer such that they can no longer engage in or complete day-to-day activities (disability), if it cannot be mentally managed (mental management), or if it is phenomenologically intense (phenomenological intensity). This identification of a problematic sort of anxiety is an integral step in the medicalization of anxiety and is reflected in the medicalization of other notions like that of grief as seen in §1.3.

2. *"Prospecting: medical discovery."*

The second step involves framing the abnormal episodes as *symptomatic* of something larger (like a disorder, illness, or otherwise), rather than just as abnormal in the sense that they are merely unusual. That is, it involves the prospect that there is *more* to these episodes which may be of clinical importance or relevance. This is the stage at which the notions of disorders rear their heads, and the episodes become entangled in the understanding. The specifics of the process may then differ for each of the individual anxiety disorders, but it is sufficient to outline that at this stage, a particular 'disorder' or medical condition is hypothesised and presented in clinical findings, much like in the prospecting of the grief disorder. So, in real terms, this would take the form of early papers which suggest that the designated deviant problem could be a part of a wider 'disorder', 'syndrome' or 'disease'.

To explain how this has occurred with abnormal episodes of anxiety, let's consider the example of 'separation anxiety disorder' and the works of psychologist/psychoanalyst John Bowlby (1960).[135] In his research into how children form attachments to their caregivers, Bowlby observed a particular behavioural pattern that children expressed when separated from their caregivers (usually mothers), becoming visibly distressed and inconsolable. While some level of distress was expected, Bowlby noted

[135] While Bowlby developed upon the ideas of Sigmund Freud (1905, 1926) and Otto Rank (1924), Bowlby's contribution is often marked as the pinnacle of the origins of separation anxiety disorder, so his work has been focused on for this section.

that in some children, their distress was disproportionate or 'excessive' (ibid). In this way, their anxiety seemed to be an *abnormal* response and was designated as deviant, marking the first step of the medicalization process. Subsequently, the prospect of *separation anxiety disorder* as something of potential clinical significance developed. Bowlby, and his contemporaries, then continued to propose the idea of separation anxiety disorder forward, prospecting it as something that will be of clinical significance.

3. *Claims-making: medical and non-medical interests.*

At this stage, the prospected disorders are pushed by both non-medical and medical claims-makers. In terms of the medical claims-makers, this will then likely involve medical researchers organising particular symposia or conferences centred around the prospected medical discovery. So, in the case of separation anxiety disorder, this would involve dedicated 'separation anxiety' conferences. Additionally, in the development of the anxiety disorders, a clear player in claims-making is the pharmaceutical industry. The history of the pharmaceutical industry in the medicalization of anxiety is both rich and complex (see Tone, 2009 for a full review). Given this, in this section, for the sake of brevity, I will simplify the process, using the case of separation anxiety disorder to explain how the pharmaceutical industry could stand as claims-makers in the interests of medicalizing anxiety.

The first step is that the pharmaceutical company in question either develops a drug or already has a drug which targets (either alleviates or eliminates) the prospected deviant behaviour. So, for example, a pharmaceutical company would create (or identify) a drug which alleviates the distress associated with separation anxiety. While I will explain this in more detail when we turn to consider the treatment of medicalized anxiety in a later section, this could be achieved through the inhibition of the sympathetic nervous system response, thus calming the body and alleviating the physically felt symptoms of anxiety (e.g., rapid heart rate and breathing). Realising this, the pharmaceutical company then markets said drug in a way which *promotes* the prospected medical discovery, branding their product as a way to 'treat' this medical entity. If we then apply this to the separation anxiety case, the company would then push their drug to be prescribed in the treatment of separation anxiety disorder.

4. *Legitimacy: securing medical turf*

The fourth step, securing medical turf and legitimizing abnormal anxiety as a distinctly medical entity (either *per se* or as symptoms of broader disorders), involves appealing to the state or to the legal system for recognition of the issue. This is a key step for people who rely on the recognition of their problem to access accommodations including those at work, and social support like benefits or welfare payments. For example, as seen in chapter four, abnormal anxiety can be hugely debilitating, and can prevent someone from engaging in social activities or prevent them from working. One such instance of this could be the participation in discussions or presentations at university if the anxiety is particularly triggered by social situations. The problem here is that if this participation is formative for a student's

degree classification, then they may need accommodations to be able to achieve these grades in the same or similar way as their less anxious classmates. For example, one such accommodation would be to conduct their presentations on a one-to-one basis, rather than in front of the whole class, which ought to lessen their social anxiety while fulfilling the course requirement. To access accommodations like these, though, university administrations will often require a note from a doctor (or similar medical evidence), certifying that the student is suffering from some sort of anxiety disorder. That is, university students rely on the legitimization of the medical notion of anxiety to be able to access the accommodations they need in order to be able to perform. It is therefore important to note at this point that the medicalization of anxiety in this regard can clearly have benefits for those experiencing it.

5. *Institutionalization of a medical deviance designation.*

The final step in the medicalization process is the establishment of the individual anxiety disorders and their inclusion in diagnostic manuals like the DSM (e.g., DSM-5, APA, 2013) and the ICD (e.g., ICD-11, WHO, 2019), like the introduction of the new grief disorder. Within these manuals, each disorder has its own classificatory number, codifying it as a medical entity and solidifying their place within the institution of psychiatry. Additionally, bureaucratization occurs in the form of institutions that have been created that deal with the concept of *medicalized anxiety*. While there are mental health institutions generally which address *medicalized anxiety*, much like the NIMH seen in the previous section, anxiety specific organisations have also been established. For example, the national charity 'Anxiety UK' seeks to both fundraise and research the disorders, while also providing 'awareness' and disseminating information about the conditions. In the United States, there is the 'Anxiety Disorders Association of America' (ADAA), which seeks to do the same.

§2.2 The umbrella category of *medicalized anxiety*

I argue that through the process of medicalization, like the one outlined in the previous section, a new category emerges in the form of *medicalized anxiety*. In this section, I will examine this category in more detail.

In the early chapters of the thesis, we saw how the unified category of *anxiety* was formed of distinct experiences which broadly fit under the following headings:

1. Normal anxiety episodes;
2. Abnormal anxiety episodes which differ in that they are often disproportionate to the stimulus that has evoked them, socially disabling, mentally difficult to manage, or phenomenologically intense;
3. Trait anxiety, which involves the disposition to experience these anxious episodes. The higher the trait anxiety, the more the Experiencer experiences anxious episodes;

4. The individual anxiety disorders, which are diagnosed on the basis of a collection of abnormal episodes over a given period of time which display the properties of disproportionality and one or more of the other three properties (disability, mental management, and phenomenological intensity).

However, as we have seen in this chapter, through the process of medicalization, abnormal episodes of anxiety which were otherwise non-medical *become* conceptualised as medical, most often as symptomatic of the anxiety disorders. This means that often, especially in folk discussions of anxiety, there is very little delineation between the abnormal *episodes* of anxiety, and the disorders that they are apparently symptomatic of. That is, they are often spoken about as if they are the same thing.

Let's explain the conceptual blurring between abnormal episodes and the anxiety disorders through a concrete example. Imagine Sophie, a university student, attends a party. The room is full of people she has never met before. When talking to Jodie, a girl she has only just met, Sophie suddenly experiences an episode of anxiety that is both phenomenologically intense and difficult for her to mentally manage. For the purposes of this example, let's assume that it qualifies as an abnormal episode. Visibly upset and shaking, Sophie explains to Jodie that she is very anxious in this situation. In response to this, Jodie explains that Sophie "probably has social anxiety disorder" as "those kinds of episodes are symptoms of it". Although, as we have seen in chapter two, these abnormal episodes of anxiety are not *inherently* or *necessarily* medical, Jodie is clearly conceiving of this episode in a medical way by framing this episode as 'symptomatic' of something.[136]

In this case, prior to the medicalization, one abnormal episode of anxiety such as Sophie's would be considered non-medical, and independent of any other abnormal episode she has. It importantly would *not* warrant a diagnosis. However, in medicalizing Sophie's anxious episode, viewing it as a symptom, Jodie is framing it as part of something larger, and indicative of a medical disorder which requires treatment. The result of the conceptual blurring between the abnormal episodes of anxiety and the anxiety disorders is that they blend themselves together, creating the emergent category of *medicalized anxiety*, as seen in figure 8. [137]

[136] If Sophie were to consistently and repeatedly have episodes similar to this in social situations over the course of six months or more, according to current diagnostic standards, then it would be the case that Sophie would warrant a diagnosis. In this case then, Jodie would, in fact, be correct, as these episodes would then be marked as 'symptoms' of the disorder. However, if this were a one-off, Jodie's comments would not be accurate. Despite all of this, the importance here for medicalization is the *conceptualisation* of the episode as symptomatic, rather than whether it truly *is* symptomatic or not.

[137] Trait anxiety has been appended in this list purely for the ease of exposition of the shading between abnormal episodes and the anxiety disorders that occurs through the process of medicalization.

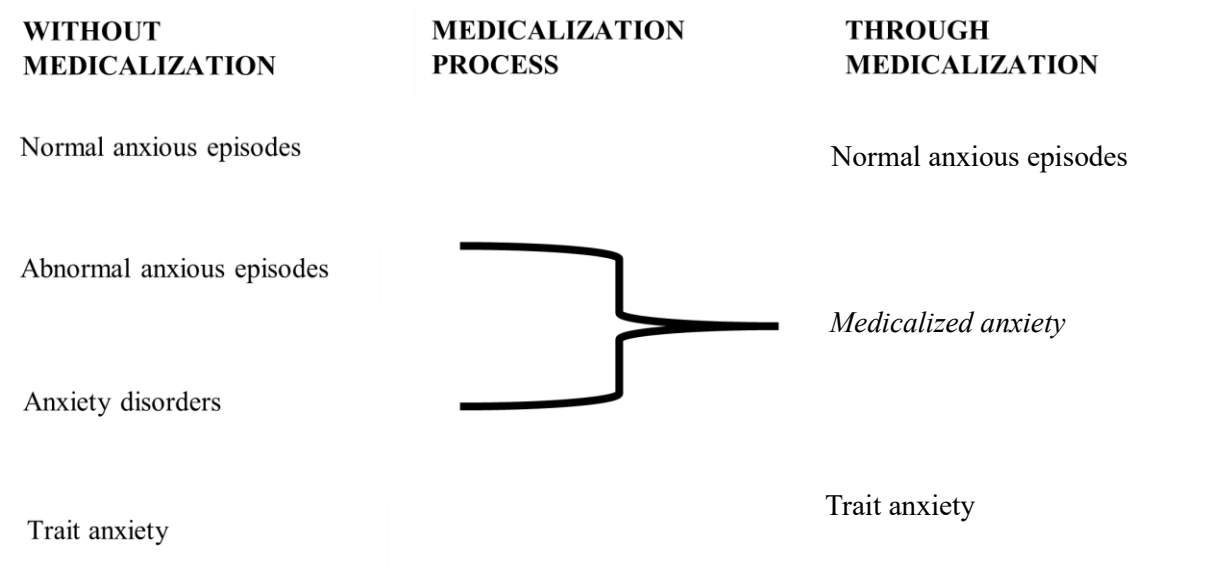


Figure 8. The emergence of the category of medicalized anxiety through the process of medicalization.

The category of *medicalized anxiety* is thus constituted by the abnormal episodes of anxiety (framed in a distinctly medical way, in contrast to how they have been conceptualised thus far), and the anxiety disorders.

§2.3 The distinct ways of conceptualising anxiety

A key question that arises due to the emergence of the category of *medicalized anxiety* is how this category relates to the taxonomy of *anxiety* that we have examined so far, and, importantly, whether it undermines the unity of the category. In this section, I aim to show that although medicalization does bring an additional aspect to our metaphysical understanding of *anxiety*, it importantly does not affect the taxonomy of *anxiety* presented in the thesis.

Prior to this chapter in the thesis, I outlined three distinct sorts of anxiety which were banded under the umbrella heading of *anxiety:* state anxiety, trait anxiety, and the anxiety disorders. However, through the process of medicalization, the category of *anxiety* more accurately looks like the one in figure 9, comprised of normal episodes of anxiety, non-medical abnormal episodes of anxiety, trait anxiety, and then the category of *medicalized anxiety* which is constituted by abnormal episodes of anxiety and the anxiety disorders.

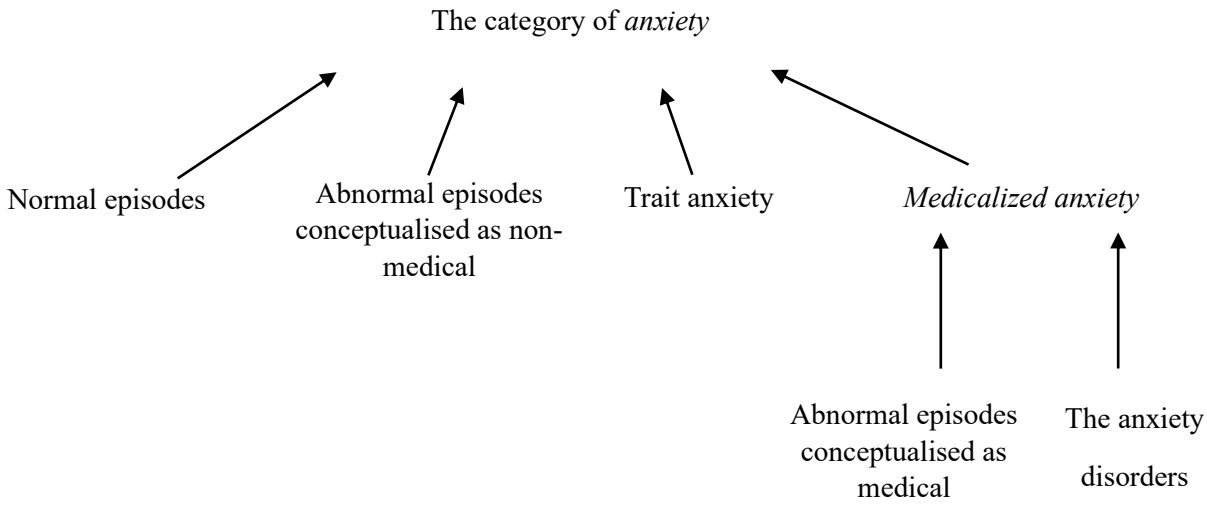


Figure 9. The psychological category of anxiety broken down.

In chapter one, I argued that the category of *anxiety* could be unified primarily because its constituent members shared a commonality in the form of episodes of anxiety *and* these episodes possess a distinctive set of reliably projectable properties in the form of functional, attentional, physiological, and behavioural properties. As the category members all featured these episodes of anxiety at some level, we could reliably project these properties across them, and therefore, unify them together.

Importantly for our understanding of *anxiety*, the emergence of the category of *medicalized anxiety* and its inclusion under the *anxiety* umbrella does not affect the unity of *anxiety* that I have argued for thus far. This is because, while the abnormal episodes which (partially) comprise *medicalized anxiety* are conceptually distinct in that they are framed in a medical way, they are *still* abnormal episodes of anxiety. This means that they will possess the distinctive set of functional, attentional, physiological, and behavioural properties which allow us to unify them. As we saw in chapter one, the anxiety disorders also feature these episodes of anxiety. Their conceptualisation within a medical framework does not affect this in any way.

Consequently, while the emergence of the category of *medicalized anxiety* is important for how we understand the psychological category of *anxiety*, it does not undermine any of the taxonomy that I have argued for thus far.

§2.4 Characterising *medicalized anxiety*

The question that then follows from this is: if *medicalized anxiety* as an umbrella category includes both abnormal episodes of anxiety and the anxiety disorders, then how can it be characterised? How can we identify discussions of *medicalized anxiety* in contrast to discussions of normalised anxiety?

One way in which this can be answered is by reconsidering Conrad's claim about the nature of medicalization, as a way to define "a problem in medical terms, using medical language…or using a medical intervention to "treat" it" (Conrad, 1992: 211), and map this onto *medicalized anxiety*. I will present this here.

To begin, let's consider the medical terminology/language that characterises *medicalized anxiety*. While the language associated with *medicalized anxiety* will be examined in further detail in the linguistic analysis that follows this chapter, it is important to have a clear understanding of it at this point. The first indication that anxiety has become medicalized from language alone is adopting a medical register of words to describe it. These are words usually associated with the medical profession and include things like 'symptom(s)', 'fatigue', 'disorder', 'diagnosis', and 'syndrome(s)'. Additionally, medicalized language of anxiety also involves the construction of noun phrases that situate anxiety within a more medicalized discourse. For example, the most obvious one of these is the noun phrase 'anxiety disorder(s)', but also includes, but is not limited to, the phrases: 'anxiety symptom(s)'; 'anxiety attack(s)'; and 'anxiety medication', to name a few.

Secondly, another way in which we can determine the extent to which anxiety has been medicalized is to consider how the person who is experiencing the anxiety is represented. Often, the Experiencer will be framed within a medical context, like as being subject to medical professionals in their representation as 'patients' or 'the mentally ill'.

Another way of determining the extent to which anxiety has been medicalized is to consider whether it is being associated with other medicalized conditions or established diseases.[138] This would suggest that it is also being framed within a medical context. In the case of *medicalized anxiety*, this is likely to be conditions like major depressive disorder, or other conditions that involve anxiety as an identified 'symptom' like post-traumatic stress disorder and obsessive-compulsive disorder.[139]

Lastly, a key characteristic of medicalization is the use of medical interventions prescribed to "treat" the problem. When we turn to consider the methods of intervention involved in anxiety, there are two distinct ways in which medicalization can be inferred: being delivered by medical professionals, and the prescription or use of anti-anxiety drugs. Firstly, let's consider the involvement of medical professionals in the treatment of *medicalized anxiety*. By turning to medical personnel to alleviate one's

[138] This is not to say that these established conditions/diseases are not, in themselves, already medicalized.
[139] The reason for the strong relation between these apparent conditions is explored further in the following chapter.

anxiety, it is clear that the anxiety is being viewed as something *appropriate for medical intervention.* That is, it is something that is within the realm of the medical profession to solve. In this case, Experiencers will turn to medical professionals like their general practitioner (GP) or a clinical psychologist to alleviate their experiences. The 'treatments' provided most commonly involve the prescription of a course of therapy, like cognitive behavioural therapy as the first line of action (e.g., Butler, Chapman, Forman, & Beck, 2006; Hofmann & Smits, 2008; Norton & Price, 2007).[140] However, the medical professional could equally prescribe 'treatments' that generally would not be considered medical, like increasing the amount one exercises over the course of a week. This is because promising studies show that exercise can alleviate episodic anxiety (e.g., Herring, Lindheimer, & O'Connor, 2014). Although this treatment *per se* does not seem 'medical', it is the sought *source* of the intervention that marks the anxiety experience as being conceived of in a medicalized way, not necessarily the intervention method itself. That is, it is in seeking treatment from medical personnel that marks the treatment as distinctly medical, rather than depending on the specific form of intervention that is prescribed. However, this is not to say that the form of intervention is not relevant, but it is not the most salient marker of medicalization in this instance.

The second method of intervention which characterises *medicalized anxiety* is the prescription or use of pharmaceuticals. While pharmaceuticals themselves are not necessary for medicalization, they are sufficient.[141,142] That is, some concepts become medicalized without any pharmaceutical involvement (Conrad, 2007). For example, the notion that being overweight or obese is a mark of 'illness' or 'disease' emerged without the involvement of the pharmaceutical industry in the sense there was no drug designed to 'cure' or 'treat' obesity.[143] However, in relation to anxiety, there is a clear set of pharmaceuticals which are designed for or directly targeted at reducing episodic anxiety, or 'treating' its associated disorders. As aforementioned, arguably the most extensive work on the use of pharmaceuticals being prescribed to alleviate anxiety is the work of Andrea Tone (2009) who examines the influence of the pharmaceutical industry on the conception, implementation, and prevalence of the anxiety disorders. Across psychiatry and the medical profession, these kinds of drugs are most commonly referred to as anxiolytic drugs. These can be divided into two sub-divisions: short-term and

[140] Further evidence for this can be found in psychiatric prescribing guidelines, like the Maudsley prescribing guidelines in psychiatry (13th ed., Taylor, Barnes, & Young, 2018). These guidelines are widely adopted across Western psychiatry and used in the NHS.

[141] This does not necessitate that a prescription must be obtained for these to indicate that the anxiety they are being used to 'treat' is being conceptualised in a medicalized way. It also does not necessitate that those who use anxiolytics have a legitimate prescription to do so.

[142] It is important to consider that this may also be a mark of the pharmaceutacalization of anxiety. Pharmaceutacalization is an associated concept that differs slightly from that of medicalization which is the process of a problem being defined as something suitable for treatment with medical drugs (Abraham, 2010: 604). To understand this concept *per se* primarily, see Abraham (2010). For a discussion on how pharmaceutacalization differs from medicalization, refer to Conrad (2013). For the purposes of this thesis, the use of pharmaceuticals is sufficient as a mark of medicalization, as it indicates that the problem in question is something suitable for the treatment by medical professionals.

[143] Written prior to the development and widespread use of appetite suppressant 'Ozempic'.

longer-term anxiolytics. The most well-known short-term anxiolytic drugs are arguably the benzodiazepines (or benzos), for example, alprazolam, commonly known as Xanax; and diazepam (Valium). The aim of benzos is primarily to increase gamma-aminobutyric acid (GABA) activity, resulting in the body relaxing and an induced sense of calm. This is especially useful in the alleviation of the effects of abnormal anxiety episodes, as it often reduces the severity of the episode (i.e., the phenomenological intensity), but may also help the Experiencer mentally manage their episode or reduce the extent to which they are disabled by their anxiety. In contrast, there are longer-term anxiolytics that are directed more towards the management of the anxiety disorders. These are usually anti-depressants like selective serotonin reuptake inhibitors (SRRIs), which aims to boost mood and regulate bodily processes.[144]

With the characterization of *medicalized anxiety* clearer, let's briefly consider the social actors involved in the maintenance and spread of this concept.[145] The first obvious answer to this is those working within the medical profession who are describing abnormal episodes of anxiety, or the anxiety disorders, within a medical framework. This includes general practitioners, as well as clinical psychologists, therapists, and psychiatrists, but essentially involves any medical professional who promotes the notion that abnormal anxiety is something that warrants the kinds of medical intervention examined in the previous paragraphs. However, another key catalyst in promoting the notion that abnormal anxiety is distinctly a medical entity are lay people who (perhaps inadvertently) perpetuate the idea that abnormal anxiety ought to be framed within a medical context. In the following chapters, I analyse the lay conceptualisation of *medicalized anxiety*, the motivations for adopting and perpetuating this concept of anxiety, and the potential effects adopting such a notion may have on Experiencers' psychological well-being.

§2.5 Normalised versus *medicalized anxiety*

One of the most significant implications of the emergence of the category of *medicalized anxiety* is that this category is now often posed dichotomously against normalised anxiety, in both lay discourse and psychology. In this section, I propose a brief characterisation of both normalised anxiety and *medicalized anxiety* to see how the two differ. This characterisation will then be key to understanding the following two chapters which consider this dichotomy in our linguistic expressions of our anxious experiences, and the potential effects this language may have.

While I have explained the characteristics of normalised anxiety in detail in chapter four, and the characteristics of *medicalized anxiety* in the previous section of this chapter, given the prevalence of the dichotomy between them in lay discourse, it is important to understand them side by side to see how

[144] For brevity, an explanation of the functioning of SSRIs has been omitted. For a full explanation of this, see Stein & Stahl (2000).
[145] There will be a wide array of social actors involved, and they are not limited to the ones discussed in this section.

they differ. To do this, I present the most significant differences between them in table 3. While this table is not intended to be exhaustive, it draws upon the most significant differences between the two sorts of anxiety. These relate to the appropriateness of intervention, the four properties used to delineate normal from abnormal that were outlined in chapter four of the thesis, and the temporal duration of the experience.

Normal Anxiety	**Medicalized Anxiety**
Would not largely benefit from intervention	Would largely benefit from intervention (and this intervention is to be sought from the medical profession): E.g., medical professionals (doctors, psychiatrists); or pharmaceuticals.
Proportionate to stimulus that evoked it	Disproportionate to stimulus that evoked it (including no triggering stimulus at all).
Little effect on rest of day activities	Often socially disabling
Largely mentally manageable	Often mentally unmanageable
Moderate to mild intensity	Moderate to high intensity
Transitory	Persistent

Table 3. The characteristics of normal anxious episodes contrasted with the umbrella category of medicalized anxiety.

It is important to note that, much like with the anxiety disorders in chapter one, while *medicalized anxiety* is often characterised as 'persistent', this does not mean that it is not comprised of episodes of anxiety. Instead, this instance, it merely means that the episodes of anxiety experienced by the Experiencer have been persistently abnormal over a designated period of time.

Conclusion

Medicalization is a rich and complex process by which problems are framed distinctly within a medical context, through the use of medical language and turning to the medical professions for 'treatment' (Conrad, 1992). Following the steps outlined by Conrad and Schneider (1980a), the process of medicalization seemingly involves the steps of first defining the behaviour as deviant and subsequently prospecting a medical discovery that centres around this deviant behaviour. Once the discovery has been proclaimed, the next steps are to make claims in favour of the medical prospect, which can either be medical (through further medical research or investment), or non-medical (like through organisations and the pharmaceutical industry). After this, those in favour of the medicalization of the problem at hand then seek to legitimize the problem as distinctly medical by making claims to the state and legal system. With this achieved, the final step is then truly establishing the medical entity by

institutionalising it, coding it in medical terms like in medical repositories, and setting up organisations to invest in, research, and maintain the medicalization of the problem.

I argued that, for anxiety, the process of medicalization begins when abnormal episodes of anxiety become conceptualised as not only something deviant (in the sense of being unusual or different), but something worthy of medical investigation. Often, these abnormal episodes are framed as symptoms of larger disorders, which only perpetuates the medicalization cycle. The result is that the consequent notion of *medicalized anxiety* forms its own umbrella category, blending together the abnormal anxious episodes with the collections of these episodes over a period of time (the anxiety disorders). While *medicalized anxiety* forms a sub-category of *anxiety*, it importantly does not undermine any of the taxonomy of *anxiety* that we have seen thus far: as a unified, biological functional kind which is a strong candidate for natural kindhood. An additional implication of medicalization is that lay people, and growingly psychologists, frequently pose normal anxiety in contrast with the category of *medicalized anxiety*. In the following chapter, I aim to examine and understand lay expressions of the dichotomy between normal and *medicalized anxiety*, including the social actors involved in them and the types of experiences which evoke them.

Chapter Six: "You don't have anxiety, you're just anxious!": The Difference Between 'Being Anxious' and 'Having Anxiety'

Introduction

In the previous chapter, I outlined the widely accepted lay distinction between normal episodes of anxiety and the fuzzier umbrella concept of *medicalized anxiety*, which combined the abnormal episodes with the anxiety disorders. This chapter takes a methodological turn, using the field of corpus linguistics to examine how conceptual differences between normal and *medicalized anxiety* may be conveyed through real-world language. In this vein, it is important to note that the remainder of this chapter intends to stand as an independent linguistic study.[146]

Psychologists have noted that a key problem in differentiating experiences of normalised anxiety from *medicalized anxiety* is that we can use the same language to express experiences of the two (e.g., Rycroft, 1968; Edelmann, 1992). However, as of yet, there is little real-world data on the language we *actually do* use to describe our anxiety experiences, and whether there is any nuance which permeates through this ambiguity. Therefore, this chapter employs linguistics to analyse the ways in which we express our experiences of anxiety.[147] One reason for this is that recent research in this field has identified that there is a distinction in the ways in which normalised and medicalized notions of intense sadness (depressed mood) are conveyed by those experiencing it (e.g., Dowrick, 2004; Hunt & Brookes, 2020). These studies found that those who suffer from medicalized depression tend to express their experiences through the phrasal construction 'to have + depression' rather than through the adjectival expression 'to be + depressed'. Using this as a foundational basis, the aim of this chapter is to determine whether the 'to have' versus 'to be' distinction can be applied to expressions of anxiety and thus the extent to which the language of anxiety can be disambiguated. By analysing lay peoples' expressions of their anxiety experiences in this way, we will gain a greater understanding of how these people conceptualise the different sorts of anxiety they experience, from normal to medicalized experiences. This will then be of vital importance when it comes to navigating interpersonal relations and understanding how we ought to respond to others' anxious experiences.

The chapter begins, in §1, with an outline of normalised and medicalized conceptualisations of anxiety, aiming to bring together the current psychological view on anxiety with extant discourse corpus linguistic studies on mental health. In this section, I also present the two key research questions of the chapter, essentially aiming to determine the extent to which 'to be + anxious' maps with normalised

[146] However, relevance to previous chapters has been included for ease of exposition.

[147] This chapter has therefore been written in accordance with standards in linguistics. Please note that a consequence of this is that this piece can be read independently from the rest of the thesis to be published in a linguistic journal. A philosophical analysis of the findings of this chapter will follow in the next chapter.

concepts of anxiety and 'to have + anxiety' maps with the more medicalized notion. With the premise of the study clear, §2 outlines the data and methods undertaken in the study. In §3, through a quantitative and qualitative analysis, I present the ways in which 'to have + anxiety' is used to convey a more medicalized notion of anxiety in comparison to the phrasal construction 'to be + anxious'. Accordingly, in §4, I present the converse of the argument, demonstrating how 'to be + anxious' is most commonly used to convey a more normalised experience of anxiety. The chapter ends with a summary and conclusion of the argument, outlining the practical implications of the study, as well as the limitations and areas for future work.

§1.1 Normalised versus *medicalized anxiety* in psychology and corpus linguistics

As we have seen in the first few chapters of the thesis, normal anxiety involves a distinctive set of reliably projectable properties: functional; attentional; physiological; and behavioural properties. In chapter five, we then saw how the umbrella category of *medicalized anxiety* emerges, comprised of the anxiety disorders *as well as* abnormal anxiety episodes (which are often disproportionate to the threat that evoked them; disabling and prevent the Experiencer from engaging in their usual day-to-day activities; mentally unmanageable; or cause the Experiencer a great deal of phenomenological intensity). As a result of the medicalization of anxiety, across lay discourse, there is a dichotomy between normalised and medicalized experiences of anxiety, which can be characterised through table 4.[148]

Normal Anxiety	**Medicalized Anxiety**
Transitory	Persistent
Proportionate to stimulus that evoked it	Disproportionate to stimulus that evoked it (including no triggering stimulus at all).
Little effect on rest of day activities	Often socially disabling
Largely mentally manageable	Often mentally unmanageable
Moderate to mild intensity	Moderate to high intensity
Would not largely benefit from intervention	Would largely benefit from intervention from the medical profession: E.g., medical professionals (doctors, psychiatrists); or pharmaceuticals.

Table 4. The characteristics of normal anxious episodes contrasted with the umbrella category of medicalized anxiety revisited.

[148] This table is the same as the one found in the chapter on medicalization. It has been reprinted here for ease of reference.

Discourse analytic studies of mental health have begun to examine the notion of medicalization in relation to mental health conditions, with a focus on how they are conveyed in the media (whether traditional press or online social media) (e.g., Atanasova, Koteyko, Brown, & Crawford, 2019; Mellifont, 2019). More specifically, there are emerging studies using corpus linguistics which focus on the notion of *medicalized anxiety* by examining the language of those who have been diagnosed with an anxiety disorder (e.g., social anxiety disorder: Garcia-Lopez et al., 2011). In addition, there are studies which utilise corpus linguistics to identify whether someone posting on an online forum might fit diagnostic criteria for a disorder (e.g., Shen & Rudzics, 2017).

While these studies stand as a springboard for corpus studies on anxiety, they have only considered the language used in relation to a medicalized notion of anxiety, rather than considering the language of normalised, everyday anxiety alongside the medical notion. No study has yet determined whether there is any distinction in the language people use to express these two experiences of anxiety.[149] This means we lack data on whether there is a distinction in the expressions of normalised and medicalized notions of anxiety, and additional information like who is represented as experiencing these sorts of anxiety in what contexts, motivating the need for the discourse analysis this chapter will provide.

In psychological literature, two ways in which people can express the same emotional experience are framed by the verbs 'to have' and 'to be' (Fromm, 1976; Staiano 1986; Fleischman, 1999; Hunt & Brookes, 2020: 176).[150] Applied to anxiety, this can be expressed through the phrasal constructions 'to be + anxious' and 'to have + anxiety'.[151] While 'to have + anxiety' *can* be used to convey a normalised emotional experience, there is reason to believe the anxiety in this instance is conceptualised in a more medicalized manner. This is because a key common characteristic of medical discourse is to conceptualise the condition as a quasi-concrete entity by using the noun form (Nijhof, 1998; Warner, 1976, Cassell, 1976: 143). This then contrasts conceptualising the condition as either a state of being (i.e., something we *are)* or as a bodily sensation (i.e., something we *feel*) (e.g., Fromm, 1976: 52).[152] For example, those suffering from depressive disorders favour the phrase 'to have + depression' to convey a medicalized conception of their intense sadness instead of the construction 'to be + depressed' (Dowrick, 2004: 192; Hunt & Brookes, 2020: 137). We do not yet know how far this distinction applies to anxiety. This then leads to the following research questions which will be the central focus of the chapter. When we examine the phrasal constructions of 'to be + anxious' and 'to have + anxiety':

[149] This is true of January 2023.
[150] Although another popular way of conveying an emotional experience of anxiety is through the phrasal construction 'to feel + anxious', the use of this phrase will not be analysed in this study. The primary reason for this is that 'to feel' adds additional semantic weight that the auxiliary verbs of 'to have' and 'to be' do not carry, meaning there would be an imbalance in comparison.
[151] The + here indicates that various tenses and aspects of the verb will be analysed. For example, "I have anxiety" as well as other conjugations like "he has had anxiety".
[152] These distinctions will be nuanced out further in the following chapter.

Q1: to what extent is ‘to be + anxious’ more often used to convey normalised experiences?

Q2: to what extent is ‘to have + anxiety’ more often used to convey medicalized experiences?

The primary aim of this chapter is to bring together a corpus-based discourse analysis with psychological research to answer these two research questions.

§2.1 Data and methods

This study uses a corpus-based discourse analysis to examine the frequency and contexts of use for the two phrasal constructions (‘to be + anxious’ and ‘to have + anxiety’) in the English Timestamped JSI Web corpus 2014-2020 (hereafter, the JSI), available in Sketch Engine (Kilgarriff et al., 2014). This corpus was chosen to capture a generalised picture of anxious experiences that spans across several years, rather than corpora which offer snapshots of particular years. Given the emergence of the Coronavirus pandemic in 2020, it was important to capture *some* responses to this, while also gathering data on times outside of this global event, which an alternative corpus like the English Web 2020 would not have been able to provide. An additional benefit of the JSI corpus is its size, consisting of over 57 billion words, drawn from global RSS web feeds that are in both US and UK English.[153] From this, concordance lines were selected using the ‘random sampling’ tool on Sketch Engine (Kilgarriff et al., 2014), by gathering a shuffled set of 200 concordance lines for each individual tense and aspect of the two phrasal constructions.[154] In cases where 200 lines were not available for the individual tense/aspect, the maximum number of lines available were selected, bringing the cumulative overall total lines to 3,793 (anxious: 2,348, and anxiety: 1,445). These lines were then manually analysed through the UAM annotation tool (O’Donnell, 2008, v3.3) using a specially created annotation schema.[155]

The discourse analysis uses a systemic functional transitivity analysis of the Participants, Processes and Circumstances of the concordance lines (Halliday, 1961, 1985, 1994; Halliday & Matthiessen, 2014) to identify who is experiencing the anxiety, and in what contexts this anxiety is experienced. The theory of transitivity in Systemic Functional Linguistics (SFL) was first formally posed by Halliday (1961). While there is an alternative theory of transitivity in the form of the Cardiff model (e.g., Fawcett, 1980, 2000; see Neale 2002, 2006 for contemporary amendments), Hallidayan analysis was chosen as it remains the standard in SFL and has continued to be developed to provide a more nuanced method of analysis (e.g., Halliday & Matthiessen, 2014). The particular interest for this chapter is in the person

[153] This will then be reflected in the concordance lines throughout the chapter for integrity purposes.
[154] The randomisation tool is an in-built feature of Sketch Engine (Kilgarriff et al., 2014). Upon clicking this button, and employing the tool, 200 random concordance lines will be selected from the specified input (in this instance, tense and aspect). The same 200 lines will appear in accordance with the number of times the button is pressed. For this study, the button was pressed once. Using this tool then ought to increase the replicability of the study and mitigate some researcher bias in the selection of data to be analysed.
[155] This annotation schema was created specifically for the projected as there was no automated one which would allow for the synthesis of the Hallidayan analysis, social actor analysis, and thematic context analysis which was going to be carried out.

experiencing the anxiety, i.e., the Carrier to whom the anxiety experience is attributed.[156] The Participants are further analysed using van Leeuwen's (2008) social actor framework which looks at the ways in which Participants are being represented in a more detailed manner. By combining the Hallidayan analysis with this social actor perspective, it allows for an additional thematic analysis of different identities to explore how far the different experiences of anxiety might be associated with a particular demographic group (e.g., young people, students), professions, or is medicalized (e.g., patients).[157,158]

The Circumstances were coded for Hallidayan categories including Location, which comprises time and place; Extent, which covers distances, durations, and frequencies; and Cause, which relates to the reason, purpose, or who the action is on behalf of, to name a few (Halliday & Matthiessen, 2014: 262-263).[159] These are important to establish a trigger event (in examining Cause) and how far the normalised or medicalized experiences are represented. This also involved annotating the collocational patterns which occurred with both phrases. These Circumstances were then further thematically analysed to determine any contextual differences in the anxiety expressions. That is, this contextual annotation can then identify if there is a difference in the duration of the anxiety experiences, or the types of events that cause them. For example, these thematically grouped contexts include things like 'sports', 'business', 'pregnancy' and 'the pandemic', to name a few.

As the sole researcher on this project, at this point I must acknowledge that there will be a potential for undesirable biases in the selection and annotation of the data. However, to mitigate these biases and ensure the replicability of the study, several steps were taken. Firstly, randomisation has been employed where possible. For example, the random tool of Sketch Engie was employed to avoid 'cherry picking' of the data (e.g., Widdowson, 2004). Additionally, the quantitative data presented here will only be that which has been calculated by the UAM software (O'Donnell, 2008, v3.3) to be statistically significant, which ought to then increase the replicability of the study.

§2.2 Initial analysis: Word Sketch

As a primary step, Sketch Engine was used to produce a preliminary Word Sketch for both 'anxious' and 'anxiety' to help identify wider collocational patterns (e.g., Kilgarriff et al., 2014). Additionally, this was used to explore how far normalised or medical experiences of anxiety might be present within

[156] However, it should be noted that *all* Participants were annotated manually. The Carriers are identified as the key group as they are the ones experiencing the anxiety, but those attributing anxiety to them in some cases, the Sayers, are also of relevance. Unfortunately, there is simply not enough space within the thesis to cover the findings across this group. This, however, may be a key area for future study.
[157] A simplified version of van Leeuwen's social actor network (2008: 52) was used which solely focused on the identified *included* social actors.
[158] The individual professions and roles of the actors was initially tagged for each social actor. These were then collated into thematic groups as seen in table 9.
[159] All Circumstances were categorised. The ones named here are the ones of note that will be analysed in further detail in the results sections of this chapter.

the English Timestamped JSI Web corpus 2014-2020 as a whole before engaging in the detailed corpus analysis.

In this initial finding, the raw frequency of 'to be + anxious' in the English Timestamped JSI Web Corpus 2014-2020 is 151,681 (2.16 per million tokens), while the raw frequency of 'to have + anxiety' is 16,429 (0.23 per million tokens). These different patterns also have collocational profiles which can be compared using the Word Sketch function of Sketch Engine (Kilgarriff et al., 2014). From the Word Sketch, there are three main grammatical features which demonstrate an initial difference between the sorts of experiences of anxiety being conveyed. These are: 'and/or' collocations, the subjects of each term, and the nouns and verbs modified by the terms. A summary of the lexical items which collocate with each of these areas is given in table 5.[160,161]

	Anxious	**Anxiety**
And/Or	depressed, worried, scared, fearful, overwhelmed, nervous, afraid, confused, angry, frustrated, excited, irritable	depression, **stress,** fear, **disorder**, worry, **insomnia**, uncertainty**,** **loneliness,** frustration, anger, **pain**, **isolation**
Subjects of…	parent, everybody, resident, teacher, americans, fan, everyone, people, democrats, colleague, student	pet, partner, dog, resident, citizen, public, parent, teacher, student, people, child, **patient**
Nouns and verbs modified by…	Wait, anticipation, waiting, thought, parent, moment, feeling, attachment, relative, mind, mood	**depression**, **disorder, insomnia**, **stress, loneliness,** anger, fear, **ptsd, symptom**, irritability, sadness

Table 5. Summary of collocational profiles of 'anxious' and 'anxiety' sorted by frequency. Patterns sourced from Sketch Engine (Kilgarriff et al., 2014).

As seen in table 5, the Word Sketch of 'anxious' and 'anxiety' shows that there are similarities and differences in the collocational patterns of the two. Some lemmas are shared as collocates for both words. For example, 'depressed', 'worry', 'fear', 'afraid', and 'frustrated' etc. occur as collocations for both 'anxious' and 'anxiety'. However, there are some lemmas that occur only as collocations for 'anxiety', identified in bold in table 5, like 'stress', 'disorder', 'insomnia', 'ptsd', 'symptom', etc, which suggest a medicalized discourse. On the other hand, there are collocations that occur only for 'anxious' that suggests that this is being used to indicate a more normalised experience. For example, there are

[160] The Word Sketch also compares things like the modifiers of the search terms, the prepositional phrases which follow the search terms, and the verbs that precede them.
[161] The lemmas found in the table are presented in the order of the frequency they appear within the Word Sketch.

collocations between ‘anxious’ and other normalised states like ‘excited’, ‘irritable’, and ‘overwhelmed’ which do not occur with anxiety.

The initial observations provided by the Word Sketches suggest that there are key similarities and differences in the linguistic representation of ‘to be + anxious’ and ‘to have + anxiety’. However, the Word Sketch feature is limited in that it does not provide any further context about how these normalised and medicalized experiences are represented by those experiencing them. For example, it cannot tell us what sort of people are experiencing these sorts of anxiety, the triggers associated with the anxiety experiences, and additional useful information like the duration of the experiences. For this information, we require an additional analysis like the one provided in this chapter.

§3.1 Results: To have + anxiety

From the Word Sketch, it is evident there is a difference in the lemmas collocated with ‘to be + anxious + and/or’ and ‘to have + anxiety + and/or’ (e.g., Kilgarriff et al., 2014).[162] However, Sketch Engine does not distinguish between the noun phrases in which lemmas ‘anxiety’ and ‘anxious’ are collocated with ‘and’ and the noun phrases in which the items are connected with ‘or’ (ibid). Instead, it presents a single list of lemmas for each search term (i.e., ‘anxiety’ and ‘anxious’), as seen in table 5.

While the use of ‘or’ suggests that the experiences conveyed by the collocated lemmas could be inclusive or *exclusive* options, ‘and’ is more suggestive of the two experiences as co-occurring (Schiffrin, 1987: 189-190). If we know what experiences are coinciding with the one represented through the anxiety lemma, we will be able to create a clearer picture of that anxiety experience itself. Therefore, examining and comparing the collocations between the adjectives which follow ‘to be + anxious + and’ and the nouns which follow ‘to have + anxiety + and’ can provide us with a better understanding of the representation of the experiences of anxiety themselves.

Turning then to consider my manual analysis of the concordance lines, the three nouns that occur most often with the pattern ‘to have + anxiety + and’ are: ‘depression’, ‘panic’, and named mental medical conditions, as seen in table 6.[163] These collocations have been determined as highly statistically significant by a calculation in-built in the UAM tool (O’Donnell, 2008, v3.3).[164]

[162] The and/or category on Sketch Engine examines the collocations between the nominated search term and the lemmas collocated with both ‘and’ and ‘or’, both before and after the search term. For example, ‘and + anxious’, ‘anxious + and’, and ‘or + anxious’, ‘anxious + or’. These searches are then all collated by Sketch Engine and presented in a single list of the most commonly collocated lemmas.

[163] From here on, all results reported will be from the manual analysis of the concordance lines unless otherwise stated.

[164] Throughout the chapter, only statistically significant data will be presented. In the UAM software, this significance is indicated by a series of pluses. Three pluses (+++) indicate high statistical significance, with two pluses (++) representing medium statistical significance and one plus (+) representing low statistical significance.

	To Be + Anxious + And +		To Have + Anxiety + And +			
Feature	**N**	**Percent**	**N**	**Percent**	**ChiSqu**	**Signif.**
Fear (Concerned/worried/afraid)	26	44.83%	4	3.05%	52.536	+++
Depressed/Depression	3	5.17%	68	51.91%	37.439	+++
Excited/Excitement	6	10.34%	0	0.00%	13.996	+++
Panicked/Panic	0	0.00%	19	14.50%	9.352	+++
Upset/Sad/Sadness	3	5.17%	0	0.00%	6.885	+++
Mental Medical Condition	0	0.00%	13	9.92%	6.181	+++
Uncertain	2	3.45%	0	0.00%	4.566	++
Frustrated/Frustration	3	5.17%	1	0.76%	3.772	+

Table 6. The most frequent nouns and adjectives collocated with 'to be + anxious'.

The most frequent lemma collocated with the phrasal pattern, 'to have + anxiety + and' is 'depression', representing over half of all collocations in these lines (51.91%, n=68). Although 'depression' *per se* is not a recognised mental medical condition in psychiatry, it is like anxiety in that it is often used as a shorthand reference for a collection of psychiatric disorders, namely 'depressive disorders', e.g., major depressive disorder and persistent depressive disorder, to name a few (e.g., APA, 2013). Depression is typically characterised by a persistent low mood state, involving feelings of sadness, emptiness, or hopelessness (ibid: 160), resulting in enduring distress and suffering for the Experiencer. The collocation of anxiety and depression in the concordance lines therefore seems to suggest that the anxiety being experienced also involves a kind of suffering or distress, linking it to the more abnormal notion rather than the normalised one. More explicit links between the collocation of 'to have + anxiety + depression' with the notion of medicalization is found in the discursive contexts which follow this phrasal construction.

1. For years I've had anxiety and depression so there's an element to **pharmaceuticals** that's tremendously helpful to me.

2. Lilley told police he had anxiety and depression and had been self-medicating or experimenting with **Ecstasy, Xanax, diazepam**, and **other tablets** for…

3. I have had anxiety and depression since high school. I take **Wellbutrin.** I've gone to years of therapy. I take **Xanax** when needed.

In the context of the concordance lines containing 'have + anxiety + depression', many authors talk about remediating the 'anxiety and depression' through medication, like 'pharmaceuticals', 'Xanax', 'diazepam' and 'Wellbutrin', as seen in lines 1, 2, and 3. This suggests that these experiences of anxiety and depression are being conceptualised in a distinctly medical way.

The second most common collocation that suggests a more medicalized experience is that of 'to have + anxiety + and' and 'panic', representing 14.50% of the collocations (n=19). While much like 'depression', 'panic' *per se* does not inherently entail a medicalized concept, medicalization can be inferred from this collocation as most of the uses in the concordance lines consist in the noun phrase 'panic attack(s)' (84.21%, n=16), as seen in lines 4, 5, and 6.

4. She would have **anxiety and panic attacks** before school, she'd just cry…

5. I am having **anxiety and panic attacks**, but my GP says it is too soon for counselling or medication.

6. So within three weeks, he lost 15 kilos, he was having **anxiety and panic attacks**, he became addicted to Xanax, he was suicidal, as he just mentioned.

Panic attacks are "abrupt surges of intense fear or intense discomfort that reach a peak within minutes, accompanied by physical and /or cognitive symptoms" (APA, 2013: 190). These attacks are commonly referred to across medicalized discourse, as they are identified in psychiatry as a common feature of many anxiety disorders, like generalised anxiety disorder (GAD) and social anxiety disorder (ibid). Much like with the 'to have + anxiety + depression' collocation, across the collocations of 'anxiety and panic attacks', Experiencers are turning to the medical profession to remediate their experiences. For example, in concordance line 5, the Experiencer seeks medical intervention in the form of their 'GP' (general practitioner). Additionally, in line 6, the Experiencer is seeking remediation through the use of the pharmaceutical 'Xanax'. This explicit reliance upon the medical profession and pharmaceuticals clearly links the experience of 'having anxiety and panic attacks' to the medicalized notion of anxiety.

The final 'and' collocation that suggests 'to have + anxiety' is being used to convey a medicalized experience is the collocation between having anxiety and other named mental disorders (9.92%, n=13). These are any disorder that is named in the latest iteration of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (APA, 2013) or the alternative diagnostic manual, the World Health

Organisation's 11th revision of the International Classification of Diseases (ICD-11) (WHO, 2019).[165] Among the identified disorders in the concordance lines, the two most commonly collocated with 'to have + anxiety' are obsessive compulsive disorder (OCD) (23.08%, n=3) and post-traumatic stress disorder (PTSD) (23.08%, n=3), as seen in lines 7 and 8.

> 7. The story follows a 16-year-old girl named Aza who has **anxiety and obsessive-compulsive disorder.**
>
> 8. I was having **anxiety and PTSD** and I didn't want to continue.

When anxiety is conceptualised within a medicalized framework, the collocation between OCD, PTSD, and anxiety is unsurprising, as these conditions were considered as 'anxiety disorders' in previous iterations of the DSM, e.g., DSM III (APA, 1980), III-R (APA, 1987), and IV (APA, 1994). This is because anxiety is identified as a key 'symptom' in the diagnosis of both OCD and PTSD (e.g., APA, 2013, WHO, 2019). It is only in the latest edition (DSM-5) that these disorders exist in their own right, outside of the anxiety disorder grouping. However, despite this, there is a still an ongoing debate about the reclassification of OCD and PTSD, and where it ought to sit within the DSM-5 (OCD: Bartz & Hollander, 2006; Stein et al. 2010; Bienvenu et al., 2012. PTSD: Zoellner, Rothbaum, & Feeny, 2011; APA, 2013: 271). In this way, the collocation between having anxiety and mental medical conditions like OCD or PTSD is indicative that the 'anxiety' is being presented as a comorbidity, i.e., as another similar mental disorder that is co-occurring with the OCD or PTSD. In this way, the anxiety is clearly being medically framed.

[165] Although there is a significant overlap in the disorders named in the DSM-5 and the ICD-11, both manuals are used in this instance to ensure no disorder is missed during the manual annotation of the concordance lines.

§3.2 Circumstances

	To Be + Anxious + Circumstance		To Have + Anxiety + Circumstance			
Circumstance	**N**	**Percent**	**N**	**Percent**	**ChiSqu**	**Signif.**
Cause	167	26.59%	19	4.96%	74.151	+++
Extent	37	5.89%	72	18.80%	41.204	+++
Location (time and place)	57	9.08%	63	16.45%	12.362	+++
Role	2	0.32%	7	1.83%	6.142	+++
Accompaniment	6	0.96%	11	2.87%	5.286	++
Contingency	9	1.43%	1	0.26%	3.337	+

Table 7. Frequency of Hallidayan Circumstances sorted by statistical significance.

Table 7 summarises the quantitative comparisons of Circumstances for both phrasal constructions. In this section, I outline how the results of the manual analysis of the Hallidayan Circumstances sheds further light on how 'to have + anxiety' is being used to convey a medicalized experience.

The most frequent Circumstances with 'to have + anxiety' are Extent (18.80%, n=72), which conveys the duration of the anxiety experiences, representing days, weeks, months, or years; and Location, which conveys when (time) and where (place) the anxiety experiences occur (16.45%, n=63).

	To Be + Anxious		To Have + Anxiety			
Period of Time	**N**	**Percent**	**N**	**Percent**	**ChiSqu**	**Signif.**
Years	4	36.36%	19	79.17%	6.134	+++
Days/Months	6	54.55%	4	16.67%	5.303	++

Table 8. Durations of time conveyed by circumstance of Extent.

In terms of Extent, and, more specifically, duration, 'having anxiety' is most frequently presented as an experience that spans across several years, rather than days or months, as seen in table 8 (79.17%,

n=19). Within the sub-set of years represented in the 'to have + anxiety' lines, in all cases, the duration being conveyed is that of multiple years (3+) rather than one or two, with most lasting for a span of over ten years (84.21%, n=16). For example, in lines 9, 10, and 11, we can see that the anxiety is represented as lasting for more than a decade.

9. Performance-maker Sophie Winter, who has had anxiety **for the past 15 years**, says that being in the arts can be really isolating.

10. Jenny has been traveling for over 20 years and has had anxiety **for 22 years**.

11. Sophie Southall, 26, from North Walsham has had anxiety **since around the age of 13.**

In fact, the most frequent durations describe the experience of 'having anxiety' as lasting for *an entire lifetime*, either directly, as seen in examples 12 and 13, or through adaptations of the phrase 'as long as memory serves', in 14 and 15.

12. I have had anxiety pretty much **my entire life**. I've done a lot of therapy and done the work too—exercises, CBT, DBT.

13. I have had anxiety **all my life**, but it's not something I have ever gotten used to experiencing.

14. I have had anxiety **for as long as I can remember**. Growing up, it impacted every part of life.

15. Looking back, she said she has had anxiety **for as long as she can remember**.

The conveyed persistence of 'having anxiety' for years or lifetimes contradicts the normalised concept of anxiety as something transitory and infrequent and is more characteristic of *medicalized anxiety*, which is characterised as being more persistent or frequent.

The most frequent Circumstances of Location, specifically those which indicate the events which evoked the experience (time), also suggest 'to have + anxiety' is being used in a more medicalized way. The most frequently statistically significant time which creates a link between 'having anxiety' and the more medicalized notion of anxiety is that of pregnancy. Although most people are familiar with the link between pregnancy, post-partum, and depression, anxiety in pregnancy has a higher prevalence rate (Heron et al., 2004). While this *per se* is not necessarily medical, it is important to note that pregnant women also experience higher rates of generalised anxiety disorder than non-pregnant women (Matthey & Ross-Hamid, 2011; Sutter-Dallay et al., 2004). These kinds of empirical findings are reflected in concordance lines like in those below, where the anxiety is either presented as being intensely negative, like the use of 'worst' in line 16 or linked to medicalized concepts like 'post-natal depression' in line 17.

16. Then I had anxiety worst **after the birth of my second son**.

17. …emotional Mrs Dickie said her daughter had suffered post-natal depression **after the birth of her first daughter** and had had anxiety after that.

Taken together, it seems that the circumstantial elements which co-occur with the 'to have + anxiety' concordance lines suggest a more persistent anxiety experience than the concept of anxiety as normalised episodes covers.

§3.3 Social Actors

	To Be + Anxious		To Have + Anxiety			
	N	**Percent**	**N**	**Percent**	**ChiSqu**	**Signif.**
Assimilated Carriers						
Aggregation (statistics)	9	0.87%	41	17.67%	141.16	+++
Youth	13	1.26%	30	12.93%	78.79	+++
Medical	6	0.58%	20	8.62%	60.965	+++
Sports	158	15.27%	3	1.29%	33.356	+++
Politics	192	18.55%	8	3.45%	32.517	+++
Education	25	2.42%	19	8.19%	18.85	+++
Women	3	0.29%	7	3.02%	18.004	+++
Entertainment	93	8.99%	3	1.29%	16.014	+++
Work	143	13.82%	14	6.03%	10.572	+++
Judiciary	22	2.13%	0	0.00%	5.019	++
Finance	30	2.90%	1	0.43%	4.834	++

Table 9. Social actor analysis of assimilated Carriers sorted by statistical significance.

Across both sets of concordance lines, the Carriers who are represented as experiencing 'being anxious' and 'having anxiety' are often presented as collective groups, referred to by van Leeuwen as 'assimilated social actors' (van Leeuwen, 2008: 37). Table 9 shows the types of groups in which these assimilated Carriers are represented in relation to both phrasal constructions. In this analysis, and following the broad framework of van Leeuwen (2008), the category of assimilated actors has been split into 'collectivised' actors, where actors are grouped together on the basis of their demographic (e.g., children), their social role (e.g., parents) or their profession (e.g., doctors); and 'aggregated' actors,

where the actors are represented numerically, e.g. through the use of statistics.[166] I begin by focusing on the collectivised groups.

The most statistically significant collectivised social actors represented in the 'to have + anxiety' concordance lines are the demographics of youth (12.93%, n=30) and students (8.19%, n=19), correlating with epidemiological research in anxiety disorders.[167]

Youth is the most statistically significant demographic which co-occurs with 'to have + anxiety', representing 12.93% of assimilated Carriers (n=30). Youth, especially children, are particularly at risk of developing anxiety disorders, with the onset for disorders like separation anxiety disorder, specific phobia and social phobia all occurring before the age of 15 (de Lijster et al., 2017). Additionally, research shows that 75% of all psychiatric disorders are established before the age of 25 (Kessler et al., 2005).

> 18. "Right now it seems like there's just so many more **kids who are having anxiety**, who are **having depression**," she said.
>
> 19. "The same can be said for anxiety," he said, adding that **kids who have had anxiety and depression** before their injury are more at risk for a reoccurrence.
>
> 20. You've got **kids who are having anxiety attacks**. You've got kids who are seeing psychologists, that are getting more medicated.

The youth in the 'to have + anxiety' concordance lines are most often presented as struggling with their anxiety through the use of noun phrases like 'anxiety attacks', like in line 20, or experiencing it comorbidly with 'depression' in lines 18 and 19. In this way, it seems that their experience is being framed within a more medicalized framework.

The second most statistically significant demographic is that of students (8.19% , n=19). In the 'to have + anxiety' concordance lines, the anxiety experience of students is not presented in relation to academia. Instead, the students are being presented as struggling with anxiety and emotional problems suggesting a more medicalized than normalised experience.

> 21. One teacher told researchers: "An increasing amount of students are having **anxiety issues and panic attacks** and they don't know what is causing them."

[166] In van Leeuwen's original social actor analysis (2008), collectivisation as a category is conceptualised slightly distinctly. In his case, assimilation is a distinct process from *functionalization* (where social actors are identified through their social role) and *classification* (where actors are identified by their demographic). Although I do not argue that these processes are the same, for ease of annotation, these have been combined in the annotation schema.

[167] The category of 'youth' here relates to young people who are not presented within an educational context, or as students. For example, these social actors often refer to 'kids' and 'teens'.

22. “Nancy does not shy away from any task, and meets with students who are having anxiety, have **signs of self-harm or who need additional emotional support**,” the principal said.

23. “I’ve had a lot of students over the years who have had **anxiety or other mental health disorders,** [but] it’s hard to get access to support for them when they’re in the primary schools…

For example, in line 21, students are presented as having ‘anxiety issues and panic attacks’. By using anxiety within the noun phrase ‘anxiety issues’, it is clear that the experience being conveyed is distinct from the normalised concept. In line 22, there is an acknowledged need for ‘emotional support’. Lastly, in line 23, anxiety is presented as a comorbid ‘mental health disorder’. By conveying the students’ experiences in this way, the anxiety is being explicitly conceptualised within a medicalized framework.

Another statistically significant set of collectivised Carriers that suggest that the phrasal construction ‘to have + anxiety’ is being used in a medicalized way are those who fulfil the ‘ill role’, i.e., patients, and those who have a pre-existing medical condition. That is, social actors who are themselves already being represented within the medical framework.[168]

24. **People with dissociative identity disorder** usually have anxiety and depression, which can lead to suicidal thoughts and suicide attempts.

25. The ‘psychological’ category **patients** will have anxiety, irritability, restlessness, craving, and an irresistible urge to consume liquor.

26. Sometimes **patients** get very desperate, they will be having anxiety issues, etc.

In these instances, as with the collocation between ‘to have + anxiety + and + mental medical conditions’, the anxiety experience is presented as a comorbidity. For example, in lines 24, 25, and 26, the anxiety is being described as a characteristic feature of those who are unwell, like the ‘people with dissociative identity disorder’ and the ‘patients’ respectively, establishing the anxiety experiences within a medical framework.

Another way that Carriers are represented in the ‘to have + anxiety’ concordance lines is through ‘aggregation’ (van Leeuwen, 2008: 37), where people are depersonalised by being represented in numerical format. Of all Carriers in the ‘to have + anxiety’ lines, 17.67% (n=41) were aggregated, as seen in table 9. The use of statistics to present the people who ‘have’ an anxiety experience suggests a somewhat scientific discourse. This is more specifically medicalized when the statistics are used to

[168] This is not to be confused with the sociological concept of the sick role in the work of Parsons (1951). Instead, this merely is a generic reference to those who are already spoken about or being identified within a medical framework.

present the anxiety experience as a comorbidity with another health condition, like 'major depression' in line 27, 'ASD' (an abbreviation of autism spectrum disorder) in line 28, and 'asthma' in line 29.

> 27. …evaluations and look at their rates of comorbid psychiatric diseases, **64 percent had major depression and 35 percent had anxiety**.
>
> 28. In the paper, the researchers cite previous studies that found approximately **40 percent of children with ASD also have anxiety**, and about 38 percent have depression.
>
> 29. In their study, among **those with asthma, 11.2 per cent had anxiety** and 5.8 per cent had depression, versus 7.1 per cent and 3.2 per cent in those without.

Aggregation is also used to convey the consensus that anxiety is a growing social problem (c.f., van Leeuwen, 2008: 37). This is achieved by emphasising high percentages and fractions of depersonalised actors to suggest the problem in question is, or is becoming, widespread.

> 30. …**one in four people will have anxiety** at some stage of their life.
>
> 31. "She's able to connect with the one million Australian adults who have depression and the **two million** who have anxiety."
>
> 32. "People have to realise that **one in four people under the age of 25** will have anxiety issues," Ryan said.

When statistics are used in this way, the result is often to increase a sense of moral panic about the problem at hand (e.g., Cohen, 1972 on crime), emphasising the need to act. For example, in line 32, by emphasising that 'one in four people under the age of 25 will have anxiety issues', it is clear that the author is suggesting something must be done about this, and that it is a widespread problem. By conveying it in this way, it aligns with the steps of claims-making and appeals to legitimization that we have seen in the previous chapter are integral to the medicalization of anxiety.

§4.1 Results: To be + anxious

I now turn to consider how 'to be + anxious' is used to convey a more normalised notion of anxiety. As seen in the initial Word Sketch in table 5, 'anxious' is often collocated with other, normalised emotion terms like 'worried', 'scared', 'fearful', 'nervous', 'afraid', 'angry', 'frustrated', and 'excited', suggesting a more normalised experience of anxiety. This is also reflected in my thematic analysis of the concordance lines, as seen in table 6, where the two most frequent adjectives collocated with 'to be + anxious + and' are other transitory emotions: fear terms and excitement respectively.

The most frequent collocation between 'to be + anxious + and' is that of 'fear' terms like 'concern(ed)', 'worry/worried', 'afraid', 'scared', 'fear', and 'nervous', representing almost half of all 'to be + anxious

+ and + adjective' cases (44.83%, n=26).[169] Although these terms may have slightly different connotations, with 'worry' potentially bearing more of a cognitive semantic load than 'afraid', laypeople often use these terms interchangeably. This is evident in the Sketch Engine thesaurus search for these terms in the JSI corpus, where the two most frequent lemmas for 'fear' itself are 'concern' and 'worry' (Kilgarriff et al., 2014). In psychological discussions of normalised anxiety, specifically those within behavioural psychology, the terms 'fear' and 'anxiety' are often used to refer to the same core threat response system, with the words merely differentiating whether the threatening object is identifiable or not (e.g., Spielberger, 1972a; Marks 1978; LeDoux, 2015: 7-8). While fear has a discernible, known threat, the object of anxiety is often indiscernible, or unknown. As seen in chapter four and the first section of this chapter, this response to uncertainty is largely considered normal when it is: socially acceptable (in that it is deemed proportionate to the stimulus), does not cause the Experiencer great emotional distress or disability, and is mentally manageable.

Across the majority of the 'to be + anxious' concordance lines, the notion of a socially acceptable response to uncertainty was alluded to (80.77%, n=21). For example, in lines 33 and 34, the uncertain scenarios that have triggered the anxiety are directly identified, as 'an earthquake, a pandemic, and a hurricane' and 'sex offenders' respectively.

> 33. … after unexpectedly experiencing **an earthquake, a pandemic, and a hurricane**. Most people would have been anxious and fearful **during those uncertain months** far from home.
>
> 34. We understand that many members of the public are anxious and fearful about **sex offenders**, because the crime is so egregious.

While the collocation between 'being anxious' and a normalised emotion term like 'fearful' situates the anxious experience within a non-medicalized framework, the normality of the situation is further emphasised in these lines by conveying that they are socially acceptable. This is often achieved in the concordance lines by conveying that it is a widely shared experience.[170] In line 35, the notion of social acceptance is achieved by indicating that 'most people would have been anxious', while in line 36, 'many members of the public' are sharing the anxious experience. Through this, it seems like a more normalised rather than medicalized experience is being conveyed.

'Excited' is the second most commonly collocated adjective with 'to be + anxious + and', representing 10.34% of cases (n=6), seen in table 6. Initially, this collocation may seem strange, as excitement is traditionally considered a positively valenced emotion (e.g., Ekman, 2007), while anxiety is considered as having a negative valence (e.g., Marks, 1978; Kurth, 2018b: 2). That is, in simple terms, excitement

[169] All terms were designated after a qualitative analysis, rather than merely a quantitative word allocation.
[170] We will also see this in the later section on the social actors.

feels good whereas anxiety feels bad.[171] However, in the field of psychology, there is emerging literature linking excitement and anxiety together (see Brooks, 2014). This is because, despite their apparent differences in valences, excitement and anxiety share some key components. Briefly, both involve the same physiological response of the activation of the autonomic nervous system, producing an increased heart rate, increased sweating, palpitations, and dizziness etc., (Hoehn-Saric & McLeod, 2000: 217-218; LeDoux, 2015: 234). Also, both excitement and anxiety are provoked by novel situations that represent uncertainty. Identifying this link then provides an explanation for the collocation between 'being anxious' and 'excitement' in the concordance lines.

Within the concordance lines, the most frequent context that follows the 'anxious + and + excited' collocation is that of sporting endeavours (n=3, 50%).[172] Competitive sports represent an uncertainty which offers both the opportunity for great success (if the match goes successfully), or failure (if not).

> 35. He's a blur in the open court and impossible to stay in front of. **The Bulls** are anxious and excited to see what White can do in his rookie season.
>
> 36. (20-33) in exchange for **Marcus Thornton and a 2016 first-round draft pick**. "I was surprised, but at the same time I was anxious and excited," Thomas told the Celtics' official website.

For example, in line 35 sports team 'The Bulls' are represented as being both 'anxious and excited' for the debut of their new player 'White', a scenario which represents novel uncertainty and can prompt both the positive affect of excitement and the negative affect of anxiety. The collocation between 'anxious + excited' suggests that the two experiences are occurring simultaneously meaning there is room for positive affect, and an enjoyable experience, within the periphery of the anxious episode. This seems unlikely in the medicalized case where the anxiety is portrayed as debilitating, distressing, or otherwise deeply negative.

§4.2 Circumstances

In the 'to be + anxious' concordance lines, there is a difference in the way the Circumstance of Extent is represented compared to the 'to have + anxiety' lines, as the former generally refer to a much shorter timeframe. The majority of the identified durations that follow 'to be + anxious' refer to days, weeks, or months, unlike the years that are mentioned in the 'to have + anxiety' concordance lines, with 54.55%, n=6, compared to 16.67%, n=4 respectively, as seen in table 8.

> 37. Drought hit communities in the Maranoa and Warrego and the Darling Downs and Granite Belt districts have been anxious **for days as fire conditions** moved to extreme.

[171] Obviously, the nature of valence is far more nuanced than this, but that is outside of the scope of this linguistic analysis.
[172] The other threee represent the individual contexts of public holidays, education, and entertainment.

38. She had been anxious **for days** leading up **to the record attempt** and woke at 4am yesterday…

39. "We know people are going to be anxious, the general population has been anxious **for the past several months**," Desjarlais said.

For example, in lines 37 and 38, the 'anxious' experience is being conveyed as only lasting for days directly in response to a particular triggering stimulus, 'fire conditions' in line 37, and 'the record attempt' in line 38. Although there are a few instances of the anxious experience persisting across years (36.36%, n=4), these are far less frequent than in the 'to have + anxiety' lines, and there are no instances of it represented as persisting across lifetimes.[173] This then maps with the normalised notion of anxiety.

The most frequent Circumstances of Location referred to across the 'to be + anxious' concordance lines are times and places which represent normalised, high-pressure situations for the Experiencer. For example, the most frequent time that people are 'being anxious' is preceding sporting events (25.00%, n=10).

40. …Kane fail to produce a goal or an assist in five of his previous home matches, the striker's two million Fantasy owners will have been anxious **ahead of his run-out against Stoke City**.

41. Murray had been anxious **before the match**, he said later, so the reception as he entered, struck by memories of his last competitive match…

The second most frequent time relates to the political sphere and refers to the election process (17.50%, n=7). In this case, the object of the presented anxiety (the elections) clearly poses an indiscernible threat, as there could be potentially life-changing implications depending on who is successful, normalising the experience. What makes this a more normalised experience though is that this sort of political anxiety is most often represented as a shared experience, by collective groups like 'minority and minor party leaders' in line 42, and the 'investment community' in line 43.

42. Also, minority and minor party leaders were anxious **in the wake of President Gotabaya Rajapaksa assuming office** about the possibility of the government threatening…

43. And like before, the investment community has been anxious in **the run-up to the August 8 elections.**

The most statistically significant Circumstance that follows 'to be + anxious' is that of Cause, specifically, that of Purpose (what the actors are anxious for or toward).[174] This is most frequently

[173] In fact, one of these four entries is prospective, hypothesising about being anxious 'for years to come'.

[174] The reason that this Circumstance is presented second, despite being the most statistically significant, is for continuity with the previous sections in terms of ordering the Circumstances. This then ought to ease comparisons for the reader without confusion. Cause is not mentioned in the 'to have + anxiety' section as it is not statistically significant, arising infrequently.

conveyed through the use of 'to be + anxious + infinitive verb phrase', which is found in over half the total 'to be + anxious' concordance lines (51.64%, n=1163). The anxiety in these Cause cases is presented as a prospective anticipation for a future event. The most frequent events in these cases fall under the category of 'entertainment', with the objects of anticipation including the release of new television shows, films, games, and arts. For example, 44 conveys eagerness to see the progression of the Marvel film 'Black Panther' storyline, 45 looks towards the developing storyline in a new episode of hit series 'This is Us', and 48 conveys anticipation towards finding out the winner(s) of the 'National Art Merit Awards'.

> 44. After Black Panther makes his appearance in Captain America: Civil War, many are **anxious to find out what T'Challa is going to do**.
>
> 45. With the news of **This is Us** airing a special time after Super Bowl 52, fans have been **anxious to finally learn how Jack dies**.
>
> 46. TONIGHT Zimbabweans will be **anxious to know who will come out tops** during the country's **premium arts event, the National Art Merit Awards** (Nama) to be held…

From these concordance lines' conveyance of prospective anticipation, it seems that 'being anxious' is not always used to convey a negative emotional experience. In this way, this phrase cannot be being used to convey a medicalized notion as this, by its characterisation, would only involve negative affect. Due to this, 'being anxious' here is clearly more aligned with the normalised notion.

§4.3 Social actors

	To Be + Anxious		**To Have + Anxiety**			
Feature	**N**	**Percent**	**N**	**Percent**	**ChiSqu**	**Signif.**
Assimilated	1054	50.43%	235	20.29%	282.74	+++
Individualised	1036	49.57%	923	79.71%	282.74	+++

Table 10. The representation of Assimilated and Individualised Carriers in the social actor analysis.

As table 10 shows, the Carriers of the 'to be + anxious' lines are more significantly assimilated, rather than individualised people, representing their anxious experience as a group experience. The three most

frequent assimilated groups in these lines are: politicians (18.55%, n=192), sports personnel (15.27%, n=158), and workers (13.82%, n=143), as seen in table 9.[175]

For the category of politicians, the Carriers of the relational process of 'to be + anxious' include: 'the government', named parties within governments (e.g., 'Tories', 'Republicans', 'Democrats', etc.), and even entire nations (e.g., 'Japan', 'Italy', 'Saudi Arabia', etc.). Within the Sporting category, the anxious experience is frequently ascribed to named sports teams (e.g., 'Manchester United', 'the Bucks', 'the Tigers', etc.), their organisational teams (e.g., 'The Football Association', 'the GAA', etc.), 'coaches', and, importantly, their 'fans'. Lastly, workers constitute a key group of anxious individuals, with 'workers', 'colleagues', and 'employees' all represented.

Across the two phrasal constructions, there is a difference between the representation of the assimilated Carriers' anxiety experiences. In the 'to be + anxious' cases, the Carriers' anxiety is presented as a shared experience that regards the same object or event, unlike the individualised experiences and struggles of the functionalised Carriers in the 'to have + anxiety' concordance lines. For example, in line 47, the 'GOP members' (Republicans) are collectively anxious about the 'polling' around the 2020 US election. Similarly, in line 48, the object of the anxiety, to 'avoid the Italian club', is one the functionalised Carriers ('the Premier League champions') share.

> 47. **Many GOP members** have been anxious **about polling showing Trump trailing** behind Joe Biden in key swing states…
>
> 48. …**the Premier League champions** had been anxious to **avoid the Italian club** in the draw.

In these cases, the collectivised Carriers are being conveyed as a single unit anxious about the same clear triggering stimulus. By presenting them in this way, it normalises the anxious experience as something shared and widespread.

Another key example of this is the difference in the representation of students' anxiety experiences across the two phrasal constructions. In the 'to be + anxious' concordance lines, students are represented as a collective unit, all anxious about the same triggering stimulus specifically relating to academic pressures they are subjected to. For example, in lines 49, 50, and 51, the students are being presented as a group who are, or will be, collectively 'anxious' specifically about their upcoming exams, like 'GCSEs' and 'A-Levels'.

> 49. Jo Philpott, headteacher of City of Norwich School, tweeted that she realised that year 11 and 13 pupils would be anxious about their **GCSEs and A-Levels** and that assemblies would take place today to share information and answer questions.

[175] All three of these groups have high statistical significance.

50. All the students would be anxious about **their preparations for the fast approaching exam**.

51. …on Saturday, Mr Licudi said: "We are also conscious that students in years 11 and 13, the **GCSE and A level years**, will have been anxious about their exams.

By presenting the students as a collective unit anxious about the same academic pressures in the 'to be + anxious' lines, it seems that being anxious is being used to convey a more normalised anxiety experience. This then clearly stands in contrast to the representation of the students in the 'to have + anxiety' concordance lines as a group facing individual struggles, disconnected from the specific triggers of academic life.

Summary

This chapter stands as the first study to use a corpus-based discourse analysis to analyse differences in the representations of anxiety focusing on the phrasal constructions 'to be + anxious' and 'to have + anxiety'. This was primarily achieved by comparing the two constructions through a transitivity analysis and a social actor analysis. These analyses address the research questions outlined in §1 by determining that the linguistic constructions of 'to be + anxious' and 'to have + anxiety' map onto the conceptions of normalised and *medicalized anxiety* respectively. 'To be + anxious' is more often used to convey normalised anxious responses. This was shown through the collocations with other normal emotion terms (like 'fear' and 'excitement'); shorter durations conveyed by the circumstances of Extent, implying the anxiety experience is more transitory; and lastly, as a shared experience through more assimilated Carriers, like those of sports personnel, politicians, and workers. It is also often used to convey anticipation for a prospective, future event, suggesting room for a positive anxiety experience. Contrastingly, 'to have + anxiety' is more often used to convey medicalized experiences. This is evidenced through the collocation with distressing experiences like 'depression', 'panic', and other named mental medical conditions. Additionally, the circumstances of Extent which occur in the 'to have + anxiety' concordance lines represent a significantly longer duration (years and lifetimes), suggestive of the enduring suffering characteristic of *medicalized anxiety*.

However, it must be acknowledged that the spectrum of anxiety experiences is not binary, meaning there is a grey area between the normalised and medicalized concepts (namely, non-medicalized abnormalised experiences of anxiety). In this area, either of the phrasal constructions may be used to convey their experience of anxiety, meaning there will be some exceptions to the general findings established here.

This chapter is not without its limitations. Firstly, despite providing an initial understanding of the way in which the social actors who have either 'to be + anxious' or 'to have + anxiety' attributed to them have been represented, due to time and space limitations, the social actor analysis was limited in that it

did not consider excluded actors, or the more nuanced ways in which the actors have been determined, like nomination (e.g., van Leeuwen, 2008). A key area for future study would look to undertake a more detailed study of these actors, to provide a deeper understanding of how those who experience normal and *medicalized anxiety* are being portrayed. Secondly, while the size of the Timestamped corpus means that the generalisations set out in this chapter can be made, this study is limited in that only one, single-modal corpus has been used. Consequently, one avenue for future research could be to consider the extent to which the generalisations supported here hold for more general corpora, like the English Web 2020 corpora, or specialised corpora, like those constructed from posts compiled from anxiety forums or from specific contexts in which anxiety might be discussed. Other areas of interest might be televised scripts, literary texts, or multimodal corpora. Further work should also consider the validity of these generalisations for other languages or consider the possibility of diachronic comparisons to trace the evolution of 'having anxiety' and 'being anxious' across historical periods.

For linguistics, this chapter stands as a springboard for discourse analyses of news-based representations of a wide range of mental health conditions, not merely anxiety disorders. Following the Coronavirus pandemic, where there is an increasing overlap between the experiences of normalised and medicalized emotional states, these kinds of studies of mental health are of growing importance.

Conclusion

This chapter has two key theoretical implications for the field of psychology. Firstly, although psychology characterises anxiety as a necessarily negative experience (e.g., Kurth 2018b: 2), the patterns of 'to be + anxious' in the concordance lines considered in this study show there is room for positivity, in the collocation with 'excitement' and the prospective anticipation for future events, prompting a potential revision of the affective profile of anxiety.

Secondly, the chapter also demonstrates that there is a nuanced difference in the way that people use language to talk about the experience of 'having anxiety' as compared with 'being anxious'. Identifying this is then key to understanding not only the distinct sorts of anxiety experiences that lay people are having, but also, provides a deeper insight into the ways in which they are personally conceptualising their experiences.

Aside from its psychological implications, this chapter also has important ramifications for how we then navigate interpersonal relations, based on the intricacies of the language people use when describing their anxious experiences. Return to the title of this chapter, "you don't have anxiety, you're just anxious". Given the findings of this chapter, it seems here that the speaker in this case is positing a distinction between a medicalized and normalised experience of anxiety. By saying these words to someone having an anxious experience, the aim may not be to belittle, but to *normalise* their experiences. That is, to reassure them that what they are experiencing is normal, and that anxiety is universal. However, if a speaker is using a 'have + anxiety' phrasal construction to convey that their

experiences are *not* normal, and in fact, are persistent, debilitating, or otherwise abnormal, it is important that we both recognise and respond to this in an appropriate manner. That is, rather than playing down their experiences, we should convey an understanding that they may be struggling, treating them sympathetically. By identifying the nuanced way in which people use language to convey their experiences through discourse analyses such as this, we can then use the generalisations found to aid us in navigating our interpersonal relations with others. While, as mentioned previously, the 'have + anxiety' construction is not always used to convey a medicalized experience, given the generalisations of this chapter, when we hear others using this phraseology, we ought to be mindful of this, and take their experiences seriously.

While this chapter has established that we use 'to have + anxiety' to convey a more medicalized notion, the implications of adopting this kind of objectified language have yet to be identified. That is, as of yet, there is minimal research into whether adopting this kind of conceptual framework can have any effects on our experiences of anxiety, or on our understanding of ourselves more broadly. Therefore, this will be the focus of the following chapter.

Chapter Seven: What is at Stake When We Objectify Anxiety?

Introduction

From the linguistic analysis of chapter six, we can gain insight into the ways in which people are talking about, and therefore conceptualising, their anxiety experiences. I argue that the key finding from this study is that there is a conceptual shift in how we view normalised anxiety in comparison to medicalized instances. When we wish to convey our experiences of anxiety as a normal, transitory state, we tend to do so by using the adjective 'anxious'. On the other hand, when we wish to convey a more medicalized notion of anxiety, we do so by using the noun form 'anxiety'. From this, we can see that the shift from normal to *medicalized anxiety* involves the process of objectification: where a process becomes conceptualised as if it were an object-like entity. Across the medical humanities, it is clear that this kind of objectification is a characteristic feature of medical discourse (Warner, 1976; Cassell, 1976; Nijhof, 1998), especially so for conditions often considered as 'physical' like broken bones and cancer, for example. More recently, work in discourse analysis has highlighted that objectification has become commonplace in expressions of our experiences of *mental* medical conditions, like depression (e.g., Hunt & Brookes, 2020) and eating disorders (e.g., Malson et al., 2004; Schaefer, 2004, 2009; Hunt & Brookes, 2020). As a result, some initial work is being done considering the potential effects that adopting objectified language can have on the people who are experiencing it.

However, as of yet, this has not been examined in relation to anxiety. Given the prevalence of anxiety in these times, understanding not only the way in which people are expressing their anxiety, but how this may then affect their behaviour and experiences is more important than ever.[176] The problem is that neither a metaphysical understanding of anxiety *per se* nor the linguistic analysis can tell us the potential implications of conceptualising *medicalized anxiety* in an objectified way.[177] Therefore, the purpose of this chapter is to resolve the gap in the extant literature by proposing positive and negative effects of this objectification. Using support from clinical data for similar mental conditions, I argue that while objectifying *medicalized anxiety* can have initial short-term benefits in reducing feelings of responsibility and blame, we ought to engage in this conceptualisation with caution. This is because the surrendering of responsibility may act as an obstacle to the treatment and alleviation of the anxiety and be detrimental to our psychological well-being in the long term.

[176] This thesis has been written across a global pandemic, hence the heightened anxiety. As it is being completed, Russia has also invaded Ukrainian territory, arguably an anxiety-inducing scenario for all in Europe.

[177] *Medicalized anxiety* is defined in chapters four, five, and six. It is used as a catch-all term to cover both abnormal episodes of anxiety and the anxiety disorders. In lay discourse, it is treated dichotomously with anxiety as a normal, transitory state. Importantly, no formal diagnosis is required to conceptualise anxiety in medical terms.

The chapter is laid out as follows. §1 begins with a summary of the findings of the linguistic analysis, demonstrating that, when conceptualised within a medicalized framework, anxiety is often objectified. The section concludes by motivating analysing the effects of using this language. §2 examines extant theories of the objectification of anxiety in psychological literature. While extant theorists argue that normal anxiety has been objectified, they overlook the objectification of *medicalized anxiety.* In this section, I argue that there is an important distinction in the sort of objectification that occurs with normalised anxiety in comparison with *medicalized anxiety.* I argue that when we objectify *medicalized anxiety*, we posit a separation between the anxiety experience and our sense of selves, alienating the two from one another. This is in accordance with how we objectify other medicalized experiences (see Mintz, 1992; Hunt & Brookes, 2020). This separation between the self and the experience will be central to the arguments made throughout the chapter. In §3, I briefly explore the motivation for objectifying medicalized experiences and conceiving them as separate from the self. In §4, I propose two potential benefits of the objectification of *medicalized anxiety* which stems from the separation between the experience and the Experiencer. The first is that the separation between the experience and the Experiencer allows the Experiencer to reapportion responsibility and blame away from themselves. The second is that by conceiving of *medicalized anxiety* as separate from themselves, they may be able to maintain a premorbid sense of self which may encourage seeking and engaging in treatment. However, in §5, I argue that this surrendering of responsibility is a double-edged sword, as it can lead to long-term problems for psychological well-being and agency. The chapter concludes by exploring avenues for future study to test the proposed benefits and drawbacks I argue for.

§1.1 A summary of the linguistic analysis

The aim of the linguistic analysis of chapter six was two-fold. The primary aim was to gain a deeper understanding of peoples' experiences of anxiety through the phrasal constructions 'to be + anxious' and 'to have + anxiety'. This was regarding both how those who 'have anxiety' and 'are anxious' are represented (e.g., individually, in a group, or by societal role), and the wider contexts of the anxiety experience (e.g., duration and triggering events). More importantly, the analysis aimed to determine the extent to which the two phrasal constructions map onto normalised and medicalized notions of anxiety: i.e., whether 'to be + anxious' conveys a normalised experience and 'to have + anxiety' conveys a more medicalized notion.

The main finding was that this mapping does occur: 'to be + anxious' is generally used to convey more normalised, transitory episodes of anxiety, while 'to have + anxiety' is most often used to convey a more medicalized conceptualisation of anxiety. This was evidenced in three main ways: through the differing collocational patterns, the discrepancy in the duration conveyed through each phrasal construction, and the kinds of experiences being represented through each phrase. The collocational patterns are the nouns and adjectives that are found alongside the phrases 'to have + anxiety + and' and 'to be + anxious + and' which can tell us what sort of experiences are occurring concurrently with the

anxiety. For the 'anxious' cases, the most commonly collocated adjectives were other normalised emotion terms like 'nervous', 'afraid', and 'excited'. However, the most commonly collocated nouns with 'to have + anxiety + and' were distressing experiences often found within a medicalized context, namely 'depression' and 'panic attacks', as well as other named mental medical conditions like 'obsessive compulsive disorder' and 'post-traumatic stress disorder'.

In addition to the collocations, there was a clear discrepancy in the duration of time that followed the phrasal constructions 'to be + anxious' and 'to have + anxiety'. 'To be + anxious' was most frequently used to refer to an anxious experience that lasted for a relatively short period of time (e.g., days, weeks, or months), indicating a more transitory experience. However, the most frequent duration that followed 'to have + anxiety' was that of years, and more specifically, entire lifetimes, suggestive of the more persistent episodes characteristic of *medicalized anxiety*.

The final way the conclusion was evidenced was by comparing the way in which those experiencing anxiety are being represented. On the whole, the Carriers in the 'be + anxious' lines are represented as a group with a shared common experience directed at a particular triggering stimulus. For example, students are presented as one homogenous group who 'are anxious' about the same shared stimulus in the form of specific academic pressures, like upcoming examinations. One example of this is line 52: "All the students would be anxious about **their preparations for the fast approaching exam**". Whereas, when we look at how students are presented in the 'to have + anxiety' lines, their anxiety is devoid of all relation to academic stimuli. Instead, students presented as individuals struggling with their own anxiety experiences. For example, "An increasing amount of **students are having anxiety issues and panic attacks** and they don't know what is causing them". Importantly, the most common people 'having anxiety' attributed to them were those correlating to epidemiological research in anxiety, i.e., those with significant rates of anxiety disorders, like youth.

§1.2 The objectification of anxiety: a conceptual shift

Through linguistic analysis, I have identified an important difference in how we conceive of our normalised and medicalized experiences of anxiety which I will now outline.

When we describe our anxiety experiences through the phrasal construction, 'to be + anxious', we are using the anxiety experience to describe ourselves, intimately connecting us to it (c.f., Fleischman, 1999 on depression). In this way, the anxious episode is portrayed as *an immaterial process* we are undergoing that we are not only connected to, but that we cannot remove ourselves from, rather than an object we have (Fromm, 1976). In other words, the anxious experience is being described as a part of our bodily functioning (e.g., Warner, 1976).

On the other hand, in expressing one's experience of anxiety through the phrasal construction 'to have + anxiety', the anxiety experience itself is being conceptualised as if it were *an object-like entity* through

a process I deem 'objectification'.[178] In this case, the 'anxiety object' being referred to is quasi-concrete, in the sense it is being discussed as an entity in its own right, and something that can be, and is, possessed. However, from the linguistic analysis, it seems this objectification only occurs when we conceptualise anxiety as medical, rather than for both normal and medical conceptualisations. Therefore, it seems that a conceptual shift occurs from normalised anxiety as an internal, transitory state to *medicalized anxiety* as a distinct object.

§2.1 Anxiety as an object in psychology

The idea that anxiety is being conceptualised as if it were an entity is not a new concept in psychological literature. In particular, a discussion of this idea can be found through the work of social constructivists, namely Theodore Sarbin (1964, 1968) and Richard Hallam (1985). However, in this section, I will argue that while the social constructivists do identify some important drawbacks to objectifying anxiety, a further and more nuanced discussion of the effects of the objectification of *medicalized anxiety* is required. This is because I will argue that there is an important difference between the objectification identified by the social constructivists and the objectification that occurs when we medicalize our experiences of anxiety.

The primary argument for the objectification of anxiety in psychological literature comes from Sarbin (1964, 1968). Sarbin argues that originally, the term 'anxiety' was used as a metaphor to describe the mental distress that we experience as a result of problems that we face in living. However, Sarbin argues that anxiety has become reified (i.e., made quasi-concrete) as it is now viewed as a mental state in its own right, rather than being equated to the input stimulus (the trigger of the anxious episode) or the physiological and behavioural changes which occur. That is, anxiety is conceptualised as some mental state which is an intermediary process occurring *between* the input stimulus and the output behaviours/physiology. Essentially then, Sarbin's claim is that by conceiving of anxiety as a mental state, we objectify it and view it as an object-like entity.

Hallam (1985) builds upon Sarbin's original work and proposes some problematic effects of accepting and adopting this objectified conceptualisation of anxiety as a mental state. He argues that in treating anxiety as a mental state that exists independently of the input triggering stimuli, it causes us to separate the experiences that we call 'anxiety' from their social and historical contexts. The issue with this is that we then end up applying an incorrect causal framework to understand our experiences, meaning that we may mistakenly look inwards to identify a cause of our psychological distress instead of considering external factors (Hallam, 1985: 168; also see Sampson, 1981).

[178] I make no commitment to what specific part of the anxiety experience is being objectified. By saying it is the anxiety *experience* that is being objectified, it refers to the behavioural, cognitive, and or physiological elements that are constituent elements. This allows for whatever is most salient to the experiencer to be the objectified entity. I do not anticipate that the particular element of the experience being objectified will have an influential bearing on the benefits and drawbacks of objectification.

Although these concerns can apply to the objectification of *medicalized anxiety*, alone, they are insufficient to tell us about the potential effects this objectification could have, necessitating a more nuanced analysis. This because I argue that the type of objectification that occurs with mental states and the type of objectification that occurs with medicalized entities are distinctly different. In the following section, I substantiate this claim.

§2.2 Objectification and the sense of self

In this section, I argue that the key difference between the objectification of mental states discussed by the social constructivists, and the objectification of *medicalized anxiety* seen in the linguistic analysis regards the sense of self. This is because I argue that when we objectify *medical* entities, like *medicalized anxiety*, we distinctly conceive of them as separate to the self, which generally does not occur in the objectification of mental states. In this section, I examine this idea in more detail.

While the sense of self is a complex notion, for the purposes of this chapter, I adopt a notion of the sense of self that relies on two key concepts: "*continuity*…and *distinctiveness*" (Houlders, Bortolotti & Broome, 2021: 7693). That is, the sense of self is comprised of beliefs about an enduring self that persists across time (*continuity*) and beliefs pertaining to a distinct uniqueness to differentiate oneself from others (*distinctiveness*). I take continuity to refer to the processes we experience and have experienced, in addition to beliefs about what sorts of things we like and the dispositions that we have, forming a continuing "I" over time. The distinctiveness refers to what makes us unique regarding our personal history and physical characteristics. Therefore, combining these together, I take the sense of self to refer to beliefs about the processes we experience, our enduring personality characteristics (e.g., dispositions to act, personality traits, likes and dislikes, goals, and aspirations etc.), and beliefs about one's own personal history (e.g., their birthplace, members of their family, etc.) (c.f., Houlders, Bortolotti, & Broome, 2021).[179]

Objectifying a medical experience creates a separation, or an "alienation" (Fromm, 1976: 52) between the experience and one's own sense of self (Mintz, 1992; Hunt & Brookes, 2020: 133). That is, rather than the experience being a part of your sense of self (as something that you *are experiencing,* in the case of "I am anxious"*)*, it becomes an entity separate from oneself (as something you *have*, in the case of "I have anxiety").

The objectification of medical conditions as entities separate from the self is a well-documented characteristic of medical discourse (Nijhof, 1998; Warner, 1976, Cassell, 1976: 143). In particular, it is well-documented of 'physical' conditions.

[179] This is by no means an exhaustive list, but merely the prime examples of the types of beliefs which comprise the sense of self.

Before documenting this objectification though, a brief note on what is meant by 'physical' conditions. Although the Cartesian view that the mind and body are two distinct substances (with the body as concrete and material, while the mind is an immaterial, more abstract entity) is no longer popular among modern philosophers, the influence of this position continues to persist across medicalized discourse (e.g., Eysenck, 1987: 101). This means that we tend to conceptualise medical conditions as either 'physical', affecting the body with "little or no psychical quality" (Fromm, 1976: 53), or 'mental', where there is a clear and evident psychical quality.

Potentially due to the influence of this Cartesian modelling, we often talk of 'physical' ailments as if they are concrete entities themselves, separate to our sense of self. For example, when we have a broken leg, or an infection, we do not usually tend to incorporate these into our sense of selves. Instead, they are afflictions that happen to us, but separately from our conceptualisations of who we are as people (our senses of selves). In this way, we say things like, "I have a broken leg", or "I have Coronavirus", meaning that there is the sense of self (the I) and then the experience as a separate entity (the leg, or the virus). In fact, using the broken leg as an example, there is no coherent way, in English at least, to express this in process terms. That is, there is no adjectival way to express one's experience of a broken leg, for example, "I am broken-legged". Although one could potentially come up with ways of navigating this by appealing to unconventional phraseology, due to the objectification that is so pervasive across medical discourse, we are far more accustomed to hearing the objectified form: 'to have + (a) broken leg' (or other condition). This is not just the case with a broken leg. It applies to a huge array of conditions: cancer, aneurysms, endometriosis, and a whole plethora more. We generally objectify our experiences of 'physical' conditions as quasi-concrete objects which are separate from ourselves.[180]

Recent research in the medical humanities, in particular that of discourse analysis, has noted that this kind of objectification is now also rife in how we conceive and talk about the *mental* conditions we experience (e.g., Malson et al., 2004; Hunt & Brookes, 2020). Before turning to consider how the linguistic analysis shows this applies to anxiety, let's briefly consider extant evidence of this for two distinct conditions: depression, and anorexia nervosa.

Regarding the objectification of depression, Daniel Hunt and Gavin Brookes (2020) undertook a discourse analysis of posts from online forums dedicated to experiences of depression. They found that while sufferers *could* have expressed their depression experience through adjectival phrases, like "I am depressed", this was rarely the case. Instead, the Experiencers frequently objectified their experiences

[180] It is important to note that I am not presenting this as an exceptionless rule. Of course, there are situations where we convey our medicalized experiences in distinctly *non*-objectified terms. For example, "I am diabetic" is a common use phrase. However, I argue that the distinction *usually* tracks with the length of the condition. The objectified framework is more often used for conditions which occur transitorily, like broken limbs, viruses, cancer, and, as we will see, mental health issues which arise during life rather than congenitally. That is, we use objectified language to convey shorter term medicalized issues.

by alluding to it through the phrase "the depression" (Hunt & Brookes, 2020: 140). This was also the case in the study of Epstein et al. (2010: 956-60) who found sufferers avoided 'to be + depressed' in favour of the expression 'to have + depression', in parallel with the case of *medicalized anxiety* in the linguistic analysis.

Across lay discourse, the objectification of depression as a concrete entity separate from oneself is also extensive. One clear popular example of this is the metaphor of depression as 'the black dog'. Although it is unclear if the Churchillian origins of the metaphor are necessarily medicalized, it certainly is now in common usage, partially in thanks to Matthew Johnstone's (2005) influential book, "I Had a Black Dog: His Name was Depression".[181] Essentially, depression is characterised as a concrete, separate object in the form of a black dog that infiltrates ones' life, invading their personal space as a constant and unwanted companion.

Another mental medical condition that is often objectified and conceived of as separate to the self is that of the eating disorder 'anorexia nervosa' (e.g., Malson et al. 2004; Hunt & Brookes, 2020: 97-133). In Hunt & Brookes' study (2020), sufferers with anorexia opted to convey their experiences of the medical condition through objectified language, favouring references to "the ED" (Hunt & Brookes, 2020: 107). Use of the adjectival form, 'to be + anorexic' to convey their experience only occurs twice across the whole corpus (ibid), with sufferers favouring objectified language similar to those suffering depression and those experiencing *medicalized anxiety*.

From the linguistic analysis of chapter six, we can see that this objectification of psychological phenomena extends to *medicalized anxiety*. In expressing our experiences of *medicalized anxiety* through the phrase 'to have + anxiety', we not only conceive of anxiety as an object that we can possess, but as an entity distinctly separate from our sense of selves.

I argue that this separation between the self and the anxious experience is what differentiates the objectification of anxiety as a sort of mental state with the objectification of *medicalized anxiety*.

When we conceptualise normalised mental states, like thoughts, feelings, and emotions, as objects, we generally still conceptualise these states as part of ourselves.[182,183] For example, consider "sadness" which is often considered to be a mental state which is objectified (as an 'emotion' or otherwise) (e.g., Griffiths, 1997). Philosophers, psychologists, and lay people alike discuss sadness as if it is a concrete entity, rather than focusing on the inputs (the triggering stimuli) and the outputs (the behavioural responses). For example, saying things like 'sadness is an emotion felt when we experience loss' is

[181] For a history of the metaphor, see Foley (2005), and McKinlay (2005).
[182] This is not to say that these things *are* mental states, just that they are generally treated as such in philosophy, psychology, or folk psychology.
[183] This is also supposed to indicate a predicate relation between the experience and the Experiencer, rather than a proper identity relation.

conceiving of sadness as a sort of entity in its own right, in parallel to how anxiety as a normal transitory state is objectified. However, although we do conceptualise sadness as an entity, we do not tend to conceptualise that entity as separate from ourselves. To substantiate this claim, reconsider the distinction between 'being' and 'having' anxiety, but this time, applied to the 'mental state' of sadness. I would argue that were you to ask native English speakers, they would agree it sounds peculiar to express ourselves by saying we 'have sadness' rather than we 'are sad'. Some initial support for this notion of peculiarity can be found in the corpus the linguistic analysis is based on (the English Timestamped JSI Web 2014-2020, Kilgarriff et al., 2014). In this corpus, the raw frequency of 'to be + sad' is 352,606 (5.01 per million tokens), compared to the much lower raw frequency of 'to have + sadness' (381, 0.01 per million tokens).[184] The clear discrepancy between the actual use of these two phrasal constructions seems to, at least provisionally, suggest that the kind of objectification that occurs with mental states like sadness is not as an object separate from ourselves. Even if we take a physicalist stance on the ontology of mental states, and equate sadness or normal anxiety with certain brain processes, we still do not seem to conceptualise them as separate from ourselves. This then clearly contrasts the way in which medicalized entities are objectified.

Given the different kinds of objects involved in the objectification of mental states and the objectification of medicalized conditions like depression and anorexia outlined here, it does seem that the objectification of *medicalized anxiety* and its potential effects warrants a further investigation.[185,186]

§3.1 Why *medicalized anxiety* may become objectified

Before examining the potential benefits and drawbacks of engaging in this kind of objectified language when we express our experiences of anxiety, it is first important to gain at least some understanding of why it occurs in the first place.[187] This is because through this, we can also understand why some people may be resilient to changing their language even if we later find it to be detrimental to their well-being. Therefore, this section will provide a brief overview of *some* of the potential causes of objectification before the following sections which will focus more on the effects.[188]

The first reason I will consider is the influence of biomedical models on our conceptualisations of illnesses and disease. When we consider 'physical' medical conditions, like cancer, broken bones, and

[184] Even when we consider another objectified phrasal construction, like that of 'to express + sadness', this is still much less widely used, with a raw frequency of 12,946 (0.18 per million tokens).
[185] This chapter remains neutral on the social constructivist position on anxiety ontologically but accepts that their objections to the objectification of anxiety as a mental state do seem to apply to the objectification of *medicalized anxiety*. What is lacking is the additional detail and analysis relevant to the medicalized form in particular.
[186] Given my focus is now on objectifying distinctly *medicalized anxiety*, from here on 'objectified/objectifying anxiety' is therefore shorthand for objectified *medical* anxiety unless otherwise explicitly stated.
[187] While clearly important, determining the exact causal factors is outside of the scope of this chapter.
[188] Some of the reasons for objectification discussed in this section may well apply to the objectification of normalised emotions. This is especially true of those conceptualised through appealing to a biological model. However, as this chapter is focused on the objectification of *medicalized anxiety*, normalised cases have been set aside.

endometriosis, for example, the most obvious reason for the use of objectified language is that these conditions are explained through biological models where there is an organic referent for the concept in question. For example, consider the case of ovarian cancer. The objectification seems to occur because there is a distinct biological referent for our concept of 'cancer', in the form of a tumour or cluster of cells being identified and pointed to (e.g., Cassell, 1976: 143). Therefore, when one says, "I have ovarian cancer" what they are really saying is something along the lines of, "I have mutated cells inside of my ovary that can be and have been identified". The same is true of a condition like endometriosis, where there are identifiable clusters of uterine-like tissue outside of the womb.

Applying this principle to *medicalized anxiety*, a pertinent reason for its objectification may stem from the influence of (neuro)biological models. The prevailing neurobiological theories of anxiety disorders argue that they stem from malfunctions within the amygdala, a section of the brain widely considered to be the 'emotion processor', as seen in chapter three. For example, in explaining generalised anxiety disorder (GAD), the neurobiological consensus is that there is a malfunction in the connectivity between the amygdala and the pre-frontal cortex (e.g., Patriquin & Mathew, 2017: 4; Etkin et al., 2009; Monk et al., 2008; Roy et al., 2013). If we adhere to a (neuro)biological model such as this, then it does seem that there is a specific biological referent being identified when we objectify the anxiety in question. That is, in a similar way that 'to have + cancer' seems to mean 'to have + mutated cells or a tumour', 'to have + anxiety' when referring to the medicalized notion then seems to mean 'to have + a dysfunction within the amygdala'.

While the motivations to objectify physical conditions are clearly based in the wide acceptance of biological models, the motivation to objectify *mental* conditions, including *medicalized anxiety*, are less clear. This is because biological models of *medicalized anxiety* are highly contested across psychiatry, with contemporary theorists often favouring social or biopsychosocial models (e.g., Bolton & Hill, 1996). Despite the hesitation surrounding biological models, objectification is still rampant.[189] Therefore, to understand why this objectification is so prolific, we need to consider alternative motivations.

Another reason I will mention for adopting objectification language has a wider social motivation and can be found in the lay person use of analogies between mental conditions, like anxiety disorders, and physical conditions, like that of a broken leg (e.g., Kranz & Kasper, 2019; for criticism, see Parkinson, 2018). A key function of this analogy is to emphasise the importance of mental health research and awareness, especially in relation to acquiring resources and funding. It also has an additional social function to de-stigmatise mental conditions, with the desire to make it such that we view and talk about them as 'normally' as we do with 'physical' health conditions. That is, as we would not feel embarrassed

[189] At this point, I am not making any claims about whether the objectification itself is good or bad. Instead, this is to provide a greater understanding of the motivations behind engaging in objectification.

or shame in telling someone that we have a broken leg, we ought to feel a similar way in talking about our experiences of mental distress. Consequently, we ought to be as respectful and helpful to someone suffering from a mental condition as we would from a physical one (e.g., Thornicroft, 2006: 24). The problem with this analogy is it then conflates physical issues (which may have a biological referent) with mental issues (which may not), meaning both become objectified under the same medical discourse.[190] This conflation is problematic as it sets the patient up for failure when it then comes to their expectations for how to 'treat' or manage their conditions, as will become clear in §5.2.

The final reason I consider for objectifying anxiety is based in the objectification itself. As mentioned, by objectifying anxiety as an entity, it allows us to separate the experience from ourselves as Experiencers. I argue that doing so can have a number of benefits for the overall psychological well-being of the Experiencer which may motivate them to objectify anxiety in the first place. In the following sections, I explore what these benefits may be, before turning to consider the other side of the coin, and how the objectification of anxiety may be detrimental in the longer term.

§4.1 Positive effects of objectification

In this section, with support from similar work in mental health research, in particular Hunt & Brookes' (2020) work on depression and eating disorders, I examine two potential benefits of this separation between the experience and the Experiencer, achieved through objectification. 'Benefits', in this sense, is used to refer to the psychological benefits for the Experiencer, in that they may alleviate the phenomenological intensity of the episode or provide mechanisms to improve the mental management of it.[191]

§4.2 Benefit 1: "Don't blame me!"

In this section, I present the first short-term benefit of the separation between the self and the anxiety experience which is achieved through objectification. This is that it allows for the absolution of responsibility and blame for failures to fulfil social duties that are likely to occur as a result of the avoidance behaviour which is characteristic of *medicalized anxiety*. Through this absolution, Experiencers can then protect their psychological well-being from the negative affect associated with blame.

Conventionally speaking, we experience social expectations, or duties, that are placed upon us, for example, through school and work (commitments to delivering projects on time, attendance, etc.), or

[190] Given the overarching theme of biological referents, a question one may ask from this is whether conceptualising anxiety as an entity 'carves the joints of nature', i.e., whether there actually is a biological referent we would be identifying by using objectified language. However, as mentioned in §1, the purpose of this chapter is to explore potential effects that using this language may have on those engaging with it. These effects would hold whether this conceptualisation was true (i.e., there *is* a biological referent) or not. Therefore, although the question of truth does merit scholarship, it is beyond the scope of this chapter.

[191] Accordingly, drawbacks involve the *worsening* of the psychological or physiological state of the Experiencer.

through our social circles (to help friends, to uphold promises etc).[192] I argue that people experiencing *medicalized anxiety* will often fail to fulfil these sorts of duties due to the avoidance behaviour characteristic of abnormal anxiety. As mentioned in chapter one, avoidance behaviour is where the Experiencer actively avoids either the triggering stimulus of their anxiety, or situations which pose general uncertainty which may be anxiety provoking. A prototypical example of this is those with agoraphobia, who frequently avoid places in which they believe they cannot get to safety, like crowds, public transport, and wide-open spaces (Marks, 1970; Bienvenu et al., 2006; Asmundson, Taylor, & Smits, 2014). In extreme cases, some agoraphobia sufferers may avoid leaving their homes altogether. It is important to note that while agoraphobia is a prototypical example of avoidance behaviour manifesting, this behaviour is not limited to this condition. In avoiding the triggering stimulus that evokes anxiety, it will often be the case that Experiencers too will avoid fulfilling their social duties.

To see how avoidance behaviour can lead to the failure to fulfil certain social duties, consider a person with agoraphobia, Linda. Linda is a businesswoman working remotely for a London-based firm from her home in Oxford. She has been the lead on an important and lengthy project. As the lead with the most knowledge on the project, Linda's colleagues and bosses expect her to present it at a large, industry event being held at the firm in London. The problem is, Linda cannot drive and cannot get a lift from Oxford, meaning the only way for her to make the meeting in-person is by using public transport. However, unbeknownst to her employers, as a result of Linda's agoraphobia, she avoids taking public transport, knowing it often triggers episodes of anxiety. Therefore, to avoid having to take public transport, Linda opts to avoid the triggering stimulus and calls in sick the day of the presentation, delegating the work to a fellow colleague. Here, due to her avoidance behaviour, Linda has clearly failed to fulfil the social and professional expectation of attending the industry event and leading the presentation.

Setting the Linda example and the case of anxiety aside for a moment, usually, the responsibility for fulfilling social expectations lies within the agent. This is because fulfilling social expectations are most often within the remit of the agent's volitional cognition (i.e., they can choose to execute the action, or choose otherwise).[193] This then means that if the action fails to be fulfilled, the responsibility for that failure can be apportioned to the agent themselves.

A consequence of this is that the agent can then be *blamed* for the misgivings and the unfulfilled social duties (i.e., to be held accountable for the failure of the action). This is because to be blamed for (in)action, one must be truly responsible for it (Pickard, 2011, 2013). The problem with this for psychological well-being is that blame comes with its own characteristic "sting", as Pickard refers to it (ibid). In other words, being blamed for an action, even if we are fully responsible for it, feels bad, and

[192] Duty here should not be held in a moral regard, but merely to abide by social convention.
[193] This is clearly in very simplified terms. For more on this notion of responsibility, see Pickard (2011).

can then negatively affect our psychological well-being. Therefore, avoiding blame, again, even if we are truly responsible for the action, protects us from its negative sting.[194]

If a frequent consequence of those experiencing *medicalized anxiety* is the failure to fulfil social duties, like the inability to attend school, work, or events, then it seems that they are often likely to feel the sting of blame for these failures. As a consequence, their psychological well-being is likely to worsen as a result of repeated stings. However, I argue that this is where the benefit of objectifying anxiety for the Experiencers comes in. In the following paragraphs, I explain how objectifying anxiety indirectly allows Experiencers to absolve themselves of both the responsibility and the blame for the failed social duties that may occur as a result of the anxiety, protecting the Experiencers from blame's sting.

The separation that occurs between the Experiencer and the anxiety, granted through the objectification process, allows the Experiencer to relinquish responsibility for the duties they have failed to fulfil as a result of the anxiety. For example, reconsider the case of Linda, who fails to fulfil her social expectation at work as a result of anxious avoidance behaviour. By adopting the objectification framework, Linda can effectively separate herself from the anxious experience. Through this separation, Linda can effectively apportion the responsibility for fulfilling the social duty away from herself, as the anxiety which led to the inability to work is not viewed as a part of herself, but a separate entity altogether.[195]

An important implication of this responsibility shift is that a shift in *blame* ought to then follow. As mentioned earlier in this section, a necessary constituent for blame is that the agent must be responsible for the action they are being blamed for. If the Experiencer is absolved of responsibility for failing to fulfil the conventional duty, then it follows that the blame for this failure must also be absolved, protecting the Experiencer from blame's characteristic sting.

To understand how this process works, consider the following example. Dev's 50th birthday is coming up in a few months' time and he has invited five friends to celebrate with him at a special dinner. Among those invited is Dev's best friend, George. George and Dev met in school and have been very close friends ever since. Upon receiving the invitation, George eagerly and swiftly accepts, expressing his desire to celebrate Dev's 50th birthday together. This comes as no surprise to Dev, who knows George is outgoing and usually loves social events.

In this case, it seems that by accepting the invitation, George has some kind of social conventional duty to attend his best friend's birthday celebration. This is because, it seems that George has entered into an agreement that he will attend the party and has a conventional duty to ensure this is upheld.

In the weeks leading up to the birthday dinner, George begins to struggle with frequent and debilitating episodes of anxiety, especially brought on by social situations. After googling his experience to

[194] Set questions of morality for avoiding blame when truly responsible aside.
[195] The responsibility can be apportioned to either to the anxiety object or otherwise.

understand what is happening to him, he believes that he is suffering from social anxiety disorder, and thus, conceptualises his anxiety in a distinctly medical way.[196] Prior to the development of this anxiety, George was an extroverted individual, who regularly and reliably enjoyed attending social events.

On the afternoon of Dev's dinner party, George finds that he is experiencing another of the intense episodes of anxiety in anticipation of the event. He worries that by attending the dinner, the intensity of his anxiety experience will worsen due to the social nature of the event, a key trigger of his anxiety. In light of this, George decides it is best to avoid the dinner party. So, he calls Dev and says, "I'm sorry, I really do want to attend your birthday dinner, but I have anxiety so I can't come tonight". By cancelling, George is aware that he is breaking his conventional duty to Dev. However, by engaging in the objectification of anxiety, and externalising it in this way, George is positing a clear separation between his own desires and volition (himself) and the separate anxiety object. This separation then allows George to shift the responsibility for the condition, and the resultant behaviours that occur, away from himself. By absolving himself of the responsibility for the failed duty, it means that the blame for breaking this social convention can then also be apportioned away, protecting his psychological well-being from the sting of blame.

While speculative in the case of anxiety, the notion that viewing one's condition as an object separate from oneself can reduce feelings of blame has been documented for cases of eating disorders (Easter, 2012) and depression (Karp, 1996; Schreiber & Hartrick, 2002).[197] Therefore, if the objectification of anxiety allows for the reapportioning of responsibility and blame for inevitable social and conventional duty failures through the posited separation between experience and Experiencer, then it seems at least *prima facie* beneficial in the short-term for psychological well-being.

§4.3 Benefit 2: "Wanting to be me again"

In this section, I will argue that the separation between the self and the anxiety experience allows the Experiencer to maintain a background premorbid sense of self despite any potential personality changes caused by *medicalized anxiety*. The desire to rekindle this sense of self can then be a strong motivating force for not only seeking intervention in the first place, but also for the efficacy of said intervention.

As mentioned in §2.2, the definition of the sense of self that I adopt for this thesis refers to a set of beliefs about the processes that we experience and have experienced, enduring personality characteristics (e.g., dispositions to act, personality traits, likes and dislikes, goals, and aspirations etc.), and beliefs about one's own personal history (e.g., their birthplace, members of their family, etc.) (c.f.,

[196] He has distinctly *not* been diagnosed with an anxiety disorder, but merely is conceiving independently that his anxiety is medical in nature. The importance in this example is not that a diagnosis entails the shift of responsibility and leniency, but the *separation* of the anxiety from the Experiencer.

[197] This objectification is indirectly achieved through the acceptance of the condition from a biomedical or biochemical theoretical perspective. It is not necessary for the objectification to be a conscious or purposeful process.

Houlders, Bortolotti, & Broome, 2021). The *premorbid sense of self* is a particular kind of the sense of self which an Experiencer holds before the emergence of a particular medical condition and its associated changes, whether physiological, psychological, and or behavioural. Anxiety can cause behaviours which seem to conflict with this premorbid sense of self, and are 'out of character', especially when the episodes become frequent, intense, and or debilitating. For example, reconsider George from §4.2. In the years before Dev's party, when he had not been experiencing frequent social anxiety, he was usually an outgoing individual, and loved to attend social events like dinners and parties. More importantly, he believed that his extroversion and social enjoyment were core features of his personality, and therefore, constituted important elements of his sense of self. Let us call this George's *premorbid sense of self.* However, as social events now stand as a triggering stimulus for George to become anxious, he engages in avoidance behaviour and avoids all social events, like that of the dinner party. Clearly at this point there is a conflict between his premorbid sense of self (the desire to go to social events) and the anxious avoidance behaviour he carries out (avoiding the birthday dinner).

So, what happens to our premorbid sense of self when the anxious behaviours do arise? It seems we have two options here, as seen in the diagram of figure 10: (1.) to adopt a new sense of self and align

oneself with the anxious behaviours, or (2.) to continue to align oneself with the premorbid self and argue that it is merely temporarily inhibited by the anxiety object.[198] I will explain each of these in turn.

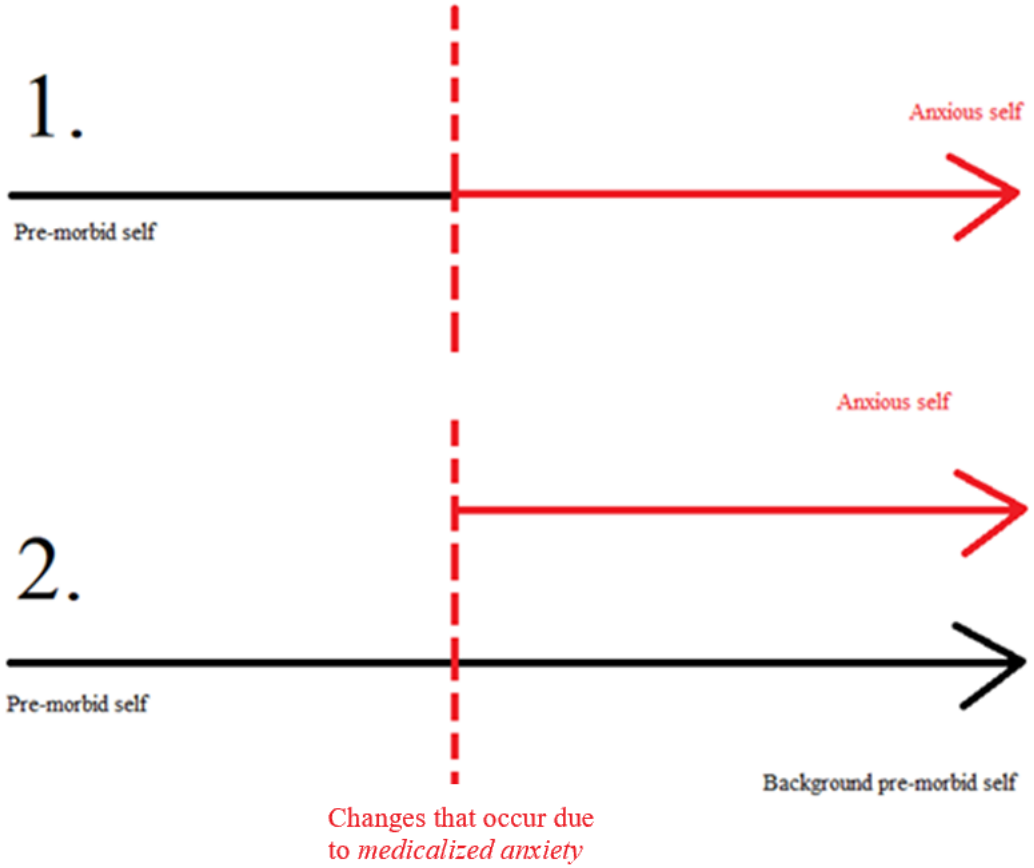


Figure 10. The different conceptualisations of the sense of self after the development of medicalized anxiety over time.

The first option in this scenario is to align oneself with the new apparent personality traits and behaviours that have arisen as a result of the development of the anxiety. That is, to believe that one's likes and dislikes, and personality traits, have now changed as a result of the anxiety and to incorporate that into a new sense of self. In this case, the premorbid self is effectively lost, and cannot be rekindled. For example, if this were the case for George, he would believe that he is the type of person who no longer likes parties, who is not extroverted, and actively avoids social events. This would mean that in this case, George has adopted a new sense of self that directly replaces his premorbid sense of self, as seen in the first diagram in figure 10. As seen in §1, this shift of self can be demonstrated if one uses

[198] There may, in some cases, be a third option, where the Experiencer chooses to neither align themselves with the anxious behaviours and traits nor the premorbid sense of self. That is, to deny both that they are who they once were and also deny that they are now an anxious person. However, in this case, the sense of self would seemingly be more of a desired goal. Given that I believe the first two options presented here are the more *likely*, I choose to focus solely on them.

adjectival language to express their anxiety experience, like through the phrasal construction 'to be + anxious', e.g., "I am an anxious person". The anxiety becomes (potentially inadvertently) incorporated into our description of ourselves.

However, as seen in the secondary diagram in figure 10, there is another option for the conceptualisation of our sense of self: to argue that there is a background premorbid sense of self that has been interrupted by the anxious behaviours. This background pre-morbid sense of self can be rekindled should the anxiety be removed. In essence, the anxious self is a façade masking the pre-morbid sense of self which continues to persist over time.

As aforementioned, the adoption of objectification language around anxiety allows for a separation between the Experiencer and the anxiety experienced. The separation between the anxiety and the self allows for a kind of cognitive dissonance to occur whereby the person believes their true self is being inhibited by the anxiety object. So, relating to the George example, if he adopted this view of the self, George would believe that he is still someone who likes parties and is outgoing and extroverted despite the contrary behaviours being exhibited. In this case, the 'anxiety object' is an obstacle preventing him from expressing and engaging in his true desires and dispositions (to go to the social event and enjoy it). He is aligning himself with the background premorbid sense of self, despite the contradictions in his behaviour. The idea here is the belief that once the anxiety has been addressed, and the person has received help or intervention, they will then return to their usual self which persists masked by the anxiety.

I argue that the idea of returning to or rekindling one's background premorbid sense of self can then stand as a motivating force for the alleviation of the *medicalized anxiety*, encouraging people to seek treatment. For example, although George has been avoiding social events, if he retains a notion of his background premorbid sense of self, which was as an outgoing, extroverted personality, believing something along the lines of "this is *not me*, this is the anxiety, I usually love parties", he may then be motivated to seek treatment to rekindle this premorbid self. That is, one may be motivated to rekindle their 'true self' despite the mental condition (Deegan, 1989). This motivation in turn may then increase the overall efficacy of the treatment being delivered. Empirical support for this can be found in the studies of Davidson & Strauss (1992), Lysaker et al. (2005), and Lysaker et al. (2007), who all noted that an enduring sense of self played an active and important role in the recovery process for mental illnesses like schizophrenia.[199]

[199] While the initial comparison between schizophrenia and anxiety may feel misplaced, there is an important clinical similarity between the two which lends itself to this situation. From clinical consultations and the linguistic analysis, anxiety disorder sufferers report feeling a sense of being out of touch with reality, depersonalised, or dissociative. This then may mean they are out of touch with their own sense of self, prompting the desire to rekindle a premorbid sense of self which they liked and feel comfortable with. However, this does not negate the importance of robustly, empirically testing the proposed benefit.

If the objectification of anxiety, and accordingly, the separation of it from the Experiencer, can not only increase motivation for treatment, but also the *efficacy* of the treatment, then clearly this it does have some benefit from a clinical standpoint.

§5.1 Drawbacks

Although those who conceptualise *medicalized anxiety* in an objectified way may reap these short-term benefits, I will argue there are some potential, long-term drawbacks which mean we ought to be cautious when adopting this kind of objectified framework.

§5.2 Drawback 1: The double-edged sword of responsibility

In this section, I will argue that rescinding responsibility through the separation of the sense of self and the anxiety experience can potentially have long-term drawbacks in regard to the efficacy of the alleviation of the anxiety.

To understand this, it is important to note that the efficacy of many methods of intervention/treatment for *medicalized anxiety requires* the Experiencer to take responsibility, and subsequently play an active role in the treatment process. This then contrasts the often passive role taken in traditional interventions for physical medical conditions. The problem in the case of objectification is that the surrendering of responsibility caused by the separation between the Experiencer and the anxiety experience can stand as an obstacle, preventing this intervention from being efficacious.

The separation between the Experiencer and medical object caused by the objectification can mean that there is a shift in responsibility for treatment. This is because if the responsibility for a condition does not lie with the Experiencer and is external, then it seems to follow that the responsibility to alleviate the condition also ought to be external. Traditionally, this is how we conceive of the more 'physical' conditions, where the responsibility for treatment is often handed solely over to the medical professionals, with the Experiencer taking a *passive* backseat while the problem is 'solved' for them. For example, consider the case of a broken leg. External responsibility to alleviate this problem is the standard, with medical professionals employing techniques like realignment surgery and or the application of a cast to allow the bone to repair. The same is true of a condition like cancer, where the treatment is handed over to the medical professionals. For example, through surgery to remove the abnormal cells, and targeted treatments like chemotherapy and radiotherapy. The required responsibility of the Experiencer is limited.[200]

[200] It should be noted that I am presenting this as a *general* rule, but not an exceptionless one. For example, consider the case of coeliac disease. Coeliac disease is an autoimmune condition where the body produces antibodies to attack the protein gluten (see Lebwhol, Sanders, & Green, 2018 for a summary of current research in the disease). Experiencers will experience symptoms like bloating, nausea, cramping, and sickness if gluten is consumed. The primary method of treatment is for the Experiencer to adopt an entirely gluten-free diet. In this case, there is nothing the medical professional can do to prevent the body from attacking gluten, and the

However, one could argue that in the treatment of many medical conditions, of which cancer is just one example, there are things we could do to improve our overall outlook, thereby necessitating some form of personal responsibility. For example, ensuring one has a balanced diet, regularly exercises, and a reduction of smoking or alcohol intake can increase the odds of a positive outcome with many conditions. While this is true, it is important that for the majority of physical conditions, they cannot be treated solely through taking personal responsibility. That is, our efforts alone would still be insufficient to alleviate the problem, meaning external sources are required to provide treatment for the condition. Returning to the cancer example, regardless of the lifestyle changes we make, the malignant cells will remain without targeted *external* treatment (e.g., surgery, chemotherapy, and or radiotherapy).

If we then apply this argument to the case of objectified *medicalized anxiety*, it seems as if then that, as a condition that is separate from ourselves, we then ought to turn to externalised treatment sources in the same way as we do physical. Much like with the case of physical conditions, the linguistic analysis highlighted that this burden is usually placed upon medical professionals to solve. For example, many of these people turn to doctors and pharmaceuticals to alleviate their issues passively, including short-term pharmaceuticals like *Welbutrin, Xanax,* and *Prozac,* as well as longer-term anxiolytics like Sertraline, in a similar way to how they would if they were to seek antibiotics for a bacterial infection.[201] The idea here is that once the Experiencer is taking the anxiolytics, their symptoms will be addressed passively, and they eventually ought to then be able to lead their lives as if not afflicted with the condition.

Although one could argue that episodes of anxiety will return if one ceases to use these anxiolytics, and therefore, the anxiety is not being 'treated', I argue this is not inherently problematic. This is because if this anxiolytic use is effective, it is no different from the way in which we treat many physical conditions. Consider the case of type 1 diabetes. Those with type 1 diabetes cannot produce the hormone insulin, meaning the level of glucose in their blood cannot be controlled and can reach dangerous levels. Therefore, to treat or 'control' their condition, these diabetics must inject themselves with insulin to keep the glucose levels controlled. If they cease to take it, the 'problem' returns, and the glucose levels become unmanaged. If too low, the diabetic may become shaky, with blurred vision and brain fog. If too high, the body may start to produce ketones, an acidic substance, in the blood, which can be fatal if left unattended. Using diabetes as an analogous case, the claim is that in the same way that a type 1 diabetic uses insulin, a person may choose to use anxiolytics to 'control' their anxiety. Therefore, if anxiolytic drugs manage the condition with success, then surely it is not a problem that the responsibility for the condition is surrendered to the medical profession...

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accompanying symptoms it produces. Consequently, the Experiencer must adopt a high level of personal responsibility to address their condition, far greater than most other physical medical conditions require.

[201] The three italicised pharmaceuticals are the most prevalent anxiolytics mentioned in the linguistic analysis of chapter three, hence why they are italicised.

However, unlike in the case of those suffering from type 1 diabetes, many of those experiencing *medicalized anxiety* find, in the great words of lyricist Richard Ashcroft, that "the drugs don't work, they just make you worse" (Ashcroft, 1997). Arguably, the most salient reason for this regards the side effects created by the drugs. For example, a common side effect of many anxiolytic drugs is that they can create an increase in overall psychological distress. For example, take the drug Xanax, the most common pharmaceutical referred to in the linguistic analysis. Xanax, or alprazolam, is often prescribed in the short-term for anxiety disorders like generalised anxiety disorder and panic disorder. While the aim of the drug is to reduce the physiological arousal involved in anxiety, common side effects include headaches, fatigue, a potential increase in anxiety and often, depression (Evans, Jackson, & Cardoni, 1981). [202]An additional problem is that anxiolytic drugs can also have an effect on other cognitive functions which may be undesirable for the Experiencer, like impeding memory (see Mejo, 1992) and cognitive processing (see Stewart, 2005). These kinds of negative effects, especially the increase in psychological distress overall, means that many Experiencers may seek an alternative way to manage their anxiety.

The problem with the alternatives in this case, i.e., psychological therapies, is that they *require* the Experiencer to adopt a significant level of responsibility to alleviate this psychological distress and essentially 'solve' the anxiety problem. That is, the roles reverse from the traditional physical view and the medical professional takes the passive backseat while the Experiencers must be the active agents. A key example of this is the widely adopted technique for alleviating *medicalized anxiety*: cognitive behavioural therapy (CBT), as mentioned in chapter four. CBT refers to a "collection of techniques and strategies that can be employed in various combinations to address the cognitive, behavioural and physiological factors associated with anxiety" (Stallard, 2009: 19). Essentially, the aim of the therapy is to equip the Experiencer with coping skills so that when an anxious episode occurs, it is manageable and causes minimal distress. It also aims to enable the Experiencer to prevent problematic episodes from occurring by identifying warning signs and intervening before it escalates. For example, a common technique for those in the throes of an anxiety attack, called a 'grounding technique' asks the Experiencer to imagine they are a tree with roots growing into the ground. The aim of this is to both alleviate the dizziness associated with anxiety, but also to help prevent spiralling thoughts by focusing on the body as it is. The nature of this kind of therapy means that while some responsibility is placed externally, on the therapist to guide the Experiencer through these techniques, for the CBT to be successful, there must be active and continued participation of the Experiencer. That is, the Experiencer *must* adopt responsibility for their own anxiety states and believe they have agency over their anxiety.

[202] A clinical note ought to be added. Alprazolam, and other benzodiazepines, are usually only recommended for short-term use. In the long-term, patients are more often recommended selective serotonin reuptake inhibitors (SSRIs) (e.g., Strawn et al., 2018). The reason for focusing on Xanax in this instance is because it was the most frequently referred to drug in the linguistic analysis. Also, given it can only be used in the short term, it is more likely to follow that Experiencers require an alternative treatment for the longer term.

If all responsibility is surrendered, as we have seen in the separation between the Experiencer and the anxiety experience, and the onus is placed on the therapist to 'do all the work' and 'solve' the Experiencers' anxiety, the treatment is likely to be unsuccessful. In this case then, it seems that the separation between the Experiencer and the anxiety caused by the objectification can have a negative impact on the outcomes of intervention.

Although one can complete these kinds of therapies while conceptualising their anxiety in an objectified manner, given the importance of personal responsibility, it clearly stands as an obstacle, hindering the potential efficacy and success of the treatment.

§5.3 Drawback 2: The problem of agency

In this section, I consider a drawback which follows from the reapportioning of responsibility which is achieved through the separation between the self and the anxiety experience. This is where, in extreme cases, the Experiencer views the anxiety experience as not only a separate object, but as a separate agent altogether which can and does act upon them. I argue viewing the anxiety as an agent in this way can increase the overall levels of anxiety and psychological distress in the long term. As such, we should be cautious about engaging in the objectification of anxiety to avoid this drawback.

Recent research in the medical humanities has found that often, suffers tend to conceptualise their objectified mental conditions as having their own agency. For example, in Hunt & Brookes' 2020 study, those suffering from anorexia often conceptualise their condition as an agent, attributing verbal processes to it as if it were an agent speaking to them (108). Additionally, depression is also often depicted "as autonomous and having a powerful, deleterious effect upon sufferers' lives" (Hunt & Brookes, 2020: 150). That is, depression is represented as an agent that infiltrates their lives, much like we saw in the popular black dog metaphor earlier in the chapter. The deleterious effects referred to are that sufferers feel their own agency has been surrendered to the depression object, which has assumed it, resulting in a feeling of powerlessness and helplessness.

While these effects are applicable to *medicalized anxiety*, the helplessness caused by conceptualising the objectified medical condition as an agent has an even more important effect for this specific case. Across psychological literature, there is an established link between anxiety and the feeling of helplessness, with some authors often equating the two.[203] The problem with conceptualising anxiety as an agent is that it can create a vicious cycle, increasing the sense of helplessness, and therefore, increasing the overall anxiety experienced, as see in figure 11.

[203] The relation between helplessness and anxiety is most obvious in the work of researchers in the field of separation anxiety, stemming from the seminal work of John Bowlby (1960, 1969, 1973). Donald Klein (1980) also noted the link between helplessness and clinical agoraphobia across his work on the condition. The psychologist George Mandler viewed anxiety as the cognitive interpretation of helplessness (Mandler, 1972).
It is important to note that many authors do not distinguish between normal anxiety and anxiety disorders in their links between anxiety and helplessness. Despite this, the focus for this chapter is solely on *medicalized anxiety.*

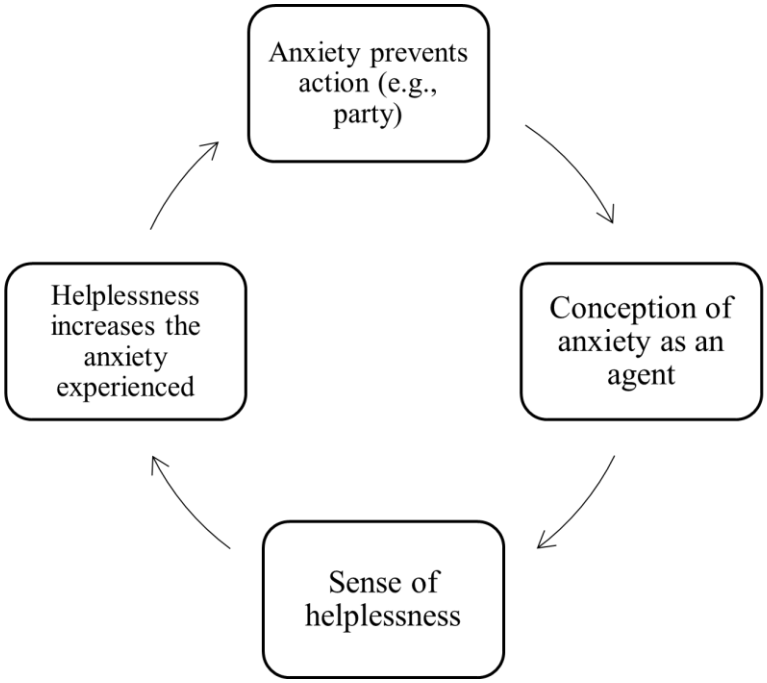

Figure 11. The vicious cycle of conceptualising anxiety as an agent.

This cycle, as seen in figure 11, begins with the inaction which often occurs during an episode of anxiety, like the avoidance behaviour we saw in §4. For example, return to the case of George who avoids the party, but imagine that he conceives of the anxiety as an agent who is preventing him from attending the party. The problem here though is that by viewing anxiety as an agent that can act independently upon himself, this can increase the sense of helplessness experienced. That is, George may feel that this anxiety agent will continue preventing him from attending events and interfering in his life. Due to the intimate link between helplessness and anxiety, the result is that George's overall anxiety levels will increase. Not only will this cause an increase in psychological distress, but importantly, acts as the propellor for the cycle to continue, as the increase in anxiety means he is more likely to engage in avoidance behaviour. This increased anxiety and avoidance then reinforces the idea that the Experiencer is subject to the anxiety agent, who is seemingly independently acting upon them.

While the increase in anxiety levels is clearly problematic *per se*, an additional problem that conceptualising anxiety as an agent may have is an increased likelihood of the development of further mental conditions like the depressive disorders. This is due to the observed relationship between the helplessness that is characteristic of anxiety and the hopelessness that is characteristic of depression (e.g., Alloy, Kelly, Mineka, & Clements, 1990). The relationship is such that the more helpless one feels in a certain situation (or state of living), the more hopeless they will then feel. The overall felt

hopelessness will then lead to the decrease in psychological well-being associated with the depressive disorders.

Currently, there are no studies clearly or strongly establishing that *medicalized anxiety* is widely ascribed agency.[204] Despite this, some initially promising evidence for this phenomenon can be found in the wider corpus the linguistic analysis of chapter six was based on: the English Timestamped JSI Web 2014-2020 on Sketch Engine (Kilgarriff et al., 2014). Using the Word Sketch feature, we can identify the most frequent verbs which appear when anxiety is the subject of the sentence. That is, where anxiety itself is presented as executing actions.[205] Within the top ten most frequent of these verbs, most suggest anxiety, as a kind of agent, is negatively acting upon the Experiencer. For example, as seen in the concordance lines below, anxiety is presented as 'overwhelming', 'plaguing', and 'crippling'.[206]

1. Nervousness often energizes me and motivates me to act. But **this anxiety has overwhelmed me to the point of near inaction**. I've put off packing until the last-minute.

2. ...**Anxiety plagued the star** though and she was house-bound with agoraphobia for a period.

3. He hadn't worked in a decade and says his **anxiety is so crippling** he can barely leave his bedroom. He lost his house and everything in it.

4. In September, I fell into such a deep funk that I had to take a week of leave just to get my head straight. **Anxiety crippled me**. I took three different pills to control my mood disorders.

Although these lines have not been formally analysed, a *prima facie* consideration of them is offered here, showing at least initially that anxiety is not only the sort of object to which agency is often ascribed, but one that negatively impacts the Experiencer. In the concordance lines above, e.g., 1, 2, and 3, there is a clear theme of inaction caused by the anxiety agent. For the Experiencers in lines 2 and 3, the result of this inaction is the inability to leave one's own home, a clear sign of the utter helplessness being experienced and a key element in the vicious cycle of conceptualising anxiety as an agent.

However, although this may provide some initial support, to determine whether anxiety is conceptualised as an agent in this way, and whether Experiencers do experience an increase in overall anxiety and psychological distress as a result, further study must be carried out.

[204] This is accurate of April, 2022. Any additional such studies which *do* find this agency ascribed will only support the work of this chapter.
[205] Before continuing, it is important to note that this alone cannot truly establish agency being ascribed. To do this, we will require a more detailed and structured linguistic analysis. The methodology and outline for such a study is provided in the following section (§6.1). However, it may stand as a useful indicator.
[206] There must be an important methodological note. With the current functioning of Sketch Engine alone, it is not easy to identify cases of *medicalized* anxiety from cases of *normalised* anxiety. Therefore, not all the following concordance lines will clearly be conveying *medicalized* anxiety as an agent. From the selected concordance lines alone, only 2 and 4 are explicitly medicalized through their reference to the anxiety disorder *agoraphobia*, and the use of *pills* respectively.

§6.1 Future study

Although the proposed benefits and drawbacks of this chapter are supported by extant literature for similar conditions, they would benefit from dedicated studies to robustly test and strengthen them. Therefore, this section outlines two potential future studies which would do so which were outside of the scope of the thesis.

To test the first proposed drawback regarding responsibility, we must fundamentally establish a strong link between beliefs about responsibility and the efficacy of cognitive behavioural therapy for anxiety in particular. To do so, one could create the following longitudinal study.[207] We begin with a group of participants who have been diagnosed with an anxiety disorder, like generalised anxiety disorder (GAD) for example, and offer them a course of CBT.[208] Before treatment begins, we analyse their beliefs about responsibility and blame. These beliefs then ought to be tracked as the treatment continues and after it has ended. Alongside this, we assess the anxiety levels and overall well-being of all participants, with a particular focus on their idea of blame. If the argument holds, we ought to find that those who believe themselves to not be responsible for their anxiety find the CBT less efficacious (i.e., continue to have high anxiety levels post-treatment), but experience a decreased sense of blame.

Secondly, we also must determine the extent to which sufferers from anxiety disorders do conceptualise their anxiety as having its own agency, and if this impacts their anxiety levels and overall psychological well-being. One method of achieving this would be through a discourse analysis, specifically examining the language of those suffering from *medicalized anxiety* (like those with diagnosed disorders), rather than naturally occurring language like in the linguistic analysis. The methodology for undertaking such a study can be found in the extant work on the language of those suffering from depression and eating disorders of Hunt & Brookes (2020), referred to across this chapter and the previous. Briefly, they analyse the language used on online forums where sufferers openly post about their experiences to understand more about the way in which they are conceptualising their condition. Applying this to the case of anxiety, one would then scour anxiety forums, determining whether we find evidence of language that suggests anxiety is agential, like the verbs we saw in §5.3: ‘overwhelm’, ‘plague’, and ‘cripple’.

In the fifth section of the chapter, I suggest that conceptualising anxiety as an agent could increase feelings of anxiety and depression, and the strength of this must also be tested. The discourse analysis will hopefully identify two groups of sufferers: those who view their anxiety as having agency, and those who do not. I then propose there ought to be a follow-up study assessing the anxiety levels,

[207] I acknowledge that a study such as this would involve a number of confounding variables that need to be accounted for. This is simply an overview of what we would require to ascertain some idea of whether the principle suggested in the chapter holds or not. Some of the variables are outlined in the following footnotes.
[208] To minimise confounding variables, the diagnosed disorder ought to be the same. Although it would be interesting to see whether there are differences across the disorders.

depression levels, and overall psychological well-being of *both* groups of participants over time. This could be achieved by administering surveys widely adopted in primary care like the 'Generalised Anxiety Disorder Assessment' (GAD-7) (e.g., Kroenke, Spitzer, Williams et al., 2007) and the Patient Health Questionnaire (PHQ-9) (e.g., Kroenke, Spitzer, & Williams, 2001) respectively. [209] If the proposed effect is true, then in a comparative analysis of the groups' scores, we ought to see that the group who conceptualise anxiety as an agent have higher rates of anxiety and lower overall well-being.[210]

Conclusion

This chapter sought to stand as an important step in examining potential effects of the objectification of *medicalized anxiety* for those engaging with it which extant studies lack. This objectification allows for a separation between the Experiencer and their anxiety, allowing them to rescind the responsibility for any social duties that they fail to fulfil. By apportioning this responsibility away from themselves, they can also apportion feelings of blame away, protecting their mental well-being. However, although this responsibility shift from the objectification could be considered beneficial, the potential costs presented in §5 could outweigh them. I argue that there could be a dark side to the "benefit" of shifting responsibility in that it can become an obstacle for treatment. Additionally, this responsibility shift could lead us to conceptualise anxiety as an agent in itself, which could bring about its own set of problems for treatment and overall well-being.

One could argue that regardless of its potential effects, we must engage in this objectification language for people to take us seriously about the psychological or physiological (anxiety) distress we are experiencing. Essentially, *because* of the societal practise of using objectified language to denote a more medicalized notion of anxiety, while using 'anxious' tends to suggest more a more normalised experience, then if we want to convey that we are experiencing a medicalized notion, we must convey it through this objectified language. For example, return to the case of George and the dinner party. If instead of 'I have anxiety', George had said 'I am anxious', this could imply that he is merely experiencing a normal reaction to an uncertain event (a social dinner where he does not know the other attendees). However, he wants to convey that his experience is intense, and *differentiate* it from this normal reaction, which he would be less able to do if engaging in internalised, non-objectified language. Therefore, one could arguably conclude that despite the potential drawbacks, if we are talking about *medicalized anxiety*, we *need* to use the objectified form. To mitigate these drawbacks successfully, we

[209] Although this is typically a screening tool for generalised anxiety disorder, it also can detect other anxiety disorders, like panic disorder, social anxiety disorder, and post-traumatic stress disorder (PTSD) (Kroenke, Spitzer, Williams et al. 2007).

[210] If those who are conceptualising their anxiety as agent are *also* engaging in intervention methods like therapy or taking pharmaceuticals, this may affect their overall anxiety and well-being levels. Therefore, these confounds will have to be carefully considered, and the two groups (those who conceptualise their anxiety as agential and those who do not) may further need to be segregated into those who are and those who are not receiving treatment.

would require a method of conveying the severity of our anxiety experiences that the objectified language achieves while being aware of the potential drawbacks this language may lead to and taking active measures to address them.

However, without this linguistic tool, I conclude that for the time being, perhaps we should err on the side of caution when it comes to conceptualising *medicalized anxiety* in an objectified way.

Conclusion, Implications, and Future Research

The aim of this thesis was primarily to distinguish, taxonomize, and classify the distinct sorts of anxiety in a way that crossed disciplinary borders, to provide a more complete metaphysical picture of *anxiety*. In this final section, I summarise the arguments of the chapters, highlight the limitations of the thesis, and indicate areas for future research.

The first step in addressing the extant metaphysical gap in anxiety literature was to challenge the widely accepted assumption across psychology that *anxiety*, as an umbrella category, is disunified and heterogenous. This is based on the notion that this umbrella term covers an array of distinct phenomena in the form of state anxiety, trait anxiety, and the anxiety disorders. I aimed to overturn this prevailing view by primarily arguing that across these distinct sorts of anxiety, there is a commonality in the form of a singular threat detection and response system (the anxiety system). To strengthen this challenge, I argued that this anxiety system possesses a distinctive set of reliably projectable properties. These properties were functional (the detection of and response to uncertain physical and social threats within one's environment); attentional (perceptual biases towards threat); physiological (the activation of the sympathetic nervous system); and behavioural (risk assessment, minimisation, or avoidance). Through these reliably projectable properties, *anxiety* can be considered a unified kind, overturning the prevailing view in psychology that *anxiety* is heterogeneous and disunified. The implication of this then for psychology is significant, demanding a revision of the assumptions being widely upheld to reflect this unity.

Although determining that the category of *anxiety* is unified is an important step in understanding the metaphysics of the category, it does not give us a complete picture. Therefore, in chapter two, I turned to consider one way of taxonomizing this category in the form of functional kinds, specifically focusing on the notion of the biological functional kind. Adopting a weak historical notion of biological function, I argued that the function of the anxiety system is detecting and responding to uncertain threats in our environment. This functional role is realised by the cluster of attentional, physiological, and behavioural properties that we examined in the first chapter. For *anxiety* to be a biological functional kind, it must be the case that its constituent members (state anxiety, trait anxiety, and the anxiety disorders) share the biological function of the anxiety system. I argue that this occurs due to the unification of *anxiety* that we saw in the first chapter. That is, as state anxiety, trait anxiety, and the anxiety disorders are all fully constituted by the anxiety system then they too share the biological function. Therefore, given there is a common biological function across the category of *anxiety*, we can consider it to be a biological functional kind. To conclude this chapter, it was important to establish that malfunctioning instances of anxiety (especially those which occur across the anxiety disorders) can be incorporated in the biological functional kind of *anxiety.* While this chapter sought to demonstrate this functional kindhood through a historical account of function, I believe the arguments of the chapter to be compatible with both stronger

historical accounts and competing ahistorical accounts. Therefore, a clear avenue for further research is to determine whether this belief holds and examine the biological function of *anxiety* from competing perspectives.

So, up to the beginning of chapter three, we have the picture of *anxiety* as a unified, biological functional kind. However, the metaphysical picture of *anxiety* still was incomplete. This is because while it is useful to conceptualise *anxiety* in this functional way, it cannot tell us whether *anxiety* is a category that supports the epistemic practises of explanation, projection, and prediction. That is, it cannot tell us if it is a natural kind category. Therefore, in chapter three, I aimed to determine the natural kindhood of *anxiety* by considering Boyd's (1989) homeostatic property cluster account of natural kindhood. On this account, to be a natural kind, a category must possess a clustering set of reliably projectable properties which are underpinned by a causal mechanism. For *anxiety,* I argued that while this set of properties has been clearly established, to determine whether it also forms a natural kind, we must identify a causal mechanism which underpins them. While there is a very strong candidate for this in the form of the bed nucleus of the stria terminalis (BNST) of the brain, more empirical research must be done to establish a causal connection between this area of the brain and the attentional properties. Therefore, a clear area for future research is a set of neurobiological studies which aim to determine a backwards causal link between the BNST and the attentional properties of perceptual narrowing and widening, or to determine a form of causal looping that was proposed in this chapter. While this research *per se* is outside of the remit of philosophy, I argue that it will be essential to provide us with not only a clearer picture of how *anxiety* works, but to allow us to establish *anxiety* as a natural kind category. This would then allow us to properly justify the empirical practises of explanation, projection, and prediction that we not only engage in, but rely on, for psychiatric practise.

With the bigger picture metaphysics of the category of *anxiety* clearer, in chapter four, I then turned to consider the constituents of the category more closely. In the first chapter, I argued that (ab)normal episodes of anxiety stand as evidence for the anxiety system being activated. However, despite their prominence, there is little extant research on how to delineate between them. Without this understanding, one cannot even begin to disambiguate the sorts of phenomena involved in the category of *anxiety.* Therefore, to rectify this gap in the research, in chapter four, I argue that the key difference between normal and abnormal episodes of anxiety is in the way they manifest. In this way, episodic anxiety exists on a multidimensional spectrum, where there are four distinct, but often co-occurring, properties by which these episodes can be differentiated. These are how disproportionate the episode is to the objective stimulus that evoked it (proportionality); how physically or socially disabling the episode is (disability); how mentally manageable the episode is (mental management); and how phenomenologically intense the episode is (phenomenological intensity). Although abnormal episodes *per se* are not medical, for them to warrant diagnosis, they must occur regularly over a period of six months or longer *and* be disproportionate to the stimulus that evoked them. These episodes also must

be at least one of the following: disabling, mentally unmanageable, or phenomenologically intense. While this chapter considered how the anxiety disorders fit within the taxonomy of *anxiety* proposed in the thesis, there are more questions about the pathologization of abnormal anxiety that fall outside of the scope of this thesis. Therefore, a clear avenue for future research is to broadly consider the pathologization of anxiety, for example, by determining the point at which a diagnosis ought to be made.

While the first four chapters of the thesis considered the psychological category of *anxiety,* the fifth chapter considered a lay categorisation of anxiety in the form of *medicalized anxiety*. As seen in chapters five and six, in folk psychology, normal anxiety is most often presented dichotomously with *medicalized anxiety,* an umbrella category that incorporates both abnormal episodes of anxiety and the anxiety disorders which emerges through the process of medicalization, blurring the conceptual boundaries between them. Although chapter five answered important questions about the metaphysics of *anxiety*, and how *medicalized anxiety* fits within the framework proposed across the chapters, there was insufficient time to answer broader questions about whether abnormal anxiety, or even the anxiety disorders, are the sort of things that we *ought* to medicalize. Therefore, one key area for future research could look into the question of the legitimacy of medicalization.

To further understand the proposed dichotomy between normalised and *medicalized anxiety*, chapter six then examined real-world expressions of these two sorts of anxiety through a linguistic analysis. Although prominent psychologists posited that one of the ambiguities of the lemma anxiety is that it can be used to convey both normalised and medicalized cases, the findings of this chapter highlighted an important nuance in the way we express our anxiety experiences that these claims have overlooked. Most often, we use the adjectival construction 'to be + anxious' to convey a more normalised experience, while 'to have + anxiety' was used to convey a more medicalized notion. While the generalisations of this study can be made on the basis of the size of the corpus, further study is required to determine the extent to which they hold cross-culturally or diachronically.

The linguistic analysis highlighted an important, yet overlooked, conceptual shift that often occurs when we medicalize anxiety, where anxiety transforms from an emotion or process that we experience as a part of ourselves to an object that is separate from ourselves. In the final chapter of the thesis, I examined the potential effects of this separation between ourselves and the anxiety experience, arguing that while it allows us to avoid the sting of blame through a reapportioning of the responsibility for the anxiety, it could potentially be detrimental in the long term. This is because reapportioning responsibility can hamper the efficacy of interventions that demand the Experiencer take responsibility for the anxiety, or for the Experiencer's agency. While the arguments made in this chapter are based on extant research in similar areas, namely depression and eating disorders, more empirical research must be done to determine the extent to which the proposed effects of chapter seven hold. Therefore, future research in this area could look into determining whether there is a relationship between conceptualising anxiety

as an object separate from oneself and a sense of diminished responsibility, blame, or a sense of diminished agency.

Through these seven chapters, I have developed a novel metaphysical picture of the category of *anxiety*, disambiguating its constituent parts and challenging the extant assumptions that are widely accepted across psychiatry, psychology, and folk psychology. However, although this thesis stands as a key steppingstone in understanding *anxiety*, the project is far from over. Moving forward, it is important to recognise that one of the most pressing problems with understanding and disambiguating *anxiety* is that different disciplines often adopt their own distinctive methodology in research, creating a minefield of approaches to navigate. Often times too, only individual sorts of anxiety are considered, without considering the category of *anxiety* as a whole. Therefore, to truly create a complete metaphysical picture of *anxiety*, a concerted and continual interdisciplinary effort is required.

Until then, this will do, reader, this will do.

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