AN ANALYSIS OF THE SOCIAL ASPECTS OF CAMOUFLAGING IN AUTISM

by

VALERIA KHUDIAKOVA

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School of Psychology

College of Life and Environmental Sciences

University of Birmingham

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ABSTRACT

As a consequence of experiencing significant stigmatisation and discrimination in predominantly neurotypical society, many autistic people engage in impression management strategies. One of those strategies is camouflaging, which encompasses behavioural strategies aimed at minimising the perception of one's autistic traits. Qualitative research has found that camouflaging may lead to poor mental health and psychological wellbeing in autistic people, but a significant number of quantitative studies provides inconsistent evidence for the link between the two. The study of the relationship between camouflaging and mental health is complicated by the cross-sectional nature of the research body, measurement issues, the unclear directionality of that relationship, and the potential role of the social context and its interaction with one's behaviour. The purpose of this thesis is to investigate these issues in camouflaging research through exploring potential sources of inconsistency in studies on camouflaging and mental health and the influence of the social context on camouflaging behaviour.

A systematic review and meta-analysis of 23 studies found that camouflaging was significantly associated with adverse mental health outcomes. Study-level effect sizes were not moderated by study quality and sample characteristics, namely the mean age and proportion of female and clinically diagnosed participants. In a qualitative study with 15 autistic adults, social factors such as perceived psychological safety, fit with the interaction partner, and situational demands were found to have an interactive relationship with camouflaging.

Together, the two studies demonstrate the complex nature of camouflaging by highlighting its unclear directionality and potential differential effects across contexts. The findings reiterate the importance of creating autism-inclusive social spaces and provide a foundation for future work on conceptualising and measuring the more complex aspects of camouflaging, such as unconscious camouflaging and its interaction with different social environments.

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As required by the aforementioned regulations, author contributions for Chapter 2 are stated on its corresponding title page.

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CHAPTER 1: LITERATURE REVIEW

Autism is clinically defined as a neurodevelopmental condition characterised by significant differences in the way a person communicates and interacts with others, as well as intense interests and patterns of repetitive behaviours (American Psychiatric Association, 2013). These differences have historically been understood from the perspective of predominant, typical, or non-autistic social norms and communication styles, leading to autistic people experiencing difficulties in fitting in with non-autistic expectations regarding social behaviour (Kapp et al., 2013). However, these challenges are likely to arise from a bidirectional mismatch in communication and interaction styles, rather than solely from autistic people's supposed 'deficits' (Milton, 2012). Given the hegemony of non-autistic communication styles in society, autistic people encounter significant stigmatisation and discrimination, partly because of negative and exclusionary attitudes towards their social differences (Botha et al., 2020; Botha & Frost, 2020).

As a protective response against the stigma and the challenges of coping in a non-autistic social world, some autistic people turn to concealing their autistic identity and traits through camouflaging strategies (Hull et al., 2017). Some lived experience narratives suggest that camouflaging, despite its potential utility in avoiding stigma, often leads to adverse mental health outcomes (Bradley et al., 2021; Raymaker et al., 2020), but quantitative research is yet to demonstrate a clear, consistent, and causal link (Cook et al., 2021), hinting at an underlying complexity. For instance, while autistic camouflaging is most frequently conceptualised as a collection of individual concealment behaviours, its aim to minimise the appearance of one's autistic

traits is tied to specific sociocultural environments (Ai et al., 2022). This suggests that social factors may be crucial in defining camouflaging and understanding its relation to mental health in autistic people.

This thesis aims to critically examine the concept of autistic camouflaging using two approaches: by quantitatively assessing the state of empirical evidence for its relationship with mental health with a focus on potentially identifying potential sources of heterogeneity and by qualitatively examining the role of social factors in camouflaging and the surrounding decision-making through interviews.

Autism, Stigma, and Power

Many of the challenges that autistic people face, including mental health problems, underemployment, and social isolation, have long been attributed to the condition itself and any so-called deficits perceived to stem from it (Mitchell et al., 2021). However, emerging research into autism, stigma, and autistic people's responses to social stigmatisation demonstrates that, at least in part, "the problems autistic people face arise from a misfit between the individual's unique pattern of strengths and difficulties, and the demands their environment places on them" (Mandy, 2019, p. 1880), in addition to societal and attitudinal factors.

Stigma was originally defined as an individual attribute reducing its 'unfortunate' carrier "from a whole and usual person to a tainted, discounted one" (Goffman, 1963a, p. 3). However, researchers' understanding of stigma has gradually shifted to a more social approach, recognising that experiences of stigmatisation are brought about by society through a complex multi-step process involving changes in attitudes and behaviour towards the target group

rather than the mere presence of a specific identity (Link & Phelan, 2001). Research suggests that in different marginalised and minority groups, stigma plays a vital role in maintaining physical and mental health inequalities experienced by those groups through the compounding effects of stress, social disadvantages, and other structural barriers (Hatzenbuehler et al., 2013; Meyer, 2003). Indeed, across stigmatised groups, experiences of stigma have been linked to poorer mental health outcomes (Mak et al., 2007).

Power differences between those who carry the identity deemed stigmatised and those who do not play a crucial part in the process of societal stigmatisation and its ensuing deleterious effects, such as discrimination (Link & Phelan, 2001). Indeed, Radulski (2022) posits that in a predominantly neurotypical – defined as not experiencing marginalisation due to their cognitive processing style – society, the autistic minority is perceived as inferior relative to the majority. In society, autistic traits are construed as fundamentally undesirable, thus affecting the attitudes of the neurotypical majority towards autistic people, as well as those perceived to somehow diverge from the elusive neurotypical norm (Pearson & Rose, 2021). Even our understanding of what autism is or may be is shaped by neurotypical social and cultural norms and the meaning given to any perceived divergence, thus underscoring the power differential between the neurotypical majority and the autistic minority (Botha, 2021). Autism is defined solely in terms of observable deviations from certain social and behavioural norms, such as the unwritten standards of social communication and interaction (APA, 2013). Thus, at its core, autism is a social category constructed by overwhelmingly non-autistic people, almost always without seeking the input of those seen as belonging to that category who may

have different views on what it means to be autistic. For instance, some reject the notion that autism is a tragic predicament precluding a meaningful life and view it as a value-neutral part of their identity (Botha et al., 2020; Kapp et al., 2013). This conception, although not universal, is at odds with the deficit-based model of autism that has dominated research for many years and likely societal perceptions of autism (Botha, 2021; Kapp et al., 2013), thus likely feeding into the power differential that has facilitated the stigmatisation of autistic people in society.

The ensuing tension and power imbalance often have tangible ramifications for members of the autistic community through the societal stigma associated with the condition, despite efforts made by autistic advocates and their allies. Autistic people are highly conscious of the stereotypes surrounding their condition in society, which are mostly disparaging, such as autistic people allegedly being difficult to interact with and lacking in empathy, and report feeling judged, devalued, and excluded as a result (Botha et al., 2020; Wood & Freeth, 2016). Experiences of bullying, isolation, and discrimination are common in autistic people as well (Botha et al., 2020), suggesting that attitudinal factors serve to play into non-inclusive social environments where autistic people feel unwelcome and ‘othered.’

Autism and Camouflaging

Concealing an identity or characteristic that is not immediately apparent to others but may result in stigmatisation or discrimination if revealed is a commonly employed strategy employed across diverse social groups (Quinn & Earnshaw, 2013), a phenomenon also referred to as impression management (IM; Goffman, 1963b). In that way, concealment is a reasonable and sensible

response to a social environment that is perceived to be hostile to those holding said identity. For autistic people, being aware of the stigma associated with autism in society and anticipating acts of discrimination and othering may motivate them to engage in camouflaging behaviours.

One definition of 'camouflaging' is that of behavioural strategies adopted by autistic people in an effort to conceal or minimise the perception of their autistic traits (Hull et al., 2017). Camouflaging is traditionally defined as an umbrella term encompassing diverse behaviours which can be adopted consciously or unconsciously, such as trying to engage in the amount of eye contact deemed appropriate; suppressing self-stimulating behaviours; mimicking others' nonverbal or verbal communication; and creating scripts or informal rules for engaging in behaviour perceived as more typical (Hull et al., 2017). These strategies can be classified into two categories. 'Masking' refers to behaviours aimed at hiding the appearance of one's autistic traits (e.g., forcing oneself to sit still or downplaying one's reactions to sensory overstimulation), while 'compensation' encompasses workarounds for difficulties or atypicalities in navigating social situations that could elicit negative feedback from others, such as preparing conversation scripts (Hull et al., 2019). Aside from avoiding the stigma associated with autistic traits, autistic people may engage in camouflaging to aid assimilation or to form relationships (Perry et al., 2022). Camouflaging thus takes diverse forms, likely in response to different motivations.

This conceptualisation of camouflaging is mostly based on individual behaviour, albeit driven by societal attitudes towards autistic people and non-normative communication styles. A complementary, more social understanding

of camouflaging is through the transactional IM framework, which describes it as a dynamic process that involves continuously adjusting one's behaviour in response to perceived social expectations and feedback (Ai et al., 2022). Camouflaging may thus be seen as both iterative and interactive: an autistic person may choose specific strategies (e.g., compensation or masking) to fit the demands of their environment and subsequently adjust their behaviour in response to any feedback, and the perception of those efforts may also vary depending on the context. This framework acknowledges that while camouflaging shares motivations with other forms of IM, its primary aim is to reduce the perception of one's autistic traits (Ai et al., 2022).

The transactional IM framework thus highlights the importance of considering the social context when conceptualising camouflaging, although empirical evidence for this remains limited. The same behaviour may be interpreted differently in different social environments, which may alter the visibility of a person's autistic traits without their behaviour actually changing (Dean et al., 2017). This context-dependent nature may also underlie the differential outcomes of camouflaging, as discussed below.

Camouflaging and Mental Health

Autistic people are much more likely to experience mental health challenges, especially anxiety and depression, or contemplate, attempt, or complete suicide (Cassidy et al., 2018; Kõlves et al., 2021) compared to the non-autistic population (Lai, 2023). Engaging in camouflaging has been highlighted as a risk factor for mental health problems in autistic people (Cook et al., 2021). In several qualitative studies, autistic people have asserted a causal link between camouflaging and adverse mental health outcomes, such

as anxiety, depression, and autistic burnout, as well as self-injury and suicidal ideation (Bargiela et al., 2016; Bradley et al., 2021; Hull et al., 2017; Pyszkowska, 2024; Raymaker et al., 2020). This has been supported by emerging cross-sectional quantitative research finding moderate correlations between camouflaging and different mental health outcomes, yet the research landscape presents some inconsistencies, as subsequently discussed (Cook et al., 2021).

The observed link between camouflaging and mental health is likely to have multiple explanations, both related to the social context and individual processes. Camouflaging can be a reactive or proactive response to societal stigma, so the potential of being stigmatised if one's autistic traits or identity are discovered can be a source of stress and contribute to the maintenance of camouflaging (Botha et al., 2020; Meyer, 2003). Ironically, the mere act of concealing one's 'true self' may be stigmatised upon discovery as well, likely due to social norms celebrating authenticity (Le Forestier et al., 2022), which may add to the stress experienced by autistic people who engage in camouflaging. Even anticipating the possibility of encountering stigmatisation or discrimination has been found to undermine minority groups' mental health (Figueroa & Zoccola, 2015), suggesting that the threat of stigma may serve as a driving force behind camouflaging, in addition to affecting autistic people's mental health on its own (Khudiakova et al., 2024).

From an individual standpoint, engaging in camouflaging is frequently described as leading to feelings of inauthenticity, as if one is putting on an act or performance to navigate social situations rather than being themselves (Hull et al., 2017; Seers & Hogg, 2023). Indeed, autistic people who camouflage more

tend to score lower on measures of personal authenticity (Evans et al., 2023). Even if camouflaging successfully aids a desired goal, such as fostering a social connection, it may feel unsatisfying, possibly due to this reduction in authenticity (Ridgway et al., 2024), which can potentially be linked to reduced mental wellbeing. In other social groups, identity concealment has been associated with reduced self-esteem, belonging, and social support (Le Forestier et al., 2024).

Autistic people who engage in camouflaging frequently report feeling fatigued as a result, which may make them more vulnerable to mental health problems (Cook et al., 2021). It has also been proposed that the reason why deliberate camouflaging feels so exhausting and cognitively taxing for many autistic people is a disconnect between different types of cognitive resources. For many autistic people, navigating social situations through camouflaging involves domain-general cognitive resources, such as logical reasoning, rather than relying on social cognition skills used by non-autistic people, and the reliance on cognitive resources not intended for the purpose they are being used for may lead to fatigue (Livingston & Happé, 2017). A glaring example of such fatigue is autistic burnout, a distinct concept that also emerged from the study of autistic people's lived experiences (Raymaker et al., 2020). Autistic burnout is characterised by a profound and debilitating state of exhaustion, in addition to skill loss and social withdrawal, as a response to the perceived demands of living in a non-autistic world, which, to many, involve the need to camouflage (Higgins et al., 2021; Raymaker et al., 2020). Research into autistic burnout is in its infancy, and emerging evidence is inconsistent. While Arnold et al. (2023) found that camouflaging was *negatively* correlated with the severity of

past but not current autistic burnout (which is at odds with its initial conceptualisation), a study by Pyszkowska (2024) concluded that camouflaging was a significant positive predictor of current autistic burnout.

Inconsistencies and Issues in Camouflaging Research

The example of autistic burnout is, in part, illustrative of a larger challenge in camouflaging research. Even though qualitative research tends to draw conclusions in favour of a causal relationship between camouflaging and mental health outcomes (Bargiela et al., 2016; Hull et al., 2017; Miller et al., 2021; Radulski, 2022; Raymaker et al., 2020), quantitative evidence is mixed. Some studies have failed to identify any significant relationships between camouflaging and mental health outcomes (e.g., Schuck et al., 2019), and in others, seemingly robust relationships between the two do not hold up when separate correlations are computed for different genders (Hull et al., 2021; Lai et al., 2017; Weiner et al., 2023), thus highlighting the need for a systematic appraisal of the research landscape.

It is also important to acknowledge that camouflaging might be related to positive outcomes, such as relational and vocational success (Park, 2021; Zhuang et al., 2023). For instance, camouflaging may enable an autistic person to achieve their social and professional goals, which may potentially outweigh its putative negative impacts, even if only in the short term. Additionally, experiencing stigma also has negative effects on mental health (Mak et al., 2007), and camouflaging might help avoid at least some of the stigma, so it is possible that camouflaging exerts complex effects on mental health, which may be different across the short- and long-term. Moreover, different forms of camouflaging may have divergent effects on mental health. Camouflaging is

sometimes automatic and happens without the person's conscious awareness and deliberate decision-making (Lawson, 2020; Miller et al., 2021), which may present less of a cognitive load and thus lead to less fatigue compared to more conscious forms of camouflaging. Alternatively, common causal mechanisms may underlie both camouflaging and mental health challenges, such as elevated self-consciousness in social situations which may lead to both self-modulation and social anxiety.

As shown above, a deeper examination of the conceptualisation of camouflaging and its relationship with mental health reveals an underlying complexity which can be examined from different theoretical and psychometric perspectives to explain the inconsistencies in research.

Psychometric Perspectives on Camouflaging

Camouflaging was initially conceptualised through qualitative research with autistic women, and it can be interpreted as largely an internal experience frequently unnoticeable to external observers, as it entails private, sometimes even unconscious, manipulation of behaviour that is frequently not made explicit to the observer (Hull et al., 2019; Miller et al., 2021). As such, the phenomenon is usually indirectly quantified in three ways: self-report scales, inferences from observable behaviour, and the discrepancy between observable behaviour and internal factors, such as social cognition and self-reported autistic traits. These three methods, as reviewed below, are likely to involve different assumptions about the nature and function of camouflaging,

Self-Report Scales

Just like with other psychological phenomena, camouflaging is frequently quantified using self-report scales, allowing gathering data on autistic people's

internal perceptions and experiences of camouflaging relatively quickly and easily. Self-report measures of camouflaging can also be used in online settings, potentially increasing the accessibility of research participation to autistic people across the globe and with co-occurring conditions that might make in-person participation challenging. However, the feasibility of using self-report scales with autistic people with learning disabilities and those less able to report on their camouflaging experiences verbally has not been evaluated yet, to my knowledge, suggesting that their utility may be limited to only certain subgroups of autistic people.

The Camouflaging Autistic Traits Questionnaire (CAT-Q) is a 25-item measure of camouflaging behaviours and intent developed from insights gained from qualitative research with autistic women (Hull et al., 2019). It remains by far the most frequently used quantitative self-report camouflaging measure in research, has undergone several validation and translation attempts (see Hannon et al., 2023), and contains three factors or subscales: Masking (explicitly hiding one's autistic traits), Compensation (actively making up for any perceived difficulties in social situations), and Assimilation ('putting on an act' to portray a non-autistic person) (Hull et al., 2019). Less commonly used self-report measures include questionnaires about autistic traits incorporating subscales related to camouflaging, such as the Comprehensive Autistic Trait Inventory (English et al., 2021), as well as checklists of specific camouflaging behaviours (Livingston et al., 2020). Despite the CAT-Q's wide use, evidence for its psychometric properties, such as validity and test-retest reliability, and those of the other camouflaging scales, remains scant at the time of writing (Ai et al., 2024; Hannon et al., 2023).

Observational Measures

Ostensibly, camouflaging has appearing ‘less autistic’ as its main goal (Hull et al., 2021). However, several researchers have employed certain indirect cues that could signify camouflaging to quantify the phenomenon, such as the use of words referring to social categories (Cola et al., 2022) and verbal fillers (Parish-Morris et al., 2017), or body language and social engagement in naturalistic settings (Dean et al., 2017). Such observational measures may thus circumvent some limitations of self-report data, including the reliance on participants’ awareness of their camouflaging intentions and behaviour, which may not always be conscious or easily verbalised (Miller et al., 2021). However, the construct and external validity of such measures remain dubious (Hannon et al., 2023). Their scope might also be excessively narrow, as they may not capture the internal experience of camouflaging. Besides, these measures have, to date, only been used in children, making their relevance and applicability to autistic adults unknown.

Discrepancy Methods

Another way to quantify camouflaging is through calculating the discrepancy between a person’s observable behaviour and their internal experience of autism, which could include their perception of their own autistic traits as measured by self-report questionnaires or their scores on measures of social cognition as a proxy for their autism ‘status’ (Lai et al., 2017; Ross et al., 2023). Discrepancy approaches seem to correspond to the common conceptualisation of camouflaging as striving to minimise the appearance or perception of one’s autistic traits (Hannon et al., 2023). However, such methods fail to capture a person’s intent and efforts to camouflage, or the internal

process of ‘putting on an act’ – which qualitative research and discourse have linked to adverse wellbeing outcomes (e.g., Bargiela et al., 2016) – through only focusing on its perceived ‘success’ in concealing one’s autistic traits. Besides, the validity of the assumption that certain scores on the internal status measures would inevitably map onto more apparently and visibly ‘autistic’ behaviour if not for camouflaging warrants further examination.

The above discussion of the three different methods of measuring camouflaging in research reveals the different assumptions that may contribute to the conceptualisation and study of camouflaging and its relationship with mental health, which could be supplemented by theoretical accounts.

Sociocognitive Perspectives on Camouflaging

While the social context may be important in precipitating and reinforcing camouflaging and its perception, individual or cross-neurotype differences in the processing of social situations may also play a role in camouflaging through, for instance, assessing the perceived safety of certain contexts and responding to social feedback. Social cognition is an umbrella term referring to a set of cognitive mechanisms said to be involved in processing, understanding, and responding to social information (Frith, 2008). A longstanding tradition of research has linked autism with atypical social cognition, especially in the areas of perceiving and processing other people’s mental states and recognising and understanding emotions (see Velikonja et al., 2019).

This atypical social understanding may translate to atypical social behaviour, thus resulting in stigmatisation and hence camouflaging, although this assumption has been challenged by the finding that some autistic people do not show any differences on laboratory measures of social cognition yet still

experience difficulties in real-life social interactions (Green et al., 2017). Moreover, sociocognitive accounts on autism may neglect the participatory and interactive dynamics of social interactions while overemphasising the role of autistic people's supposed deficits in the ensuing communication breakdowns (Bottema-Beutel, 2017). That notwithstanding, it is highly likely that differences in social processing, such as self-other processing, in autistic people play some role in camouflaging (Ai et al., 2022). For instance, atypical social cognition may affect one's ability to read and respond to social cues. Indeed, autistic people may struggle to infer what other people may think of them (which could be due to atypical social cognition, previous interpersonal trauma, or an interplay of both) and automatically assume they are disliked, thus responding with camouflaging (Evans et al., 2023; Vine Foggo & Webster, 2017). This suggests that social cognition and the social context may both play a role in precipitating camouflaging**,** as well as possibly account for its diverse forms and outcomes among autistic people.

Contextual Perspectives on Camouflaging

Aside from being one of the primary motivators of camouflaging (Botha et al., 2020), stigma has been empirically shown to play a vital role in the relationship between camouflaging and mental health in autistic people (Khudiakova et al., 2024; Perry et al., 2022). However, the risk for experiencing stigma differs across social contexts. For instance, some cultures may be less accepting of the social differences associated with autism, which may thus reinforce the need for camouflaging and turn it into a compelled adaptation strategy rather than a voluntary choice (Lawson, 2020; Pyszkowska, 2024). On the other hand, the structure and norms of some social settings may help

autistic people blend in or highlight their social differences (Dean et al., 2017), thus pointing at a complex interplay between the social context and one's individual traits and behaviours.

The transactional IM framework of autistic camouflaging highlights that very interplay and argues that camouflaging is dependent on the social context it occurs in (Ai et al., 2022). In other words, an autistic person's 'performance' is intertwined with its particular 'stage' or social situation and is thus likely dependent on the specific social demands and expectations and the degree of anticipated stigmatisation (Leary & Kowalski, 1990). All of these factors may serve to inform the degree of (conscious) camouflaging one perceives as necessary or warranted, but the way one is perceived in a particular context – or, rather, *thinks* they are perceived – may ultimately drive some of the outcomes of camouflaging. For instance, in other stigmatised social groups, believing that one's stigmatised identity is concealable is associated with reduced anxiety in intergroup interactions (Le Forestier et al., 2020), suggesting that an interaction between the social context and one's individual camouflaging strategies may result in divergent mental health outcomes, which remains to be investigated empirically.

Research Aims

This research project aims to reconcile some of the inconsistencies in camouflaging literature through first assessing the current evidence for its relationship with mental health and identifying potential explanations for any identified gaps or contradictions. Subsequently, this project examines the role of the social context in the way autistic people make decisions about and engage in camouflaging across social contexts.

Reflection on Researcher Positionality

I acknowledge that I come from a place of relative social privilege but some epistemic disadvantage as I approach this research project. I am a non-autistic autism researcher with an undergraduate degree in psychology and a background in social psychology, mental health research, and peer support work. I am also a non-disabled, cisgender woman from an upper-middle-class background educated in Western institutions.

My knowledge of autistic camouflaging comes from academic study and community engagement rather than personal experience. Autistic people have an epistemic advantage when it comes to what it is like to be autistic and the reality of their lived experiences by virtue of their positionality (Narayan, 1989). As someone not sharing that positionality, I do not claim to 'understand' the lived experiences of autistic people or those of any other group but intend to represent them in a just and compassionate way in my research. To that end, throughout the research process, I have engaged with the Birmingham Psychology Autism Research Team's Consultancy Committee and sought their input at the planning stages, which I detail in Chapter 3. Their insights have played a significant role in determining the research questions, interview approach, and interpretations.

A thread of commonality, however tenuous, exists between my lived experiences and those of many autistic people, including the participants in Chapter 3. I have also experienced stigma and engaged in concealment strategies, albeit in relation to a different uncontrollable social identity. The stigma was qualitatively different and did not result in an experience of marginalisation, but it has nonetheless affected me and indirectly led me to my

interest in camouflaging research in the first place. Another key difference is that although some autistic people feel connected to other autistic people and feel pride in their autistic identity (Botha, 2020), I do not derive any sense of community or positive emotions from that identity. Upon reflection, I realise that my experiences with stigma, in addition to my training in social psychology, have partly informed my approach to the study of autistic camouflaging through drawing me to an approach that highlights the decision making that goes into camouflaging, including its costs and benefits across different contexts. As such, I find that the transactional IM framework discussed previously (Ai et al., 2022) aligns with my goals for this research. However, I acknowledge that this is not the only way to look at camouflaging and have remained open to alternative perspectives throughout the process.

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CHAPTER 2: A SYSTEMATIC REVIEW AND META-ANALYSIS OF MENTAL HEALTH OUTCOMES ASSOCIATED WITH CAMOUFLAGING IN AUTISTIC PEOPLE

Paper submitted to *Research in Autism Spectrum Disorders* and presented in its submitted version edited for typographic errors and to reflect that one of the cited works (Khudiakova et al., 2024) that had been under review at the time of submission has since been published.

Authors: Valeria Khudiakova[a], HBSc; Emmeline Russell[b]; Sophie Sowden-Carvalho[c], PhD; Andrew D. R. Surtees[d], PhD.

[a]School of Psychology, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom. Email: vxk301@student.bham.ac.uk. Corresponding author.

[b]School of Psychology, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom. Email: ejr090@student.bham.ac.uk

[c]School of Psychology, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom. Email: s.l.sowden@bham.ac.uk

[d]School of Psychology, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom. Email: a.surtees@bham.ac.uk

CRediT roles: VK: Conceptualisation, Investigation, Formal analysis, Writing – original draft; ER: Investigation, Writing – review and editing; SSC: Supervision, Writing – review and editing; ADRS: Conceptualisation, Supervision, Writing – review and editing.

Abstract

Background: This systematic review and meta-analysis aimed to assess the strength and quality of the evidence for the relationship between camouflaging and its potential outcomes in autistic people. With the worryingly high proportions of autistic people experiencing mental illness and suicidality, it is important to understand whether camouflaging is a risk factor in that population.

Methods: Searches of five databases (Web of Science, MEDLINE, PsycINFO, Embase, ProQuest Dissertations & Theses) yielded 15 studies eligible for a meta-analysis using correlations and eight additional studies eligible for a narrative review, with 5897 autistic participants in total. Risk of bias was assessed using a bespoke tool. We computed meta-correlations between camouflaging and anxiety, depression, social anxiety, and psychological wellbeing, the only four variables providing enough evidence for meta-analysis, using a random-effects model. Meta-regressions examined if study effect sizes were moderated by study quality, participants' mean age, and proportions of female and clinically diagnosed participants.

Results: We found significant moderate positive relationships between camouflaging and anxiety/generalised anxiety, depression, and social anxiety and a significant small negative relationship between camouflaging and mental wellbeing. There was no significant moderating effect of the aforementioned variables on study effect sizes.

Discussion: All of the studies were underpowered to detect small effects, and many used insufficiently validated measures. The established link between camouflaging and mental health difficulties is discussed with reference to future research and clinical practice. Longitudinal studies should also aim to establish

causality.

Other: There was no funding associated with this review. The researchers have no conflicts of interest to disclose. The review was preregistered on PROSPERO: CRD42023473077.

Keywords: autism, camouflaging, mental health, anxiety, depression, wellbeing

Introduction

Autism is widely conceptualised as a disorder of social interaction, understanding, and communication (American Psychiatric Association [APA], 2013), manifesting, in part, through inherent “deficits in developing, maintaining, and understanding relationships” (p. 50). However, researchers have increasingly recognised the role of broader interpersonal and societal factors, notably negative attitudes and discrimination, in creating the experience of social marginalisation in autism (Botha & Frost, 2020). A common response to anti-autism stigma is camouflaging, understood as adopting behavioural strategies aimed at reducing the visibility of one’s autistic traits in social situations (Hull et al., 2017).

Despite camouflaging’s supposed utility in concealing being autistic and hence possibly avoiding stigmatisation, emerging evidence has linked it to mental health challenges, including anxiety and depression. Evidence for the potential negative impact of camouflaging has mostly come from qualitative studies (e.g., Bargiela et al., 2016; Hull et al., 2017), with quantitative research finding largely mixed results (Hull et al., 2021). This potential relationship between camouflaging and poor mental health is especially concerning, as autistic people are much more vulnerable to experiencing anxiety, depression, suicidal ideation, and reduced quality of life compared to non-autistic people (Joshi et al., 2013; Kõlves et al., 2021). Understanding possible causes of these vulnerabilities could lead to the development of interventions aimed at responding to any unmet mental health needs of the autistic population in the long run. We conducted a systematic review and meta-analysis synthesising the available quantitative research evidence on mental health outcomes of

camouflaging in autistic people and discuss the implications of the findings for research in the field.

Autism, Stigma, and Camouflaging

Across marginalised and minority groups, stigma has long since been established as a salient factor in perpetuating physical and mental health inequalities. This is partly due to the associated stress, social disadvantages, and structural barriers to accessing resources that would promote better health outcomes for such groups (Hatzenbuehler et al., 2013; Meyer, 2003).

It is well-documented in research that autistic people experience significant stigmatisation in society. For instance, autistic people are stereotyped in ways that are either overwhelmingly disparaging, such as having 'difficult' personalities and lacking in empathy and social skills, or frequently unattainably positive ways, such as having exceptional intelligence and superior abilities in mathematics (Wood & Freeth, 2016). Autistic people report that some of their traits such as atypical conversation patterns and lack of eye contact, elicit negative discriminatory responses from neurotypicals, resulting in experiences of bullying, isolation, and societal disadvantage (Botha et al., 2020; Botha & Frost, 2020). Corroborating these accounts are experimental studies finding evidence in favour of snap negative judgements of autistic people made by their neurotypical peers, which may then translate to acts of discrimination (e.g., Sasson et al., 2017; Sasson & Morrison, 2019).

When a personal characteristic is not immediately apparent to an observer and revealing it may lead to social costs like stigmatisation, concealing such a characteristic is a reasonable and common strategy for many people to navigate the often-hostile social environment (Quinn & Earnshaw, 2013).

Autistic people's awareness of the stigma attached to their condition and everyday experiences of acts of discrimination (Botha & Frost, 2020; Botha et al., 2020) may lead them to adopt strategies aimed at minimising the appearance of their autistic traits or possibly even 'passing' as non-autistic in certain situations, such as *camouflaging* (Hull et al., 2017).

Camouflaging can be understood as a form of impression management, or adjusting one's behaviour in response to the social context (Ai et al., 2022; Goffman, 1963). Researchers have conceptualised camouflaging as an umbrella term encompassing a collection of diverse behavioural strategies. Such strategies range from more 'shallow' aspects such as suppressing self-stimulating behaviours, mimicking others' facial expressions, and scripting conversations to 'deep' and more flexible strategies, including consciously applying learned rules about verbal and nonverbal social cues (Livingston et al., 2020). While researchers and autistic community members may use other terms to refer to similar phenomena, such as 'masking,' 'passing,' or 'compensation,' this study will use the term 'camouflaging' for the purposes of consistency, as it remains the most commonly used term in research contexts (Hannon et al., 2023).

Camouflaging and Mental Health in Autistic People

Autistic people are significantly more likely than their non-autistic peers to experience impairment to their mental health (Howlin & Magiati, 2017; Joshi et al., 2013), making understanding risk factors for adverse mental health outcomes in autistic people crucial. As many as 79% of autistic people meet the diagnostic criteria for at least one psychological disorder during their lifetime, with anxiety and depressive disorders being the most common (Lever & Geurts,

2016). Further, autistic people tend to report higher levels of suicidal ideation and lifetime attempts to end their own lives than non-autistic people (Cassidy et al., 2018), as well as have higher rates of completed suicide (Kõlves et al., 2021). Across qualitative narratives, autistic people link camouflaging with mental health challenges, such as through feeling exhausted and anxious due to the behavioural monitoring that goes into camouflaging (Hull et al., 2017). Moreover, camouflaging has been discursively causally connected to suicidality and self-injury in autistic people (Bradley et al., 2021; Miller et al., 2021), which reinforces the importance of elucidating its role in autistic mental health.

In addition, some autistic people describe experiencing *autistic burnout* as one of potential consequences of camouflaging. Defined by autistic people as a debilitating state of profound exhaustion, loss of skills, and social and occupational withdrawal, the academic conceptualisation and measurement of autistic burnout is in their infancy; however, a common thread is that it is often triggered by feelings of exhaustion stemming from the demands of living in a neurotypical world (J. M. Higgins et al., 2021; Raymaker et al., 2020). Qualitative and conceptual research has linked engaging in camouflaging over extended periods of time with autistic burnout (Mantzalas et al., 2022; Raymaker et al., 2020). However, the specific nature of the relationship between camouflaging and autistic burnout is yet to be identified, just like with other mental health challenges.

Despite the clear perceived link between camouflaging and adverse mental health outcomes in qualitative research (Bargiela et al., 2016; Hull et al., 2017; Miller et al., 2021; Radulski, 2022; Raymaker et al., 2020), quantitative evidence remains mixed, with some studies finding significant associations

between increased camouflaging and increased symptoms of mental health conditions such as depression and anxiety (Evans et al., 2023; Hull et al., 2021) and some not identifying any significant relationships (e.g., anxiety in Lai et al., 2017 and Schuck et al., 2019). In several studies, any identified significant relationships between camouflaging and symptoms of mental health conditions did not hold during subgroup analyses. For instance, Hull et al. (2021) found a significant moderate positive correlation between camouflaging and depressive symptoms in the entire sample, but this relationship was not significant in women and non-binary participants. This suggests that the relationship between camouflaging and mental health may be affected by additional moderating variables, such as gender.

Not discounting the above, engaging in camouflaging may have positive or at least non-negative effects on an autistic person's life, such as helping to find employment, functioning in a non-autistic society, making connections, and avoiding stigmatisation and discrimination (Hull et al., 2017; Zhuang et al., 2023), which raises the possibility that camouflaging may exert simultaneous and conflicting effects on autistic people's mental health. Indeed, in one study, stigma was found to have a stronger relationship with autistic people's mental health than camouflaging, suggesting that social factors may be more predictive of outcomes in autistic people rather than their own behaviour in social situations (Perry et al., 2022). Yet such an influence would be inextricably tied to the socio-political context; for instance, for non-White autistic people, not engaging in camouflaging may have life-or-death consequences due to ever-present threats of violence (which may also affect mental health), making not

camouflaging not an option (Radulski, 2022), which adds to the complexity of the potential relationship between camouflaging and mental health.

Rationale

This systematic review aimed to clarify the link between camouflaging and its potential outcomes in autistic people which has been inconsistent across studies. We did so by synthesising available quantitative literature and conducting meta-analyses. At the time of writing, the only published systematic reviews did not perform quantitative synthesis (Cook et al., 2021; Libsack et al., 2021; Zhuang et al., 2023). This review thus aimed to assess the current state of the literature, identify and possibly explain any inconsistencies in the evidence, and suggest directions for further research. In conjunction with qualitative findings from other studies, this review would contribute to a better understanding of the phenomenon of camouflaging through its potential correlates and outcomes. Note that establishing causal relationships is beyond the scope of this review. This review initially remained open as to extant literature associating camouflaging and physical health, but the search ultimately found evidence of data pertaining to this. We have therefore focussed on mental health.

The research questions addressed in this review are as follows:

1. What health and mental health outcomes are associated with camouflaging in autistic people?
2. What is the strength and quality of the evidence for the relationship between camouflaging and its outcomes in autistic people?

Methods

We followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement when reporting the results of this review, with the completed PRISMA checklist enclosed in Appendix A (Page et al., 2021). This review was preregistered on the PROSPERO framework prior to beginning the searches and analyses (registration number: CRD42023473077). A protocol was not published. No ethics approval was sought because no original data was collected in this study.

Search Strategy

The following databases were searched on 23 November 2023: MEDLINE, PsycINFO, Scopus, Web of Science, and ProQuest Dissertations & Theses, without limitation on publication date and using search strategies tailored to each database (see Appendix B for the full search terms for all databases). In addition, citation searching was performed on any identified review or opinion articles on the topic, as well as on any included items. Unpublished theses or dissertations, provided that they were examined as appropriate, were eligible. To be added to ProQuest, dissertations and theses must first be approved by the awarding institution (ProQuest, n.d.). Thus, all search results from ProQuest Dissertations & Theses were assumed to have been examined and accepted as meeting the appropriate degree requirements.

The search strategies involved the following sets of key terms, chosen with reference to extant non-quantitative reviews on the topic (Cook et al., 2021; Libsack et al., 2021; Zhuang et al., 2023):

- Camouflaging OR masking OR compensation OR “impression management” OR concealment

- Autism OR Asperger's OR ASD OR "autism spectrum disorder" OR "autistic spectrum disorder" OR ASC OR "autism spectrum condition" or "autistic spectrum condition" OR PDD OR "pervasive developmental disorder"

We also performed backwards citation searching for any included articles and reviews identified through the searches and consulted experts in the field (defined as those listed as first, second, or final authors on two or more included articles) to identify any sources the searches might have missed. Manuscripts authored by authors of this review that had been submitted for publication and met the criteria were included as well. The completed PRISMA chart is included in Figure 1.

[INSERT FIGURE 1]

Study Selection

The results of the five searches were imported into EndNote 20 (Clarivate Analytics, 2013). Duplicates were removed automatically, and the remaining references were exported into Excel. Titles and abstracts were screened against the inclusion/exclusion criteria (Table 1) by the first and second authors unaware of each other's decisions (Cohen's kappa = 0.90). Afterwards, full texts of potentially relevant articles were assessed for eligibility by the lead author and the independent reviewer. The Cohen's kappa for full text screening was 0.66, indicating a substantial level of agreement; lack of agreement was primarily due to issues surrounding data available openly or through author contact in some of the included studies. Any inconsistencies were resolved via discussion.

[INSERT TABLE 1]

Data Extraction

For studies found eligible for inclusion, information about study design, location, and methodology; participant demographics; and any effect sizes pertaining to camouflaging and any reported outcomes was extracted and collated in Excel by the lead author. We extracted data pertaining to autistic participants only. Where needed, authors were contacted and requested to provide missing data.

Quality Appraisal

A four-item bespoke quality assessment tool (see Table 2) was devised based on Surtees et al. (2018) and Mingins et al. (2021) to assess the quality of the included studies based on any sampling, psychometric, and statistical limitations. Using a bespoke approach was preferred, over an existing "validated" risk of bias framework to best represent the risks of bias with regards to the specific research question of the review (J. P. Higgins, 2011). Working independently, the first and second authors assigned each study a score of 0 to 3 on each of the four factors, resulting in possible total scores of 0 to 12, with higher scores indicating higher study quality based on the tool. This risk of bias assessment tool was used by two independent reviewers (linear weighted Cohen's kappa: 0.84). Any discrepancies were resolved through discussion.

[INSERT TABLE 2]

Data Synthesis and Meta-Analysis Plan

The planned strategy for statistical analysis was as follows:

1. If four or more studies with extractable data (such as Pearson's correlations) on the same outcomes and the same measures were identified, it was planned to provide Pearson's meta-correlations or standardised effect sizes (Hedges' G) as appropriate.

2. R (R Core Team, 2022) would be used to synthesize the results using the Generic Inverse Variance method; test the data for normality and the applicability of Fixed and Random-Effects Models; and estimate heterogeneity using Higgins' I^2.
3. In the event of high heterogeneity ($I^2 > 75\%$), it was planned to perform leave-one-out cross validation to identify which studies might be contributing to the overall heterogeneity and if such studies displayed significant methodological differences or risk of bias, potentially resulting in their exclusion.
4. Subgroup analyses were planned if multiple analysable studies were yielded for each of the following subgroups: gender and/or sex assigned at birth as reported, formal diagnostic status, age, and study quality. Subgroup meta regressions would be performed if there were ≥10 studies with extractable data for each subgroup.

In a deviation from the pre-registered plan, results from different measures of the same constructs – (generalised) anxiety, depression, and social anxiety – were synthesised in the form of meta-correlations for each of these outcomes in order to prioritise inclusivity. Further, when multiple correlations based on unequal sample sizes were synthesised into one composite correlation, we computed the harmonic n to obtain a conservative sample size estimate to be used for the composite correlation (Xu, 2009).

Results

Characteristics of Included Studies

Studies included in the systematic review are summarised in Table 3.

[INSERT TABLE 3]

Overall, 23 studies with 7238 participants in total, of which 5897 were autistic, were included in the final review. Nineteen studies were journal articles, while two were graduate dissertations (Park, 2021; Yi, 2020). Another two of the included studies (Keating et al., 2024; Khudiakova et al., 2024) were authored by the co-authors of this review and were under peer review at the time of data analysis. The most common study design was correlational, employed by 17 studies, while the rest used regression or mediation models. All the included studies were cross-sectional. Seven studies used global online samples, while the rest were conducted in the United Kingdom, United States of America, France, the Netherlands, and Australia. One study (Yi, 2020) included participants recruited in a non-Western country (Singapore) along with a global online sample. Another study used a multi-national sample from eight different countries (Keating et al., 2024). Proportions of female autistic participants ranged from 30% to 70.27%. Eleven studies reported on non-binary participants (range: 0.57% – 31.36%). Two studies were conducted on children or adolescents (Lei et al., 2023; Ross et al., 2023), while the rest included adult samples. Mean ages of participants ranged from 9.0 to 52.3.

The overwhelming majority of the studies used the CAT-Q (Hull et al., 2019) to quantify camouflaging, while three studies (Lai et al., 2017; Ross et al., 2023; Schuck et al., 2019) used the discrepancy approach through calculating the discrepancy between a person's observable behaviour and their 'autism status' (e.g., their autistic traits and social cognition). One study (Cassidy et al., 2018) used a bespoke self-report measure of camouflaging.

Studies reported a variety of outcomes, most often anxiety, depression, social anxiety, and wellbeing. All of these were reported in at least six studies

and were included in the meta-analysis. Other outcomes, such as stress and suicidality, were reported in fewer than four studies and thus were only included in the narrative review. No studies reporting outcomes related to general or physical health, were found thus the focus here will be on mental health outcomes only. Overall, 15 studies reported synthesisable correlational data for at least one outcome.

Quality Assessment

The mean quality rating for the included studies was 9.09 out of 12.00 maximum points (range: 7.00 – 10.00, standard deviation: 0.95), indicating at least reasonably acceptable quality overall for all studies. Sample recruitment was rated as adequate to good (mean = 1.91/3.00). No study had a truly random or population-wide sample, but most studies recruited from multiple sources or clinics. Measurement of camouflaging was found to be good to excellent (mean = 2.78/3.00). Almost all studies used previously validated methods for assessing camouflaging, whether the CAT-Q or the discrepancy method. Only one study (Cassidy et al., 2018) used a bespoke measure of camouflaging and did not report any of its psychometric properties beyond internal consistency. Two studies (Hull et al., 2019; Lai et al., 2017) piloted and validated their respective measures of camouflaging. Outcome measurement was also rated as good to excellent (mean = 2.48/3.00). A significant proportion, but not all, of the studies used outcome measures previously validated for autistic samples. Statistics and sample size were rated as adequate to good (mean: 1.91/3.00). All studies used appropriate statistical methods, but none recruited enough participants to detect small effects.

Meta-Analysis

Analysis Strategy

All data analysis was performed using R (R Core Team, 2013), specifically the *meta* package (Balduzzi et al., 2019). Two sets of meta-analyses were conducted: the first meta-analysis yielded meta-correlations for the four outcomes for which there were four or more studies with extractible and synthesisable data (anxiety/generalised anxiety, social anxiety, depression, and wellbeing); the second was a series of meta-regressions predicting the effect sizes from the percentage of female/women participants, percentage of clinically diagnosed participants from the autistic subsamples, and the mean age. Both meta-analyses used a random effects model (REM) and the restricted maximum likelihood estimator (REML), assuming a non-negligible degree of between-study heterogeneity. We tested the included effect sizes for normality prior to analysis. The code and data used for analysis can be found on the Open Science Framework: https://osf.io/ajwkm/?view_only=3918d830d3db4cf2a2668aa72e0e79e9.

Meta-Analysis 1: Correlations

Since H. L. Moore et al. (2023) did not report the correlations between the total CAT-Q score and anxiety, depression, and wellbeing, we first conducted Fisher z-transformations and combined the reported correlations for each subscale to yield composite correlations between the CAT-Q scores and the three outcomes. The composite correlation for anxiety was r = .256, harmonic n = 445.42; the composite correlation for depression was r = .137, harmonic n = 445.42, while the composite correlation for wellbeing was -0.162, harmonic n = 448.33. The harmonic ns were used because the number of participants was different across the three correlations.

Shapiro-Wilk tests revealed that the study-level effect sizes for anxiety, social anxiety, and depression were approximately normally distributed (W = 0.94, p = .52 for anxiety; W = 0.98, p = .94 for social anxiety; W = 0.95, p = .59 for depression). However, the effect sizes for wellbeing were not: W = 0.74, p = .015. We thus proceeded with the REML model given its robustness to violations of normality (Joo, 2017). The quantile-quantile plots for each variable are provided in the Supplement.

Meta-correlations were calculated for the four outcomes based on the fourteen studies with 3478 autistic participants. Results of the four REMs demonstrated that there were significant moderate positive correlations between camouflaging and (generalised) anxiety (r = 0.27, 95% CI [0.22; 0.33], I^2 = 32%), social anxiety (r = 0.24, 95% CI [0.19; 0.29], I^2 = 36%), and depression (r = 0.36, 95% CI [0.27; 0.45], I^2 = 50%), respectively, and a significant small negative correlation between camouflaging and wellbeing (r = -0.13, 95% CI [-0.19; -0.08], I^2 = 21%), with relatively low levels of heterogeneity, as seen in the respective forest plots in Figure 2.

[INSERT FIGURE 2]

Meta-Analysis 2: Meta-Regressions

Given the overlapping findings of Meta-Analysis 1 with reasonably consistent correlations and low heterogeneity and the relatively low numbers of studies per individual outcome, we pooled the study-level correlations to explore potential moderators of the relationship between camouflaging and mental health outcomes. For studies reporting correlations for more than one outcome from the list, we computed the composite correlation scores using weighted mean Fisher's Z and transforming them back into Pearson's r for

analysis, thus representing the pooled proxy construct of internalising symptoms. Internalising symptoms is an umbrella term for symptoms such as anxiety and sadness experienced by an individual (Levesque, 2011), and the four constructs we included would fall under this umbrella. For studies measuring wellbeing in addition to the other outcomes, the sign for the wellbeing correlations was reversed. Since Schuck et al. (2019) did not report a correlation between camouflaging and social anxiety for their entire sample, Fisher's Z transformation was used as well. As such, there were 16 correlations, of which nine were composite, to be used in the ensuing meta-regressions. A Shapiro-Wilks test revealed that the 16 correlations were approximately normally distributed (W = 0.94, p = .34). See the Supplement for the corresponding quantile-quantile plot.

[INSERT TABLE 4]

Univariate meta-regressions were conducted to explore potential sources of heterogeneity among the pooled correlations for internalising symptoms. The restricted maximum likelihood estimate of residual heterogeneity (τ^2) was equal to 0.0054 before any of the covariates were added. The meta-regressions, summarised in Table 5, revealed that the mean age, the proportion of female participants, the proportion of clinically diagnosed rather than self-identifying participants (all in autistic subsamples), and the quality score did not significantly moderate the study effect sizes in this analysis. The bubble plots for all five meta-regressions can be found in the Supplement.

[INSERT TABLE 5]

Narrative Review

Overall, all but two studies (Arnold et al., 2023; Schuck et al., 2019) reported at least one significant association between camouflaging and negative mental health outcomes of interest. Studies that used regression models found contradictory results about camouflaging as a predictor of mental health outcomes when controlling for certain demographic variables. Milner et al. (2023b) found that camouflaging predicted reduced psychological quality of life and increased emotional difficulties, but not subjective happiness when accounting for autistic traits and sex at birth. One multi-national study reported that camouflaging was a significant predictor of anxiety, depression, and stress after controlling for age and autistic traits (Keating et al., 2024). Ross et al. (2023) additionally controlled for intelligence in a child sample and found that camouflaging remained a significant predictor of internalising symptoms. In a study using structural equation modelling, camouflaging had a significant positive effect on mental health concerns and vocational and academic achievement – the only outcome not directly related to health measured in the included studies – after controlling for autistic traits (Park, 2021). Camouflaging was also negatively associated with autistic burnout severity after controlling for autistic traits but not with current burnout (Arnold et al., 2023).

Camouflaging was positively correlated with the severity of psychological problems and the number of current and lifetime psychological diagnoses (van der Putten et al., 2023), suicidality (Cassidy et al., 2018), and stress (Keating et al., 2024). Two studies reported on self-esteem but found discrepant findings: Yi (2020) found a significant positive relationship between camouflaging and self-esteem while Evans et al. (2023) reported a significant negative relationship between the two. Camouflaging had a significant positive relationship with

borderline personality disorder symptoms in women but not men (Weiner et al., 2023). In the same study, there were no significant relationships between camouflaging and emotional dysregulation (Weiner et al., 2023). Cassidy et al. (2018) found that there was no relationship between the presence of anxiety and depression diagnoses and camouflaging.

Three studies reported separate correlations by gender for depression. In two of the studies, camouflaging had a significant positive relationship with depression in men but not women (Hull et al., 2021; Lai et al., 2017), but the opposite pattern was found in Weiner et al. (2023). As for anxiety, Hull et al. (2021) found a significant positive correlation in both men and women, while in Weiner et al. (2023), neither relationship was significant. Finally, Hull et al. (2021) reported significant positive relationships between camouflaging and social anxiety in men and women. However, in the same study, none of the relationships between camouflaging and the reported mental health outcomes were significant for non-binary participants, which could have been driven by the lack of power stemming from the small number of such participants (n = 18).

Another four studies reported separate correlations between the three subscales of the CAT-Q and at least one outcome of interest. Hull et al. (2019) and H. L. Moore et al. (2023), found the Assimilation (‘putting on an act’ in social interactions) subscale to have significant positive relationships with anxiety and depression and a negative relationship with wellbeing. However, the relationship between Assimilation and a combined anxiety/depression outcome was not significant in Yi (2020). Hull et al. (2019), Yi (2020), and Lei et al. (2023) reported significant positive correlations between Assimilation and social anxiety. However, the findings for Masking (suppressing one’s autistic traits)

and Compensation (making up for perceived social challenges) were mixed. Masking and Compensation were both significantly positively correlated with social anxiety in Hull et al. (2019), but only Compensation had a relationship with social anxiety in Lei et al. (2023) and Yi (2020). These two subscales had a significant relationship with anxiety but not wellbeing in Hull et al. (2019) and H. L. Moore et al. (2023). The latter study also found no relationship between Masking and Compensation and depression, while in Hull et al. (2019), they were both positively correlated with depression.

The potential role of autistic community connectedness in the relationship between camouflaging and mental health was investigated in two studies which found that it neither mediated (Khudiakova et al., 2024) or moderated (Cage et al., 2022) that relationship. However, McQuaid et al. (2023) found significant separate moderation effects of emotional dysregulation and perceived stress.

Discussion

Camouflaging is an umbrella term referring to conscious or unconscious impression management strategies aimed at reducing the perception of one's autistic traits in a predominantly non-autistic world (Ai et al., 2022; Hull et al., 2017). While autistic people have consistently linked camouflaging to adverse mental health outcomes (Bradley et al., 2021; Raymaker et al., 2020), quantitative research has yielded mixed findings (Hull et al., 2021; Lai et al., 2017). This systematic review aimed to address this discrepancy by summarising 23 studies examining the relationship between camouflaging and its outcomes in autistic people. Fifteen studies using correlational designs were included in two meta-analyses and showed that autistic people who

camouflaged more scored higher on measures of anxiety, depression, and social anxiety. Autistic people who camouflaged more also reported reduced psychological wellbeing. Meta-regression analyses revealed that the effect sizes in individual studies were not moderated by the quality scores, participants' mean age, and proportions of female and clinically diagnosed participants. Overall, this review demonstrates a significant correlational association between camouflaging and worsened mental health outcomes.

Camouflaging, Measurement, and Mental Health

In this review, almost all studies using self-report measures (the CAT-Q in all but one case) reported at least one significant association between camouflaging and symptoms of mental health conditions. However, the three studies using the discrepancy approach were far less conclusive in their findings, with one study not finding a significant relationship (Schuck et al., 2019) while others reported a significant relationship (Ross et al., 2023) or mixed findings (Lai et al., 2017). This inconsistency could be due to these two approaches measuring distinct constructs: Cook et al. (2021) argue for the distinction between camouflaging intent, as measured by self-report scales such as the CAT-Q, specifically the Assimilation subscale, and camouflaging 'efficacy' minimising the perception of one's autistic traits based on observable behaviour, which may be captured better by the discrepancy approaches. Indeed, self-report CAT-Q scores have been found to correlate only weakly with camouflaging scores calculated using the discrepancy approach, suggesting that the two are distinct albeit related constructs (Hollocks et al., 2023). As such, it is possible that it is the intent to camouflage that may be one of the major drivers of adverse mental health outcomes, possibly through the fatigue

associated with the efforts to camouflage (Bargiela et al., 2016), which is corroborated by our findings that the Assimilation subscale of the CAT-Q had more consistent relationships with adverse mental health outcomes than the other two subscales. However, causality or directionality cannot be established statistically without longitudinal studies. It is possible that some of the items in Assimilation, such as avoiding interacting with others in social situations, may conceptually overlap with social anxiety safety behaviours as measured by psychometric instruments such as the Social Phobia Inventory (Connor et al., 2000; Lei et al., 2023), potentially accounting for the high correlations. Nonetheless, the finding that Assimilation scores are consistently related to poor mental health outcomes should be replicated and investigated further.

Why Is Camouflaging Related to Poorer Mental Health?

Despite certain inconsistencies in the literature, this meta-analysis established that camouflaging had a significant association with adverse mental health outcomes. Insights from previous research may help understand why. In qualitative studies, autistic people report that camouflaging feels exhausting, potentially leading to burnout and suicidal ideation (Bradley et al., 2021; Miller et al., 2021; Raymaker et al., 2020). Some have attributed the perceived mental health effects of camouflaging to feeling inauthentic and pressured to ‘perform’ neurotypically, leading to a disconnect between what one sees as their real self and the way they feel forced to present themselves in interpersonal interactions (Miller et al., 2021; Seers & Hogg, 2023). Indeed, autistic people who camouflage more tend to score lower on measures of perceived authenticity (Evans et al., 2023), suggesting that reduced authenticity could be one of the

factors relating camouflaging to poor mental health, although more research is needed.

The directionality and potential causality of the relationship between mental health and camouflaging are unclear. While it is possible that camouflaging may be triggered by feelings of alienation and isolation stemming from social rejection due to one's atypical behaviours, the reverse is also possible, with camouflaging being driven by those feelings and a desire to fit in (J. S. Beck et al., 2020). Besides, relationships between camouflaging and mental health challenges identified in cross-sectional studies are difficult to interpret from a causal standpoint, as some camouflaging behaviours may mimic safety behaviours stemming from anxiety; in other words, it is possible that autistic people who are already predisposed to anxiety are more likely to engage in at least some aspects of camouflaging (Williams, 2022). From a more longitudinal perspective, it is possible that the drivers of camouflaging, such as social rejection, may eventually become its outcomes, making causal relationships even harder to identify (Ai et al., 2022). Despite emerging evidence showing that camouflaging is associated with certain positive outcomes, such as vocational and educational achievements (Park, 2021) due to its perceived utility in navigating a predominantly neurotypical world (Radulski, 2022), the link between camouflaging and poor mental health is underscored in this review. More research is needed to investigate any other potential positive outcomes of camouflaging in order to gain a more complete picture.

As previously discussed, camouflaging is frequently understood as a response to the pervasive anti-autism stigma in society, which could be a key

element in the relationship between camouflaging and mental health at least for some autistic people. For instance, in autistic people, both the perceived need to camouflage and symptoms of social anxiety could be driven by stigma experience, in which case camouflaging would be a sensible response to such experiences (Pearson & Rose, 2021). This aligns with research suggesting that while behaviours resembling camouflaging could be found in neurotypical people, one of the core motivations for camouflaging in autistic people is avoiding anti-autism stigma (Bernardin et al., 2021). Besides, one of the studies included in the review found that stigma experience mediated the relationship between camouflaging and mental health in autistic adults: those who camouflaged more experienced more stigma and poor mental health outcomes (Khudiakova et al., 2024). As such, the role of stigma as a potential factor in that relationship should be followed up on in future research examining social factors affecting wellbeing in autistic people.

Gender, Camouflaging, and Mental Wellbeing

This review did not find a relationship between the proportion of female participants and effect sizes in the studies included in the meta-analysis. It is noteworthy that in several studies, such relationships differed significantly between men and women, with some correlations being significant in one gender group but not the other but with no consistent pattern (Hull et al., 2021; Lai et al., 2017; Weiner et al., 2023). Such findings highlight the importance of conducting a meta-analysis, in synthesising seemingly contradictory results.

Notwithstanding those results, it is important to note that the academic study of camouflaging emerged from research into the experiences of autistic women, some of whom identified a causal link between camouflaging and

mental health (e.g., Bargiela et al., 2016; Hull et al., 2017). There is some evidence that autistic women score higher on measures of camouflaging (Hull et al., 2020; McQuaid et al., 2022) which could be explained, in part, through the lens of gendered expectations in society and the pressure to 'perform' hegemonic femininity (I. Moore et al., 2022). However, camouflaging should not be conceptualised as a 'female experience' to avoid implying that only women are able or motivated to camouflage and hence reinforcing gender stereotypes and overgeneralisations (I. Moore et al., 2022). While research suggests that autistic women are more likely to experience adverse mental health outcomes than autistic men (Martini et al., 2022), which could theoretically be attributed to camouflaging, this review suggests that there is not enough evidence to make conclusions about differential outcomes of camouflaging in autistic people across genders. Moreover, in this review, there were very few studies reporting on nonbinary or transgender participants separately, so this review cannot draw any conclusions about gender diverse autistic people aside from recommending further research to report correlations separated by gender, including non-cisgender identities.

Limitations

There was sufficient literature to produce two meta-analyses with four meta-correlations and another four meta-regressions, in addition to a narrative review, yet there are several important limitations to consider. Studies measuring generalised anxiety, social anxiety, and depression used a diverse array of measures, making between-studies comparisons challenging. However, the psychometric diversity did not translate to high levels of statistical heterogeneity between studies, and most correlations for these outcomes were

in the low to moderate range, suggesting that the findings were arguably similar despite the use of different measures. All studies included in the calculation of a meta-correlation for wellbeing used the same measure and all but one of the reported correlations were relatively close to each other. Even so, whilst psychometric heterogeneity remains an issue in the field, this review underscores that camouflaging tends to have a negative relationship with mental health regardless of the measure used.

The overwhelming majority of the studies included in this review used the CAT-Q as a quantitative measure of camouflaging in autistic adults, with very few studies reporting score breakdowns by subscale or their correlations with other variables of interest. While the initial findings that the subscales have different relationships with different outcomes are promising, especially when considering the distinction between the intent to camouflage and the observable behaviours constituting camouflaging, it remains to be studied if the subscales are reflective of the difference between camouflaging intentions and outcomes which could be one of the explanations for the relationship between camouflaging and adverse mental health outcomes.

The lack of evidence for the psychometric properties of the measures included in the studies in the autistic population could call into question the conclusions of this review. Despite the widespread use of the CAT-Q, there is still limited evidence for its psychometric validity (Hannon et al., 2023), and many of the included studies did not use measures of mental health outcomes sufficiently validated for use in autistic people. The studies by van der Putten et al. (2023), Keating et al. (2024), and Oshima et al. (2024) also used translated versions of the CAT-Q; whilst those versions have been validated, the

assumptions that all of the items on the CAT-Q are culturally relevant and the scores on the translated versions can be directly compared to the original English scale remain to be tested. Moreover, the CAT-Q may be limited in identifying unconscious engagement in camouflaging (Cook et al., 2021), which may have a different relationship with mental health outcomes compared to self-identified camouflaging intent or consciously used strategies. As such, the conclusions about the construct of camouflaging are limited to the portion of the umbrella term that is measured by the CAT-Q.

Despite this review identifying a link between camouflaging and adverse mental health, it is important to consider what is *not* measured in the studies included in the review. None of the studies reported outcomes related to physical health, and only one study investigated autistic burnout (Arnold et al., 2023). Only two studies (Lei et al., 2023; Ross et al., 2023) included information on participants' intellectual ability. Coincidentally, these two studies were conducted on children. As such, there is not enough evidence to draw any conclusions about the potential role of intelligence in the relationship between camouflaging and mental health, especially in adults. In the included studies, it was unclear whether participants with intellectual disabilities were excluded deliberately or through self-selection. It is thus unknown what camouflaging may look like in autistic people with an intellectual disability and whether the findings identified in this review would be applicable to that underserved population.

Research Implications

Researchers should strive to establish the nature of the complex relationship between camouflaging and mental health through considering its directionality and potential mediators and moderators. For instance, perceived

autism acceptance (Perry et al., 2022), whether in one's immediate social networks or society as a whole, could act as a moderator of that relationship – it is possible that those in more accepting environments may maintain some level of camouflaging, but the lower perceived costs of not camouflaging might result in them experiencing less anxiety. Further, while this review did not find a significant moderating effect of the proportion of female participants on the strength of the relationships between camouflaging and mental health across studies, the potential moderating effects of gender should also be investigated, especially given the inconsistencies identified in this review. Future studies should consider the role of current gender identity and the effects of gender-based socialisation throughout development to determine if the relationship between camouflaging and mental health manifests differently across genders. Alternatively, the possibility of shared causal mechanisms driving both camouflaging and mental health challenges, such as low self-esteem and experienced stigma and rejection (Chapman et al., 2022), should also be explored quantitatively.

Future studies should also address issues surrounding the measurement of both camouflaging and mental health outcomes in the autistic population. Psychometric validation of extant measures, including the CAT-Q, in samples reflecting the diversity of autistic people should continue, with special attention paid to racial, geographical, gender, and socioeconomic diversity. When it comes to autistic people with intellectual disability, extant measures need to be validated or new appropriate measures should be developed if needed so that any relationships between camouflaging and mental health could be identified in that population. Moreover, the causality and directionality of that relationship

should be investigated through longitudinal designs, alongside any potential moderators or mediators, as discussed above. The finding regarding the intent to camouflage (as measured by the Assimilation subscale of the CAT-Q) potentially having a stronger relationship with adverse mental health outcomes than actual camouflaging behaviours should be followed up on in both quantitative and qualitative studies.

Conclusion

This systematic review and meta-analysis of a total of 23 studies found a significant correlational relationship between camouflaging and adverse mental health outcomes (increased anxiety, social anxiety, and depression and poorer wellbeing) in autistic people. This relationship did not depend on the mean age of autistic participants, percentage of female and clinically diagnosed participants, and the assessed quality of the studies. However, these results cannot establish causality, and existing measures used in the included studies may lack sufficient psychometric evidence for their use in autistic people from diverse backgrounds. Further work is needed to clarify the precise mechanisms of that relationship and its applicability to the broader autistic community.

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Figure Caption Sheet

Figure 1. PRISMA flow chart

Figure 2. Forest plot of the random effects models of Meta-Analysis 1 (anxiety, ordered by effect size)

Figure 3. Forest plot of the random effects models of Meta-Analysis 1 (depression, ordered by effect size)

Figure 4. Forest plot of the random effects models of Meta-Analysis 1 (social anxiety, ordered by effect size)

Figure 5. Forest plot of the random effects models of Meta-Analysis 1 (wellbeing, ordered by effect size)

Tables

Table 1

Inclusion/Exclusion Criteria

Inclusion criteria	Exclusion criteria
Camouflaging is measured quantitatively using psychometric scales.	Camouflaging is not measured quantitatively using psychometric scales.
Any health (physical or mental) factors or outcomes are measured using psychometric scales; potential examples include but are not limited to anxiety, depression, suicidality, and psychological distress.	Reported outcomes are not measured quantitatively using psychometric scales.
A quantitative relationship between camouflaging and any reported outcomes is reported in the article. If not, open data is available for those relationships to be calculated.	Camouflaging and any reported outcomes are not related statistically. No open data is available to calculate those relationships.
	Qualitative studies Single case or case series designs Treatment trials
Published in English or with an English translation	No English translation available
The sample includes autistic people (self-identified or diagnosed using any recognised criteria). If non-autistic participants are included in the study, any relationships between camouflaging and outcomes are reported separately for the autistic subsample. If not, open data is available for them to be calculated.	Non-autistic sample, or outcomes are reported together for autistic and non-autistic people. No open data is available to quantify the relationship between camouflaging and any outcomes specifically for the autistic subsample.
	Duplicate data Full-text unavailable Conference abstracts, conference papers, reviews, editorials, or book chapters

Table 2

Bespoke Quality Assessment Tool

	Poor (0)	Adequate (1)	Good (2)	Excellent (3)
Sample recruitment	Recruitment methods not specified.	Single restricted or non-random sample (e.g., previous studies; single specialist clinics; single	Multiple restricted or non-random samples (e.g., multi-region specialist clinics; multi-	Random or population-wide sample.

		regional samples).	regional samples).	
Measurement of camouflaging	Measures not fit for purpose.	Bespoke measures without reported psychometrics or standardised measures with poor psychometric properties in the target population(s).	Bespoke measures with reported psychometrics or standardised measures not validated for use in the target population(s)	Standardised measures validated for use in the target population(s).
Measurement of outcomes	Measures not fit for purpose.	Bespoke measures without reported psychometrics or standardised measures with poor psychometric properties in the target population(s).	Bespoke measures with reported psychometrics or standardised measures not validated for use in the target population(s).	Standardised measures validated for use in the target population(s).
Use of statistics and sample size.	Inadequate descriptive statistics. Statistical methods inappropriate for the research question. Insufficient sample size.	Adequate descriptive statistics. Statistical methods appropriate for the research question. Sample size for reported correlations sufficient to detect a large effect size at p = .05 and a power of .95 (n > 16).	Adequate descriptive statistics. Statistical methods appropriate for the research question. Sample size for reported correlations sufficient to detect a moderate effect size at p = .05 and a power of .95 (n > 70).	Adequate descriptive statistics. Statistical methods appropriate for the research question. Sample size for reported correlations sufficient to detect a small effect size at p = .05 and a power of .95 (n > 1288).

Note. Sample size calculations were conducted in G*Power (Faul et al., 2007).

Table 3
Study Characteristics and Key Findings

Author, publication year	Study characteristics	Participants	Measures	Results
Arnold et al., 2023	**Type**: Journal article. **Design:** Cross-sectional, correlational, regression. **Data collection:** Self-report questionnaires. **Location:** Australia. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 141 **Diagnostic Status:** 100% clinically diagnosed autistic. **Age:** M **=** 40.2, SD = 10.8. **Gender/sex:** 16% male, 64% female, 20% other.	**Camouflaging:** CAT-Q **Outcomes of interest:** autistic burnout severity (ABSI[a]), current burnout symptoms (AAMB[b]), depression (PHQ-9[c]).	Camouflaging significantly negatively correlated with autistic burnout severity and current burnout symptoms and was a significant negative predictor of autistic burnout severity but not of current burnout when controlling for various autistic traits. Camouflaging did not significantly correlate with depression.

Bowri et al., 2021	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 237 **Diagnostic Status:** 100% clinically diagnosed autistic. **Age:** M **=** 41.92, SD = 13.3. **Gender/sex:** 35.0% male, 58.6% female, 6.3% other/undisclosed.	**Camouflaging:** CAT-Q. **Outcomes of interest:** alcohol use (AUDIT[d]), depression (PHQ-9[c]), generalised anxiety (GAD-7[e]), social anxiety (LSAS[f]), mental wellbeing (WEMWBS[g]).	Camouflaging had significant positive relationships with symptoms of depression, generalised anxiety, and social anxiety, but not alcohol use or wellbeing.
Cage et al., 2022	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 196 **Diagnostic Status:** 63.3% clinically diagnosed autistic, 31.7% self-identified. **Age:** M = 32.47, SD = 11.15. **Gender/sex:** 12.8% male, 63.3% female, 23.9% nonbinary/other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** mental wellbeing (WEMWBS[g]).	Camouflaging was significantly negatively correlated with mental wellbeing. Autistic community connectedness was not a significant moderator of that relationship.
Cassidy et al., 2018	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires.	**N:** 333 **Diagnostic Status:** 49.25% clinically diagnosed autistic, 50.75% non-autistic.	**Camouflaging:** bespoke **Outcomes of interest:** suicidality (SBQ-R[h]), non-suicidal self-injury (NSSI-AT[i]), depression	In autistic participants, camouflaging significantly positively correlated with suicidal behaviour

	Location: United Kingdom. **QA score out of 12:** 7 (Sample: 2, Camouflaging: 1, Outcomes: 2, Statistics: 2).	**Age (autistic):** M = 39.93, SD not reported. **Gender/sex (autistic):** 39.63% male, 60.37% female.	diagnosis, anxiety diagnosis.	but not non-suicidal self-injury or the presence of diagnosed depression or anxiety.
Evans et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** United States of America. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 342 **Diagnostic status:** 57.0% clinically diagnosed autistic, 42.0% self-diagnosed autistic. **Age:** M = 38.46, SD = 11.41. **Gender:** 7.92% cisgender men, 60.72% cisgender women, 31.36% nonbinary and other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** depression (BDI-II[j]), generalised anxiety (GAD-7[e]), self-esteem (RSES[k]).	Camouflaging was positively correlated with the severity of generalised anxiety and depressive symptoms and negatively associated with self-esteem.
Howard & Sedgewick, 2019	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** United Kingdom. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3,	**N:** 245 **Diagnostic status:** 83.67% clinically diagnosed autistic, 16.33% self-diagnosed autistic. **Age:** M = 40.44, SD = 13.14. **Gender:** 61.63% women, 24.90% men,	**Camouflaging:** CAT-Q. **Outcomes of interest:** generalised anxiety (GAD-7[e]).	Camouflaging was significantly positively correlated with generalised anxiety symptoms (calculated using the publicly available data on the Open Science Framework).

	Outcomes: 3, Statistics: 2).	14.69% nonbinary/transgender.		
Hull et al., 2019	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 2, Outcomes: 3, Statistics: 2).	**N:** 832 **Diagnostic status:** 42.55% clinically diagnosed autistic, 57.45% non-autistic. **Age (autistic):** M = 41.93, SD = 13.55. **Gender (autistic):** 30.51% male, 50.56% female, 4.80% other, 14.12% not stated.	**Camouflaging:** CAT-Q. **Outcomes of interest:** social anxiety (LSAS[f]), generalised anxiety (GAD-7[e]), depression (PHQ-9[c]), wellbeing (WEMWBS[g]).	In the autistic sample, camouflaging was significantly positively correlated with social anxiety, depression, and generalised anxiety, and significantly negatively correlated with wellbeing. The Compensation subscale was significantly positively correlated with social anxiety, depression, and generalised anxiety but not wellbeing. The same pattern was observed for Masking. Assimilation was significantly positively

				correlated with social anxiety, depression, and generalised anxiety, and significantly negatively correlated with wellbeing.
Hull et al., 2021	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 305 **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M = 41.90, SD not reported. **Gender:** 34.10% cis- and transgender men, 59.34% cis- and transgender women, 5.90% non-binary.	**Camouflaging:** CAT-Q. **Outcomes of interest:** social anxiety (LSAS[f]), generalised anxiety (GAD-7[e]), depression (PHQ-9[c]).	Across the entire sample, camouflaging was positively correlated with symptoms of social anxiety, generalised anxiety, and depression. In women, camouflaging was significantly positively correlated with social and generalised anxiety but not depression. In men, all three relationships were positive and significant. In non-binary participants, none of these correlations were significant.

Keating et al., 2024	**Type:** Journal article. **Design:** Cross-sectional, regression. **Data collection:** Self-report questionnaires. **Location:** Australia, Belgium, Canada, Japan, New Zealand, South Africa, United Kingdom, United States of America. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 306 **Diagnostic Status:** 100% clinically diagnosed autistic. **Age:** 30.72, SD = 9.15. **Gender:** 42.81% male, 43.46% female, 13.73% other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** depression, anxiety, stress (DASS-21[l]).	After adjusting for age and autistic traits, camouflaged predicted greater anxiety, depression, and stress. Camouflaging was positively correlated with symptoms of anxiety, depression, and stress (calculated separately using data provided by the authors).
Khudiakova et al., 2024	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 409 **Diagnostic status:** 34.96% clinically diagnosed autistic, 65.04% self-diagnosed. **Age:** M = 31.78, SD = 11.00. **Gender:** 42.05% cis- and transgender men, 45.48% cis- and transgender women, 12.47% non-binary and multiple.	**Camouflaging:** CAT-Q. **Outcomes of interest:** depression (CES-D[m]).	Camouflaging was positively correlated with depressive symptoms. This relationship was mediated by stigma experience but not autistic community connectedness.

Lai et al., 2017	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires, standardised tests, neuroimaging, diagnostic observations. **Location:** United Kingdom. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 2, Outcomes: 3, Statistics: 2).	**N:** 60 **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M_{men} = 27.2, SD_{men} = 7.3; M_{women} = 27.8, SD_{women} = 7.6. **Gender/sex:** 50.00% men, 50.00% women.	**Camouflaging:** discrepancy between scores on the ADOS-2[o] and AQ[p] and RMET[q] scores. **Outcomes of interest:** depression (BDI[r]), anxiety (BAI[s]).	Across the entire sample, camouflaging was positively correlated with symptoms of depression but not anxiety. The positive correlation between camouflaging and depression was significant in males but not females.
Lei et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** United Kingdom. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 115 **Diagnostic status:** 53.04% clinically diagnosed autistic, 46.96% non-autistic. **Age (autistic):** M = 16.34, SD = 1.69. **Gender (autistic):** 59.02% female, 27.87% male, 9.84% other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** social anxiety (SPIN[t]).	In the autistic subgroup, camouflaging was significantly correlated with social anxiety symptoms. The Compensation and Assimilation subscales had significant positive relationships with social anxiety symptoms but the relationship between Masking and social

				anxiety was not significant. This data was obtained through correspondence with the authors.
McQuaid et al., 2023	**Type:** Journal article. **Design:** Mediation, regression. **Data collection:** Self-report questionnaires. **Location:** United States. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 787 **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M = 40.16, SD = 13.68. **Sex at birth:** 59.8% female, 40.2% male. **Gender:** 9.9% gender diverse, 90.1% cisgender.	**Camouflaging:** CAT-Q. **Outcomes of interest:** depression (PHQ-9[c]), anxiety (GAD-7[e]).	In separate models with emotional regulation challenges and stress as mediators, camouflaging had a significant direct effect on depression and anxiety independent of sex at birth. Emotional regulation challenges and perceived stress significantly separately mediated the relationship between camouflaging and depression and anxiety.

Milner et al., 2023b	**Type:** Journal article. **Design:** Cross-sectional, regression. **Data collection:** Self-report questionnaires. **Location:** United Kingdom. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 435 **Diagnostic status:** 17.93% clinically diagnosed autistic, 40.70% not diagnosed but high autistic traits, 41.38% non-autistic. **Age (autistic):** M = 22.40, SD not reported. **Sex at birth (autistic):** 39.77% male, 60.23% female.	**Camouflaging:** CAT-Q. **Outcomes of interest:** subjective happiness (SHS[u]) quality of life (WHOQOL Bref[v]), emotional difficulties (SDQ[w]).	In the diagnosed autistic subgroup, camouflaging predicted decreased psychological quality of life and increased emotional difficulties but not subjective happiness after controlling for autistic traits and sex.
H. L. Moore et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** United Kingdom. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 627 (not all used in correlational analyses) **Diagnostic status:** 59.6% clinically diagnosed autistic, 40.6% self-diagnosed autistic. **Age:** M = 34.15, SD = 12.96 **Gender:** 19.3% men, 52.0% women, 28.7% nonbinary/other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** anxiety (HADS[x]), depression (HADS[x]), suicidality (SBQ-ASC[y]), wellbeing (WEMWBS[g]).	The Compensation subscale of the CAT-Q was positively correlated with anxiety and suicidality, but not depression or wellbeing. The Masking subscale of the CAT-Q was positively correlated with anxiety but not depression, suicidality, or wellbeing. The Assimilation subscale was positively

				correlated with anxiety, depression, and suicidality and negatively correlated with wellbeing.
Oshima et al., 2024	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Japan. **QA score out of 12:** 10 (Sample: 2, Camouflaging: 3, Outcomes: 3, Statistics: 2).	**N:** 210 (also used UK data from Hull et al. [2021] for comparison) **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M = 37.61, SD = 10.31. **Gender/sex:** 41.34% female, 59.23% male.	**Camouflaging:** CAT-Q (Japanese). **Outcomes of interest:** depression (PHQ-9[c]), generalised anxiety (GAD-7[e]), social anxiety (LSAS[f]), mental wellbeing (WEMWBS[g]).	Camouflaging was significantly positively correlated with anxiety, depression, and social anxiety. There was no significant relationship between camouflaging and wellbeing.
Park, 2021	**Type:** Doctoral dissertation **Design:** Cross-sectional, structural equation modelling. **Data collection:** Self-report questionnaires. **Location:** United States. **QA score out of 12:** 9 (Sample: 2,	**N:** 148 **Diagnostic status:** all presumed autistic; 79.73% with a clinical diagnosis confirmed by researchers. **Age:** M and SD not reported; 46.62% 18 to 24, 30.41% 25 to 30; 22.03% over 30.	**Camouflaging:** CAT-Q. **Outcomes of interest:** Mental health concerns (PROMIS Anxiety and Depression Scales[z] and IUS-12[aa] combined), vocational and academic achievement (bespoke).	In a structural equation model controlling for autistic traits, camouflaging had a significant positive direct effect on mental health concerns and vocational and academic achievement.

	Camouflaging: 3, Outcomes: 2, Statistics: 2).	**Sex at birth:** 47.30% female, 52.02% male, 0.68% not reported.		
Perry et al., 2022	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 223 **Diagnostic status:** 52.02% clinically diagnosed autistic, 47.98% self-diagnosed autistic. **Age:** M = 34.19, SD = 11.00 **Gender:** 58.3% female, 23.8% male, 17.5% nonbinary.	**Camouflaging:** CAT-Q **Outcomes of interest:** mental wellbeing (WEMWBS[g])	Camouflaging was significantly negatively correlated with mental wellbeing.
Ross et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, regression. **Data collection:** Diagnostic observations, parent-report questionnaires, standardised tests. **Location:** Australia. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 734 **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M = 9.0, SD = 3.7. **Sex at birth:** 51.19% male, 48.91 % female	**Camouflaging:** discrepancy between ADOS[o] scores and scores on the SRS[ab]. **Outcomes of interest:** internalising symptoms (the internalising symptoms subscale on the CBCL[ac]).	After controlling for gender, age, and IQ, camouflaging significantly predicted internalising symptoms.

Schuck et al., 2019	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** United States of America. **QA score out of 12:** 7 (Sample: 1, Camouflaging: 3, Outcomes: 2, Statistics: 1).	**N:** 62 **Diagnostic status:** 45.16% clinically diagnosed autistic, 54.84% non-autistic. **Age (autistic):** M_m = 23, SD_m = 4.09; M_f = 33, SD_f = 9.72. **Gender/sex (autistic):** 39.29% female, 60.71% male.	**Camouflaging:** discrepancy between scores on the ADOS[o] and scores on the AQ[p]. **Outcomes of interest:** social anxiety (SPAI[ad]).	In the autistic subgroup, camouflaging did not correlate with social anxiety symptoms in either males or females.
van der Putten et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires, diagnostic interviews. **Location:** The Netherlands. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 352 **Diagnostic status:** 100% clinically diagnosed autistic. **Age:** M = 52.3, SD = 12.5. **Sex at birth:** 51.99% male, 47.44% female, 0.57% other.	**Camouflaging:** CAT-Q (Dutch). **Outcomes of interest:** psychological problems (SCL-90-R[ae]), psychiatric diagnosis (MINI-plus[af]; for a subsample).	Camouflaging was positively correlated with the severity of psychological problems in the entire sample. For the subsample administered the MINI-plus (N = 161), camouflaging was positively correlated with the number of current and lifetime mental health diagnoses.
Weiner et al., 2023	**Type:** Journal article. **Design:** Cross-sectional, correlational.	**N:** 74 **Diagnostic status:** 67.52% clinically	**Camouflaging:** CAT-Q. **Outcomes of interest:** borderline symptoms	In autistic women, camouflaging was significantly positively

	Data collection: Self-report questionnaires. **Location:** France. **QA score out of 12:** 7 (Sample: 1, Camouflaging: 3, Outcomes: 2, Statistics: 1).	diagnosed autistic, 32.43% non-autistic with borderline personality disorder. **Age (autistic):** M = 30.44, SD not reported. **Gender/sex (autistic):** 56.00% women, 44.00% men.	(BSL[ag]), emotional dysregulation (DERS[ah]), depression (BDI[r]), anxiety (BAI[s]).	correlated with borderline and depressive symptoms but not emotional dysregulation or anxiety. In autistic men, none of the relationships were significant.
Yi, 2020	**Type:** Master's dissertation. **Design:** Cross-sectional, correlational. **Data collection:** Self-report questionnaires. **Location:** Singapore, additional global online sample. **QA score out of 12:** 9 (Sample: 2, Camouflaging: 3, Outcomes: 2, Statistics: 2).	**N:** 311 **Diagnostic status:** 32.91% clinically diagnosed autistic, 67.09% non-autistic. **Age (autistic):** M = 35.09, SD = 11.27. **Gender (autistic):** 62% male, 30% female, 8 % other.	**Camouflaging:** CAT-Q. **Outcomes of interest:** depression/anxiety (combined PHQ-9[c] and GAD-7[e]), social anxiety (combined SIAS-6[ai] and SPS-6[aj]), self-esteem (RSES[k]).	In the autistic participants, total scores on the CAT-Q were significantly positively correlated with depression/anxiety, social anxiety, and self-esteem. The Compensation subscale had a significant positive relationship with social anxiety but not depression/anxiety or self-esteem. The Masking subscale did not significantly correlate with any of the variables. The

													Assimilation subscale did not significantly correlate with self-esteem or depression/anxiety but had a significant positive relationship with social anxiety. This study was not included in the meta-analyses due to its use of Spearman's rho.

Note. Gender refers to self-identified gender identity which may or may not correspond to one's sex assigned at birth. We use the language used in the included studies and use the term "gender/sex" where unclear. M: mean. SD: standard deviation. NR: not reported. In the QA, 0 refers to a rating of 'Poor', 1 refers to a rating of 'Adequate', 2 refers to a rating of 'Good,' and 3 refers to a rating of 'Excellent.'

[a] ABSI: Autistic Burnout Severity Index (Arnold et al., 2023); [b] AASPIRE Autistic Burnout Measure (developed by Arnold et al., 2023 based on Raymaker et al., 2020); [c] PHQ-9: Patient Health Questionnaire (Kroenke et al., 2001); [d] AUDIT: Alcohol Use Disorders Identification Test (Saunders et al., 1993); [e] GAD-7 (Spitzer et al., 2006); [f] LSAS: Liebowitz Social Anxiety Scale (Liebowitz, 1987); [g] WEMWBS: Warwick-Edinburgh Mental Well-Being Scale (Tennant et al., 2007); [h] SBQ-R: Suicidal Behaviours Questionnaire-Revised (Osman et al., 2001); [i] NSSI-AT: Non-Suicidal Self-Injury–Assessment Tool (Whitlock et al., 2014); [j] BDI-II: Beck Depression Inventory-II (A. T. Beck et al., 1996); [k] RSES: Rosenberg Self-Esteem Scale (Rosenberg, 1965); [l] DASS-21: Depression Anxiety and Stress Scales (Lovibond & Lovibond, 1995); [m] CES-D: Center for Epidemiological Studies Depression Scale (Lewinsohn et al., 1997); [o] ADOS-2: Autism Diagnostic Observation Schedule, 2nd Edition (Lord et al., 2012); [p] AQ: Autism Quotient (Baron-Cohen et al., 2001b); [q] RMET: Reading the Mind in the Eyes Test (Baron-Cohen et al., 2001a); [r] BDI: Beck Depression Inventory (A. T. Beck et al., 1961); [s] BAI: Beck Anxiety Inventory (A. T. Beck et al., 1988); [t] SPIN: Social Phobia Inventory (Connor et al., 2000); [u] SHS: Subjective Happiness Scale (Lyubomirsky & Lepper, 1999); [v] WHOQOL Bref: World Health Organization Quality of Life Scale (WHOQOL Group, 1994); [w] SDQ: Strengths and Difficulties Questionnaire (Goodman, 1997); [x] HADS: Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983); [y] SBQ-ASC: Suicidal Behaviours Questionnaire-Autism Spectrum Conditions

(Cassidy et al., 2021); [z] PROMIS: Patient-Reported Outcomes Measurement Information System (Cella et al., 2010); [aa] IUS-12: Intolerance of Uncertainty Scale-12 (Carleton et al., 2007); [ab] SRS: Social Responsiveness Scale (Constantino & Gruber, 2012); [ac] CBCL: Child Behavior Checklist (Achenbach, 1999); [ad] SPAI: Social Phobia and Anxiety Inventory (Turner et al., 1989); [ae] SCL-90-R: Symptoms Checklist-90-Revised (Derogatis, 1994); [af] MINI-plus: Mini International Neuropsychiatric Interview Plus (Sheehan et al., 1998); [ag] BSL Borderline Symptom List-23 (Bohus et al., 2009); [ah] DERS: Differences in Emotional Regulation Scale (Gratz & Roemer, 2004); [ai] SIAS-6: Social Interaction Anxiety Scale (Peters et al., 2012); [aj] SPS-6: Social Phobia Scale (Peters et al., 2012)

Table 4

Composite Correlations for Studies Measuring More Than One Outcome Included in the Meta Analysis

Study	Outcomes measured	N	Composite correlation
Evans et al. (2023)	Anxiety, depression	324	.345
Hull et al. (2019)	Anxiety, depression, social anxiety, wellbeing	306	.311
Hull et al. (2021)	Anxiety, depression, social anxiety	305	.307
Keating et al. (2024)	Anxiety, depression	306	.270
Lai et al. (2017)	Anxiety, depression	60	.251
H. L. Moore et al. (2023)	Anxiety, depression, wellbeing	446 (harmonic)	.187
Oshima et al. (2024)	Anxiety, depression, social anxiety, wellbeing	210	.132
Schuck et al. (2019)	Social anxiety (broken down by gender)	28	.319
Weiner et al. (2023)	Anxiety, depression	50	.243

Table 5

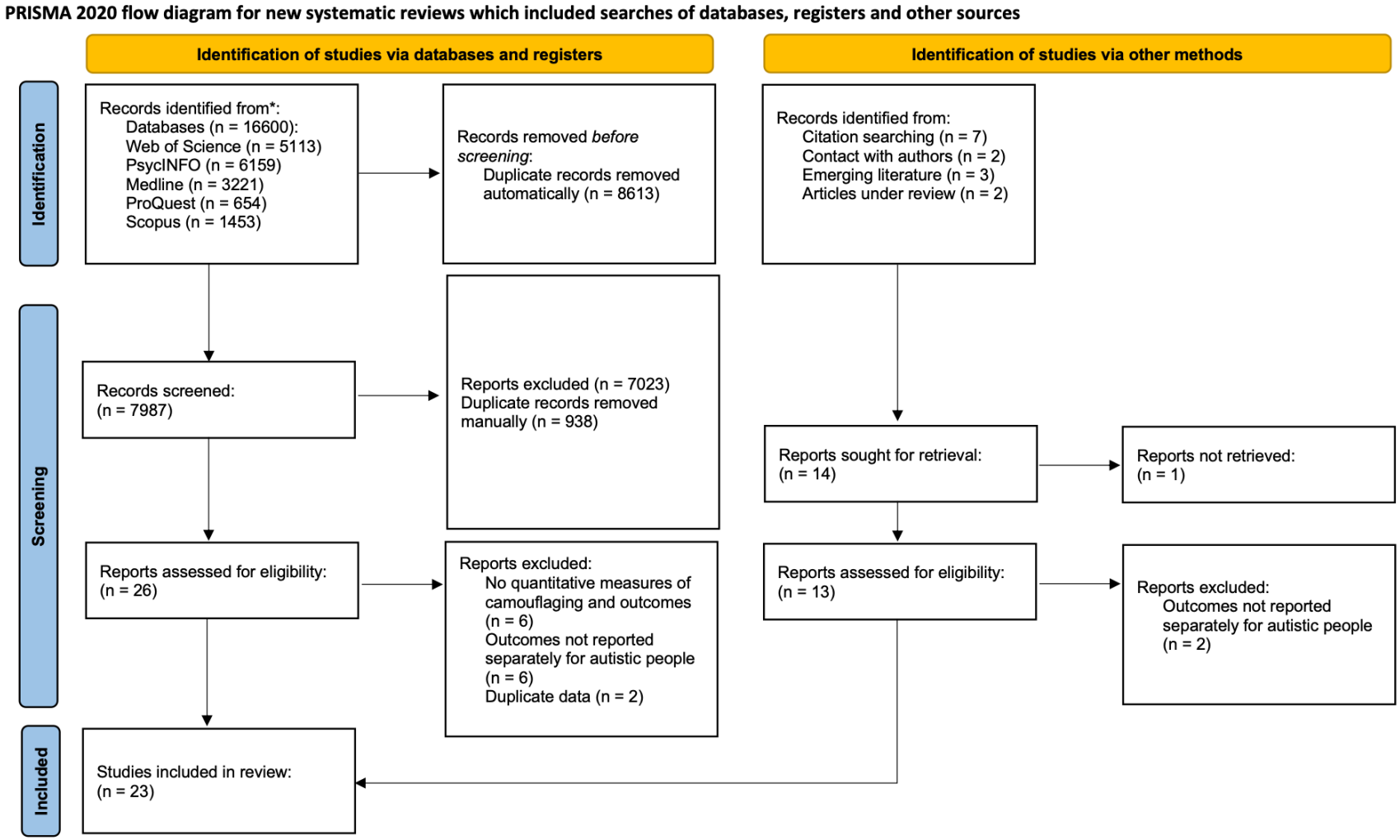
Univariate Meta-Regression Analysis of Demographic Variables and Study Characteristics on the Relationship Between Camouflaging and Mental Health in Autistic People

Variables	Number of studies	Coefficient (SE)	*p*-value	τ^2
Proportion of female participants	16	-.072 (0.374)	.847	0.0062
Proportion of clinically diagnosed participants	16	-0.006 (0.118)	.962	0.0064
Quality score	16	-0.051 (0.039)	.896	0.0060
Mean age	16	-0.006 (0.038)	.088	0.0059

Note. SE: standard error.

Figure 1

PRISMA Flow Chart



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Figure 2

Forest Plot of the Random Effects Model of Meta-Analysis 1 (Anxiety, Ordered by Effect Size)

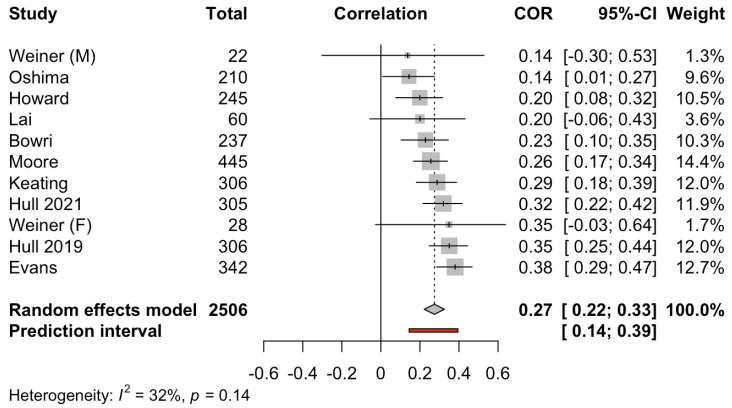


Figure 3

Forest Plot of the Random Effects Model of Meta-Analysis 1 (Depression, Ordered by Effect Size)

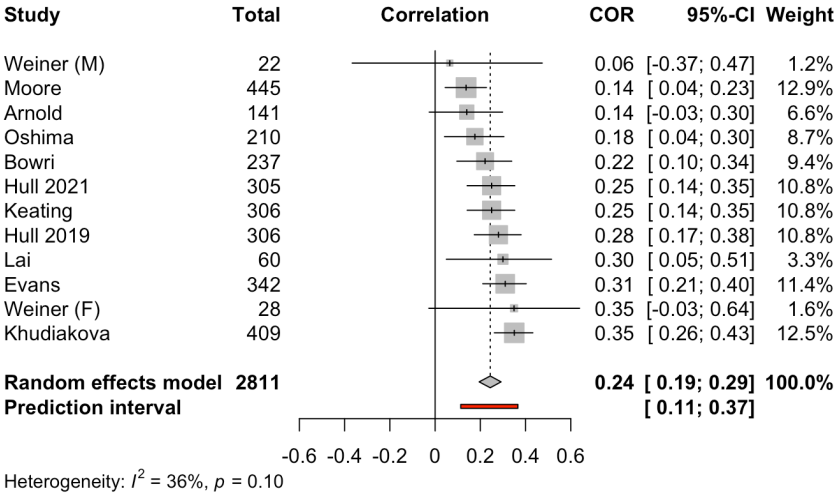


Figure 4

Forest Plot of the Random Effects Model of Meta-Analysis 1 (Social Anxiety, Ordered by Effect Size)

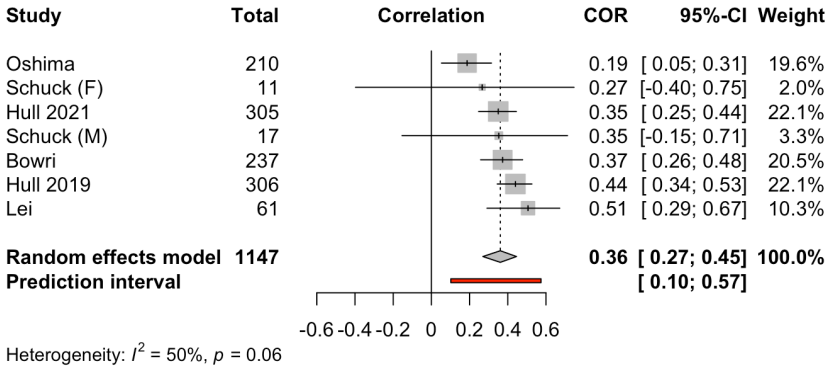
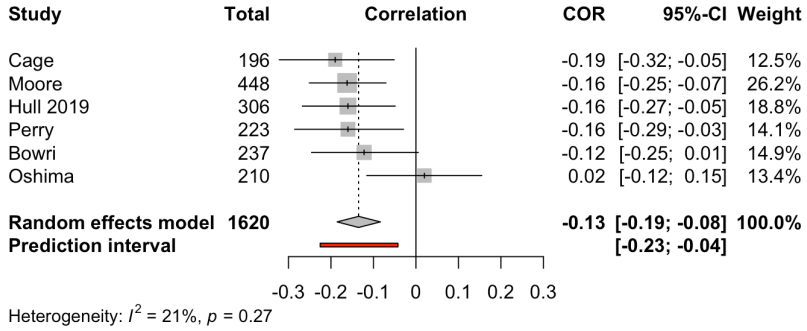


Figure 5

Forest Plot of the Random Effects Model of Meta-Analysis 1 (Wellbeing, Ordered by Effect Size)



Heterogeneity: I^2 = 21%, p = 0.27

CHAPTER 3: AUTISTIC PEOPLE'S EXPERIENCES OF CAMOUFLAGING ACROSS SOCIAL CONTEXTS: A QUALITATIVE EXPLORATION AND THEMATIC ANALYSIS

Abstract

Background: Autistic people experience significant societal stigmatisation and frequently employ camouflaging strategies to conceal their autistic traits to survive and form relationships in a predominantly non-autistic world. They tend to have smoother and more rewarding interactions with autistic than non-autistic people. Emerging research has identified that the social context plays a significant part in one's camouflaging decision-making and strategies and their perception, which has not been investigated qualitatively yet.

Methods: We conducted semi-structured qualitative interviews with 15 autistic adults focusing on their perception of camouflaging in different social contexts as well as when around autistic and non-autistic people. The transcripts were analysed and interpreted using thematic analysis.

Results: The study identified three themes in the data: perceptions of psychological safety, fit with a person, and expectations and dynamic identity negotiation. Participants tended to feel safer and camouflage less around those they perceived as accepting or similar in terms of communication style, which generally but not universally included autistic people. Camouflaging was seen as part of a dynamic identity negotiation process as participants met or subverted the expectations of a particular context.

Discussion: This study highlights the role of the social context in camouflaging by demonstrating its relationship with the perceived safety and expectations of a

particular social environment. Further, this research emphasises the nuanced nature of camouflaging and stresses the need for fostering inclusive environments.

Other: This study was approved by the University of Birmingham Science, Technology, Engineering and Mathematics Ethics Committee (ERN_1809-Mar2024).

Introduction

The concept of camouflaging was initially conceived in qualitative studies with autistic women who identified concealing their autistic traits through behavioural strategies and 'pretending to be normal' as a survival strategy in a predominantly neurotypical society (Bargiela et al., 2016, p. 3281). Subsequent research identified specific behaviours and motivations involved in camouflaging, resulting in the creation of psychometric scales measuring the phenomenon (Hull et al., 2019), and tentatively linked camouflaging to mental health challenges such as anxiety, burnout, and depression (Zhuang et al., 2023). Recent evidence points to a complex interplay between the perceived 'success' of camouflaging and the social context it occurs in (Ai et al., 2022, Dean et al., 2017), thus highlighting the need for research into the role of social environments in camouflaging. The present qualitative study aims to investigate how autistic people describe their experiences of camouflaging beyond the oft-cited examples of specific behaviours they may engage in, namely their perception of any drivers, mechanisms, and skills behind camouflaging across autistic and non-autistic social contexts.

Camouflaging and Impression Management

Camouflaging was originally conceptualised as a collection of social modification behaviours and strategies aimed at concealing one's autistic traits (e.g., suppressing repetitive self-stimulating behaviours), compensating for perceived social differences or deficiencies (e.g., as scripting conversations in advance), and the perceived need and intent to 'put on an act' in social interactions (Hull et al., 2019).

However, camouflaging is now complementally understood as a form of transactional impression management, a strategy commonly used by many people to convey a more socially favourable impression of themselves through modulating their behaviour, appearance, or presentation (Ai et al., 2022). Impression management is not specific to autism – in fact, non-autistic people have also been found to engage in strategies similar to camouflaging (Bernardin et al., 2021), in addition to other impression management strategies aimed at conveying a certain self-image to others in response to perceived social attitudes and norms (Goffman, 1963). For instance, many people belonging to ethnic minority groups engage in racial codeswitching behaviours in white-dominated spaces, such as adjusting their appearance and speech. While this may allow them to succeed in such environments, codeswitching serves to reinforce non-inclusive social norms and takes a psychological toll on those who engage in codeswitching (McCluney et al., 2021). Further, many autistic people are highly motivated to form relationships and connections, and for some, camouflaging is a way to convey an image of themselves that would lead others to regard them more positively and thus facilitate relationship-building (Cook et al., 2021).

The rationale for impression management is similar across diverse marginalised social groups, such as autistic people and racial minorities, as they are also compelled to engage in impression management “to mitigate stigma and sustain social functioning” (Ai et al., 2022, p. 634), which further entails avoiding trauma and violence (Pearson & Rose, 2021). The social costs of not self-modulating through impression management may be too high for it to be considered strictly a voluntary choice, which holds special relevance for autistic people who are additionally

marginalised in society through holding other stigmatised identities. As such, the study of camouflaging should also be grounded in the social realities of autistic people, especially those with intersectional identities, going beyond the study of specific behaviours and thus examining how camouflaging may be context dependent.

Camouflaging may therefore be understood through its relationship with the social context a person finds themselves in, which will likely modulate the perception of their behaviour in their social environment. Observational research into camouflaging, although still scarce, suggests that the particular social context surrounding an autistic person may contribute to the 'success' of camouflaging at reducing the appearance of one's autistic traits. For instance, Dean et al. (2017) observed playground interactions in autistic and non-autistic children and found that the social dynamics of groups of girls, to some extent, enabled autistic girls' social difficulties to be less conspicuous, while male groups served to highlight autistic boys' autistic traits. As such, the concept of camouflaging may go beyond the strategies employed by the person but also be intertwined with the social context, with certain social environments being more conducive to the concealment of autistic traits.

Consequently, the perceived effectiveness of impression management at concealing certain traits or identities in response to a particular social context may affect one's motivation and efforts to engage in impression management behaviours (Leary & Kowalski, 1990), including camouflaging. Indeed, in autistic people. the Assimilation subscale of the Camouflaging Autistic Traits Questionnaire (CAT-Q; Hull et al., 2019) which measures the intent to self-modulate or 'put on an act' in social situations is linked more consistently to symptoms of anxiety and depression than the

other two subscales, Compensation and Masking, which capture the use of specific behaviours to conceal or compensate for one's autistic traits (Hull et al., 2019; Liu et al., 2023; H. L. Moore et al., 2023).

Moreover, research into other social groups suggests that those who believe their stigmatised identities to be concealable experience reduced anxiety related to anticipated stigmatisation (Le Forestier et al., 2022). This suggests that the relationship between autistic identity concealment through camouflaging and mental health could be additionally influenced by the social context. Specifically, those who feel compelled to conceal more due to perceiving their individual differences as accentuated in a particular context may experience more significant anxiety. Indeed, in a study by Cook et al. (2021), autistic participants engaged in a 'getting to know you' social interaction task and then reflected on their camouflaging experiences during the task. If the non-autistic interaction partner provided social cues indicating a misunderstanding or lack of acceptance, autistic participants reported feeling significantly more anxious as they considered how to respond, which might include maintaining or adjusting their camouflaging. This suggests that non-inclusive contexts can interact with camouflaging to cause anxiety, potentially in the long run as well. Therefore, studying the contextual differences in camouflaging in autistic people may shed light on the diverse motivations, drivers, and possibly consequences of camouflaging.

Autistic-Autistic Interactions

Milton's (2012) double empathy theory aims to explain the social interaction and communication difficulties that are commonly attributed to autism in terms of a two-way communication breakdown occurring at the interface of autistic and non-

autistic communication styles. Autistic people are thus frequently misperceived and misunderstood by non-autistic people, which may lead them to respond with camouflaging in the form of emulation of neurotypical communication strategies (Mitchell et al., 2022). On the other hand, autistic people may be expected to camouflage less when surrounded by other autistic people, who more closely share their social processing style.

Research on autistic-autistic interactions and social dynamics, although scarce, suggests increased communication efficacy (Crompton et al., 2020a), as well as frequently a reduced perceived need to camouflage due to a sense of belonging and the ability to be oneself in autistic circles (Belek, 2023; Crompton et al., 2020b). This is in line with work by Pearson and Rose (2021) that suggests a feeling of safety or lack thereof plays into the decision-making process surrounding camouflaging. The very same feeling can also play into autistic-autistic interactions, suggesting that simply sharing an autistic identity may not be sufficient for successful interactions, as autistic people may endorse prejudiced beliefs that serve to alienate others or simply not have any desire to interact with other autistic people (Botha et al., 2022). This suggests that within-neurotype interactions may not automatically be smooth and authentic, and the sense of safety and comfort described in previous studies warrants further examination, especially from the perspective of camouflaging.

While previous studies suggest that autistic people are highly aware of the stigma they face in society and the coping and concealment strategies they use in response, there is, to our knowledge, little to no research on autistic people's perceptions of the decision-making related to camouflaging across social contexts, namely when it comes to cross- and within neurotype social interactions.

Understanding the social factors that affect the nature and extent of camouflaging in autistic people could contribute to clinical and advocacy efforts aimed at fostering positive social interactions within the autistic community and across neurotypes.

The Present Study

The present study continues the qualitative research tradition into the lived experiences of autistic people through exploring their perspectives on a not previously studied aspect of camouflaging. We examine how autistic people view the underlying decisions and processes behind camouflaging across different contexts, namely in within- and cross-neurotype social interactions.

We used semi-structured interviews with autistic adults to address the following research questions:

1. Are there differences in how autistic people describe their camouflaging (e.g., in terms of the strategies employed, perceived efficacy, skills, mechanisms, etc.) in different contexts, namely in within- and cross-neurotype social interactions?
2. How do autistic people describe their internal experiences of camouflaging, including any underlying mechanisms and decision-making behind camouflaging?

Methods

Theoretical Framework

Critical reflexive thematic analysis (TA) was chosen as a method for identifying and interpreting any patterns from the qualitative interviews (Braun & Clarke, 2006; Braun & Clarke, 2022). As such, we sought to understand the sense-making of

participants' shared experiences from the latent lens of camouflaging while constantly reflecting on the researchers' roles in deriving meaning from the data. We took a critical realism approach, thus assuming that an underlying reality of experiences is mediated by language, society, and culture; this approach allowed us to acknowledge the interplay of individual experiences and overarching societal forces (Bhaskar, 1975; Mukumbang, 2023).

Given that the lead researcher is not autistic, we made additional efforts to include autistic perspectives through participatory methods. Specifically, we continuously collaborated with the Birmingham Psychology Autism Research Team's Advisory Committee to refine the interview schedule and the interpretation of the qualitative data through shared decision-making. For instance, the question 'Are there situations where you behave differently from how you would normally behave?' was added in response to the advisors' suggestion that participants may act differently around certain subgroups of non-autistic people, such as those who also diverge from social norms in some way (e.g., sexual and gender minorities or non-autistic people who have mental health or other neurodevelopmental conditions). Feedback was also sought on how to make the recruitment and interview process more inclusive, such as through offering remote participation and asking clarification questions.

Ethics

The study was approved by the University of Birmingham Science, Technology, Engineering and Mathematics Ethics Committee (ERN_1809-Mar2024; see Appendix C for the approval letter). All participants gave full informed consent prior to participation.

Participants

We aimed to recruit approximately 15 participants for the study. Thirteen participants were recruited from the Birmingham Psychology Autism Research Team database, which consists of clinically diagnosed autistic adults who have previously expressed an interest in participating in research. Prospective participants from the database were contacted by email by the research team and sent a recruitment letter and a participant information sheet if they indicated their willingness to participate. Upon completion of the interview, they were provided with the monetary compensation of £10. Two additional participants, who confirmed the presence of a clinical autism diagnosis, were recruited from the Psychology undergraduate participant pool at the University of Birmingham and were consequently compensated with course credit. None of the participants were members of the Birmingham Psychology Autism Research Team's Advisory Committee. Demographic information can be found in Table 6.

Table 6
Demographic Information

Demographic	Statistic
Age	
Mean (years)	33.73
SD (years)	10.85
Range (years)	20 – 55
Age at diagnosis	
Mean (years)	23.93
SD (years)	11.87
Range (years)	7 – 53
Gender	
Male (*n*)	8 (53.33%)
Female (*n*)	3 (20.00%)
Non-binary (*n*)	2 (13.33%)
Transmasculine/non-binary (*n*)	1 (6.67%)
Prefer not to say (*n*)	1 (6.67%)
Nationality	
White British (*n*)	12 (75.00%)

White German (*n*)	1 (6.67%)
Pakistani (*n*)	1 (6.67%)
Mixed White and Asian (*n*)	1 (6.67%)
Educational attainment	
No formal qualifications (*n*)	1 (6.67%)
One to four GSCE passes or equivalent (*n*)	1 (6.67%)
Two or more A-levels (*n*)	2 (13.33%)
Higher National Certificate/Diploma (*n*)	1 (6.67%)
Bachelor's degree (*n*)	5 (33.33%)
Postgraduate degree (*n*)	5 (33.33%)
Employment status	
Employed full-time (*n*)	6 (40.00%)
Employed part-time (*n*)	1 (6.67%)
Self-employed (*n*)	1 (6.67%)
Studying full-time (*n*)	4 (26.67%)
Unemployed and not looking for work (*n*)	2 (13.33%)
Full-time unpaid carer (*n*)	1 (6.67%)

Note. SD: standard deviation.

Data Collection

Eligible and interested participants received a study information sheet over email. Once initial consent was provided, they were given the choice to have the interview either in-person at the University of Birmingham campus (*n* = 10) or online via Zoom (*n* = 5). All interviews were audio-recorded then transcribed verbatim by the lead researcher. The mean duration of the interviews was 22.31 minutes (SD = 15.33, range = 7.65 – 59.50), which did not significantly differ between interviews conducted online and in-person.

At the beginning of the study visit, participants completed the informed consent form and three additional measures: the CAT-Q (Hull et al., 2019; mean = 113.13, SD = 28.69, range = 47 – 155), the Generalised Anxiety Disorder scale (Spitzer et al., 2006; mean = 13.87, SD = 5.08, range = 6 – 21), and the eight-item Patient Health Questionnaire scale (Kroenke et al., 2009; mean = 13.27, SD = 4.65, range = 6 – 23).

Interview Schedule

The interviews were semi-structured in nature: the questions were determined in advance in consultation with the autistic advisory group and listed in a pre-determined interview schedule provided below. The schedule served to guide the interviews, and follow-up questions were asked at the researcher's discretion for the purposes of clarification or elaboration as needed.

1. Do you ever conceal or minimise the appearance of your autistic traits in social situations?
    a. If yes:
        i. Can you describe that to me?
        ii. In what situations do you feel the need to conceal being autistic?
        iii. What strategies do you use to this end?
        iv. How 'successful' do you think you are in concealing being autistic? How do you know if you have been successful in doing this?
        v. What skills do you think someone might need to conceal being autistic?
        vi. What skills do you personally draw on during the process?
    b. If no:
        i. Have you ever tried to do so?
        ii. If yes:
            1. Can you tell me why you no longer try to conceal or minimise the appearance of your autistic traits?
            2. How do you know when you are/were concealing your autistic traits?

3. Are there situations where you behave differently from how you would normally behave?

iii. If no:

1. Can you tell me why?

2. Are there situations where you behave differently from how you would normally behave?
    a. Do you feel the need to conceal being autistic in those situations?
3. Now, I will give you a few hypothetical scenarios. Imagine yourself in those scenarios and think about how you would most likely act in them. What would be your thoughts, feelings, and behaviours? What would you pay attention to?
    a. How would you go about a casual chat with a stranger you know not to be autistic?
    b. How would you go about a casual chat with a stranger you know to be autistic?
    c. How would you go about a casual chat with a friend you know not to be autistic?
    d. How would you go about a casual chat with a friend you know to be autistic?
    e. How would you go about a group conversation with non-autistic people?
    f. How would you go about a group conversation with autistic people?
    g. How would you go about a group conversation with both autistic and non-autistic people present?

Data Analysis

This study followed the six recursive thematic analysis steps outlined by Clarke and Braun (2013) and Braun and Clarke (2006):

1. Familiarisation: Once transcription was completed, each transcript was read and re-read carefully to understand the participants' experiences, which also involved noting down initial observations.
2. Coding: Following familiarisation, the transcripts were coded in NVivo 14 through identifying key pieces of text pertinent to the research questions. Open coding was used, meaning that there was no pre-determined set of codes, but instead the data and its immediate interpretation led the formation of the codes (Braun & Clarke, 2013).
3. Generating themes: The generated codes were then examined within NVivo to identify emerging themes, or clusters of codes that have at least one thematic element in common. This involved identifying patterns across the codes and beginning to note down initial interpretations.
4. Reviewing themes: The initially generated themes were then reviewed and edited as appropriate to ensure the themes made sense given the data and were distinct from each other and relevant to the research questions.
5. Defining and naming themes: After the themes were tentatively identified, they were given fitting names and then analysed to determine the contribution of each theme to the research questions and create a narrative of the content of the themes.
6. Results write-up: The results of the analysis were synthesised to provide a narrative account of the emerging themes illustrated by exemplifying direct quotes from the transcripts.

Reflexivity

Given the lead researcher's status as a non-autistic person and her role as the interviewer and the person conducting the data analysis, constant reflexivity was especially important in this study to ensure the participants' voices were represented with due respect and sensitivity. In critical realism, interpretation of phenomena is shaped by one's perspective (Bhaskar, 1997) and therefore cannot be divorced from them. As such, transparency about the impact of the researcher's positionality as someone who does not share the participants' lived experience on data collection and analysis is vital.

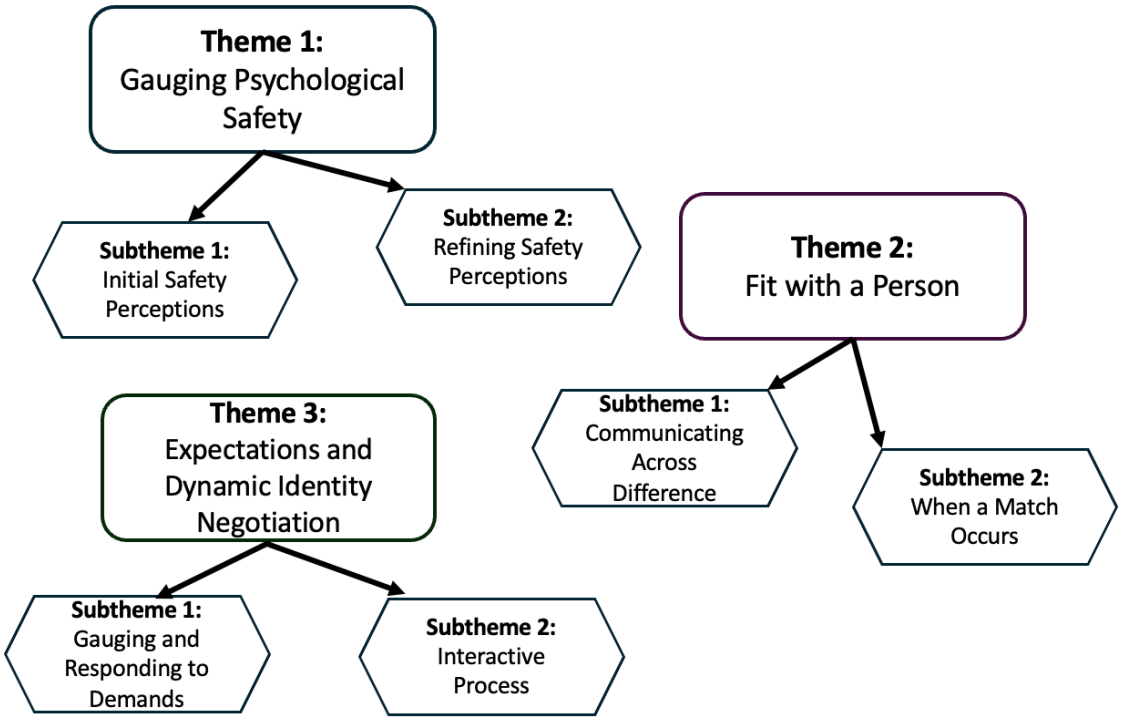
In this context, the lead researcher shares the experiences of navigating stigma related to an uncontrollable social identity and concealing that identity at least in some capacity. However, the nature of the stigma surrounding that identity and the specific strategies employed to conceal it differ from what is frequently described in relation to autistic camouflaging. To some extent, the author's experiences of stigma drove her to research autistic camouflaging, especially across social contexts, but she does not face the same level of marginalisation as the participants in this study, which may have affected some of the data interpretation (e.g., through focusing more on societal attitudes rather than some individual factors).

Results

During the interviews, participants discussed their experiences of camouflaging in diverse social settings, including the skills and strategies involved in interactions with autistic and non-autistic people. During thematic analysis, three main themes served to explain how autistic people make decisions with regards to

camouflaging: namely the relationship between camouflaging and initial safety judgements, the nuances of perceived communication style fit, and assessing expectations within singular social interactions and responding by choosing either to meet or subvert them. A thematic map is provided in Figure 6.

Figure 6
Thematic Map



Theme 1: Gauging Psychological Safety

Participants frequently reported that feeling accepted in a particular social context was a crucial determinant of their camouflaging behaviour and valued environments where they felt safe to express their authentic selves. Non-autistic people tended to be seen as generally less accepting than autistic people, prompting participants to camouflage their autistic traits to avoid unjustly negative feedback. However, it was acknowledged and appreciated that non-autistic people could

provide safe spaces for autistic people to be themselves without the need to camouflage.

Subtheme 1: Initial Safety Perceptions

Participants' initial perceptions of the person they were interacting with were a starting point in determining the anticipated levels of acceptance, as well as potential social demands and costs of the situation. Oftentimes, this involved an intuitive guess as to whether the interaction partner was likely to be autistic, said to be based on "vibes" (P13), and thus corresponding to a greater sense of safety. This informal detection of potentially autistic people was linked to participants feeling safer to be themselves and less pressured to camouflage:

> I don't like to assume... But I feel like there's always a bit of an inkling of it, because it seems to feel like a safer interaction and immediately comfortable a lot of the time… It just feels like interactions fall into place easier, and there's less pressure. (P12)

On the other hand, participants reported instinctively feeling compelled to conceal their autistic traits around people they perceived as non-autistic. This was attributed to a general lack of ease and the fear of judgement; feeling unsafe around "people who are very clearly neurotypical, because… there's a lot less acceptance" (P01) was a common sentiment. Participants were also cautious about more evident risks, which informed their decisions surrounding camouflaging: "You don't want to be autistic in front of the roadman. Like you just don't want to do that, because you will get harassed" (P01). As such, they endeavoured to modulate some of their autistic traits in order to avoid safety issues: "I suppose just not trying to speak as much because I am a talker…I'm overly friendly with people, which can be misconstrued with me as well, and it's got me into trouble" (P14).

Participants' past experiences sometimes informed their current safety perceptions, as the perceived lack of acceptance from non-autistic people was pervasive in this sample. Being criticised or berated for their autistic traits was frequently puzzling to participants, as they saw these traits as harmless. As such they would end up camouflaging to avoid the negative feedback they perceived as unduly harsh or unfair:

> [My schoolteacher] was at the front whilst I was answering her questions, and she was just saying how rude it is to not look at people when you're talking to them. I was just thinking, 'But I'm listening to what you're saying. I'm focusing on that. Why does it matter if I'm looking at you or not?' (P02)

This ingroup-outgroup dynamic extended to other social identities, whereby holding an additional marginalised identity frequently reinforced participants' desire to camouflage their autistic traits, based on their "very black and white" (P14) perceptions of group membership: "I'm always like, 'They're posh, I'm common'… So I know that I have to act in a certain way with these kinds of people, so like a class thing" (P14), which hints at a multidimensional identity negotiation process (see Theme 3). Thus, initial perceptions of safety were interpreted as not solely related to the interaction partner's perceived neurotype but to other relevant social identities, which may inform which behaviours are modulated and to what extent.

Subtheme 2: Refining Safety Perceptions

The initial association of safety with autistic people and lack thereof with non-autistic people was far from a blanket one. For instance, participants valued their relationships with non-autistic people who were deemed safe. Such people tended to be described as accepting and understanding: "They just take time to listen to me" (P05), as well as making an effort to clarify any communication mishaps without judgement: "They've got to know me as a person, which means if I say something

that comes across as very autistic, they will know what I meant" (P03). Consequently, some participants felt less pressure to camouflage around their non-autistic loved ones compared to other situations, thus leading to authentic and fulfilling connections: "A lot less masking and a lot more being myself, telling them about what I've been doing, asking them about their hobbies, less of the stock questions" (P07). At the same time, participants occasionally felt compelled to actively conceal their autistic traits even around other autistic people due to fears of judgement, unrelated to their shared neurotype: "That doesn't have anything to do with her autism. It's just she's a Tory, and I don't trust her… I already feel that she's judging because of that" (P01).

Theme 1 therefore illustrated some of autistic people's initial decision-making in social situations; their perceptions of psychological safety may be initially heuristic but subsequently refined. This refinement was understood to happen through additional cues, such as the effort made by their conversation partner and the nature of their relationship with the other person. Thus, although the preliminary impression, which likely includes the perceived neurotype of the conversation partner, seemed to indicate a certain level of psychological safety, it was subsequently refined using additional information and then informed the decision-making surrounding camouflaging.

Theme 2: Fit with a Person

Throughout the interviews, participants explored the role of perceived fit between themselves and their interaction partners. When their respective communication styles aligned, the social interactions were easier and had fewer

camouflaging demands. While this perceived match frequently occurred with fellow autistic people, that was not universal.

Subtheme 1: When a Match Occurs

A perceived alignment of communication styles, whether due to them being similar or at least not 'clashing', resulted in much smoother interactions. This idea of perceived communication compatibility frequently emerged spontaneously when discussing autistic-autistic interactions: "I would find it a lot easier to interact, a lot easier because there's no ambiguity… There's no words that are just insignificant, waffle, drivel, unnecessary, because we're trying to conserve energy too" (P04). This translated into participants feeling free to communicate in a way that is authentic to them, tying back into the idea of psychological safety expressed in Theme 1: "They will understand what I'm saying" (P09); "There's an element of safety there" (P12). As a result, participants felt largely free not to engage in camouflaging strategies when around other autistic people: "I'm not going to script" (P02); "I won't mask as much, like needing to imitate their behaviour, and I feel a lot more comfortable" (P13); "I feel that I can just kind of take off the mask, and I can be like my weird dorky self" (P14).

A further layer of communication style alignment was the presence of additional forms of neurodivergence. For the two participants who disclosed a co-occurring attention deficit/hyperactivity disorder (ADHD) diagnosis, interactions with people who are autistic and also have ADHD, were more comfortable:

> I find it easy communicating with people that are generally autistic and ADHD, as opposed to just autistic or just ADHD. So, people that are quite similar in terms of communication style and pace of communication, it flows a lot easier (P02).

This perceived communication style fit with other autistic people was also anticipated by participants when discussing interactions with unfamiliar people: “I love meeting other autistic people” (P14), even though they might still maintain some level of camouflaging with autistic strangers: “But it will be a lot less social masking around autistic people I know than autistic people I don't know well” (P07). In such interactions, their shared autistic identity could serve as a conversation starter or point of bonding: “I'd probably say that I'm autistic as well” (P07). Even if participants had limited experience conversing with other autistic people, some still imagined that interacting with autistic people would be easier and more authentic for them: “If he's autistic, probably no, actually I wouldn't [camouflage]” (P11). Participants anticipated a sense of inclusion with other autistic people, thus hinting at an expectation of mutual acceptance and non-judgement: “You can just share your joy in a in an unhindered manner, talk about weird things without judgment, knowing that the other person will at least be excited that you're excited, even if the topic doesn't necessarily interest them” (P01). This perceived match in terms of communication style may therefore underlie the heuristic assumption that autistic people are likely to confer a higher sense of psychological safety in social interactions discussed earlier.

Subtheme 2: Communicating Across Difference

Participants were experienced in navigating social interactions with those who were different from them, which was expected given the dominance of non-autistic communication norms in society, and were highly conscious of the “disjoint in communication styles” (P02) between them and (mostly) non-autistic people. For instance, experiences of misinterpretation were common, with several participants reporting being misread as “aggressive,” especially as they advocated for

themselves: “To some, I come across as uncomfortable or weird, and others find me quite aggressive, which I think comes from the way that I talk or interact” (P13). Moreover, some felt as if non-autistic people attributed false intentions to their communication: “But if someone doesn't know me, then they might assume I'm being sarcastic when I'm not or assume I mean something else when I don’t” (P03).

Participants reported that camouflaging was their default social strategy, which incorporated diverse self-modulation behaviours, especially mimicry: “Looking at how the people are standing or facial expressions, acting” (P07); “if you're copying behaviours, you're able to fit in more” (P12). Some were confident in their ability to navigate non-autistic social contexts: “I'm good with small talk” (P14), suggesting a degree of successful compelled adaptation through deliberately cultivating certain skills that many not have come naturally.

Nonetheless, even amongst their non-autistic friends, some participants were still conscious of this communication chasm and therefore felt forced to conceal their autistic traits, resulting in feelings of inauthenticity and tension, despite the close nature of their relationship:

> I’m always worried that I'm upsetting them… So it's a bit more on edge and a bit more making sure that I'm asking things that they can answer, and listening and responding to their answers in ways that are acceptable. (P07)

> I don't know if I'm true to my friends now either, because sometimes they want to go to places that I've got no interest in, and we haven't actually got anything in common… And they're lovely and things like that. But I don't know. I don't think I can be myself with friends. (P14)

In that way, participants’ sensitivity to and consideration of different challenges that could arise in social interactions and camouflaging being their default response was interpreted as a potential response to having navigated many interactions with people they did not ‘match’ with and hence being accustomed to stigmatisation.

As challenging as communicating across difference was, it did not always translate into negative experiences. Indeed, many participants had supportive and accepting relationships with their non-autistic friends, family members, and colleagues and felt confident in their ability to resolve any communication issues that arose:

> I go to my mate. He takes me as I am, and he knows that I'm autistic… Do we both get it wrong? Yeah, absolutely. Is it difficult, hard, draining? Yes. Is there a miscommunication or a mismatch at times? Yes, but we come back together and actually discuss it. (P04)

A few suggested that “non-autistic knowledge” (P03) and the support of their non-autistic loved ones could be used strategically to alter the surrounding social context to make it easier to navigate, although that did not solve the underlying issue of lack of acceptance of autistic communication styles in society:

> In a social setting, I have a number of sort of silent signals that I have with my wife where she can sort of tell me how the conversation's going, and if I'm talking too much, if I'm not talking enough that only we know about. (P03)

This appreciation of their non-autistic loved ones’ friendship and support in social situations was additionally understood as a recognition of communication as a two-way street, whereby both parties are to put in the effort needed to have a positive close relationship. This was, however, in contrast to participants’ interactions with strangers or in other situations where there could be a risk of stigmatisation or judgement, in which participants defaulted to camouflaging instead of engaging more authentically. Further, this strategy may only be possible after a sense of safety and trust has been established. Besides, this may address the immediate concerns about stigmatisation instead of fostering more inclusive social norms.

Although the idea of misalignment was commonly discussed in the context of interactions with non-autistic people, participants were aware of the diversity within

the autistic community and recognised the possibility of communication breakdowns with other autistic people, even experiencing them themselves: “I’ve got one [friend] who literally took everything that I said out of context” (P04). Moreover, some participants found it challenging to navigate conflicting autism-related needs with other autistic people: “And then there are other times when we can't stand the sight of each other, because our autism just clashes so badly that we just can't speak to each other” (P03). Interactions perceived as overly one-sided were a source of frustration as well: “You never get to say what you want to say… No one gets the point across, cause they just want to talk about their interest, and I don't wanna listen to their interest” (P05). This was interpreted as participants, despite their general willingness to engage with other autistic people, recognising the nuances of their own communication needs and those of other autistic people. It was inferred that for participants, effective communication was not seen as an automatic consequence of having a shared neurotype but as something that could be fostered and honed across difference.

Theme 2 served to highlight differences in the strategies, including camouflaging, used by participants across social interactions in diverse contexts. While Theme 1 revealed how participants initially establish a sense of safety based on certain clues, Theme 2 clarified the nuance around perceived ‘fit’ with their interaction partners and how a lack of fit could be overcome. However, what remains to be explored is the interactive process of navigating one’s identity across a single social interaction.

Theme 3: Expectations and Dynamic Identity Negotiation

Even within singular interactions, the sense-making around camouflaging evolved across time. Navigating their autistic identity and related communication needs was a dynamic and interactive process for participants. This incorporated an assessment of perceived social expectations and demands, in addition to psychological safety as discussed above, and a subsequent decision how to respond – whether with varying degrees of camouflaging or outright disclosure of their autistic identity.

Subtheme 1: Gauging and Responding to Demands

Participants were often conscious of the demands and expectations associated with social settings through past experiences or self-study and how their autistic traits may make them difficult to navigate: “I have difficulties with the interrupting, or knowing when people are finished” (P02). As a result, many created ways to compensate for those challenges. These workarounds allowed participants to meet perceived expectations using skills that may not have come naturally to them but had been honed deliberately:

> Knowledge of social settings, like at least for me, I think everything I do is based on having studied and then done, almost like a little normal distribution of what is the appropriate behaviour. So I think because my brain works really quite scientifically, I do almost like little models and little algorithms for every situation. (P01)

Stemming from that, a sense of self-awareness was named as a precursor to camouflaging when it occurred. Understanding one’s innate social tendencies and how they may clash with perceived social demands allowed participants to adjust their behaviour to meet perceived expectations in social situations when motivated: “I tend to be a lot more blunt than most, and so, being aware of that being part of the condition and therefore being able to identify it, isolate it, and reduce it, if I so

choose” (P15). Alternatively, participants may have disclosed their specific social challenges that could make them vulnerable to misinterpretation: “When I start the conversation, I apologise in advance if I inadvertently interrupt you” (P02). This understanding of the expectations that come with a given situation and the subsequent decision to modulate one’s behaviour was interpreted as a dynamic process of identity negotiation whereby participants strived to minimise friction in social situations. However, this also seemed to suggest that participants may have perceived the onus to modify their behaviour for the sake of social harmony to be on them, instead of anticipating their interaction partner to make any concessions.

While many participants described camouflaging as a conscious and deliberate response to perceived expectations, that was not a universal experience. Some aspects of camouflaging were such ingrained strategies for some participants that they were an automatic or instinctual behaviour: “You kind of just do it.” (P11); “It automatically happens. I don't know how I do it” (P05). Despite this automatic nature, other aspects of camouflaging still involved some degree of conscious appraisal and decision-making: “I need to collect the evidence and pick up on what they're doing. It feels like I am researching and analysing what I'm doing in those situations” (P12).

The aforementioned appraisal of expectations seemed to result in some participants taking the opposite course of action through rejecting the social norms and expectations dictating what behaviour is considered ‘normal’: “I feel pretty comfortable in myself and how I act, and I don't try to appear normal. I don't think that's a bad thing, so I try and embrace my difference, and act fairly natural and fairly authentic” (P15). As such, this involved consciously choosing not to camouflage altogether. Sometimes, participants opted for pre-emptive disclosure of being autistic,

such as through wearing a badge that identified them as such. The primary motivation for choosing disclosure over concealment was a desire for others to know in the hopes for greater patience or understanding, especially if additional support is needed: “I want the awareness to be there… if I get really overwhelmed. I'm just like right, read [the badge], it says I'm autistic” (P04). However, participants were aware that disclosure did not necessarily lead to more acceptance: “Even actually, when [the badge] was there in full view, you could see it says ‘I have autism.’ It was actually ignored even then” (P04). This was interpreted as an illustration of the complexities surrounding camouflaging, concealment, and disclosure and the related decision-making. These participants opted not to conceal their autistic identity, at least in some situations, to provide an explanation for any behaviour the interaction partner may perceive as atypical, suggesting a willingness to counteract and challenge extant non-inclusive social norms, even in the face of rejection.

Subtheme 2: Interactive Process

The other social identities participants held served to interact with the expectations of a given situation, thus influencing the degree of camouflaging. For instance, some participants indicated that because they held other social identities in addition to being autistic, any perceived differences were not always seen as stemming from autism. Interestingly, this facilitated them blending in without any deliberate camouflaging efforts on their part. For instance, a participant who used a wheelchair for their physical disability observed that other people did not expect them to exhibit typical body language, and as such, they were less compelled to modulate their body language in social interactions: “I can't fully mimic people's body language, but no one really expects me to, because wheelchair” (P07). Another participant, who

is transmasculine and nonbinary, found that after they transitioned and started being perceived as masculine, they experienced fewer negative reactions to their autistic traits and thus felt more free to “unmask” and be themselves: “Because I am read as male now, there is kind of less pushback to my autistic behaviours because of societal conceptions, which is really f***ed up if you ask me” (P12). As such, they attributed this change to prejudices and misconceptions surrounding feminine-presenting autistic people: “I’m just believed more” (P12). In some ways, this reported dynamic seemed to be reflective of an awareness of a broader societal phenomenon of differential expectations placed on different social groups (whether seen as fair or unfair), which these participants have been able to use to their advantage. Dovetailing with the previous interpretation that participants felt less compelled to camouflage when they felt psychologically safe, participants thus seemed to engage in a complex process of negotiating their identity and self-presentation: not camouflaging when they felt safe or not expected to, and camouflaging otherwise.

Discussion

This study aimed to examine autistic people’s perceptions of their decision-making process surrounding camouflaging across different social contexts, with a particular focus on social interactions with autistic and non-autistic people. Through qualitative interviews, autistic participants described how conscious and unconscious perceptions of psychological safety contribute to the initiation of self-modulation and camouflaging. Heuristically, interacting with autistic people was reported as feeling safer than non-autistic people, resulting in a reduced need for camouflaging and

enhanced authenticity. However, these safety perceptions were largely based on a sense of fit with the interaction partner's communication style and the nature of the relationship in question and not solely on their neurotype. Communicating with those whose communication preferences and tendencies were drastically different was at times frustrating, in part due to a felt need to camouflage, but could be rewarding through mutual efforts to bridge the gap and enhance authenticity. Within single social interactions, camouflaging served as an identity negotiation and impression management strategy dependent on participants' understanding of the social context and its expectations and their desire to either meet or subvert them.

Participants' decision-making surrounding camouflaging was interpreted to be linked to the immediate and broader social context. Past experiences with certain social groups as well as an awareness of expectations inherent in particular social situations resulted in participants having an understanding of when it might be more socially desirable or safer to camouflage. In line with previous research (e.g., Bargiela et al., 2016; Hull et al., 2017), past rejection and stigmatisation resulted in an increased motivation to modify one's behaviour. However, participants' willingness to engage in camouflaging and their reasons for doing so differed across social contexts. Participants reported thought-out strategies for navigating those contexts and an acute awareness of the demands of a particular situation and potential reactions to their behaviour, thus possibly leading them to select strategies they perceived as appropriate. Camouflaging thus served as an adaptive, flexible impression management strategy that could be deployed strategically as needed, which is in line with the transactional impression management framework which highlights the context-dependent nature of camouflaging (Ai et al., 2022). As such,

blending in and standing out may not always be an immediate result solely of one's behaviour, but rather the interaction of their behaviour with its perception in a given social context. This was also seen in the study by Dean et al. (2017) where different social contexts were shown to accentuate or attenuate the visibility of autistic people's social differences, and the qualitative data from this study provides further support for the interactive relationship between the social environment and one's behaviour.

This finding was further supported by participants' ability to reduce their reliance on camouflaging and "unmask" in certain situations deliberately. They felt safe to do so when surrounded by people they knew or expected to be accepting, such as their loved ones or potentially autistic people, or when the context did not seem to call for a perfect adherence to certain social norms. This is in line with previous research describing autistic people's positive attitudes towards more "authentically autistic socialising" (Cook et al., 2021, p. 1453) as well as inclusive spaces where they are free to "unmask" and let go of fears of being judged (Belek, 2023). Belek's (2023) describes one such space, an autistic-led conference, as involving "an extensive redesign not only of normal structure and social role, but also of the rules of conduct, etiquette, and expectations that work to police the emerging social dynamics" (p. 642), thus highlighting the importance of inclusive social norms in creating safe spaces for autistic people. However, such autistic-centred spaces are scarce in non-autistic society, thus requiring some level of identity negotiation in response. Camouflaging thus seems to be driven by a conscious or unconscious appraisal of the relative costs and benefits of concealing one's autistic traits or identity, as seen in other studies of autistic narratives whereby protecting oneself

from potential harm via concealment is balanced with coming out in the interest of community and authenticity (Davidson & Henderson, 2010). Consistent with previous research describing the double-bind between autism concealment and disclosure (Botha et al., 2020), participants recognised both the advantages and disadvantages of non-concealment or disclosure based on their perceptions of the social environment and past experiences, this suggesting a level of deliberate decision-making.

Given the previous research findings associating camouflaging with fatigue (Bargiela et al., 2016) and reduced feelings of authenticity (Evans et al., 2023), it is important to highlight social contexts in which autistic people do not feel pressured to camouflage as much, such as when interacting with autistic people in general and select non-autistic people. That notwithstanding, camouflaging was very much a default response for many participants, as they frequently relied on it until they felt safe enough to act more authentically or felt that they had found the right 'fit' in terms of communication styles and preferences. Interestingly, participants did not spontaneously mention non-autistic people who were perceived as aligning with their communication styles and thus offering that sense of safety. Non-autistic people were thus constructed as inherently dissimilar and difficult to understand, which often hindered the flow of cross-neurotype social interactions. This is in line with empirical studies highlighting communication breakdowns occurring in interactions between non-autistic and autistic people, such as Crompton et al. (2020b), which may serve to exacerbate the perceive need for camouflaging.

Further to the above, participants were interpreted to think in binary terms (i.e., autistic and non-autistic people) when discussing their social interactions. The

interview schedule used in this study was worded in such binary terms for simplicity and to maintain focus on the research question, which could have led to participants' responses being expressed in this way. However, the potential boundaries of autism are unclear, as there is no clear, reliable threshold separating autistic people from non-autistic people on the basis of traits and behaviour (Lyall, 2023; Verhoeff, 2012). While determining the validity of the autistic/non-autistic binary is beyond the scope of this study, the findings highlight a perceived divide between autistic and non-autistic people. It is possible that this divide could contribute to the social dynamics, such as the difference in the sense of safety conferred by autistic and non-autistic people, described by participants.

Despite participants generally viewing other autistic people as similar to them in terms of communication style and needs, making interactions easier, in line with previous research (Crompton et al., 2020a; Cook et al., 2021; Watts et al., 2024), they also recognised the complexity surrounding the diversity within the autistic community. Not all autistic people were seen as safe to be around or as inherently similar to them, thus negating the perceived advantage and safety of within-neurotype communication. Indeed, participants mentioned certain autistic people espousing views that understandably made them feel judged and excluded, thus leading them to camouflage. The need to camouflage in this case also seemed related to potential stigmatisation, even if said stigmatisation would not have been linked to their autistic traits but to another aspect of their identity. On the other hand, navigating conflicting autism-related needs may not necessarily result in camouflaging but rather discontent with and avoidance of interactions with such

people, if the resulting communication challenges are seen as impossible to be overcome.

Therefore, it seems that when talking about autistic-autistic social interactions, participants may have been referring to a subset of autistic people that are seen as trustworthy and safe. Likely, these autistic people shared at least some of their values, communication needs, and social norms, thus contributing to a sense of safety. This is in accordance with previous research suggesting that perceived familiarity and shared norms contribute to a sense of interpersonal trust (Welch et al., 2005), and therefore a shared sense of understanding and acceptance can lead to a reduced need to camouflage and thus more authentic connections.

Participants reported generally camouflaging significantly less around people they had close relationships with, whether they were autistic or non-autistic. Even though interacting with non-autistic people was usually more challenging, as previously reported by Crompton et al. (2020a) and Cook et al. (2021), this study highlights the possibility of such connections being rewarding and authentic if a certain level of trust and closeness is established and both sides make an effort to bridge the gaps. Indeed, research shows that in romantic relationships between autistic and non-autistic people, partner responsiveness is a key factor contributing to relationship satisfaction on both sides (Yew et al., 2023), and both autistic and non-autistic people value clear communication instead of assumptions and attempts at mind-reading (Sala et al., 2020). This study thus demonstrates that mutual effort can help resolve any inherent autistic/non-autistic communication differences in other social relationships. This finding further implies that it is possible that the drivers and inhibitors of camouflaging – namely, a sense of trust, connection, and acceptance

and maintaining an open line of communication – are similar in interactions with autistic and non-autistic people, even though it might be easier to establish an initial rapport with a fellow autistic person.

While the interviews suggested that a dynamic appraisal of factors such as perceived safety and demands could drive camouflaging in a particular situation, some participants referred to camouflaging being their default social strategy. Indeed, camouflaging often occurs unconsciously and automatically and may become ingrained so that the person is unaware that they are modulating their behaviour (Lawson, 2020). In those cases, 'unmasking' may thus represent a conscious choice to reverse that instinctive response, a finding echoed in literature on autistic people's decisions and motivations surrounding 'unmasking' (Pryke-Hobbes et al., 2023). There may therefore be a distinction between 'not camouflaging' and 'unmasking', which has not been empirically clarified yet and seems to hinge on the nature of someone's default behaviour (i.e., whether someone's default response is to camouflage or behave in accordance with their natural inclinations), which highlights the role of individual differences in the decision-making surrounding camouflaging across contexts. However, it is likely that automatic and conscious camouflaging coexist and may be more prominent in different contexts, which remains to be studied: for instance, automatic camouflaging could be a response to low-stakes social situations that may still pose a risk of stigmatisation and conscious camouflaging may emerge in situations where making a certain impression may be more important.

Strengths and Contributions

This study, to our knowledge, was one of the first qualitative studies to take a social- and context-based approach to camouflaging, which has largely been studied from the perspective of individual behavioural choices, albeit informed by societal attitudes. The findings provide some preliminary qualitative support for the transactional impression management framework by highlighting the interactive nature of camouflaging, as it is shown to be largely dependent on decision-making informed by the immediate social context.

Moreover, the sample consisted of a greater proportion of participants identifying as men than other qualitative studies on similar topics (e.g., Bargiela et al., 2016; Crompton et al., 2020b; Hull et al., 2017). Although the concept of camouflaging emerged from the study of autistic women's experiences (Hull et al., 2019) and there is some evidence that autistic women may camouflage more than autistic men (Hull et al., 2020; Schuck et al., 2019; Wood-Downie et al., 2021), some have argued against unnecessarily 'gendering' the concept to avoid perpetuating gender-based stereotypes and dismissing the experiences of those who do not fit them (I. Moore et al., 2022). While this study did not examine differences in how participants of different genders described their camouflaging experiences, it challenges the framing of camouflaging as solely a 'female' experience and provides additional nuance and context from a group that has not been well-represented in qualitative camouflaging research.

Finally, the finding that at times, autistic people feel ambivalent about interacting with other autistic people because their expectations of psychological safety or similar ways of communicating are not realised adds an additional layer of nuance to extant theory and research. While some studies such as Crompton et al.

(2020b) suggest an increased ease of communication between autistic people compared to mixed-neurotype interactions, this study shows that this may not always be the case due to the diversity of autistic people's communication needs. Therefore, this finding suggests a need for future studies to examine the complexity of autistic-autistic interactions in more detail.

Limitations

The sample in this study was highly biased towards White British, highly educated autistic people who were able and willing to participate in an oral interview. While participants were aware of the safety concerns they may face when not camouflaging, the risks are compounded for people holding other marginalised identities, especially Black people and other racialised communities, for whom camouflaging may literally be a survival strategy (e.g., through avoiding police violence and brutality) which trumps their desire for authenticity (Radulski, 2022). Some participants even felt safe enough not to camouflage and to disclose their autistic identity to others, which is not an option for many. Further, camouflaging was frequently seen by participants as an individual decision, despite being driven by societal attitudes, rather than a compelled adaptation strategy they had no choice but to adopt (Pearson & Rose, 2021). The results of this study cannot therefore be generalised to autistic people experiencing racial marginalisation.

Even though participants expressed a variety of views about interacting with other autistic people, they were mostly positive, partly due to an anticipation of inclusion and acceptance. These expectations are not universal, as autistic people individually or as a community can mirror and perpetuate the same systems of oppression and marginalisation as society at large (Botha & Gillespie-Lynch, 2022),

suggesting that the attitudes of Black and racialised autistic people towards interacting with and thus camouflaging around other autistic people are likely to differ. The systemic underrepresentation and academic neglect of Black and otherwise racialised autistic people in research means that their experiences are not heard or understood (Malone et al., 2022), which therefore underscores the need for fostering inclusive environments that fully meet the needs of autistic people with other marginalised identities.

The highly educated nature of the sample also provides context for the limited generalisability of the findings. Only two participants' highest level of education was below GSCE level, and the two participants whose highest qualifications were A-levels or equivalent were currently pursuing bachelor's degrees full-time. It is therefore highly likely that participants' experiences of camouflaging were linked to their educational attainment. They have had the opportunity to access and successfully navigate educational settings with specific behavioural demands, which may have shaped their camouflaging experiences. Higher levels of camouflaging are linked to higher educational and professional attainment (Park, 2021), and participants' ability to fit the expectations of university study is not universal among the autistic community. Their high educational attainment further indicates a certain level of cognitive functioning, so the sample was not representative of the overall autistic community (in 2021, only 21.8% of British autistic people aged 21 to 64 had qualifications at degree level; Office for National Statistics, 2022), especially autistic people with intellectual disabilities or learning challenges. The latter's experiences of camouflaging are likely to differ, as they may encounter more stigma, navigate different social contexts, and experience distinct self-modulation challenges.

The bias towards autistic people with high cognitive and verbal abilities in this study was also seen in the way that participants spontaneously assumed that they would be interacting with another autistic person who has no language or intellectual impairment when asked about their behaviour around other autistic people. This study cannot therefore draw any conclusions about the rapport and interactions between autistic people with and without language or intellectual disabilities, which should be addressed in further research.

The nature of the questions asked in this study likely affected the data gathered. For instance, this study was inherently biased towards social camouflaging rather than camouflaging sensory discomfort or repetitive behaviours, experiences of which are likely to differ. The possibility that some questions were perceived as leading and that participants interpreted the questions in different ways cannot be ruled out.

Although the autistic community was involved in designing the interview schedule, due to time constraints and other circumstances beyond our control, the non-autistic lead researcher's interpretations of the data were not cross-referenced or independently triangulated by an autistic co-researcher. As such, there was a missed opportunity to maximise the inclusion of autistic voices throughout the study to ensure that the findings are truly meaningful to the community.

The fact that the interviewer was not autistic was not spontaneously shared with participants. However, it is likely that some of them were able to determine the interviewer's outsider status, given that the ability to intuitively guess if someone is autistic was a recurrent theme during the interviews. This could have influenced the interview process by affecting participants' comfort level and sense of psychological

safety, possibly even unintentionally conferring an expectation to camouflage during the interview. As a result, it is possible that participants may have withheld certain experiences or not felt entirely at ease.

Despite that, the observed level of disclosure during the interviews, especially regarding participants' attitudes towards interactions with non-autistic people, suggests that a significant level of trust and openness had been achieved. The nature of the questions asked (i.e., trying to understand the processes behind camouflaging in social contexts) may have served to signal the interviewer's desire to learn from their camouflaging experiences, and many participants spontaneously expressed positive attitudes towards participating in this project and autism research in general. Thus, although the rapport between the interviewer and participants did not seem to be unduly impeded, the potential effects of the interviewer's non-autistic status need to be acknowledged.

The interviews in this study took place both over Zoom and in-person, in accordance with participants' preferences, which could raise concerns about the differences in the data gathered from these two approaches. Research indicates that online qualitative interviews may result in poorer researcher-participant rapport and less detailed data compared to in-person interviews (Davies et al., 2020). However, many autistic people prefer online, including Zoom, communication due to reduced social demands and sensory input (Ritzman & Subramaniam, 2023), and offering multiple modes of participation is advised as part of enhancing the inclusion of autistic research participants (Nicolaidis et al., 2019). Thus, it is possible that the option to hold a Zoom interview helped some participants feel more comfortable and willing to share their experiences. A review of the interview transcripts did not reveal

any apparent differences between Zoom and in-person interviews in terms of the themes in and richness of the data, and their duration did not differ significantly, suggesting that both methods were overall appropriate for this study. That said, the possibility of subtle differences in participants' comfort and disclosure remains, and autistic people's preferences and needs surrounding qualitative interviewing methods should be examined in further research.

Further Directions

Aside from addressing the demographic and participatory concerns discussed above, further research should follow up on the finding that psychological safety as a key moderator of camouflaging. For instance, it is possible that there are other social groups that confer a similar sense of safety through intercommunity solidarity, such as, potentially, sexual and gender minorities. Additionally, autistic people's experiences or expectations surrounding autistic-autistic social interactions could be explored in the context of their connection to the autistic community as a whole (Botha, 2020), which may shed light on the nuance surrounding those social contexts. Finally, future qualitative and quantitative studies should examine the conceptual and practical distinction between automatic and conscious camouflaging and their implications for social relationships and mental health.

Conclusion

This qualitative study examined how autistic people describe their decision-making process surrounding camouflaging in different social contexts, particularly when interacting with autistic and non-autistic people. Camouflaging was shown to be a dynamic, context-dependent strategy largely moderated by perceived safety, demands and expectations, fit with the interaction partner, and the nature of the

relationship. For participants, interacting with other autistic people generally felt safer and more authentic due to fewer camouflaging demands and expectations of inclusion compared to non-autistic people. However, shared values and efforts at understanding and inclusion seemed to be more significant than a shared diagnosis, thus reinforcing the importance of reducing societal stigma and creating inclusive environments for autistic people to thrive in.

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CHAPTER 4: GENERAL DISCUSSION

Overview

As a stigmatised minority, many autistic people engage in impression management strategies to minimise the perception of their autistic identity or traits as they navigate an often hostile, predominantly non-autistic social world (Ai et al., 2022; Hull et al., 2019). Camouflaging is one autism-specific impression management strategy which involves consciously or unconsciously modulating one's behaviour to, in part, avoid stigmatisation; as a result, camouflaging is inextricably intertwined with the social context it occurs in (Ai et al., 2022). While some autistic narratives and quantitative studies have linked camouflaging to symptoms of mental health conditions such as anxiety and depression, the research landscape is inconsistent (Hull et al., 2021). This thesis comprises two studies aimed at identifying and clarifying issues in current camouflaging research: a systematic review and meta-analysis of studies assessing the relationship between camouflaging and mental health, and a qualitative study investigating autistic people's perception of their camouflaging across social contexts, with a particular focus on their interactions with autistic and non-autistic people respectively.

Findings

To our knowledge, Chapter 2 was the first attempt to quantitatively synthesise literature on camouflaging and mental health. A meta-analysis of 15 cross-sectional studies revealed significant moderate positive correlations between camouflaging and social anxiety, (generalised) anxiety, depression, and psychological wellbeing, with low statistical heterogeneity. A subsequent meta-regression did not find any moderating effects of study quality, participants' mean age and proportions of female

and formally diagnosed participants on individual study effect sizes. However, a narrative examination of study-level data revealed some potential sources of inconsistency, such as the measure of camouflaging used and the unclear directionality of the relationship in question.

Chapter 3 used qualitative interviews to investigate the role of social context in camouflaging and how it may play into autistic people's decision-making related to camouflaging. Participants' decisions surrounding camouflaging were dependent on psychological safety, perceived fit with their interaction partner, and the expectations of a particular social context. Participants tended to camouflage less when they felt safe or anticipated acceptance, which most frequently occurred around people they knew or suspected to be autistic or with certain non-autistic loved ones who had shown to make an effort to bridge any gaps. The context-dependent nature of camouflaging was also highlighted through participants' descriptions of how their camouflaging or lack thereof was a response to the perceived demands of a given situation.

Discussion

Broadly, the results of Chapters 2 and 3 were congruent, despite their focuses being different. Chapter 2 concluded that across studies, autistic people who reported engaging in camouflaging more also reported higher symptoms of mental health conditions and reduced mental wellbeing. Although Chapter 3 did not have mental health as its main focus, it identified some of the immediate psychological impacts of camouflaging, such as fatigue and reduced feelings of authenticity. These findings are indirectly consistent with the meta-analysis. Indeed, experiencing fatigue has been cross-sectionally linked to anxiety (Jiang et al., 2003), and reduced

authenticity has been associated with both depression and anxiety (Bryan et al., 2017), thus suggesting that the two could serve as potential mediators of the relationship between camouflaging and mental health.

Through examining the decision-making surrounding camouflaging, Chapter 3 offers further insights into the possible mechanisms underlying the relationships reported in Chapter 2. In Chapter 3, participants identified reduced feelings of psychological safety as a key precursor to camouflaging such that they camouflaged more in social contexts they perceived as less safe or involving greater risks of stigmatisation or discrimination. Conceptually, psychological safety involves feeling sufficiently comfortable to be oneself without fear of negative consequences in a particular context (Torralba et al., 2020) and is consequently jeopardised by perceived threats to one's inclusion (Itzchakov & DeMaree, 2022). It is therefore possible that reduced feelings of psychological safety in autistic people may induce both camouflaging and symptoms of mental health conditions, thus accounting for the correlations between these variables observed in Chapter 2. Indeed, past experiences of harassment and perceived risk of harm may contribute to anxiety (Watson et al., 2015), and so can a reduced generalised feeling of psychological safety (Frazier et al., 2017). In autistic people, experiencing stigmatisation is related to higher depressive symptoms via increases in camouflaging (Khudiakova et al., 2024), suggesting that past experiences of stigmatisation may simultaneously reduce feelings of safety and contribute to adverse mental health outcomes and camouflaging. This notion was supported by some participants in Chapter 3, as well as past research (Bargiela et al. 2016, Hull et al., 2017; Pearson & Rose, 2021),

reporting past experiences of bullying and stigmatisation for their autistic traits which then triggered their camouflaging.

Alternatively, the possibility of a reciprocal relationship between camouflaging and mental health should be considered and studied longitudinally, given that the correlations used in the meta-analysis were all cross-sectional. Throughout development, the outcomes of camouflaging may turn into its drivers and serve to maintain the same outcomes over time (Ai et al., 2022). For instance, social anxiety and the accompanying fear of negative evaluation may lead someone to camouflage in social interactions which might then intensify their social anxiety. Indeed, in Chapter 3, participants reported that worrying about potentially inadvertently upsetting others drove their camouflaging behaviour, and in Chapter 2, social anxiety had the strongest relationship with camouflaging. The fear of discovery of a particular stigmatised identity can further maintain concealment or impression management behaviours (Meyer, 2003), which may thus perpetuate both camouflaging and its mental health outcomes or correlates.

The CAT-Q and many, if not all, measures of mental health symptoms or psychological wellbeing used in the studies included in the meta-analysis account for experiences over a particular period of time or across social contexts. Several questions in the CAT-Q ask respondents to consider their behaviour “in social situations” rather than in any specific context (Hull et al., 2019), requiring some form of averaging or generalising of one’s experiences. This may therefore obscure key contextual differences in camouflaging, which may be better captured by longitudinal or qualitative studies. Consequently, the possibility of different camouflaging behaviours leading to different outcomes in different contexts, plausibly dependent on

the perceived social demands and the anticipated risk of stigmatisation, should be examined in more detail. For instance, participants in Chapter 3 described how different social contexts conferred varying levels of psychological safety (e.g., interacting with autistic people and some non-autistic loved ones generally felt safe) and different perceived expectations. These expectations facilitated them blending in or called for camouflaging, whether or not they chose to engage in it. Ai et al.'s (2022) transactional impression management framework stresses the importance of the interaction between one's behaviour and its perception within a given social context, and it is possible that this interaction may have a role in autistic people's mental health. For instance, believing that one's stigmatised identity is less conspicuous may lead to less anxiety around intergroup interactions (Le Forestier et al., 2020), a finding that remains to be studied in autistic people.

Dovetailing with the idea of differential impacts of different forms and contexts of camouflaging, Chapter 2 uncovered preliminary evidence that the Assimilation subscale of the CAT-Q, which captures the intent to modulate one's behaviour, had more consistent relationships with adverse mental health outcomes compared to the other two subscales, which measure specific behaviours and strategies. Further, studies using the discrepancy approach (i.e., the difference between one's observable behaviour and their social cognition or internal perception of their autistic traits) to quantify camouflaging also had more inconsistent results compared to studies relying on the CAT-Q. Thus, deliberate camouflaging may potentially be associated with more deleterious outcomes than any specific behavioural strategies used to camouflage. This could be through a perceived need to put on an act and self-modulate, which may stem from low psychological safety and expected

stigmatisation, or because of the associated cognitive load (Livingston & Happé, 2017). In contrast, camouflaging that occurs automatically or unconsciously may not be well captured by the CAT-Q (Cook et al., 2021), and it is unknown whether it would have a similar relationship with mental health in autistic people. Several participants in Chapter 3 stated that they camouflaged automatically, and it required them conscious effort to 'unmask' when they felt sufficiently safe, which seemed to lead to feelings of satisfaction and authenticity. Emergent literature on 'unmasking' suggests that it can be rewarding and empowering for autistic people (Belek, 2023), but may pose grave danger to marginalised autistic people, especially those experiencing racial marginalisation, whose physical safety depends on fitting into certain expectations (Radulski, 2022).

Implications and Future Directions

The two studies forming this thesis extend the literature on autistic camouflaging through examining the issues in the research landscape – namely, the potential reasons underlying the inconsistent findings related to the relationship between camouflaging and mental health and wellbeing. It was found that camouflaging is frequently a function of the social context, which underscores the need for creating inclusive spaces for autistic people and challenging exclusionary social norms. While Chapter 3 showed that autistic people tended to find interactions with other autistic people smoother and more authentic, usually with reduced camouflaging demands, positive and meaningful cross-neurotype connections are also possible, provided that both sides put in the effort and maintain open lines of communication. Future research should thus examine the contextual dependency of camouflaging in more detail, including through quantitative and qualitative studies

and by incorporating relevant concepts such as expected stigmatisation and perceived autistic identity visibility across contexts.

The systematic review and the qualitative study, as discussed above, support the distinction between deliberate and automatic forms of camouflaging and highlight the need for future research into their potential differential impacts on mental health as well as those of the related concept of ‘unmasking.’ ‘Unmasking’ should also be clarified conceptually through, for instance, determining how it is different from simply not engaging in camouflaging and how it may or may not apply to autistic people from marginalised backgrounds or with intellectual or language impairments.

The sociocognitive side of camouflaging decision-making should be investigated as well. It is possible that social cognition abilities, such as interpreting body language or emotion recognition, could additionally mediate the relationship between camouflaging and mental health in autistic people. For example, some social cognition profiles may enhance one’s ability to appraise the demands of a particular social context and foresee the consequences of fitting or subverting them but also simultaneously enhancing one’s social anxiety through a hyper-awareness of social rejection cues (Zimmer-Gembeck et al., 2021), which should be tested, ideally in longitudinal studies.

Finally, camouflaging and its relationship with mental health should be investigated across development in order to establish the nature and evolution of that relationship with more precision. Longitudinal designs may help researchers understand how camouflaging initially emerges and manifests across contexts as well as what interventions would be the most beneficial to proactively address

concerns about mental health and autistic burnout (Raymaker et al., 2020) in autistic people.

Limitations

The quantitative data used in this thesis were cross-sectional and thus cannot support any causal claims. The qualitative study in Chapter 3, by nature, offered more opportunities for participants to discuss their experiences over time and in different situations, which allowed to draw some conclusions about cause-and-effect relationships. However, those conclusions are limited to the sample used in that study, which, as discussed earlier, is only representative of a small portion of the autistic community.

Chapter 3 did not examine potential differences in decision-making surrounding camouflaging across genders. Gender is often seen as important factor in camouflaging in autistic people, as some studies have found that autistic women tend to camouflage more than autistic men (Hull et al., 2020; McQuaid et al., 2022). Further, autistic women may experience poorer mental health compared to autistic men (Martini et al., 2022). Although Chapter 2 did not find any evidence that the relationship between camouflaging and mental health is moderated by gender, it is important to note that camouflaging may be affected by gendered socialisation experiences and expectations (Moore et al., 2022; Saxe, 2017).

Finally, the data used in this study are as only good as the way they were obtained. The overwhelming majority of the studies included in the meta-analysis used the CAT-Q, and its psychometric validity is still under investigation (Hannon et al., 2023). Further, the CAT-Q may not be a psychometrically valid measure when it comes to capturing unconscious or automatic camouflaging (Cook et al., 2021) and

the context-dependent nature of camouflaging. While several participants in Chapter 3 spontaneously reported engaging in automatic camouflaging, its unconscious nature means that it is frequently difficult for the person to detect and describe verbally (Lawson, 2020). Therefore, the conclusions drawn from this thesis with regards to unconscious camouflaging are preliminary.

Conclusion

The research undertaken as part of this thesis sheds light on several complexities in research on autistic camouflaging, namely its relationship with mental health and the surrounding social context It was found that across studies, camouflaging tended to significantly correlate with adverse mental health outcomes and reduced psychological wellbeing in autistic people. A qualitative study revealed that camouflaging decision-making may depend on psychological safety and perceived match with the interaction partner, both of which were generally higher in autistic-autistic interactions. The results support the call for fostering more inclusive spaces for autistic people and challenging anti-autism stigma to foster positive interactions within and between neurotypes.

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APPENDIX A

PRISMA 2020 Checklist

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Abstract
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Rationale
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Rationale
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Table 1
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Methods
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Appendix
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Methods
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Methods
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Methods
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Methods
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Methods
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Methods
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Methods
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Methods
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Methods
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Methods
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Methods
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Methods
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Results
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	N/A
Study characteristics	17	Cite each included study and present its characteristics.	Table 3
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Table 3, OSF Page
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Results
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Results
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Results
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Results
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Results
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Results
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Results
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Discussion
	23b	Discuss any limitations of the evidence included in the review.	Discussion
	23c	Discuss any limitations of the review processes used.	Discussion
	23d	Discuss implications of the results for practice, policy, and future research.	Discussion
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Abstract
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Methods
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Abstract
Competing interests	26	Declare any competing interests of review authors.	Abstract
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Results, OSF Page

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: http://www.prisma-statement.org/

APPENDIX B

Search Strategies

MEDLINE
(camouflag* OR mask* OR assimilat* OR pass* OR compensat* OR “impression management” OR conceal*) AND (autis* OR asperger* OR ASD OR autism spectrum disorder OR autistic spectrum disorder OR ASC OR “autism spectrum condition” OR “autistic spectrum condition” OR PDD OR "pervasive developmental disorder")

PsycINFO and Embase through Ovid
(camouflag* or mask* or assimilat* or pass* or compensat* or "impression management" or conceal*) and (autis* or asperger* or ASD or autism spectrum disorder or autistic spectrum disorder or ASC or "autism spectrum condition" or "autistic spectrum condition" or PDD or "pervasive developmental disorder")).mp. [mp=ti, ab, tx, ct, hw, tn, ot, dm, mf, dv, kf, fx, dq]

Web of Science
(camouflag* OR mask* OR assimilat* OR pass* OR compensat* OR “impression management” OR conceal*) AND (autis* OR asperger* OR ASD OR autism spectrum disorder OR autistic spectrum disorder OR ASC OR “autism spectrum condition” OR “autistic spectrum condition” OR PDD OR "pervasive developmental disorder")

ProQuest Dissertations & Theses
(noft(camouflag*) or noft(mask*) or noft(assimilat*) or noft(pass*) or noft(compensat*) or noft("impression management") or noft(conceal*)) and (noft(autis*) or noft(asperger*) or noft(ASD) or noft(autism spectrum disorder) or noft(autistic spectrum disorder) or noft(ASC) or noft("autism spectrum condition") or noft("autistic spectrum condition") or noft(PDD) or noft("pervasive developmental disorder"))

APPENDIX C

Ethics Approval Letter

UNIVERSITY OF BIRMINGHAM

Dear Andrew Surtees, Sophie Sowden, Valeria Khudiakova

RE: Social Cognition and Camouflaging in Autism (Study 1)

Application for Ethical Review: ERN_1809-Mar2024

Thank you for your application for ethical review for the above project, which was reviewed by the Science, Technology, Engineering and Mathematics Committee.

On behalf of the Committee, I confirm that this study now has ethical approval.

Any adverse events occurring during the study should be promptly brought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available at https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx) are adhered to.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit at healthandsafety@contacts.bham.ac.uk.

Kind regards,

The Co-Chairs of the Science, Technology, Engineering and Mathematics Committee

E-mail: ethics-queries@contacts.bham.ac.uk