TREATMENT OPTIONS FOR IRRITABILITY AND AGGRESSION IN HUNTINGTON'S DISEASE: A NARRATIVE REVIEW

by

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OVERVIEW

This thesis contains two volumes and is submitted as partial fulfilment for the degree of Doctorate in Psychology (Foren.Clin.Psy.D) at the University of Birmingham.

Volume One

This volume consists of three elements. The first is a narrative literature review of treatment for irritability and aggression in Huntington's disease. The second element presents an empirical paper interviewing registered nurses and health care assistants working with people at a specialist locked inpatient service for people with Huntington's disease about their personal experiences of relationships with people with Huntington's disease and their relatives. The final part is a press release, offering an accessible summary of the narrative review and empirical paper.

Volume Two

Volume two consists of five forensic clinical practice reports (FCPR). The first FCPR presents a behavioural, and cognitive behavioural formulation of a 14-year-old female's self-harming behaviour. The second FCPR outlines a single case experimental design assessing the effectiveness of a behavioural intervention in reducing a 12-year-old male's faecal smearing. The third FCPR presents a clinical audit of staff training within an inpatient male autism spectrum disorder service. The fourth FCPR evaluates leadership competencies implemented in the development and delivery of a fear of falling training workshop for staff supporting older adult men at an inpatient medium secure mental health ward.

** The names of individuals, settings and other potentially identifying information have been altered to maintain the anonymity of individuals and organisations.*

DEDICATION

For my Mum, Tracy Harding

I could not have achieved this without you. Your faith in me did not waver. No matter what you were going through, you always offered unconditional support and reassurance, and encouraged me to keep going. I cannot thank you enough. I hope I have done you proud.

I love you and miss you. Until we meet again, rest in total peace, Mum.

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LIST OF CONTENTS

Empirical Paper - Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Volume One: Appendices

Literature review appendices

Empirical paper appendices

Volume Two: Forensic and Clinical Component

Forensic Clinical Practice Report One – Psychological Models

Behavioural and cognitive behavioural formulations of Olivia, a 14-year-old female presenting with self-harming behaviour

Forensic Clinical Practice Report Two – Single Case Experimental Design

A single case experimental design assessing the effectiveness of a behavioural intervention in reducing the faecal smearing of William, a 12-year-old male

Forensic Clinical Practice Report Three – Clinical Audit

Clinical audit of staff training within an inpatient male autism spectrum disorder service

Forensic Clinical Practice Report Four – Leadership

The development and delivery of a fear of falling training workshop for staff supporting older adult men at an inpatient medium secure mental health ward

Forensic Clinical Practice Report 5 – Case Study

Dialectical Behavioural Therapy informed intervention with Will, a 40-year old male presenting with suicidal ideation

<u>Volume Two: Appendices</u>

Forensic Clinical Practice Report Two – Single Case Experimental Design

Forensic Clinical Practice Report Three – Clinical Audit

Forensic Clinical Practice Report Four – Psychological Leadership

TABLES AND FIGURES

Volume One: Research Component

Literature Review

Tables

Figures

Empirical Paper

Tables

Figures

Volume Two: Clinical Component

Forensic Clinical Practice Report 1 – Psychological Models

Tables

Figures

Forensic Clinical Practice Report Two – Single Case Experimental Design

Tables

Figures

Forensic Clinical Practice Report Three – Clinical Audit

Tables

Figures

Forensic Clinical Practice Report Four – Psychological Leadership

Tables

Figures

Abstract

Background: Huntington's disease (HD) is a relatively rare hereditary progressive neurodegenerative condition. Amongst motor and cognitive symptoms, irritability often occurs in people with HD (pwHD) and can lead to aggression. Both are associated with increased hospital admissions and harmful effects on everyday functioning and quality of life. Aggression may pose a risk to the pwHD themselves as well as other people. *Aims and objectives:* Very few reviews have explored irritability and/ or aggression. Those that have are weakened by methodological shortcomings. They are not systematic, do not represent full coverage of existing studies, nor do they reference the importance of ensuring that the measure of irritability or aggression is valid and reliable. This review set out to consolidate and assess the quality of research exploring the most efficacious known interventions for irritability and aggression for pwHD. *Method:* EMBASE, PsycINFO, and Web of Science were systematically searched in September 2020. These electronic databases were selected because they covered psychology, psychiatry, and health care interventions. A narrative synthesis was used due to there being high levels of methodological heterogeneity. *Results:* A systematic review of the literature identified 12 studies outlining treatment for pwHD and irritability and/ or aggression meeting the inclusion criteria. The studies included spanned 20 years between 1997 and 2017. They contained high levels of methodological heterogeneity, including both randomised and non-randomised methods, sampling men and women across the world, in inpatient and outpatient settings, and with symptomatic or pre-symptomatic HD. The sample sizes included small, moderate, and large participant groups. The studies included pharmacological

treatments of irritability and aggression in HD as well as alternative psychological treatments. *Conclusion:* There was some support for the use of atypical antipsychotics, cannabinoids, selective serotonin reuptake inhibitors, and non-pharmacological treatments for irritability and/ or aggression in pwHD. However, several methodological shortcomings must be borne in mind when evaluating the robustness of the synthesis. Further research should be conducted to address these shortcomings.

Keywords: Aggression, irritability, narrative synthesis, people/person with Huntington's disease (pwHD); Unified Huntington's Disease Rating Scale (UHDRS)

1. INTRODUCTION

Huntington's disease (HD) was first described by George Huntington in 1972 (Adam & Jankovic, 2008). HD is an autosomal dominant progressive neurodegenerative condition caused by the expansion of a trinucleotide cytosine-adenine-guanine (CAG) repeat in the IT-15 huntingtin (HTT) gene, found on the short arm of chromosome 4 (Bouwens et al., 2015; Ciammola et al., 2009; Huntington Disease Collaborative Research Group, 1993). Although under normal circumstances, huntingtin is present, its function is not fully understood (Bouwens et al., 2015). The mutant huntingtin probably leads to a toxic gain of function, resulting in striatal cell loss (Bouwens et al., 2015).

In 2010, the UK prevalence of HD was estimated to be 9.28 per 100,000 (Baig et al., 2016). The prevalence of HD is estimated to be 2.71 per 100,000 worldwide (Pringsheim et al., 2012). In people carrying the expanded gene (CAG >36 repeats), HD clinically manifests most commonly in late adulthood and early middle age (Langbehn et al., 2004; Tippett et al., 2007). The age of onset is generally about 40 years (Bouwens et al., 2015). Its course often spans approximately 20 years from the onset of symptoms to eventual death (Bouwens et al., 2015; Kieburtz et al., 2010).

HD is characterised by progressive course and a combination of voluntary and involuntary motor, cognitive, and non-cognitive psychiatric symptoms (Paleacu et al., 2001; Paulsen et al., 2001; Reedeker et al., 2012; Rosenblatt & Leroi, 2000). Diagnosis of HD was previously based primarily on the presence of motor symptoms, but recent research suggests that cognitive and psychiatric symptoms are often also present in the early phase of the disease process (Biglan et al., 2013; Paulsen et al., 2008; Tippett et al., 2007).

The motor symptoms are a prominent feature of HD and consist of any combination of hyperkinetic movements (primarily chorea and also bradykinesia) (Paleacu et al., 2001). Chorea is an atypical involuntary movement, characterised by brief, abrupt, irregular, unpredictable, and non-stereotyped movements. Bradykinesia refers to slowness of movement (Berardelli et al., 2001). Weakness, tremor, and rigidity may contribute to, but do not fully explain bradykinesia (Berardelli et al., 2001).

Cognitive impairment occurs early in the disease (Kieburtz et al., 2010; Rosenblatt & Leroi, 2000) and deteriorates as HD progresses. Cognitive impairment can include lessened insight and initiation, slowed processing, difficulties planning and multi-tasking, difficulties with memory and concentration, and perseveration (Huntington's Disease Association; St Andrew's Healthcare, 2017). This can contribute to a loss of ability to work and perform activities of daily living (Kieburtz et al., 2010).

Psychiatric manifestations are thought to occur in between 33% and 76% of people (van Duijn et al., 2007). Psychiatric disorders can be very heterogeneous and include affective disorders (Paleacu et al., 2001). The most common are depression, dysthymia, or anxiety, as well as schizophreniform syndromes and behavioural disturbances primarily manifested as irritability, psychomotor agitation, and disruptive behaviour (Caine & Shoulson, 1983). Psychiatric symptomology can often precede the onset of motor symptoms (Amann et al., 2000; Bouwens et al., 2015).

Irritability is a common psychiatric manifestation of HD (Craufurd et al., 2001; Kingma et al., 2008; Rickards et al., 2011). Irritability can be characterised as a mood state and precipitant to impulsivity, hostility, anger, and overt aggression (Craig et al., 2008; Snaith & Taylor, 1985). However, irritability may also be present without observable manifestation (Bouwens et al., 2015). Both impulsivity and aggression are

associated with increased rates of hospital admissions (Hamilton et al., 2003; Wheelock et al., 2003).

The prevalence of irritability ranges from 35% to 75% depending on its definition, means of assessment, and the study population (Julien et al., 2007; Reedeker et al., 2012; van Duijn et al., 2007). Irritability may occur up to 10 years before the onset of motor symptoms (Julien et al., 2007). The subjective experience of irritability might be of short or long duration (Bouwens et al., 2015). In contrast to justifiable anger, verbal or physical aggression resulting from irritable mood are non-adaptive, complicate the interaction between the person and their environment, and are unpleasant for the person with HD (pwHD) (Bouwens et al., 2015). Two prospective studies of 12 premotor symptomatic (Kirkwood et al., 2002) and 111 motor symptomatic (Chatterjee et al., 2005) HD mutation carriers demonstrated that irritability increased over time. A systematic review (Fisher et al., 2014) identified that the prevalence of aggression in HD ranges between 22% and 66% in the majority of studies. A prevalence of 19.1% of overt aggression from 1468 manifest and pre-manifest mutation carriers was found in REGISTRY, a European multicentre prospective observational study (Orth et al., 2010).

Despite the high rates of aggression in pwHD, limited studies report on its characteristics (Brown & Fisher, 2015; Craufurd et al., 2001; Shiwach & Patel, 1993; Thompson et al., 2012). The review by Fisher et al. (2014) indicated that the prevalence of aggression is likely to be higher amongst males, and more prevalent in the early to middle phases of the condition, following the onset of symptoms. Verbal aggression appears to be the most common, although physical aggression is also relatively prevalent, with physical aggression against objects reported less frequently. There are no known published empirical data investigating antecedents to aggression in pwHD

(Fisher et al., 2014). However, personality change is very common, occurring in up to 50% of pwHD by the mid-phase of disease progression (Craufurd et al., 2001). Thirty to 40% of pwHD develop major depression (Shen, 2009). Up to 10% develop mania, although this diagnosis might be confused with disinhibition and other personality changes (Craufurd et al., 2001). Less frequently, pwHD might develop disorders that are clinically indistinguishable from schizophrenia, delusional disorder, and obsessive-compulsive disorder (Naarding et al., 2001; Royuela Rico et al., 2003). These personality changes, combined with environmental precipitants such as thirst, pain, and frustration, may be a precipitant to irritability and aggression (Shen, 2009).

There is currently no known cure for HD (Wood et al., 2002). The treatment of psychiatric symptoms is particularly important in HD due to their harmful effects on everyday functioning and quality of life (Marder et al., 2000). Of the many behaviours presented by pwHD, aggression is the most challenging in the extended care setting and is often the reason for admission (Wood et al., 2002). Likewise, irritability can contribute to great distress to pwHD, and to those who support them (Bouwens et al., 2015). Effective treatments must be identified and used; particularly because pwHD may put themselves and others at risk should their behaviour not be appropriately addressed (Wood et al., 2002).

Given the little-known nature of aggression in HD, there are limited studies that have trialled behavioural interventions to target aggression. Those that do have originated from Brown and Fisher (2015), and Leng et al. (2003) who explore sensory modulation interventions, and positive behavioural support (Blass et al., 2001). These studies are especially important for those who may be sensitive to antipsychotic medication (Edlinger et al., 2013), or susceptible to conditions such as neuroleptic

malignant syndrome, reported in several pwHD (Gahr et al., 2020; Moreno et al., 2012, Nozaki et al., 2014).

The majority of published treatment studies for aggression in HD have focused on pharmacological treatment (Fisher et al., 2014). However, the significant methodological shortcomings of many pharmacological studies mean that there are no recognised guidelines for the medical treatment of aggression in HD. However, there is an agreement in terms of therapeutic options by clinicians who treat the condition (Craufurd & Snowden, 2014; Groves et al., 2011; van Duijn, 2017). Before any pharmacological agents being considered, irritability secondary to pain or akathisia (a movement disorder characterised by a subjective feeling of inner restlessness) should be explored and targeted if necessary (van Duijn, 2017). In addition, the identification and elimination of triggers that predispose pwHD to irritability and related behaviours are often noted to be very effective (Craufurd & Snowden, 2014). There is some support for both operant and classical conditioning in achieving behavioural modification, especially in more advanced disease (van Duijn, 2010; Wood et al., 2002). In practice, this may take the form of reinforcing appropriate behaviours and circumventing the inadvertent reinforcement of less appropriate behaviours. Other approaches, including the application of structured routines, strategic sequencing of activities (desirable activities following those considered as less pleasant), and minimisation of unplanned changes may also be effective non-pharmacological treatments of irritability (Blass et al., 2001). Karagas et al. (2020) pointed to irritability increasing as HD progresses, at which time pharmacotherapy is more likely required to alleviate symptoms.

An international survey by Groves et al. (2011) described the use of SSRIs as the preferred line of treatment. Bachoud-Levi et al. (2019) echoed this, using

mirtazapine and mianserine in combination. The efficacy of SSRIs in treating irritability in HD is supported by multiple case reports and a small randomly controlled trial that achieved a modest reduction in agitation with fluoxetine (Como et al., 1997; De Marchi et al., 2001; Ranen et al., 1996).

The most favoured alternative single drug treatments are reported to be antipsychotic drugs such as olanzapine, quetiapine, and risperidone, particularly if signs of impulsivity and aggression are present (Groves et al., 2011; van Duijn, 2017). Olanzapine is one of the first-line dopamine antagonists for the treatment of behavioural symptoms in HD (Bogelman et al., 2001). In a six-month open-label trial, 11 pwHD were prescribed five milligrams of olanzapine and were noted to experience significant improvement in behavioural sub-scores for anxiety, depression, and irritability (Squitieri et al., 2001). However, the use of antipsychotics revealed inconsistent outcomes in managing irritability and aggression (Anderson et al., 2018). Quetiapine, an atypical antipsychotic, was found to improve behavioural symptoms (psychotic symptoms, irritability, and insomnia) in one case series (Alpay & Koroshetz, 2006). Cankurtaran et al. (2006) and Erdemoglu & Boratav (2002) supported the use of risperidone in treating psychiatric symptoms associated with HD. However, the most frequent side effects associated with risperidone have been found to include agitation (Duff et al., 2008).

Two case reports have provided support for the use of treating aggression and/ or irritability related to HD with the use of intramuscular zuclopenthixol (Rej & Desautels, 2013; Tibrewal et al., 2017). Other preferred single drug agents in the international survey by Groves et al. (2011), in order of descending frequency of use,

were the antidepressant mirtazapine, antiepileptic drugs, benzodiazepines, tricyclic antidepressants, the beta-blocker propranolol, and the anxiolytic buspirone.

Benzodiazepines were used particularly in the case of comorbid anxiety (Groves et al., 2011; van Duijn, 2017). Although benzodiazepines are used extensively, there have been concerns about dependency, tolerance, and overuse as a long-term agent, increased risk of falls, and, one report that correlated its use with irritability in HD (Micheline et al., 1996; Ray et al., 2000; Reedeker et al., 2012; van Duijn, 2017). However, causality was not established in the latter study and it remains possible that irritability led to treatment using benzodiazepines, as opposed to the reverse (Craufurd & Snowden, 2014).

In cases of irritability accompanied by aggression, antipsychotic drugs and mood stabilizers were again recommended as first and second-line treatments, respectively (Bachoud-Levi et al., 2019). Additionally, carbamazepine and valproic acid, both anticonvulsants, are often prescribed to manage aggression amongst pwHD (Wood et al., 2002).

Neuromodulation techniques including electroconvulsive therapy (ECT) can also be considered for irritability. There are a small but encouraging number of reports on the efficacy of ECT for psychiatric symptoms associated with HD. Petit et al. (2016), in a recent case report, outlined the use of ECT in treating irritability in pwHD, whose irritability was resistant to pharmacotherapy. These authors noted that following three treatments, there had been a significant decrease in verbal and physical aggression. By the time of the fifth treatment, irritability was at baseline, at which time treatment was stopped. This decrease was maintained at two months following treatment with ECT, demonstrating the lasting benefits of this neuromodulation technique.

It is evident that numerous interventions have been trialled for the treatment of irritability and/ or aggression in pwHD. However, there has been little consensus in those that are most efficacious. There have been two recent attempts to synthesise the literature relating to these interventions. Karagas et al. (2020) reviewed irritability in the context of HD. However the paper is not systematic in nature, it does not represent full coverage of existing studies, nor does it reference the importance of ensuring that the measure of irritability or aggression is valid and reliable, which consequently undermines the strength of the findings. The same limitations can be levelled at the review by Rossi & Oh (2020) which explored treatments for aggression in HD.

To address these methodological shortcomings, a systematic narrative synthesis exploring interventions for irritability and aggression for pwHD should provide a valuable addition to the literature. The current review aims to consolidate and assess the quality of research exploring the most efficacious known interventions for irritability and aggression for pwHD.

2. METHODOLOGY

To address the research aims, a systematic literature was undertaken, and a narrative synthesis was employed.

2.1. Search strategy

An overview of the process is outlined in Figure 1 with the Preferred Reporting Items for Systematic and Meta-Analyses (PRISMA) (Moher et al., 2009). EMBASE, PsycINFO, and Web of Science were systematically searched in September 2020. These electronic databases were selected because of their coverage of psychology, psychiatry, and health care interventions. To reduce bias, no limits were applied to published or unpublished status. The search terms (see Table 1) were truncated to account for variations in spelling, as well as synonyms, thereby maximising the possibility of identifying all relevant articles. The Boolean logical operator 'AND' was used to combine the three search clusters. The search terms were based on the results of an initial scoping review of irritability and aggression in HD and appeared in several abstracts and searches.

Table 1

Terms utilised in the systematic search of electronic databases

Group 1	Group 2	Group 3
Huntington's disease	a. Anger OR b. Aggress* OR c. Hostil* OR d. Irritab* OR e. Psychiatric symptom* OR f. Psychopathology OR g. Violen*	a. Intervention OR b. Management OR c. Medicine OR d. Medication OR e. Therapy OR f. Treatment
	'AND'	***'AND'***

*Abbreviations: *=Boolean search modifier allowing search for truncated terms, OR = Boolean search operator allowing a search for multiple terms relating to a single cluster, 'AND' = Boolean operator used to combine the three search clusters.*

Table 2 below demonstrates the criteria used to include or exclude records.

Table 2

Inclusion and exclusion criteria for the review

Inclusion criteria	Exclusion criteria
Include study if it meets the following criteria: - Includes pwHD - Includes participants over 18 years of age - Intervention or non-intervention study - Any type of study design - Article must contain some original data (can include detailed descriptions of participants) - Published in a peer-reviewed journal article	Exclude study if it meets any of the following criteria: - pwHD are not the research focus - Does not include participant data

2.2. Results of the systematic search

In total, 465 articles were identified, reducing to 452 following the removal of duplicates. The titles and then the abstracts were screened for relevance leaving 50 potentially eligible articles. The full texts of these articles were assessed for eligibility. At the end of this process, a total of 12 studies were deemed to be eligible for the current review and met the inclusion criteria outlined in Table 2. Reasons for the exclusion of studies are provided in Figure 1, which offers a diagrammatic outline of the systematic process of identifying articles eligible for the current review.

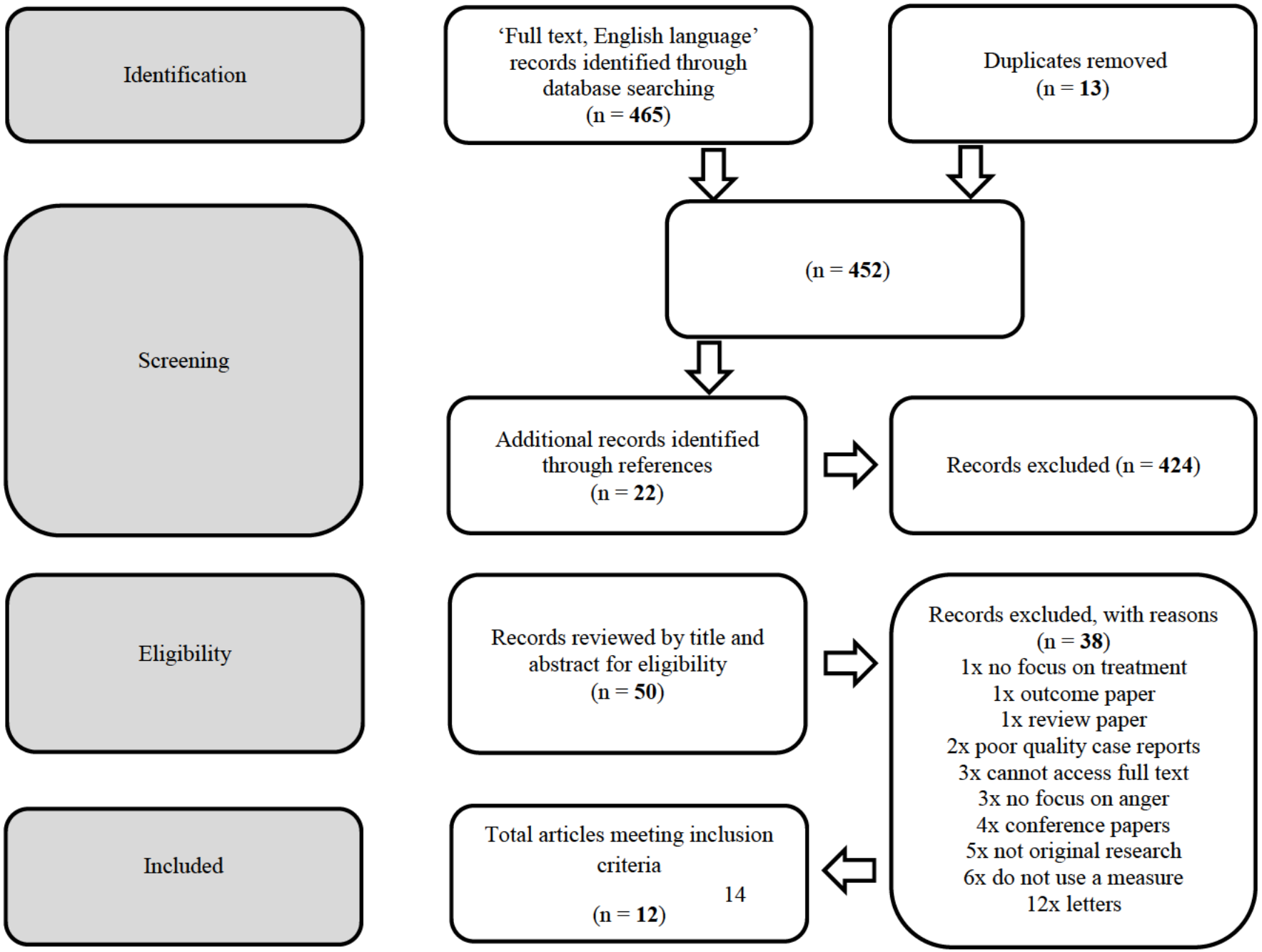
Identification
'Full text, English language' records identified through database searching (n = 465)
Duplicates removed (n = 13)
(n = 452)
Screening
Additional records identified through references (n = 22)
Records excluded (n = 424)
Eligibility
Records reviewed by title and abstract for eligibility (n = 50)
Records excluded, with reasons (n = 38)
1x no focus on treatment
1x outcome paper
1x review paper
2x poor quality case reports
3x cannot access full text
3x no focus on anger
4x conference papers
5x not original research
6x do not use a measure
12x letters
Included
Total articles meeting inclusion criteria (n = 12)
14

Figure 1

Preferred Reporting Items for Systematic and Meta-Analyses (PRISMA) (Moher et al., 2009): flow chart summarising the systematic process of identifying articles eligible for the current review

2.3. Proposed analysis

Narrative synthesis was used due to there being high levels of methodological heterogeneity. The identified studies included both randomised and non-randomised methods, contraindicating the choice of a meta-analysis, so the data were synthesised narratively.

Narrative synthesis refers to a "synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise the findings of the synthesis. Whilst it can involve the manipulation of data, the defining characteristic is that it adapts a textual approach to the process of the synthesis to 'tell the story' of the findings from the included studies" (Popay et al., 2006). It is therefore particularly useful when evidence comes from diverse study types.

It could be said that the purpose of narrative synthesis is to organise, describe, explore, and interpret study findings and attempt to find explanations for (and moderators of) those findings.

3. RESULTS

The results are presented in three sections: descriptive synthesis of included studies, quality assessment, and narrative synthesis.

3.1. Descriptive synthesis of studies included for review

In total 12 studies met the inclusion criteria. The studies spanned 20 years between 1997 and 2017, demonstrating the paucity of literature in this area. Of these, four were randomised control trials/ experimental studies, two were prospective case-cohort studies, two were uncontrolled case studies, one was a before and after study, one was a retrospective case-cohort study, one was a cross-sectional study, and one was a single case experimental design. Non-pharmacological interventions included sensory modulation intervention and behaviour support modification for the treatment of significant aggression in HD.

3.2. Data extraction

Data for the 12 studies included in the current review were extracted using a data extraction table (see Table 3) which allowed the author to elicit relevant information from each article. The following data were extracted from the studies: title, author, year of publication, country, setting, patient group, number of participants, gender, average age, methodology, measures of quantification, intervention, results, statistical outcomes, and recommendations for further research.

3.3. Study population and study design

The total number of participants before any drop-outs was 1,292, of which 1,117 were males and 175 were females. The mean age of participants was 51. The studies took place in a variety of countries; Australia (n=1), China (n=1), France (n=1), Israel (n=1), Italy (n=2), Netherlands (n=1), Spain (n=1), United Kingdom (n=1), United States of America (n=2), and one study took place in both the United Kingdom and United States of America (n=1). The participants included 1,266 symptomatic and 25 pre-symptomatic persons with HD. The status of one participant was missing.

Table 3

Data extraction for studies 1-6

	Bouwens et al., 2015	Ciammola et al., 2009	Como et al., 1997	Curtis et al., 2009	Desamericq et al., 2014	Duff et al., 2008
Title	Irritability in a prospective cohort of Huntington's disease mutation carriers	Aripiprazole in the treatment of Huntington's disease: a case series	A controlled trial of fluoxetine in nondepressed patients with Huntington's disease	A pilot study using nabilone for symptomatic treatment in Huntington's disease	Effectiveness of anti-psychotics and related drugs in the Huntington French-speaking group cohort	Risperidone and the treatment of psychiatric, motor, and cognitive symptoms in Huntington's disease
Country	Netherlands	Italy	USA	UK	France	USA
Type of setting	Outpatient	Inpatient/ outpatient	Not specifically stated	Inpatient	Inpatient/ outpatient	Outpatient
Patient group	HD	HD	HD	HD	HD	HD
Baseline number of participants	90	Three	30	44	956	29
Gender	46% men / 54% women	33.3% men / 66.6% women	60% men / 40% women	50% men / 50% women	Males	59% men / 41% women
Average age	49	64	43.6	52	49.6 – 53.1 for drug groups	48.9 (drug group), 51.7 (control group)
Methodology	Prospective case-cohort study	Uncontrolled case study	Double-blind, randomised, placebo-controlled trial	Pilot study	Prospective case-cohort study	Retrospective case-cohort study
Measures of quantification	Irritability Scale (IS)	UHDRS	CBRS	UHDRS	UHDRS	UHDRS
Intervention	Administration of assessments of the course of	Case 2: olanzapine five milligrams OD	Fluoxetine 20 milligrams per day or	5 weeks Nabilone > 5 weeks placebo	602 (63%) received antipsychotics	Average dose of risperidone 2.5 milligrams once

	irritability over two years	(once daily) and Lorazepam 1.5mgs nocte (night). Aripiprazole then introduced at five milligrams per day to 15 milligrams over two months	identically appearing placebo capsules	5-week dose reduction and washout Nabilone (or matching placebo) started at 250 micrograms at night (nocte)		daily (OD) over an average time of 14.8 months. Control group average gap of 11-months
What is reported?	Antipsychotics were associated with increased irritability	Aripiprazole was reported to improve some of the behavioural symptoms of HD, although exactly which were not specified	Fluoxetine showed a trend toward improvement for agitation	Nabilone improved some of the behavioural symptoms of HD, although exactly which were not specified	There was no difference between treatments on the behavioural declines observed	Risperidone improved some of the psychiatric symptoms of HD, specifically hallucinations and apathy
Statistical outcomes	The score on the irritability scale (IS) between baseline and follow-up showed no significant change ($p = 0.78$)	No statistical outcomes reported	The agitation subscale score of the cognitive behaviour rating scale (CBRS) showed improvement ($p = 0.02$)	The behavioural score of the UHDRS showed non-significant improvement ($p = 0.06$)	For irritability and aggression, dibenzodiazepines and tetrabenazine performed better than risperidone. P values were not reported.	The risperidone group total psychiatric score significantly improved on follow-up ($p = 0.028$), there was no significant change in the control group (p

					= 0.539)
Recommendations for further research	None	Randomised control trials are warranted	Assessment of a larger number of participants over a similar time frame	None	Further controlled studies	Controlled clinical trials are warranted

Table 3

Data extraction for studies 7-12

	Fisher & Brown., 2017	Kieburtz et al., 2010	Moreno et al., 2016	Paleacu et al., 2001	Squitieri et al., 2001	Yu-Chih Shen., 2008
Title	Sensory modulation intervention and behaviour support modification for the treatment of severe aggression in Huntington's disease. A single case experimental design	A randomized, placebo-controlled trial of latrepirdine in Huntington disease	A double-blind, randomized, controlled, cross-over, placebo-controlled pilot trial with Sativex in Huntington's disease	Olanzapine in Huntington's disease	Short-term effects of olanzapine in Huntington disease	Lamotrigine in motor and mood symptoms of Huntington's disease
Country	Australia	UK & USA	Spain	Israel	Italy	China
Type of setting	Inpatient	Outpatient	Not specifically stated	Inpatient	Outpatient	Inpatient
Patient group	HD	HD	HD	HD	HD	HD
Number of participants	One	91	25	11	10	One
Gender	Male	52% men / 48% women	56% men / 44% women	45% men / 65% women	20% men / 80% women	Female
Average age	31	Not specifically stated	47.6	47.6	51.7	49
Methodology	Single case experimental study	Double-blind, randomised, placebo-controlled trial	Double-blind, randomized, placebo-controlled trial	Cross sectional study	Before and after study	Uncontrolled case study
Measures of quantification	Simulation Modelling Analysis	UHDRS	UHDRS	UHDRS and Clinical Global Impression of Change scale (CGIC)	UHDRS	Hamilton Rating Scale for Depression (HAM-D21)
Intervention	- Eight-week baseline phase	Latrepirdine 20 milligrams TDS	- Sativex followed	Average dosage of olanzapine	Patients instructed to self-	Lamotrigine 25mgs nocte

	- Five-weeks of sensory modulation intervention - Behaviour support plan - Aggressive behaviour systematically audited for 11-weeks	(three times daily) and placebo	by placebo, or placebo followed by Sativex. - Two 12-week treatment blocks followed by four week washout period	11.4 milligrams OD (once daily) for average of 9.8 months	administer olanzapine five milligrams OD (once daily)	(night) increased to 100 milligrams within two-weeks Further increased to 300 milligrams within the first month
What is reported?	There was a significant reduction in reported levels of aggression during the combined sensory modulation and behaviour support phase, compared to the baseline and the sensory modulation therapy alone phases	Behavioural outcomes improved in the latrepirdine group, although exactly which are not specified	No differences were found between behavioural scores during treatment with Sativex when compared to placebo	Olanzapine is a good treatment for the psychiatric symptoms of HD	Five patients' behavioural scores improved significantly after six-months of treatment	There was a clear improvement in depression, agitation, irritability, mood swings and suicidal ideation after 1.5 months
Statistical outcomes	The difference between the baseline mean and sensory modulation mean fell just short of reaching significance	No significant treatment effects were found using the UHDRS	No differences in behavioural scores were found during treatment with Sativex when compared to	Average UHDRS behavioural score 31.1 before olanzapine and 18.1 after olanzapine at six	The UHDRS behavioural assessment showed a significant score improvement at	No statistical outcomes reported

	The SMA revealed a significant difference between the means of the baseline phase and combined therapy phase, p = 0.0034 A significant difference was also found between the sensory modulation and combined therapy phases, p = 0.0014		placebo (p = 1.0)	and 12-months of treatment (p = 0.0001)	time 1 (p = 0.013)	
Recommendations for further research	Further studies to extend this preliminary research into the nature of aggression in HD, its antecedents and triggers	Further studies to evaluate the effect of latrepirdine on behavioural symptoms of HD	Future studies to consider higher doses, longer treatment periods and/ or alternative cannabinoid combinations	Further controlled studies comparing olanzapine with classic neuroleptics or dopamine depletors should be initiated	Long-term follow-up would determine whether the advantageous influence of olanzapine on HD symptoms might be expected	Further controlled studies of lamotrigine are warranted to confirm its efficacy in pwHD

3.4. Quality assessment

The risk of bias was assessed within each of the studies using a set of quality assessment criteria (see Appendix A). The quality assessment criteria assessed seven potential sources of bias which included; selection bias, performance bias, treatment bias, detection bias, statistical bias, reporting bias, and generalisability. The criteria were adapted from The Cochrane Collaboration Risk of Bias Tool (Higgins et al., 2011). Each source of bias was given a quality rating of low, unclear, or high risk of bias in accordance with the quality assessment criteria (see Appendix A). The ratings produced a quality rating between 0% to 100%, whereby 0% indicates a high risk of bias and 100% indicates low risk, one point for unclear risk and zero points for high risk. The total points are calculated for each study and divided by the total number of points available to produce a final percentage of risk quality. This was thought to be a good fit for purpose given its ability to be tailored as required.

Table 4 below outlines the quality ratings for each of the studies.

Table 4

Summary of applied quality assessment criteria with studies ordered chronologically

Study	Selection bias	Performance bias	Treatment bias	Detection bias	Statistical bias	Reporting bias	Generalisability	Quality index
Bouwens et al., 2015								84%
Ciammola et al., 2009								11%
Como et al., 1997								46%
Curtis et al., 2009								95%
Desamericq et al., 2014								75%
Duff et al., 2008								68%
Fisher & Brown, 2017								20%
Kieburtz et al., 2010								91%
Moreno et al., 2016								93%
Paleacu et al., 2001								36%
Squitieri et al., 2001								45%
Yu Chih-Shen, 2008								9%

Green indicates low risk of bias, amber indicates unclear risk of bias and red indicates high risk of bias as demonstrated in the quality assessment criteria in Appendix A.

The quality of four of the 12 studies (33.3%) (Bouwens et al., 2015; Curtis et al., 2009; Fisher & Brown, 2017; Paleacu et al., 2001) were independently peer-reviewed by a trainee psychologist colleague. The level of agreement, as indicated by Kappa was 0.711 which is indicative of substantial agreement.

Selection bias

Bouwens et al. (2015), Como et al. (1997), Curtis et al. (2009), Duff et al. (2008), and Kieburtz et al. (2010) were rated as low risk for selection bias. Ciammola et al. (2009), Desamericq et al. (2014), Moreno et al. (2016), Paleacu et al. (2001), Squitieri et al. (2001), and Yu Chih-Shen (2008) were rated as an unclear risk for selection bias because they did not report how participants were recruited. Fisher and Brown (2017) was rated as high risk for selection bias because target sampling was used.

Performance bias

All but one of the studies (Fisher & Brown, 2017) were rated as an unclear risk for performance bias because they did not report levels of confidentiality, anonymity, or whether participants were rewarded in any way for their taking part. Fisher and Brown (2017) was rated as high risk for performance bias because the participant was aware of the conditions.

Treatment bias

Bouwens et al. (2015), Como et al. (1997), Curtis et al. (2009), Kieburtz et al. (2010), Moreno et al. (2016), and Squitieri et al. (2001) were rated as low risk for treatment bias. Ciammola et al. (2009) and Duff et al. (2008) were rated as an unclear risk for treatment bias, and Desamericq et al. (2014), Fisher and Brown (2017), Paleacu et al. (2001), and Yu Chih-

Shen (2008) were rated as high risk for treatment bias because treatments were not sufficiently well described to allow for replication.

Detection bias

Only two of the studies (16.6%) were rated as being low risk for detection bias (Bouwens et al., 2015 and Curtis et al., 2009). N=8 (66.6%) were rated as an unclear risk for detection bias (Ciammola et al., 2009, Como et al., 1997, Desamericq et al., 2014, Duff et al., 2008, Kieburtz et al., 2010, Moreno et al., 2016, Squitieri et al., 2001, and Yu Chih-Shen, 2008) because information regarding the outcome measures was not clearly reported. The outcome measures in the study by Fisher and Brown (2017) had poor reliability and validity, and the study by Paleacu (2001) separated subscales in the analysis. These two studies were therefore rated as high risk for detection bias.

Statistical bias

All of the studies were rated as low risk for statistical bias, other than those by Ciammola et al. (2009) and Yu Chih-Shen (2008), which were rated as being high risk because statistics were not reported.

Reporting bias

All of the studies were rated as low risk for reporting bias, other than Ciammola et al. (2009), and Yu Chih-Shen (2008) which were rated as an unclear risk for reporting bias because statistics are not reported.

Generalisability

Only two of the studies (16.6%) were rated as low risk for generalisability bias (Desamericq et al, 2014; Moreno et al, 2016). n=4 (33.3%) were rated as unclear risk (Bouwens et al, 2015; Curtis et al, 2009; Duff et al, 2008; Squitieri et al, 2001) because they did not provide a sample size justification, estimate, and power analysis. Those rated as high risk (n=6, 50%) (Ciammola et al, 2009; Como et al, 1997; Fisher & Brown, 2017; Kieburtz et al, 2010; Paleacu et al, 2001; Yu Chih-Shen, 2008) did not have sample sizes adequate for generalisation.

NARRATIVE SYNTHESIS

Narrative syntheses are often open to bias as a result of non-transparent or non-rigorous methodologies. This cannot be said for the synthesis herein since the literature review completed was comprehensive, and inclusion and exclusion criteria were applied and reported. Furthermore, all of the studies sourced were subject to a quality appraisal. The current study lent itself to a narrative synthesis in that it aimed to provide a broad overview of a diverse topic area and offer objective conclusions.

The purpose of this narrative synthesis was to assimilate and synthesise the findings of the studies included herein, identify overlooked issues and/ or identify information gaps, and make recommendations for future research. To address the following question, the review was structured according to the Cochrane guidelines (Ryan, 2013). The steps involved were to i) develop a theory of how the intervention works, why and for whom, ii) develop a preliminary synthesis of the findings of included studies, iii) explore relationships in the data within and between studies; iv) assess the robustness of the synthesis.

1) **What interventions are successful in reducing irritability and/ or aggression for people with HD?**

Measures of quantification

To understand the efficacy of treatments for irritability and aggression, it is necessary to understand the reliability and validity of the measures employed. A total of 58% of the studies used the Unified Huntington's Disease Rating Scale (UHDRS) as an outcome

measure (Ciammola et al, 2009; Curtis et al, 2009; Desamericq et al, 2014; Duff et al, 2008; Kieburtz et al., 2010; Moreno et al, 2016, Squitieri et al, 2001). The UHDRS (Huntington Study Group, 1996) was developed as a clinical rating scale and captures four domains of clinical performance and capacity in HD, one of which is behaviour which encapsulates mood, self-esteem/ guilt, anxiety, suicidal thoughts, disruptive or aggressive behaviour, irritable behaviour, obsessions, compulsions, delusions, and hallucinations. The scale has high internal consistency, and the Cronbach's alpha value for the behaviour scale is 0.83.

The study by Paleacu et al. (2001) used both the UHDRS and the Clinical Global Impression of Change scale (CGIC). Information regarding the CGIC was not clearly reported in this study, nor could it be obtained.

Bouwens et al. (2015) used the Irritability Scale (IS). The IS was developed specifically for the assessment of irritability in neurodegenerative disease (Bouwens et al., 2015). The scale is self-rated and consists of 14 questions addressing the presence of various elements of irritability in the two weeks before the interview, rated on a four-point Likert scale (Chatterjee et al., 2005, as cited in Bouwens et al., 2015). The Cronbach's alpha value for the scale is 0.90 and its sensitivity and specificity for detecting irritability in HD mutation carriers is 0.69 and 0.81, respectively (Reedeker et al., 2012, as cited in Bouwens et al., 2015).

Como et al. (1997) used the Cognitive Behaviour Rating Scale (CBRS). Fisher and Brown (2017) used Simulation Modelling Analysis. Information regarding the outcome measures was not clearly reported in these studies, nor could it be obtained.

Yu Chih-Shen (2008) used the Hamilton Rating Scale for Depression 21 (HAM–D21). The HAM –D (Hamilton, 1960) is considered by many to be the gold standard.

However, it has faced criticism because of its limited sensitivity to change in the severity of depression (Montgomery and Åsberg, 1979), heavy weighting towards behavioural and somatic symptoms, and low item level reliability (Williams, 1988).

Treatments

Within this section, treatments are grouped according to the type of intervention.

(Atypical) antipsychotics (Ciammola et al. 2009; Desamericq et al. 2014; Duff et al. 2008; Paleacu et al. 2001; Squitieri et al. 2001)

Paleacu et al. (2001) sampled 11 pwHD, both males, and females, at an inpatient setting in Israel. They administered olanzapine, an atypical antipsychotic, at an average dosage of 11.4 milligrams once daily for an average of 9.8 months. The British National Formulary (BNF) guidelines recommend a maximum daily dosage of 20 milligrams of olanzapine for adults. Behavioural scores at six and twelve months following treatment with olanzapine, as measured by the UHDRS, suggested that it is a good treatment for the psychiatric symptoms of HD ($p=0.0001$).

Further support for the use of olanzapine came from Squitieri et al. (2001) who studied the short-term (six-month) effects of this drug in 10 pwHD, both male and female outpatients in Italy. Patients were instructed to self-administer olanzapine at five milligrams once daily. A significant improvement, as measured by the UHDRS, was noted in behavioural scores following six months of treatment ($p=0.013$).

Duff et al. (2008) investigated the use of risperidone, an atypical antipsychotic, for the treatment of psychiatric, motor, and cognitive symptoms in male and female outpatients with HD in the USA. A total of 17 patients took risperidone at an average

dose of 2.5 milligrams once daily over an average period of approximately 14.8 months. A control group of 12 people was not taking any medication. Using the UHDRS, the risperidone group total psychiatric score significantly improved on follow-up ($p = 0.028$), which supports the use of risperidone in treating psychiatric symptoms in pwHD. However, there was no significant change in the total psychiatric score for the control group ($p = 0.539$).

Ciammola et al. (2009) explored the use of aripiprazole, an atypical antipsychotic in the treatment of a small sample of inpatient and outpatients with HD in Italy, consisting of one male and two females. Only one of the cases, a 68-year-old woman, was reported to be presenting with behavioural changes. Olanzapine was prescribed at five milligrams once daily, and lorazepam at 1.5 milligrams once nightly. Aripiprazole was then introduced at five milligrams per day to 15 milligrams over two months. Aripiprazole was noted to improve some of the behavioural symptoms of HD, although exactly which were not reported, nor were statistical outcomes.

Desamericq et al. (2014) completed a prospective case-cohort study of the effectiveness of antipsychotics and related drugs in 956 males with HD, both inpatients, and outpatients in France. A total of 602 (63%) of the sample received antipsychotics. Whilst dibenzodiazepines and tetrabenazine had superior performance compared to risperidone, an atypical antipsychotic, no difference was observed between treatments on behavioural symptom scores, as measured by the UHDRS. Statistical outcomes were not reported.

Anticonvulsants

Yu-Chih Shen (2008) studied one female inpatient in China and prescribed lamotrigine, an anticonvulsant medication, at 25 milligrams once nightly, increasing to 100 milligrams within two weeks, and further increased to 300 milligrams within the first month. This is within British National Formulary (BNF) guidelines. There was a clear improvement in depression, agitation, irritability, mood swings, and suicidal ideation after one and a half months; as measured by the Hamilton Rating Scale for Depression (HAM-D21). The inclusion of observational measures would have strengthened these findings.

Cannabinoids

The UK pilot study by Curtis et al. (2009) sampled 44 pwHD, both male and female inpatients in the UK. The study trialled 250 micrograms of nabilone, a synthetic cannabinoid, for five-weeks, followed by a five-week dose reduction and washout period. A control group received matching placebo. The prescription of nabilone demonstrated no significant improvement in behavioural symptoms, as measured by the UHDRS ($p = 0.06$).

Moreno et al. (2016) conducted a double-blind, randomized, controlled, cross-over, placebo-controlled pilot trial with Sativex, a cannabis-based medicine in 25 pwHD, both males and females in Spain. The study setting was not specified. A 12-week block of Sativex was followed by an equal length of a placebo, or placebo was followed by Sativex, with four week washout periods between. Using the UHDRS, no differences in behavioural scores were found during treatment with Sativex as compared to placebo ($p = 1.0$).

SSRIs

Como et al. (1997), in their double-blind, randomised, placebo-controlled trial, sampled 30 pwHD, both males and females in the USA. The setting was not specified. 17 patients received fluoxetine, an SSRI, at 20 milligrams once daily, and 13 received an identically appearing placebo. Using the CBRS, improved levels of agitation were found in those who were treated with fluoxetine ($p = 0.02$).

Other

The single case experimental design by Fisher and Brown (2017) used a sensory modulation intervention and behaviour support modification for the treatment of severe aggression in a thirty-one-year-old male with HD at an inpatient setting in Australia. There was an eight-week baseline phase followed by five-weeks of sensory modulation intervention and the implementation of a behaviour support plan. Aggressive behaviour was systematically audited for 11 weeks using stimulation modelling analysis. There was a significant difference between the means of the baseline phase and the combined therapy phase ($p = .0034$). A significant difference was also found between the sensory modulation and combined therapy phases ($p = 0.0014$).

Bouwens et al. (2015) conducted a prospective case-cohort study of 90 pre-symptomatic pwHD, both males and female outpatients in the Netherlands. Irritability was assessed for two years using the Irritability Scale (IS). No significant changes were noted between baseline and follow-up ($p = 0.78$). Antipsychotics were associated with increased irritability.

Kieburtz et al. (2010) sampled 91 male and female outpatients with HD in the UK and USA. This was a randomised, placebo-controlled trial of latrepirdine. Latrepirdine is an orally active, small-molecule compound that has been shown to inhibit brain cell death in animal models of Alzheimer's disease and HD. A total of 46 participants were prescribed latrepirdine at 20 milligrams three times daily, and 45 received matching placebo, both for 90 days. Behavioural outcomes, as measured by the UHDRS were improved in the latrepirdine group, but no significant treatment effects were observed, nor were statistical outcomes reported.

Setting

Thirty-three percent of the studies took place in inpatient settings (Curtis et al, 2009; Fisher and Brown, 2017; Paleacu et al, 2001; Yu-Chih Shen, 2008). Another thirty-three percent of the studies took place in outpatient settings (Bouwens et al, 2015; Duff et al, 2008; Kieburtz et al, 2010; Squitieri et al, 2001). Two studies took place in both inpatient and outpatient settings (Ciammola et al, 2009; Desamericq et al, 2014), and the setting of two studies (Como et al, 1997; Moreno et al, 2016) was not specifically stated.

Methodology and quality ratings

One-quarter of the studies (n=3) were double-blind, randomised, placebo-controlled trials (Como et al, 1997; Kieburtz et al, 2010; Moreno et al, 2016). Two were prospective cohort case studies (Bouwens et al, 2015; Desamericq et al, 2014). The remaining studies were made up of one retrospective case-cohort study (Duff et al, 2008), one before and after study (Squitieri et al, 2001), one pilot study (Curtis et al,

2009), one cross-sectional study (Paleacu et al, 2001), and one single-case experimental design (Fisher & Brown, 2017). Two were uncontrolled case studies (Ciammola et al, 2009; Yu Chih-Shen, 2008).

Table 4 demonstrates that only 50% of studies were of high quality (>66.7%) (Bouwens et al, 2015; Curtis et al, 2009; Desamericq et al, 2014; Duff et al, 2008; Kieburtz et al, 2010; Moreno et al, 2016), 25% were of moderate quality (33.4% - 66.6%) (Como et al, 1997; Paleacu et al, 2001; Squitieri et al, 2001), and 25% were of low quality (≤33.3%) (Ciammola et al, 2009; Yu Chih-Shen, 2008).

4. DISCUSSION

The current review intended to consolidate and assess the quality of research exploring the most efficacious known interventions for irritability and aggression for pwHD. Irritability is commonplace in pwHD (Craufurd et al., 2001; Kingma et al., 2008., Rickards et al., 2011), estimated at between 35% and 75% (Julien et al., 2007; Reedeker et al., 2012; van Duijn et al., 2007). Irritability can lead to aggression (Craig et al., 2008; Snaith & Taylor, 1985), which is thought to occur in between 22% and 66% of pwHD (Fisher et al. 2014).

Until now, very few reviews have explored irritability and/ or aggression. Those that have (Karagas et al., 2010; Rossi & Oh, 2020) have methodological shortcomings. They are not systematic in nature, do not represent full coverage of existing studies, nor do they reference the importance of ensuring that the measure of irritability or aggression is valid and reliable. This undermines the strength of their findings.

4.1. Overall completeness and applicability of evidence

The studies included in this narrative synthesis spanned 20 years between 1997 and 2017. They contained high levels of methodological heterogeneity, including both randomised and non-randomised methods, sampling men and women across the world, in inpatient and outpatient settings, and with symptomatic or pre-symptomatic HD. The sample sizes included small, moderate, and large participant groups. The studies included pharmacological treatments of irritability and aggression in HD as well as alternative psychological treatments.

A total of eight of the 12 included studies (67%) reported statistical outcomes. In order of descending efficacy of treatment of irritability and/ or aggression in pwHD are

Paleacu et al. (2001) (p=0.0001); Squitieri et al. (2001) [p=0.013]; Fisher & Brown (2017) [0.0014, 0.0034]; Duff et al. (2008) [p=0.028]; Como et al. (1997) [p=0.02]; Curtis et al. (2009) [p=0.06]; Bouwens et al. (2015) [0.78], Moreno et al. (2016) [p=1.0]. A total of four of the 12 included studies (33%) did not report statistical outcomes (Ciammola et al., 2009; Desamericq et al., 2014; Kieburtz et al., 2010; Yu Chih-Shen, 2008).

Three studies that demonstrated significant differences in psychiatric and mood symptoms associated with HD with the prescription of olanzapine or risperidone came from Duff et al. (2008); Paleacu et al. (2001); Squitieri et al. (2001). Fisher and Brown (2017) demonstrated a significant reduction in aggression following a sensory modulation intervention and behaviour support modification. The efficacy of SSRIs in treating irritability in HD was supported by Como et al. (1997). Bouwens et al. (2015) assessed irritability in 90 male and female outpatient HD mutation carriers in the Netherlands. Using the Irritability Scale (IS), they found no significant change in irritability over two years but did find that antipsychotics were associated with increased irritability. On the basis of this evidence, there is some support for atypical antipsychotics, SSRIs, and non-pharmacological treatments for irritability and/ or aggression in pwHD, but not for Sativex, a cannabinoid, nor antipsychotic medication.

4.2. Quality of the evidence

In order of descending frequency of quality are Curtis et al. (2009); Moreno et al. (2016); Kieburtz et al. (2010), Bouwens et al. (2015); Desamericq et al. (2014), and Duff et al. (2008), which were of high quality (>66.7%). Como et al. (1997); Squitieri et al. (2001), and Paleacu et al. (2001) which were of moderate quality (33.4% - 66.6%).

Ciammola et al. (2009), Fisher and Brown (2017), and Yu Chih-Shen (2008) were of low quality (≤33.3%). See Table 4 for a summary of quality ratings.

The two studies exploring the use of cannabinoids (Curtis et al., 2009; Moreno et al., 2016) both achieved high-quality ratings (95% & 93%, respectively) and both outcomes were measured using the UHDRS, which has high internal consistency. In considering the findings, the differences in medication, dosages, and length of treatment should be considered. These studies, particularly the one by Curtis et al. (2009) offer promise for the use of cannabinoids in treating behavioural symptoms associated with HD. Further research should explore cannabinoids with appropriate doses, treatment periods, and considering alternative cannabinoid combinations.

Whilst there was some support for the use of atypical antipsychotics, namely olanzapine and risperidone (Duff et al., 2008; Paleacu et al., 2001; Squitieri et al., 2001), only the study by Duff et al. (2008) was of high quality (68%) and those by Paleacu et al. (2001) and Squitieri et al. (2001) were of moderate quality (36% and 45%, respectively). These studies sampled both males and females, across the world, in both inpatient (Paleacu et al., 2001) and outpatient settings (Duff et al., 2008; Squitieri et al., 2001). Nevertheless, their findings were based on small sample sizes (between 10-29 participants), did not report sample size justifications, estimates, or power analyses, and the study by Paleacu et al. (2001) reported an insufficient sample size for generalisation. The dosages of medications varied significantly (between 2.5 milligrams and 11.4 milligrams once daily), as did the length of treatments (between six and 14.8 months). There was a lack of consistency in what was the target of change. Duff et al. (2008) and Squitieri et al. (2001) used the Unified Huntington's Disease Rating Scale (UHDRS) as an outcome measure, which has high internal consistency. The study by Paleacu et al.

(2001) used both the UHDRS and the Clinical Global Impression of Change scale (CGIC). Information regarding the CGIC was not clearly reported in this study, nor could it be sought. These limitations should be borne in mind when considering the robustness of the findings and the conclusions that can be drawn about the efficacy of the interventions.

The efficacy of SSRIs in treating irritability in HD was supported by the small randomly controlled trial that achieved a modest reduction in agitation with fluoxetine (Como et al., 1997). However, it must be considered that this study attracted only a moderate quality rating (46%), and information regarding its use of outcome measure (Cognitive Behaviour Rating Scale, CBRS) was not reported. Further research sampling a larger number of participants over a longer time would be necessary to more reliably assess the efficacy of SSRIs in treating irritability associated with HD.

One single-case experimental design was identified (Fisher & Brown, 2017) which offered support for non-pharmacological treatment of aggression in a male diagnosed with HD, using a sensory modulation intervention and behaviour support modification. However, this study was subject to several limitations, most notably that the treatment was not sufficiently well described to allow for replication, the outcome measures had poor reliability and validity, and the sample size was insufficient for generalisation. This resulted in a low-quality rating of 20%, which limits the conclusions that can be drawn about the efficacy of non-pharmacological approaches to treating aggression in HD. Further exploration of such approaches, with a larger number of participants and valid and reliable outcome measures would be necessary to more reliably ascertain their efficacy in treating aggression.

4.3. Potential biases in the review process

Only 50% of studies were of high quality (>66.7%) (Bouwens et al, 2015; Curtis et al, 2009; Desamericq et al, 2014; Duff et al, 2008; Kieburtz et al, 2010; Moreno et al, 2016), 25% were of moderate quality (33.4% - 66.6%) (Como et al, 1997; Paleacu et al, 2001; Squitieri et al, 2001), and 25% were of low quality (≤33.3%) (Ciammola et al, 2009; Fisher & Brown, 2017; Yu Chih-Shen, 2008). See Table 4 for a summary of quality ratings.

Studies which demonstrated significance in treatments for irritability and/ or aggression in pwHD, were, in order of descending efficacy: Paleacu et al. (2001) [p=0.0001]; Squitieri et al. (2001) [p=0.013]; Fisher & Brown (2017) [0.0014, 0.0034]; Duff et al. (2008) [p=0.028]; Como et al. (1997) [p=0.02].

Ciammola et al. (2009); Paleacu et al. (2001); and Squitieri et al. (2001) did not report how participants were recruited. The studies by Duff et al. (2008) and Squitieri et al. (2001) did not provide a sample size justification, estimate, and power analyses. Additionally, Como et al. (1997); Fisher & Brown, (2017); and Paleacu et al. (2001) did not have sample sizes adequate for generalisation. The studies by Duff et al. (2008) and Fisher and Brown (2017) did not describe treatments sufficiently well to allow for replication.

Considering the overall quality ratings of the studies that reached statistical significance, and on the basis of their quality ratings, there is unequivocal support for the use of the atypical antipsychotic risperidone in treating psychiatric symptoms (Duff et al., 2008). There are some that offer promise, including the atypical antipsychotic, olanzapine, for the treatment of psychiatric (Paleacu et al., 2001) and behavioural symptoms (Squitieri et al., 2001), and the SSRI, fluoxetine for agitation (Como et al.,

1997). Whilst statistical significance was reached for the use of non-pharmacological treatments for aggression in the study by Fisher and Brown (2017), this paper was of low quality, and therefore, on its own, does not offer sufficient evidence for being an efficacious treatment for aggression.

4.4. Conclusion of findings

The current review revealed some support for the use of atypical antipsychotics, namely olanzapine and risperidone (Duff et al., 2008; Paleacu et al., 2001; Squitieri et al., 2001), which was in line with previous research (Alpay & Koroshetz, 2006; Bogelman et al., 2001; Cankurtaran et al., 2006; Erdemoglu & Boratov, 2002; Groves et al., 2011; van Duijn et al., 2017). Similarly, there was also agreement in the efficacy of SSRIs in treating irritability in HD (Como et al., 1997), which is supported by previous studies of SSRIs (Bachoud-Levi et al., 2019; De Marchi et al., 2001; Groves et al., 2011; Ranen et al., 1996). The current review identified one single-case experimental design (Fisher & Brown, 2017) which offered support for non-pharmacological treatment of aggression in HD, using a sensory modulation intervention and behaviour support modification. Support for non-pharmacological approaches to treating irritability and/ or aggression has been noted in previous literature (Blass et al., 2001; van Duijn, 2010; Wood et al., 2002). However, the study identified in the current review (Fisher & Brown, 2017) was subject to a number of limitations, most notably that the treatment was not sufficiently well described to allow for replication, the outcome measures had poor reliability and validity, and the sample size was insufficient for generalisation. This resulted in an overall low-quality rating, which limits the

conclusions that can be drawn about the efficacy of non-pharmacological approaches to treating aggression in HD.

In contrast to the extant literature, the current study offered some promise for the use of cannabinoids in the treatment of behavioural symptoms associated with HD (Curtis et al., 2009). It must be borne in mind, however, that the study of the SSRI in the current study (Como et al., 1997) was only of moderate quality, which therefore weakens its robustness of evidence of effective treatment.

4.5. Strengths and weaknesses of the current review

The strengths of the current review are that it was systematic, represents full coverage of existing studies, and ensures that the validity and reliability of outcome measures are referred to. Additionally, inclusion and exclusion criteria for studies were applied and reported, and all studies sourced were subject to quality appraisal.

Due to there being a paucity of research exploring treatments for irritability and/ or aggression in pwHD, along with high levels of methodological heterogeneity, only a narrative synthesis could be used, and not a more robust method such as a meta-synthesis.

The limited research might, in part, be due to the relatively low prevalence of HD, alongside the variability in clinical symptoms. Nevertheless, it seems important to address this gap, given that both irritability and aggression are associated with increased hospital admissions (Hamilton et al., 2003; Wheelock et al., 2003) and harmful effects on everyday functioning and quality of life (Marder et al., 2000). Irritability can cause distress to those who experience it, and to those who support them (Bouwens et al., 2015) and aggression can be problematic in the extended care setting, putting the pwHD

and other people at risk (Wood et al., 2002). Therefore, this review aimed to provide a broad overview of a diverse topic area and to offer objective conclusions.

4.6. Conclusion and recommendations

Based on the available evidence, recommendations for clinical practice in working with pwHD presenting with irritability and/ or aggression would be to carefully consider the possible antecedents to irritability prior to prescription of pharmacological agents. Such causes, could, for instance be related to pain or akathisia (van Duijn, 2017). Equally, the identification and elimination of triggers that predispose pwHD to irritability and related behaviours is recommended (Craufurd & Snowden, 2014) and this may be achieved through the use of positive behavioural support (Blass et al., 2001). There is support for the use of behavioural modification, especially in more advanced disease (van Duijn, 2010; Wood et al., 2002). This may take the form of reinforcing appropriate behaviours and circumventing the inadvertent reinforcement of less appropriate behaviours. The application of structured routines, strategic sequencing of activities and minimisation of unplanned changes may also be effective non-pharmacological treatments of irritability (Blass et al., 2001). It has been noted that irritability may increase as HD progresses (Karagas et al., 2020), at which time pharmacotherapy is more likely required to alleviate symptoms. The findings from the current review should be borne in mind when considering the most efficacious known pharmacological treatments for irritability and/ or aggression on the basis of the current literature.

This systematic review set out to consolidate and assess the quality of research exploring the most efficacious known interventions for irritability and aggression for

pwHD. The application of inclusion and exclusion criteria resulted in just 12 studies outlining treatment for irritability and/ or aggression by pwHD. All studies sourced were subject to quality appraisal. A narrative synthesis was used due to there being high levels of methodological heterogeneity. There was some statistically significant support for the use of atypical antipsychotics, selective serotonin reuptake inhibitors, and non-pharmacological treatments for irritability and/ or aggression in pwHD. However, several methodological shortcomings must be borne in mind when evaluating the robustness of the synthesis.

Given that there is no cure for pwHD, it is important that effective treatments are identified and used. A high prevalence of irritability and aggression is associated with pwHD, and this can bring adverse consequences both for pwHD and other people. Furthermore, aggression can often be the reason for admission to the extended care setting. The current review is therefore of paramount importance and relevance.

Given the methodological shortcomings of studies resulting from the current review, there would be a benefit to further research into the use of atypical antipsychotics, SSRIs, and non-pharmacological interventions in treating irritability and/ or aggression in pwHD. Any such studies would benefit from appropriately powered sample sizes, including matched controls (preferably randomly allocated), with detailed descriptions of participants, the reasons for which they have been referred for intervention, their diagnoses, and how these were established. The aims of treatment should be clearly outlined and reflected by the outcome measures used. This would allow for more objective conclusions and the development of treatment guidelines for the most efficacious known interventions for irritability and aggression for pwHD.

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Empirical Paper

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Abstract

Background: Huntington's disease (HD) is a relatively rare hereditary progressive neurodegenerative condition. Its onset is most common in middle age, and its effects are wide-ranging, changing how people think, feel, speak, move, swallow and eat. There is currently no cure for HD and symptoms typically occur over approximately 15-20 years, often requiring professional care, before eventual death, which is often the result of secondary illness. *Aims and objectives:* The current literature revealed no full-text papers exploring personal experiences of relationships with people with HD (pwHD) and their families from the perspective of qualified and unqualified members of the nursing profession. This study served to fill this gap. *Method:* Eight staff at a specialist locked inpatient UK hospital took part in one-to-one, face-to-face semi-structured interviews, which was analysed using Interpretative Phenomenological Analysis (IPA). *Results:* Analysis identified two superordinate themes (i) What it takes to work with pwHD and (ii) The emotional experiences of working with pwHD. The subordinate themes were (i) seeing beyond the label (ii) approaches to support (iii) determination and perseverance (iv) what we become (v) fear and sadness. *Clinical implications:* This study serves to raise awareness of HD and to help others to draw on aspects that may help them better understand, and respond to their own lived experiences. This will be achieved through education, formulation, supervision, and training. *Conclusion:* This study provides a unique glimpse into the personal experiences of relationships with pwHD and their families from the perspective of qualified and unqualified members of the nursing profession. It is hoped that it will help in shaping and strengthening current clinical practice. This could improve support provided and promote increased wellbeing

of pwHD, their families, and members of staff.

Keywords: Huntington's disease (HD); Interpretative Phenomenological Analysis (IPA); people/person with Huntington's disease (pwHD)

1. INTRODUCTION

1.1. Background

Huntington's disease (hereafter referred to as HD) was first defined in 1972 by George Huntington (Adam & Jankovic, 2008). It is a relatively rare hereditary progressive neurodegenerative condition instigated by the growth of a trinucleotide cytosine-adenine-guanine (CAG) repeat in the IT-15 huntingtin (HTT) gene, found on the short arm of chromosome 4 (Bouwens et al., 2015; Ciammola et al., 2009; Huntington Disease Collaborative Research Group, 1993). Although under normal circumstances, huntingtin is present, its function is not fully understood (Bouwens et al., 2015). The mutant huntingtin probably leads to a toxic gain of function, resulting in striatal cell loss (Bouwens et al., 2015). In 2010, the UK prevalence of HD was estimated to be 9.28 per 100,000 (Baig et al., 2016). The prevalence of HD is estimated to be 2.71 per 100,000 worldwide (Pringsheim et al., 2012).

For individuals carrying the expanded gene (CAG > 36 repeats), the symptoms of HD most commonly manifest in late adulthood and early middle age (Langbehn et al., 2004; Tippett et al., 2007). Onset is generally about 40-years-old (Bouwens et al., 2015).

The physical, psychiatric, cognitive, and behavioural symptoms of HD interact in a disabling manner. Cognitive impairment occurs early on and declines as the condition progresses, contributing to lessening of ability to work and complete activities of daily living (Kieburtz et al, 2010). A particular challenge is the loss of verbal communication abilities in many patients (Wilson et al., 2011).

There is currently no cure for HD, and the course of the condition tends to span approximately 20 years from symptom onset to eventual death (Bouwens et al., 2015; Kieburtz et al., 2010). The progressive nature of the condition means that families often struggle to manage the increasing dependency of their affected family members. Irritability is a common psychiatric manifestation of HD (Craufurd et al., 2001; Kingma et al., 2008; Rickards et al., 2011), its prevalence ranging from 35% to 75% (Julien et al., 2007; Reedeker et al., 2012; van Duijn et al., 2007). Irritability may occur up to 10 years before the onset of motor symptoms (Julien et al., 2007) and can contribute to great distress to both those who experience it, and also to those who support them (Bouwens et al., 2015). Consequently, those with a diagnosis of HD are likely to be at a higher likelihood of hospitalisation and early placement into residential care facilities (Fisher et al., 2012). Impulsivity and aggression, in particular, are associated with increased rates of hospital admissions (Hamilton et al., 2003; Wheelock et al., 2003; Wood et al., 2002).

There is limited evidence identifying the palliative and end-of-life care needs of people with progressive and long-term neurological conditions (Byrne et al., 2009) or illuminating the benefits and/ or difficulties experienced by those providing care to this group of people (Wilson et al., 2011). The perspectives of health and social care professionals are largely under-investigated (Wilson et al., 2011). Some studies have explored staff views of the end of life care needs for people with progressive long term neurological conditions (Wilson et al., 2011), alongside a focus on those of patients and families (Steinhauser et al., 2000; Forbes-Thompson & Gessert, 2005; Fitzsimons et al., 2007; Munn et al., 2008), however, increased investment appears to have been given to the educational needs of staff as opposed to their experiences (Ersek et al., 2000). The

importance of building relationships has been noted (Harding et al., 2013), to communicate with patients, in addition to managing and planning care to meet complex needs (Wilson et al., 2011).

A wider literature review revealed a qualitative study investigating the experiences of healthcare assistants working with people with dementia in UK residential care homes (Law et al., 2017). The authors suggested that existing literature in the area had primarily employed quantitative methodologies, and proposed that there was a need to utilise qualitative methodologies to further explore care staff experiences to inform efforts to support them to provide high-quality care to people with dementia (pwD). Eight individuals (n=8) took part in semi-structured interviews which were analysed using interpretative phenomenological analysis. Data analysis identified three superordinate themes representing healthcare assistants' experiences, one of which was the importance of relationships with pwD, families, and colleagues as well as their knowledge of, and attachments to pwD. Participants emphasised the importance of their relationships as crucial to the provision of individualised care but also as an inevitable consequence of providing such personal care. The findings highlighted the need for staff to be supported in building strong and supportive relationships within their role.

1.2. Rationale

The current literature reviewed yielded no full-text papers exploring personal experiences of relationships with pwHD and their relatives from the perspective of qualified and unqualified members of the nursing profession. The current study, therefore, adapted the study by Law et al. (2017), in exploring the lived experiences of both qualified and unqualified members of the nursing profession, working with pwHD

at an inpatient specialist locked inpatient UK hospital. Similar to the study by Law et al. (2017), eight individuals were interviewed, and their data was analysed using the qualitative methodology interpretative phenomenological analysis.

1.3. Aims of the current study

This study utilises Interpretative Phenomenological Analysis (Smith & Osborn, 2003) to explore the personal experiences of relationships with pwHD and their families from the perspective of qualified and unqualified members of the nursing profession at a specialist locked inpatient UK hospital. This will give a voice to this under-represented group, and illuminate what might facilitate and/ or hinder relationships with pwHD and their families. It will add to the literature, and it is hoped that it will help in shaping and strengthening current clinical practice. In turn, this is likely to improve the support provided and promote the increased wellbeing of pwHD, their families, and members of staff.

2. METHODOLOGY

2.1. Study design

The qualitative approach utilised for this study was Interpretative Phenomenological Analysis (IPA) (Smith et al., 2009). IPA is 'phenomenological' in that it is grounded in the personal meaning individuals assign to their own experiences. Qualified and unqualified members of the nursing profession working at a specialist locked inpatient UK hospital were invited to take part in semi-structured interviews exploring their relationships with pwHD and their families. IPA methodology was utilised to develop a detailed interpretative account of key themes in participants' subjective experiences.

Qualitative methods tend to employ small purposive samples and therefore create a secure interaction between researcher and participant, which can yield more profound data (Patton, 2002). In part because of this secure interaction, qualitative methods lend themselves to studying sensitive topics (Sandelowski, 2000; Thoresen & Øverlien, 2009), such as this study.

2.2. Researcher context

IPA is 'interpretative' in that it acknowledges the researcher's engagement in a double hermeneutic process. Reflexivity is therefore imperative, being aware of what the researcher brings to the interpretation since they then attempt to make sense of participants' sense-making of their lived experiences (Smith & Osborn, 2003). The analysis takes the form of an iterative process of fluid description and engagement with the verbatim transcripts. It involves flexibility of thought, data reduction, development, and revision. The analysis is tentative and is only 'fixed' through the process of writing

it up (Smith et al, 2009). See Appendices E and F for the author's context and epistemological position of a critical realist.

2.3. Participants

IPA intends to develop rich, transparent, contextualised, and detailed personal accounts of individual experience. Reid et al (2005), claim that quality is preferable to quantity in IPA, and therefore that fewer participants examined in greater depth are superior to a broader, shallow, and merely descriptive analysis of larger samples. IPA, therefore, offers a detailed and nuanced analysis of the lived experience of a select number of participants, with a focus on convergence and divergence between cases.

Smith et al (2009) recommends between four and ten participants for professional doctorates. The current study recruited eight participants (n=8) which consisted of one male and seven females. Please see Table 1 below which details participant demographics. There was no recompense for participation.

Table 1

Key characteristics of the participants

	Anna	**Olivia**	**Alicia**	**Mark**
Gender	Female	Female	Female	Male
Age range	25-36	41-50	25-36	41-50
Qualified/Unqualified	Unqualified	Unqualified	Unqualified	Qualified
Years of experience	1-2	1-2	3-5	6-10
Working pattern	Permanent, full time	Permanent, full time	Flexible hours	Permanent, full time

	Rachel	**Sally**	**Rebecca**	**Sarah**
Gender	Female	Female	Female	Female
Age range	25-36	51-60	25-36	25-36
Qualified/Unqualified	Unqualified	Qualified	Qualified	Qualified
Years of experience	3-5	3-5	6-10	<1
Working pattern	Permanent, full time	Permanent, full time	Permanent, full time	Permanent, full time

IPA seeks a degree of homogeneity in its sample (Smith et al, 2009), and therefore only qualified and unqualified members of the nursing profession from a specialist locked inpatient UK hospital were invited to take part in the study. This group of staff was selected as participants given that they were working directly with pwHD for long periods and frequently. This maximised the homogeneity of the sample allowing for detailed examination of the convergence and divergence between individual reports. Please see Table 2 below which details inclusion criteria.

Table 2

Inclusion criteria for participation

Inclusion Criteria
- Over 18 years of age - English speaking - Qualified or unqualified members of the nursing profession - Direct experience of supporting pwHD

2.4. Procedure

2.4.1. Ethical approval and considerations

Ethical approval for the study was granted by The University of Birmingham (See Appendix C). The study was sponsored by St. Andrew's Healthcare, whose Research and Innovation permitted it to be completed (See Appendix D). All participants were required to read, agree with, and sign the consent form (See Appendix L) before taking part in the study.

The study was managed in accordance with the British Psychological Society Code of Ethics and Data Protection Act (BPS, 2009; Data Protection Act, 1998). All information obtained about participants (including audio recordings and verbatim transcripts), was kept in a locked cabinet or on a password-protected computer that was accessible only to the author. It was only the author who listened to and transcribed audio recordings. To remove any identifying information that participants had provided, audio recordings were deleted upon completion of verbatim transcription. All anonymised data was shredded and disposed of confidentially following the completion of the study. It was highlighted that should information be disclosed which could result

in a risk to participants themselves or others, then confidence would need to be broken. This was in line with policy and procedure.

Participants were advised that breaks could be requested during interviews. A verbal and written debrief took place following each interview. Participants had the opportunity to ask any questions or to raise any concerns immediately afterwards or by contacting the author at a later date using the contact details provided. They were informed of their right to withdraw, either during, or for up to two weeks following their interview, without the need for explanation, nor any repercussions on their employment.

2.4.2. Recruitment

In July 2019 A 'recruitment poster' (see Appendix H) and response box were created and positioned in the nursing offices of the two locked inpatient units for pwHD, along with copies of 'participant introduction letters', 'participant information sheets', and 'consent to be approached forms' (See Appendices G, H, & I, respectively). Response boxes were checked regularly for completed consent to be approached forms. Providing that those who had given their consent to be approached met the inclusion criteria (Table 2), the author met with them for a short briefing and discussion. Participants were asked to sign a consent form before one-to-one, face-to-face interviews were conducted.

2.4.3. Data collection

Semi-structured interviews have tended to be the preferred means of data collection (Reid et al., 2005). One-to-one interviews are easily managed, support the development of rapport and empathy, and provide participants with an opportunity to express their

claims and concerns in their own words. Interviews allow the researcher to be engaged, attentive, flexible, and responsive in their approach (Smith et al, 2009). The semi-structured interview schedule was used to create a conversational dialogue, shaped according to participants' responses, and allowing for relevant deviation by both researcher and participant.

The interview schedule was constructed with the author's research supervisor and clinical supervisors. The schedule consisted of sixteen questions, which were constructed to be open and neutral, as opposed to closed or value-laden. The questions were based on a review of the literature, and included descriptive; circular; narrative; evaluative; structural, and comparative questions.

The questions were developed on broad themes directed towards meaning, covering participants' understanding of HD, their reasons for working with pwHD, their preconceptions, and actual experiences of working with pwHD, its benefits and rewards, consequences, and challenges, along with supports, and barriers.

Interviews took place in the hospital grounds, and the potential for locations other than the particular buildings in which participants worked was an option. The interviews began with an opportunity to ask any questions about the study.

The author, as the interviewer, regularly asked participants for clarification and provided summaries to ensure that he had fully and correctly understood the participants' views and to provide them with the opportunity to clarify or add further information. As such, the participant was given every opportunity to tell their own story in their own words.

Interviews lasted for between 14 and 90 minutes, with an average length of 37 minutes. A flexible semi-structured interview schedule (Appendix N) was used to guide the discussion.

All interviews were audio-recorded and transcribed verbatim by the author, in line with the suggestions of Smith et al (2009). Transcription included all spoken words as well as any noteworthy non-verbal expressions such as laughter, hesitation, and lengthy pauses, represented by bracketed text in capital letters (Smith et al, 2009).

2.5. Analysis

Transcripts were analysed manually by the author. IPA was used to identify recurrent themes (Smith et al, 2009). The method is 'iterative', moving from the particular to the general and from the descriptive to the interpretative (Larkin et al., 2006). IPA is 'phenomenological' in that it sets out to explore the participants' view of the topic under investigation, remaining close to their perspective, and at the same time 'interpretative' in that it acknowledges that the participants' perceptions are elicited through a dynamic, interactive process in which the researchers' thoughts, feelings, experiences, and beliefs also inform the researcher's interpretation of the participants' subjective world (Smith et al, 1999). It is therefore paramount that the investigator attempts to 'bracket' these to take as objective an approach as possible when endeavouring to appreciate the meaning of participants' accounts (Yardley, 2000). Nevertheless, it must be noted that the investigators' position is inextricable from any emergent interpretation.

IPA adopts an idiographic stance and therefore each transcript was analysed consecutively. Transcripts were read line-by-line, numerous times, to form an

understanding of the participants, their experience, and their knowledge. Coding was then completed to develop close engagement with the data through noting down initial comments, considering semantic content and language at a very exploratory level. For a transcript excerpt with initial comments and emerging themes, see Appendix O.

Following this stage, the initial comments were developed into themes by identifying emergent patterns and connections. This involved frequent shifting between inductive and deductive positions to remain close to participant accounts whilst still moving beyond their understanding. The subsequent analysis involved uniting related emergent themes. Each theme was noted separately, which allowed the author to experiment with their arrangement to develop clusters with a descriptive conceptual label.

Following the analysis of individual interviews, convergence, and divergence, echoes and amplifications were deliberated across transcripts to consider common themes. The resulting themes were verified by referring back to individual transcripts. Any themes that were not sufficiently established in the data were removed. The themes that remained were amassed into a master table of themes. This table formed the basis of the narrative report, illustrated with verbatim extracts from participants.

How this analytic process applied to the current study is outlined in Figure 1 which follows. In the verbatim quotes from interviews, '…' indicates where elements of the quote were omitted for editorial concision, and text within square brackets indicates author clarification.

Table 3

Semi-structured interview schedule

Please take as much time as you need to answer each question. It is important to me that you are able to express your thoughts, feelings, experiences, and beliefs in your own words and as accurately as possible. If you would rather not answer any particular questions, please feel free not to. If any questions are unclear, then please let me know and I will try to clarify them. Please feel free to share any additional information which I may not have asked about.

Introduction

1. When you think about Huntington's disease (HD), what comes to mind?
2. What drew you to working with people with HD (pwHD)?
3. What did you expect your work to be like?
4. Did your experience meet your expectations?

Experience

5. Please can you tell me about your experiences of working with pwHD?
6. What can you tell me about your connections with pwHD? How have these been formed and developed?
7. What can you tell me about your connections with families? How have these been formed and developed?
8. What has been most helpful in forming and developing connections with pwHD and families?

9. What has been least helpful in forming and developing connections with pwHD and families?
10. What are the benefits of forming and developing connections with pwHD and families?
11. What (if any) are the consequences of forming and developing connections with pwHD and families?
12. What have you found challenging (if anything)?

- How did this impact on you?
- How did you respond?

13. What have you found rewarding (if anything)?

Support

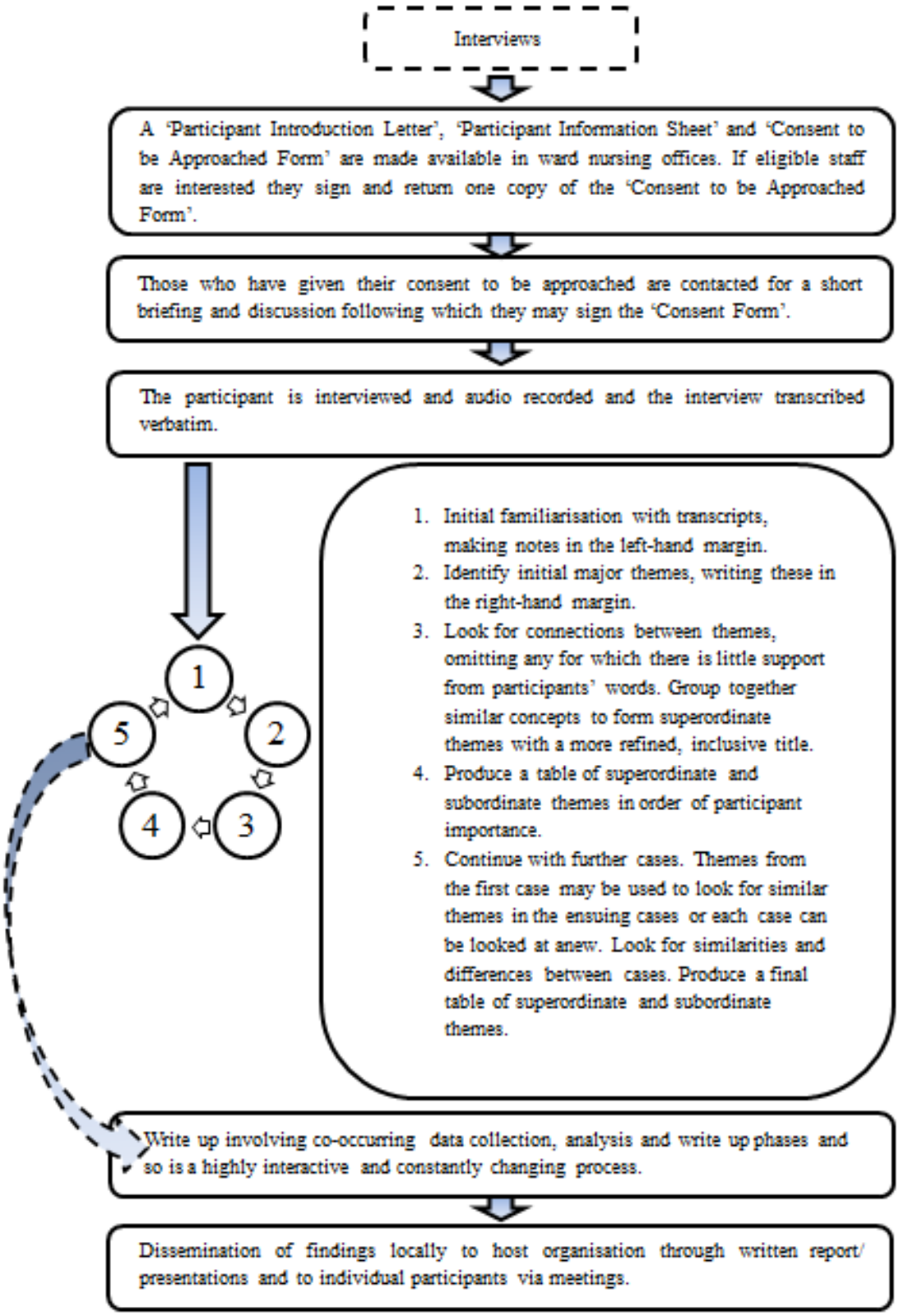
14. What supports forming and developing connections with pwHD and families?
15. What hinders forming and developing connections with pwHD and families?
16. What access to support are you aware of?

Closing

Would you like to share any aspects of your experience(s) of HD that we have not discussed?

Figure 1

A cyclical process of IPA



2.5.1. Credibility and validity analysis

The coding of transcripts and emerging themes were discussed in research supervision and IPA support groups with academic tutors and peers using this approach. Alternative standpoints on the experiential claims and concerns of participants were deliberated. These discussions confirmed that the author's interpretations were rooted in the interview data. This triangulation reduced researcher bias and therefore increased the plausibility and credibility of interpretations. However, it must be acknowledged that the resultant themes do of course reflect the authors' subjective interpretation of participants' sense-making of their lived experiences. The author's context and epistemological position of a critical realist are outlined in Appendices D and E. It is acknowledged that other researchers may hold a different interpretation which is an inevitable bias inherent in interpretative approaches (Smith et al., 2009).

2.5.2. Methodological rigour

Various strategies were used throughout the research process to ensure analytic quality. See Appendix G for further information.

2.5.3. Reflexivity (please also see Appendix B)

The necessity of being aware of one's own thoughts, feelings, experiences, and beliefs was important to consider when interviewing participants. The author endeavoured to suspend their presuppositions and pre-understandings and remain open to participants' lived experiences. Having a prior relationship with the hospital and some of the participants was thought to facilitate a shared understanding of their accounts. It must be considered that participants could have refrained from constructing alternative

accounts within the interaction because of their observations of the author's pre-existing knowledge and 'insider' status. There were, in fact, some 'door-handle' disclosures from those individuals that the author had previously known and worked alongside. The author's clinical experience, did, however, offer them the added advantage of better understanding individual claims and concerns offered by participants, and the ability to empathise accordingly.

The interview data can be seen as a result of a co-constructed dialogue between the author and the participant. In order to stay close to participants' sense making, and to adequately represent the themes, circular processing was employed to vacillate between the data. Research supervision supported this process by giving the author the opportunity to reflect on their interpretations. The analysis offers just one of many possible interpretations. However, the credibility of the analysis was reinforced through discussions with peers and clinical and research supervisors, which allowed the author to share what they considered was a meaningful interpretation of the experiences they were presented with.

In considering the interview data, the location of the interviews must also be considered. It was accepted that the setting for interviews was likely to have a bearing on participants' accounts of their lived experiences. Consequently, participants were given the opportunity for their interview to take place outside of the hospital building in which they routinely worked, however no individuals chose to do so.

3. RESULTS

The analysis of individual transcripts resulted in two superordinate themes (i) What it takes to work with pwHD and (ii) The emotional experiences of working with pwHD. These superordinate themes encompassed three and two subordinate themes respectively. Themes are included because of the frequency with which they were reported and the meaning that individuals ascribed to them. Themes are supplemented by verbatim excerpts to remain close to participants' sense-making. Table 4 below represents the two superordinate and corresponding five subordinate themes. Although themes are presented as distinct there is some intersection resulting from the influence of participants' experiences.

Table 4

Superordinate and subordinate themes arising from the analysis of data

Superordinate themes	Participants contributing to this theme	Subordinate themes	Participants contributing to this subordinate theme
1. What it takes to work with people with HD	n=8	Seeing beyond the label	n=7: Alicia, Anna, Mark, Rachel, Rebecca, Sally, Sarah
		Approaches to support	n=5: Anna, Mark, Olivia, Rachel, Rebecca
		Determination and perseverance	n=8: Alicia, Anna, Mark, Olivia, Rachel, Rebecca, Sally, Sarah
2. The emotional experiences of working with people with HD	n=8	What we become	n=7: Alicia, Anna, Mark, Olivia, Rachel, Rebecca, Sally
		Fear and sadness	n=7: Alicia, Anna, Mark, Olivia, Rachel, Rebecca, Sarah

1. What it takes to work with people with HD

Seeing beyond the label

This subordinate theme encompasses participants' sense making of HD, and the importance of seeing beyond the label, to the pwHD themselves. It was noted that the condition can be misunderstood which has the potential to almost lead to leaving the pwHD behind.

In her account of a pwHD she worked with, Alicia asserted *"he's all there, but that's not necessarily obvious to people who don't know HD… you just have to see past it"* (562-569).

This pointed to the importance of understanding the condition and the pwHD. Alicia's use of 'just' having to see past HD conveyed simplicity or perhaps rather the necessity of making that effort. Rachel (192-194) added that *"their illness is not who they are, so if you put that aside you're able to actually get to know them"* which reinforces the idea that the person and the condition can and should be distinguished between. The importance of the need to separate the person from the condition was echoed by Alicia (47-50) who went on to imply that HD can hide the real person, commenting *"it's sort of like a mask over the individual because HD changes them, changes their personality, and the presentation of the patient"*.

Sally's interpretation (408-409) humanised this complex condition and separated it from being purely a physical health issue, explaining "*they're not just a sort of bag of skin and bones and blood and tissue are they?"* Sally described how:

It's a lot more complicated than that and you can't look after somebody, well anybody, but particularly with HD…if you don't sort of see them as a person and make those connections and understand where they are in it really

Sally: 411-417

Sally explained that the focus of nursing a pwHD can be misinterpreted:

I think a lot of people just sort of think okay well we just need to look after them until they pass away really but actually a lot of these guys have still got a huge amount of life

and you don't want them to just be sitting there and just being looked at as a group of symptoms, they just wanna get out and get on

Sally: 133-140

Sally's account reflects the importance of seeing the uniqueness and individuality of each person, rather than a homogenous group of pwHD. It also pointed to the need to acknowledge and work with a person's visions and goals, working with the life that they still have. Anna (79-80) and Mark, spoke of pwHD *"trying to be independent"*.

Rebecca (1009-1010) suggested that the focus should be on understanding the *"lives that they lived before they came into hospital"*, which was amplified by Sally who highlighted that a person's life does not start when they are admitted to hospital. Rachel (233-236) expressed that *"the life story book…reminds you what the patient used to do and likes and things like that so that helps"*. Nevertheless, Sally (219-224) raised that it is worth *"remembering that…actually people may have changed in their interests and so on, but at the same time…try and remember that's something that they had"*. This concept was shared by Sarah.

Approaches to support

Leading on from the previous subordinate theme, and the importance of seeing beyond the label, and therefore understanding the individual, this theme sets out participant's narratives on helpful and less helpful approaches to nursing pwHD. There was an acknowledgement from Anna (113-115) that *"I think these things develop in time…you*

need to create a relationship", which indicates that a level of perseverance is required. Rebecca (250-254) spoke of a need to make time and therefore take opportunities to form relationships, by describing that *"you've got the necessities of what you need to do that day but…you can just take ten minutes to sit and have a phone call or to go and update that patient"*.

Olivia (85-90) supported the need to form relationships, but also noted that *"some are easier than others…some have great blockages in the way because they may have had a troubled childhood or lots of rejection and they've got walls built so high"*.

Nonetheless, Rebecca outlined that having the right set of personal attributes would set a member of staff in good stead, by stating (1182-1183) *"being genuinely warm and kind to all…if you adopt that, you will go so far"* and by creating a homely environment which helps to foster safety and trust (553-556) *"for them to feel safe around us that it's okay…that's a massive thing…safety and trust and a homely environment"*, the latter point was echoed by Anna and Olivia.

Rachel explained that pwHD:

require so much support there's almost always someone there even if you're doing something whether it's personal care helping them with their food and things like that…so in a way always have that kind of…relationship…you're always there whether you know it or not

620-631

This again reinforced the point of using all opportunities that present themselves to form relationships. Rebecca (322-326) gave an example of personal care being a prime opportunity to form relationships, by stating that; *"it's not [just] let's get them clean it's actually let's enjoy this, let's play some music, let's talk, do you like this aftershave, do you want to pick your clothes out"*. Rachel (613-619) went on to explain that these opportunities can be *"something little like just sitting down and having a cup of tea with them…it's just every little time that you do have…just spend it with them"*. These 'simple acts' were echoed by Alicia, Olivia, and Rebecca.

The necessity of forming relationships was noted by Rachel (306-317) who highlighted *"you're looking after someone's health, someone's life…it's extremely important to have that kind of relationship…if you don't have that bond and that rapport, there's no way you're gonna be able to see those little things"*. By *"little things"*, Rachel was referring to subtleties which may be indicative of deterioration in that person's health. Beyond the 'necessity' of forming relationships, Olivia explained *"I think it's just about having that openness isn't it to try and work together 'cos at the end of the day we're working with the gents for 12 hours"*, which is suggestive of this collaboration making for a more pleasant environment for both patients and staff alike. Olivia continued (901-905) in saying *"if you haven't got that empathy compassion and care I don't know why anyone would even want to work 12 hours within this environment"*.

Some commentary also arose regarding less helpful approaches to nursing pwHD, which was introduced by Mark. Rebecca (378-381) built on this, explaining that *"if you're too firm and strict and instructive, it can…build negative relationships and a lot of agitation"*, and continued (410-413) in saying that *"putting in boundaries can be*

quite…taxing on a relationship but then I suppose it's then about how you come back from that".

Specifically concerning behaviours that challenge, there was the acknowledgment from Olivia (678-682) that *"You can't sit there terrified…you've got to enjoy the day because 12 hours is a long while"*, adding that *"I'm here to care and they're here for a reason"* (1505-1506).

Mark spoke of the importance of recognising early warning signs and responding accordingly, yet continuing to interact with the pwHD, commenting:

If you know that the patient's agitated always give them…plenty of space to make sure that you stay…far enough away but you can talk to them…it's about body language, tone of voice, maybe appropriate touch if you know that helps…and making sure that you take that time…and not to rush anything

405-415

Determination and perseverance

Bearing in mind the approach to nursing pwHD, participants' commentary suggested the importance of determination and perseverance, on the part of the staff, to form and sustain relationships with pwHD.

Olivia (1485-1487) suggested the need for determination and perseverance, asserting that *"it don't matter how many times a day you've been hit by somebody just don't give up"*, which also suggests a need for resilience. Olivia added, *"that person may be the most needing of that love and compassion and empathy and understanding"*

(1488-1490). Anna (299-300), in reference to a particular case of behaviour that challenged with somebody with whom she worked, suggested *"that didn't stop us from creating the relationship that we wanted"*, and Olivia (102-104) proposed that "*the next minute is a new minute, the next day is a new day…and you just carry on"*. This idea of resilience, rupture, and repair was echoed by Rachel and Rebecca.

In reference to a pwHD with whom she was nursing, Olivia (475-476) reported *"if someone was to come in he just looks totally disengaged"*, and Alicia (60-63) explained that *"because of how the illness physically looks it can make staff who are not used to them apprehensive to approach these patients"*. This goes back to the importance of seeing beyond the condition.

Anna outlined that *"they are capable of think[ing], talk[ing], making decisions as long as you give them time"*, which was echoed by Rebecca. There was a sense of being ready for pwHD when they are ready. Olivia (819-820) noted that it was about giving the message *"we are here for you if you want to talk"*, with the awareness that *"they might not want to talk to you now but in 10 minutes they may want to"* (Sarah: 127-129). Anna (121) asserted *"they will reply to you eventually"*, with which Alicia agreed, but regardless, Alicia suggested, "*I might not get a response still but I just try"*. This sense of perseverance was echoed by Olivia and Sarah, and the importance noted by Sally (765-767); *"what you'd like is somebody to keep coming back so that the patient gets familiar with them"*.

With this in mind, Alicia (926-928) expressed *"I need to interact with the patients and put myself out there"*. This need to be the one to initiate was mirrored by Olivia (438-439), in her talk about a person with whom she was working; "*you have to*

start with him but once you've got him you've got him". Olivia's determination shone through in her account; *"I've never give up…even with the most challenging of patient"* (95), *"It shows you know what I keep trying to push this person away but actually they're not giving up on me so there must be something there and…slowly it does build trust"* (113-117).

There was an acknowledgement that with time, familiarity and trust, pwHD are likely to be more responsive. Rebecca (905-908) explained that, in her view, *"a smile for someone who is going through the worst disease…it goes so far with me"*, which was shared by Olivia. Nonetheless, Sally (153-156) reported *"I think you have to be realistic as well…some of the patients…I feel I get on very well with…others not so well and I think that's just normal"*, which was mirrored by Rebecca.

The importance of staff having time, and patients being given time was outlined by Sarah (169-172); *"having the time to listen…it doesn't matter how frustrating that might be for us, they appreciate that time"*. According to Sarah (165-166), forming relationships also requires *"the willingness to communicate on a variety of levels"*. Anna (172-176) noted that *"sometimes it's hard when you have patients that are not able to communicate with you…and you don't know what they want, you need to guess"*, which was mirrored by Olivia and Rachel. Olivia (1091-1093) stated that *"they obviously know what they're saying but I can't and it's not just me it can be other staff members"*, however it was positive to hear from Rachel, (292-294) that "*luckily there's always something we can do in order to get information from them but it's normally just a yes or a no"*, with Anna (128-129) reporting that *"they can reply with thumbs up or…things like that"*. Sally (166-171) noted *"the more difficult it is for the patient to*

communicate and engage it's harder for the staff but…to me personally I think you just need to put more effort in really".

Sarah (182-183) explained that *"you learn to listen for words and cues as to what they might need"* and *"you get the grasp of what they're saying and it's a big relief for both of you when you can get that"* (184-186), the latter point being supported by Mark who advised that this understanding can minimise the likelihood of an escalation in a patient's behaviour should staff not be able to understand their speech. Rebecca (761-765) explained *"we're so lucky here…to have the support we do through [speech and language therapy], staff knowing them so long…little quirks people have picked up along the way"*.

There was the recognition by Olivia (1165-1170) that:

Sometimes nothing can be audible at all or you might just get one word…but actually it was something else they were trying to say to you and obviously it builds such frustration for them…and so it can be a stumbling block in the whole scheme of caring for them

1165-1170

In such cases, Olivia (1095-1098) explained that *"sometimes you'll call somebody else and you'll say I'm so sorry can you say it again and see if so and so can hear…and I try to make a joke of it"*.

Ultimately, Sarah (214-216) explained that *"it's patient-centred care so the more you understand them the better level of care and overall experience they have"*. Mark (160-165) added *"once you actually get to know them, understand them, and*

you're working with them and you're doing what they want…they'll always…seek me out to help them", which was mirrored by Alicia. This again supports the importance of familiarity, with Rachel (147-148) explaining that *"a lot of them respond…well to staff that have known them longer"*, which was echoed by Anna, Rebecca, and Olivia.

Participants spoke about the rewards in nursing pwHD. Rebecca commented:

I always say this is the most rewarding place. Although it is so difficult and it is so draining I just think if you can have a thank you or a smile or have achieved something for that patient…it could just be that they've eaten well…and they've looked smart and smelt nice

880-889

Rebecca's account suggests that the positives outweigh the difficulties, with her adding that *"you just go home feeling like you've achieved something"* (891-892). Mark explained that in his opinion:

The rewards are for everybody really for the staff, for the patients, and the families…I really feel like…we've done some incredible things for patients…and you know the families have been overwhelmed…we've made every effort to kind of understand and work with the patient and actually, you know, achieve more than maybe what they had done in the past

Mark: 422-436

Mark (258-263) added *"what we've found is that when…families can see that we're actually working with the patients and we're actually getting somewhere with them…it kind of melts everybody's heart"*.

Put simply, Alicia (1174-1176), Alicia explained *"I think it's a very positive patient group to work with if you're willing to get to know them and spend that time with them"*, with Rachel (486-489) adding *"I love what I do and they're the reason I love what I do, I don't see myself doing anything else to be honest"*.

2. The emotional experiences of working with people with HD

What we become

Given the determination and perseverance that can be required in forming and sustaining relationships with pwHD, this subordinate theme encapsulates the nature of and the potential strength of relationships.

Alicia (407-422) explained *"when you're interacting with the patient you're developing genuine emotions toward that person…you laugh and you joke with them and they become, they literally become like your family"*, which was mirrored by Sarah.

Bearing in mind the inpatient secure setting, and the strength of relationships that can develop, Rebecca (593-594) noted: *"we are the ones that they'll turn to"*, *"we're friends, we're family, we're nurses, we're everything to them"* (588-590). Rebecca (516-523) added *"although it's professional support, it's friendly support it's someone to confide in, it's someone to share your problems with if you're really in*

absolute crisis we're the people that are there…and seeing them at their worst…and at their best". The importance of professional bonds was echoed by Mark in his account.

Sally (435-438) offered *"I think…there is always that chance that you can…take a little bit of a step too far and then…you haven't got that…professional boundary I suppose"*. Nevertheless, Alicia (227-239) spoke of the difficulties that can be involved in forming a balanced relationship with pwHD, explaining that:

In terms of my experiences, they've been very emotional…they did lead to me becoming very emotionally tired with patients because in one sense you've got to build a healthy appropriate therapeutic relationship with the patient but then on the other hand with HD that's impossible because a lot of people, not just myself but other people staff find themselves going more than the extra mile, they may find themselves worrying about the patients more, they take it home and think about what's going on with that person

Alicia's account conveys an inner struggle between forming a *"healthy appropriate therapeutic relationship"* and the inherent difficulty in doing so with pwHD, a hereditary neurodegenerative disease where people with a diagnosis will experience a progressive decline in functional abilities. This concern which can follow staff home was mirrored by Alicia and Rachel in their narratives.

This difficulty is perhaps further compacted when close relationships are built with the person's wider support network, alluded to by Sarah (229-232) who said *"you get to know the family, some of their friends maybe and the family learn to trust you the same way that person does"*, with Rebecca (213-214) noting *"they really appreciate it,*

it goes a long way", and Olivia (389-390) outlining that *"it makes it more human and not so clinical"*. The nature of the condition and close working relationships perhaps increase the sense of responsibility to do the best by patients and their families, with Alicia (715-721) expressing:

I've always been respectful to patient's families again because I can imagine being in their shoes, having to watch their loved one change before their eyes and then to eventually be put into an institution sometimes hundreds of miles away

Fear and sadness

The final subordinate theme encapsulates the process of staff working through their emotions when working with pwHD, starting with fear, and moving to sadness. A limited range of emotions resulted from participants narratives, which were predominantly painful emotions.

Rachel (71) spoke of how she "*was frightened to be honest [laughs]"* before commencing her role. Her laughter was perhaps suggestive of embarrassment, with the hindsight of her subsequent experience. Or perhaps it was related to a fear of being judged, particularly with the author's prior relationship working with pwHD at the same hospital. Alicia (1560-1562) also noted that she *"used to feel like panicked, sick, nervous…just out of sorts"*. Whilst Mark noted that *"the first couple of weeks was really scary"* (48-49), he went on to say "but then all of a sudden it just clicked" (49-50). With the benefit of experience, Rachel (90-91) also commented *"actually…it's not*

that bad". Anna (95-96) put forward *"I have bad experiences and good experiences of course"*. This inevitability or rite of passage was mirrored by Rebecca.

Alicia, Olivia, Rachel, and Sarah spoke of behaviour being impulsive in those with a diagnosis of HD. As a result, Sarah (204) commented that behaviours that challenge can be *"difficult to process"* and therefore *"it causes a barrier in my nursing…obviously it affects the relationship"* (204-208). Olivia (634) gave an example of *"he just almost scares me a little bit"* concerning a pwHD she had worked with and witnessed behaviour that challenged directed towards other members of staff, continuing *"I'm waiting for him to do that to me"* (617-618).

Rachel (489-490) expressed *"it's very sad but at the same time it's very fulfilling"*, which was echoed by Alicia, who added, *"what moves me the most is the fact that they're here and they're stuck here and that is just not a nice thought whatsoever"* (284-287). There were attempts to empathise with the experience of the pwHD, with Olivia (405-406) suggesting *"it's devastating when you stop and actually think about it"*. Alicia (845-846) reflected how *"we come here and do our 12-hour shifts and go home, this is their life"*. This was supported by Rachel who described being able to go home as a *"privilege"*. Alicia considered how the patients' hospitalisation was *"not their fault as well, that's what's really sad about it"* (307-308), suggesting powerlessness and loss of control in their lives.

Coming to terms with change resulted from participant talk, with Rebecca (547-551) explaining that *"we've had patients that come in so independent and now as the years have progressed, they're young gentleman, they fall over, they can't eat properly, they spill stuff all down themselves"*, which Rachel spoke about also. Olivia (1001-

1006) made attempts to consider this deterioration from the perspective of the pwHD; *"I'm seeing him deteriorate so much and it's so sad and it's making him really angry and it's hard and you know I can't even imagine what that's like for him in his shoes"*. Alicia noted:

when you think about the position they're in and the illness they're [experiencing] I just feel waves of sadness, it's so upsetting that you know you've got these lovely people in this setting…because when they're not laughing and joking with you, and you look at people with HD, sometimes you see them sitting there contemplating their own thoughts, and that's what hurts most

Alicia: 423-431

Participants spoke of their experiences of sadness concerning HD. Mark (330-334) commented *"we all know that all [people with HD] are heading towards death…so that can be quite upsetting…particularly if you're in the later stages of…Huntington's"*. Rachel described this inevitable deterioration as a source of frustration. However, she did note that *"there's certain things you can help them to improve in sort of, in the short term"* (488-489).

Olivia (976-977) suggested that *"obviously it can be emotional to see deterioration or when they pass away"*. Alicia (1222-1229) explained that *"the people I've looked after that have now died…I can't erase that memory…thoughts of them*

make me feel happy…but…images of them in their final days…is incredibly, it's heartbreaking", adding that:

> *I saw one of them buried it's very final…once you've had that experience of nursing somebody with HD until they die…it stays with you forever, that's a big consequence, it tugs on your heartstrings and sometimes…you wanna do more but then there's only so much you can do with the degenerative nature of the illness*
>
> Alicia: 1230-1239

4. DISCUSSION

This qualitative study utilised IPA (Smith & Osborn, 2003) to understand the lived experiences of relationships with pwHD and their families. Participants were qualified and unqualified members of the nursing profession at a specialist locked inpatient UK hospital. The analysis of individual transcripts resulted in two superordinate themes (i) What it takes to work with pwHD and (ii) The emotional experiences of working with pwHD. The subordinate themes were (i) seeing beyond the label (ii) approaches to support (iii) determination and perseverance (iv) what we become (v) fear and sadness. Themes are included because of the frequency with which they were reported and the meaning that individuals ascribed to them. Care was taken to minimise overlap across emergent themes, through close and careful analysis of what participants said, what it meant to them, and how it was best captured as rightly distinct from another theme. One such example is that of the subordinate themes, 'approaches to support', and 'what we become'. The former explores both helpful and less helpful approaches to supporting pwHD, and the latter explores the salience of relationships and the pivotal role of supporting pwHD as a vocation, not merely a job, in turn altering how one is perceived by the pwHD they support.

The results provide insight into the views and experiences of an under-represented group from which recommendations for service provision and planning have been made.

4.1. Discussion of results in relation to the literature

The first superordinate theme encapsulated three subordinate themes, all of which contribute to an understanding of the necessary attributes and approach to effectively supporting pwHD, from the perspective of participants in this study.

In their accounts, participants emphasised the importance of seeing beyond the label of HD, to the person themselves, recognising that the condition does not define the individual. Participants' narratives were closely related to the model of person-centred care (PCC) for people living with dementia in extended care settings (Kitwood, 2007). PCC is embodied through acceptance, care, empathy, sensitivity, and active listening (Brownie, 2013). This approach was apparent in the accounts of participants in the current study, as were the guiding principles of PCC as set out by Brooker (2007). Kitwood's (2007) model challenged the notion that dementia results in depersonalisation, and instead proposed that an individual's unique 'personhood' remains, despite the progressive nature of their condition. Participants in the current study described HD as a "mask" and highlighted the importance of being able to see beyond it. Nevertheless, they noted that personhood can be overlooked by those not familiar with the complexities of HD, who may view and treat it as purely a physical health condition. It has been proposed that when a person's psychosocial needs are met, their self-worth and value will be strengthened and expressions of ill-being, often conveyed through apathy, irritability, and aggression, are minimised (Brooker, 2007; Slater, 2006). In the current study, there was a recognition of the importance and value of understanding the whole person, their life story, likes, dislikes, preferences, and needs. There was also the acknowledgment that these factors can and do change over

time. It was noted that this calls for the need to remain flexible and responsive to change, as the person and the condition progresses.

This fits with the PCC model and allows people to engage with the person and develop meaningful relationships. The importance of building relationships has been noted in previous research (Harding et al., 2013; Law, 2017), in order to communicate with patients and to manage and plan care to meet complex needs (Law, 2017; Wilson et al., 2011). Nevertheless, there was an acknowledgment, by participants, that apathy, irritability, aggression, and loss of verbal communication can present as challenging in the formation of relationships. The loss of verbal communication has been noted as a challenge in the provision of care in people with progressive long term neurodegenerative conditions, particularly HD and motor neurone disease (MND) (Wilson et al., 2011).

In terms of approaches to support, there was the sense of needing to be resilient in the face of behaviours that challenge. The recognition of early warning signs and responding accordingly was noted, whilst continuing to interact with pwHD, and being able to repair relationships should they be ruptured. It was, therefore, indicated that a level of determination and perseverance is required in working with pwHD. It is acknowledged that supporting people who are ill can result in stress, particularly when patients die in care settings (Cedar & Walker, 2020). The Health and Safety Executive (2020) found that stress and burnout are more common in healthcare settings as compared to other sectors. Peters et al. (2013) noted that the bereavement of a patient can result in numerous anxieties for staff.

In the current study, participants' accounts generally distanced behaviours that challenge from pwHD, by attributing them to the diagnosis of HD. Attribution theory

(Heider, 1958) put forward that behaviour is attributed either internally (within the control of the individual) or externally (not within the control of an individual). Internal attributions were made concerning to the diagnosis of HD and impulsivity. External attributions were made concerning the inpatient hospital environment and notions of control and responsibility. Participants' narratives were found to rationalise patients' behaviours, validate the actions of staff and manage blame. This external attribution reflects the findings of dementia studies (Hayward et al. 2012; Stokes et al. 2014) and has been referred to as the 'halo' effect, whereby the diagnosis distances the person from responsibility for their behaviour (Golander & Raz, 2000). PCC views symptoms, such as irritability and aggression, in the context of the person's interactions within the psychosocial world. The 'social-psychological theory of personhood in dementia' (Kitwood, 2007), forms the basis of the person-centred care model, proposing that people function in a social, relational context and that positive and enriching interpersonal relationships can inhibit the disabling effects of dementia and promote a sense of well-being (Brooker, 2003; Davis, 2004; Dewing, 2008). Based on the findings of the current study, this appears to hold for HD as well as dementia.

The second superordinate theme resulting from the current study encompassed the emotional experiences of working with pwHD. It included two subordinate themes, capturing both what staff become and the emotional responses of fear and sadness when working with pwHD. There was a sense that relationships can become all-encompassing, with many participants likening themselves to a patient's family. Whilst there was an understanding that professional bonds were necessary, there was also an acknowledgement, from some, that this was difficult to achieve given the progressive nature of the condition and the frequency and nature of support required by pwHD. As

such, these participants spoke of experiencing more of a ‘personal-professional interface’. Given the focus on person-centred care, and not solely treatment (Watson, 2009, as cited in Cedar & Walker, 2020) compassion and care are central to the six fundamental values of nursing (6Cs) (Department of Health and NHS Commissioning Board, 2012). This can add to the emotional experience of nursing support. Related to the inevitability of deterioration and eventual death, participants spoke of associated fear and sadness. Such emotional responses have been noted in the wider literature both in dementia settings (Rokach, 2005) and cancer care (Breen et al., 2014). Several participants spoke about support being available in many forms, from informal peer supervision with colleagues to reflect and problem solve, as well as regular opportunities for formulation and reflective practice facilitated by the ward psychologist. The importance of teamwork has been noted in previous qualitative research exploring the perspectives of staff providing care at the end of life for people with progressive long-term neurological conditions (Wilson et al., 2011). In the current study, there was the suggestion from one participant that there may be particular value in supporting staff to safely identify their own emotions concerning their work, to consider the antecedents to these, their functions, and their behavioural responses. This would go some way to continuing to support staff to recognise and regulate their emotions to promote the psychological wellbeing of themselves and, in turn, the pwHD that they support.

Despite many questions geared towards asking about relationships with families, this was not particularly well represented in participant’s narratives, and therefore did not contribute to theme development, as it did in the study by Law et al. (2017) who explored the experiences of health care assistants working in UK care homes with

people with dementia. Participants in the current study noted that many patients do not see their families, or at least not regularly, and suggested that this was related to factors including the physical distance of relatives from the inpatient setting, the hereditary nature of HD, and its effects on the entire family, and also as a way of relatives distancing themselves to cope.

4.2. Limitations and future research

The study remained as close as possible to the homogeneity that is required for IPA (Smith & Osborn, 2003), by inviting only qualified and unqualified members of the nursing profession at a specialist locked inpatient UK hospital to participate. Consequently, other members of the interdisciplinary team were not included who may provide alternative narratives regarding relationships with pwHD and their families. To develop the study further, a wider geographical net could be cast to capture the voices of other allied health professionals.

Additionally, differences in gender, age, and years of experience working with pwHD were not explored, all factors which may produce alternative narratives and which future research could consider.

Since those who participated volunteered to do so, it could be argued that they were sufficiently confident and comfortable to discuss their lived experiences of relationships with pwHD and their families. As a result, there is no representation from staff who did not wish to discuss their experiences. The use of focus groups, rather than individual interviews may encourage additional people to take part.

It would be worthwhile replicating the current study in other settings supporting pwHD, such as community residential care. The dissemination of emergent themes from

this study may prove useful in assessing their fit with a larger sample from services in the community. Given the limited narrative surrounding families resulting from the current study, it would be interesting to explore the lived experiences of families when a loved one with HD is admitted to the extended care setting. Additionally exploring the experiences of relationships, from the perspectives of pwHD would be of value and could inform care and treatment approaches.

It is to be remembered that relationships are not a static concept and are subject to change over time. A longitudinal study may give a richer indication of the lived experiences of relationships, from the perspective of staff, over time.

It is thought that there would be further value in more fully exploring the emotional responses of staff working with pwHD, given that there is reported to be relatively little exploration addressing the psychological wellbeing of staff (Hill et al., 2016). The Maslach Burnout Inventory (Maslach et al., 1996), Compassion Satisfaction and Fatigue Test (Figley, 2002), and the Nursing Stress Scale (Gray-Toft & Anderson, 1981) have been noted to be valid and reliable measures to exploring psychological outcomes in staff. Such measures could help explore how the support offered to staff might be further enhanced to support their psychological wellbeing.

4.3. Clinical implications

Despite the limitations of this study, its value should be acknowledged. The voices of staff working with pwHD are under-represented in the literature. Empowering these individuals to inform research and service provision recognises the unique contribution they can offer by sharing their views and experiences.

Qualitative research offers the opportunity to share personal accounts from those in similar situations. It allows others to draw on aspects that may help them to better understand, and respond to their own lived experiences (Cruickshank, 2012). As a result, this study may be beneficial firstly by raising awareness of HD and illuminating the experiences of supporting people with a diagnosis of this condition.

This can be achieved through education and training, alongside regular individual and group supervision, reflective practice, and formulation, to share experiences, learn from others, and problem-solve together. Whilst this goes beyond participants own narratives, the author's personal and professional experiences have demonstrated the importance of these in clinical practice. Moreover, a lack of support has been cited as one particular reason why nursing staff leave the profession (MacKusick & Minick, 2010). High-quality staff support is both a legal and moral responsibility to ensure staff wellness (Payne, as cited in Hill et al., 2016) and staff wellbeing affects the quality of patient care (Department of Health, 2009; Maben et al, 2012).

4.4. Conclusion

This study provides a unique glimpse into the personal experiences of relationships with pwHD and their families from the perspective of qualified and unqualified members of the nursing profession at a specialist locked inpatient UK hospital. Participants' narratives contributed to the development of two superordinate themes. The first superordinate theme related to the necessary skills and attributes to working with pwHD. This theme was made up of three subordinate themes encompassing the importance of seeing beyond the label, providing person-centred care, and upholding

determination and perseverance in forming and maintaining relationships with pwHD. The second superordinate theme related to the emotional experiences of working with pwHD. The subordinate themes encompassed what staff become, and emotional responses in working with pwHD.

The findings are important because they have given a voice to this under-represented group, and illuminated what can hinder and/ or facilitate relationships with pwHD and their families. It will add to the literature, and it is hoped that it will help in shaping and strengthening current clinical practice. This is likely to improve support provided and promote increased wellbeing of those with HD, their families, and members of staff.

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PRESS RELEASES

Vincent Jonathon Harding

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WHAT ARE THE MOST EFFECTIVE TREATMENTS FOR IRRITABILITY AND AGGRESSION IN PEOPLE WITH HUNTINGTON'S DISEASE?

Why is it important to find the most effective treatments for irritability and aggression in people with HD?

Irritability is thought to occur in between approximately 35% and 75% of people with HD (Julien et al., 2007; Reedeker et al., 2012; van Duijn et al., 2007). The likelihood of people with HD presenting with aggression is thought to be between approximately 22% and 66% (Fisher et al., 2014). Aggression is the most problematic in care settings, and is in fact often the reason for admission (Wood et al., 2002). Similarly, irritability can contribute to great distress to people who experience it, and to those who support them (Bouwens et al., 2015). It is important that effective treatments are identified and used; particularly because individuals may put themselves and others at risk should their behaviour not be appropriately addressed (Wood et al., 2002).

Very few researchers have investigated treatments for irritability and aggression in people with HD. Those that have (Karagas; Rossi & Oh, 2020) were not especially thorough in their reviews, did not include all relevant research, or the highest available quality research which offers the most effective and trustworthy findings available at this time.

What does this review involve?

A detailed search was completed looking at all available research looking at treatments for irritability and aggression in people with HD. The highest quality research was selected which offers the most effective and trustworthy findings available at this time.

What does the review tell us?

12 pieces of research were found and summarised in an effort to understand the best known treatments for irritability and aggression in people with HD. The pieces of research were very different. They took place between the years of 1997 and 2017. They included men and women with a diagnosis of HD, living in different countries across the world, both in the community and in inpatient settings. The pieces of research included between one and 956 people with HD. They reviewed treatments using prescription drugs for irritability and aggression, as well as non-drug treatments such as behavioural approaches.

The conclusions of this review are limited because of the small amount of research available which looks at treatments for irritability and aggression for people with HD. Also, some of the research found was of quite poor quality which makes it less trustworthy. There is some support for the use of antipsychotic and antidepressant medication, and behavioural treatments for irritability and aggression.

What should happen now?

It will be important for more research to investigate the most effective treatments for irritability and aggression for people with HD. This research should include larger numbers of people with HD, with clear reporting of treatments and their effects on behaviour, assessing any change with quality, trustworthy measures.

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HOW DO QUALIFIED AND UNQUALIFIED MEMBERS OF THE NURSING TEAM AT A SPECIALIST LOCKED INPATIENT UK HOSPITAL EXPERIENCE RELATIONSHIPS WITH PEOPLE WITH HUNTINGTON'S DISEASE AND THEIR FAMILIES?

Why is it important to understand the experiences of relationships with people with HD and their families from the perspective of qualified and unqualified nursing staff?

HD is a relatively rare hereditary progressive neurodegenerative condition (Baig et al., 2016).

Onset is most common in middle age (Langbehn et al., 2004; Tippett et al., 2007), and its effects are wide ranging, changing how people think, feel, speak, move, swallow and eat. There is currently no cure for HD and symptoms typically occur over a period of approximately 15-20 years, before eventual death (Bouwens et al., 2015; Kieburtz et al., 2010), which is often the result of secondary illness. A review of the literature revealed no full-text studies exploring personal experiences of relationships with people with HD and their relatives from the perspective of qualified and unqualified members of the nursing profession.

What does this study involve?

Interpretative Phenomenological Analysis (IPA) was used to explore the personal experiences of relationships with people with HD and their families from the perspective of qualified and unqualified members of the nursing profession at a specialist locked inpatient UK hospital. Eight staff took part in one-to-one, face-to-face semi-structured interviews.

What does the study tell is?

Analysis identified two superordinate themes (i) What it takes to work with people with HD and (ii) The emotional experiences of working with people with HD. The subordinate themes were (i) seeing beyond the label (ii) approaches to support (iii) determination and perseverance (iv) what we become (v) fear and sadness. Themes were included because of the frequency with which they were reported and the meaning that individuals ascribed to them.

What does this mean for the way we work and for future research?

It is hoped that this study will help in shaping and strengthening current clinical practice. By disseminating the findings locally, this will serve to help others to draw on aspects that may help them better understand, and respond to their own lived experiences of working with people with HD and their families. This is likely to improve support provided and promote increased wellbeing of those with HD, their families, and members of staff. Continued protected time for supervision, team formulation groups, and reflective practice will allow for the sharing of experiences, sense-making, and problem solving.

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APPENDICES

Appendix A
Quality Assessment Criteria

	Definition	Low risk of bias	Unknown risk of bias	High risk of bias
Selection bias	Selection bias in epidemiological studies occurs when there is a systematic difference between the characteristics of those selected for the study and those who not selected. Randomisation cannot be applied to observational studies or within-subject intervention designs and the effects of selection bias in these studies should be considered and, potentially, penalised.	The characteristics of the study population are clearly described and without evidence of bias. Non-response rate is reported and of an acceptable level (set at 50%). The source population is well described, and the study reports the characteristics of the sample e.g. the study details subgroups. The recruitment method is clearly reported and well defined. The article provides some reassurance that there is no selection bias.	Non-response rate is not reported. The recruitment process/ sampling method of individuals are unclear or has not been reported.	Includes an unacceptable (reporting less than 30% of the data) level of non-response rate. Target sampling was used. The characteristics of the study population are not reported.
Performance bias	Performance bias refers to	Study reports level of	The study does not report	Responses were not

	systematic differences between/ within groups in the participant's motivation to complete the study.	confidentiality and anonymity. Participants were not rewarded for their participation in the study. Information and procedures were provided in a way that does not differentially motivate participants.	levels of confidentiality and anonymity. It is unclear if participants were rewarded for their participation (e.g. motivation to respond in a certain way). It is unclear how much information was provided to the participant prior to taking part in the study.	confidential or anonymous. Participants were rewarded for their participation in the study. Participants were told which condition/ what questionnaires they were completing and why, and any proposed hypotheses.
Treatment bias	This area of bias relates to whether the treatment (or exposure or manipulation) were representative of the class of treatments (or exposures or experimental manipulations) to which the study intended to generalise. - Was the treatment sufficiently well described that it could be replicated? - Did the actual treatment correspond to intended treatment?			

	- Was the treatment part of a multi-treatment package? - Were procedures in place to assess the fidelity of the administered treatments/ manipulations? - Is it reasonable to consider that the treatment (or exposure or experimental manipulation) would obtain the intended result?			
Detection bias	Detection bias refers to whether the design of the study is optimised to detect the effect in question. Ratings of design bias therefore reflect the position of the study design within the hierarchy of possible designs, with less optimal designs receiving a penalty. Detection bias also refers to systematic differences	The outcome measures are clearly defined, valid and reliable, and are implemented consistently across all participants. Outcomes are blindly rated.	Information regarding the outcome measures were either not reported or were not clearly reported e.g. definition, validity, reliability. Cronbach's Alpha for outcome measures was between 0.6 and 0.7. Test retest reliability for outcome measures was between .6 and .7.	The outcome measures were implemented differently across participants. The outcome measures used had poor reliability and validity reported e.g. Cronbach's Alpha < 0.6. and/ or test/ retest reliability < 0.6 Only using one dimension/ subscale of the scale or separating the

	between participants in how outcomes are determined. Blinding (or masking) of outcome assessors may reduce the risk that knowledge of which intervention was received, rather than the intervention itself, affects outcome measurement. Blinding of outcome assessors can be especially important for assessment of subjective outcomes.			subscales/ dimensions in the analysis.
Statistical bias	Bias resulting from the (inappropriate) statistical treatment of the data. Indicate if appropriate statistical methods used. Bias may also result from completer only analysis. Completer analysis refers to treatment outcome analyses in which only individuals who completed treatment are	Appropriate statistical testing was used. The study reported a Pearson's value or the statistic can be transformed into a statistical equivalent. Confidence intervals or exact p-values for effect estimates were given or possible to calculate.	Unclear what statistical test was used. Appropriate statistical test was used but the statistic cannot be transformed into a Pearson's value. Confidence intervals or exact p-values for effect estimates were not reported and could not be calculated.	Statistics were not reported.

	included. Assuming that people who drop out of treatment early do not respond as well as those who remain in treatment, completer analyses may overestimate the efficacy of a particular treatment. In preference to completer analysis studies should use an 'intention to treat' analysis or use methods for imputing missing data.	Attrition rate – data loss was reported at analysis at an acceptable level (50%).	Attrition rate – data loss was not reported at analysis and was therefore unclear.	
Reporting bias	Reporting bias refers to systematic differences between reported and unreported findings. Within a published report those analyses with statistically significant differences between intervention groups are more likely to be reported than non-significant differences. This sort of 'within-study publication bias' is usually known as outcome reporting bias or selective reporting bias,	Reported all results of measures as outlined in the method.	There was a description (narrative) in the results but statistics were not reported.	Not reported full outcome measures that are stated in the method section.

	and may be one of the most substantial biases affecting results from individual studies (Chan 2005). Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. Consider whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomised participants), reasons for attrition or exclusions where reported, and any re-inclusions in analyses for the review.			
Generalisability	Generalisability describes the extent to which research findings can be applied to settings other than that in which they were originally tested.	Sufficient sample for generalisation and representative of target population. A sample size	Sufficient sample for generalisation but with some idiosyncratic features. A sample size	The sample size was not adequate to detect an effect.

	Any differences between the study participants and those persons to whom the review is applicable.	justification, estimate and power analysis was provided. The sample size was adequate to detect an effect.	justification, estimate and power analysis were not provided.

Appendix B

Reflective Journal

The journey

At the outset, the research journey appeared straightforward, and my timeline (Appendix Q) realistic. The need for flexibility soon became apparent. There have been setbacks along the way, and times that I have thought I would never complete the research. Nevertheless, the reward of carrying out research in an area of particular interest has outweighed the difficulties incurred. With determination and excellent external support, I have overcome some of the difficulties I faced along the way. I have had the privilege of hearing the lived experiences of participants. These experiences will set me in good stead as I prepare for my chosen path of working with people with HD and dementia. The reflective account which follows outlines particular aspects of the research journey which have been most prominent for me.

Origin of the research

To start my doctoral training in forensic and clinical psychology, I left my role as an Assistant Psychologist working with people with HD in an inpatient secure setting. This was an area that I was passionate about and which I had thought of returning to post training. Nevertheless, I wanted to keep my options open, knowing that I would be exposed to a number of specialist areas during my training. I enjoyed this work and whilst I thought of returning to it the in future, I decided to keep my options open, knowing that I was about to experience a wealth of opportunities through training.

Ethical considerations

Because of the sensitive nature of the focus of study, and the potential for participant distress, I was aware that the process of seeking ethical approval may be a lengthy one. For that reason, I prepared a comprehensive research proposal, anticipating potential problems and prioritising responses. I fully justified how and why I set out to complete the research. My academic and clinical supervisors were all interested in the project and acknowledged that exploration in this area was justified. The University ethical approval board approved the research on 13/05/2019. It was approved by the host organisation in May 2019. This process validated the value and necessity of advance preparation, considering all features of the research carefully.

Literature review

An initial review of the literature was conducted using AMED; ASSIA; CINAHL Plus; Cochrane Library; EMBASE: Excerpta Medica (OVID) 1974 to 2018, July 27; ERIC – ProQuest; OVID MEDLINE (R) and In-Process and Other Non-Indexed Citations 1946 to July 19, 2018; Ingenta Connect; PsycARTICLES; PsycINFO; Sage Journals Online; Science Direct (Elsevier); Taylor and Francis; Web of Science; and Wiley Online Library. The review was completed between 16/07/2018 and 29/07/2018 using the search term 'Huntington's disease'. Only full text, peer reviewed papers were included in the review to enable evaluation of the methodological quality. Papers selected were in English language and contained 'Huntington's disease' in the title. A total of 18,450 results were yielded, and were screened for relevance by title and/ or abstract.

The current literature reviewed yielded no research papers exploring personal experiences of relationships with people with HD and their relatives from the perspective of registered and non-registered nursing staff in locked inpatient settings.

I underestimated the time required to allocate to the literature review. I came to realise that the research timeline might not be achieved as first anticipated. The timeline therefore required frequent review and where necessary, revision.

Reflection on data collection

Recruitment

I found that one of the most challenging aspects of the research process was participant recruitment. Although I had anticipated that it may take some time, I underestimated just how much time and difficulty this would involve, particularly when the COVID-19 pandemic struck. My belief in this research drove my continued perseverance to recruit participants to take part. I did so with continued e-mail, telephone and face-to-face contact to remain in contact with the host organisation.

My prior relationship with the hospital

Prior to starting the doctoral course, I had worked at the hospital for several years, most recently as an Assistant Psychologist. My clinical experience assisted me in developing the current research. I think that my prior relationship with the hospital and some of the participants facilitated a shared understanding of their accounts. It was noted by Burman (1994) that a pre-existing relationship between researcher and participants can generate greater discussion and reflexive commentary. Nevertheless, it must be considered that participants could have held back from constructing alternative accounts within our

interaction because of their observations of my pre-existing knowledge and 'insider' status. On the other hand, my clinical experience gave me the added advantage of better understanding individual claims and concerns offered by participants, and I could therefore empathise as such.

The interview setting

Interviews took place at the hospital. It was accepted that the setting for interviews was likely to have a bearing on participants' accounts of their lived experiences. I wondered whether their accounts could digress from their reality considering that they are primarily a 'member of staff', and secondly an 'interviewee'. As such, participants were given the opportunity for their interview to take place outside of the building in which they worked.

Developing the interview schedule

It was thought that a semi-structured interview schedule would be useful in terms of introducing the research interest and paving the way for discussion. In order to allow for unanticipated talk, participants were encouraged to raise further related material. The schedule unfolded in different ways during each individual interview, which could have been the result of researcher and/ or participant style. Some participants appeared to need only an initial question and probes during the course of their interview. Other participants produced less substantive responses and therefore required additional encouragement and probes in order to support deeper disclosure in an attempt to seek the richest possible data.

Interviews

I entered interviews very much aware of the sensitive research topic and the emotions it may evoke in participants. I found that some participants moved between discussions which perhaps evoked difficult emotions to those that did not, which they did so with greater ease. I was conscious of giving people the time and space that they wanted and needed. The necessity of being aware of one's own thoughts, feelings, experiences and beliefs was important to consider when interviewing participants. I endeavoured to suspend my presuppositions and pre-understandings and remain open to participants' lived experiences.

What I brought to the data collection

I approached this research mindful of the thesis guidelines, my clinical and research interests, and those of my academic and clinical supervisors. The interview data can be seen as a result of a co-constructed dialogue between the author and the participant. The interview data are dependent on the questions asked, and the way in which interviewee's speech was responded to.

During transcription and analysis, I noticed that as the data collection progressed, so did my interview style, particularly in terms of my language. This might have been as a result of participant differences and/ or that of a growing confidence in my interviewing technique. During the course of my academic journey, I have become increasingly aware of the importance of reflexivity and encouraging this within the interdisciplinary teams in which I work.

Reflection on data analysis

IPA analysis

I was of the opinion that qualitative methods were the best fit for my research, given that my aim was to interview hospital staff about their lived experiences. IPA appeared to be appropriate given that its focus is on exploring the lived experienced of a given phenomenon. I acknowledged participants as experiential experts. In doing so, this allowed me to attempt to understand the way in which individuals made sense of their experiences, and offering a glimpse into their own cognitive world (Biggerstaff & Thompson, 2008; Dickson et al, 2008).

In analysing interview data, I learned of the power of qualitative research and the importance of reflexivity. Reflexivity helped me to understand why I was drawn to particular aspects of participants' individual stories. Nevertheless, I was aware of the need to highlight individual's stories in their own words. I was involved in the hermeneutic process (Smith et al, 2009) which recommends the understanding of a whole as a sum of its parts. This assisted me in seeing the 'bigger picture' as opposed to zooming in on elements of participant accounts which I was more drawn to because of my previous clinical experiences.

In order to stay close to participants' sense making, and to adequately represent the themes, I used circular processing to vacillate between the data. Research supervision supported this process by giving me an opportunity to reflect on my interpretations. My analysis offers just one of many possible interpretations. However, the credibility of my analysis was reinforced through discussions with peers and clinical and research supervisors, which allowed me to share what I think is a meaningful

interpretation of the experiences I was presented with. Moving forward, I will hold in mind the importance of discussing the analysis with others. This provides an opportunity to step back from the data, check the clarity of the interpretations, and to ensure that themes are evidenced in the words of participants.

What I brought to the data analysis

As far as possible my own values and preconceptions were considered prior to the commencement of this research in relation to the impact that they might have on data collection and analysis (Morrow, 2005). I had considerable clinical experience at the hospital prior to, and during this research. This could have been revealed through the data, but also became apparent to me during the analysis.

The writing of the thesis

Write-up as part of the analysis

The thesis write-up took considerably longer than I had initially anticipated.

My writing style

At the outset of this research, I deliberated the style of the written thesis. I wondered how my readings relating to IPA, and my developing epistemological position, would fit with the necessities of the thesis.

The written style of research can be understood as telling a story, as chosen by the author (Kvale, 1996). It is inevitable, therefore, that the final write-up will be just one of many possible versions of research (Potter, 1997). Reflection is encouraged

during the course of research (Morrow, 2005) and has played an important role in my completion of the thesis. When I revisit the reflections I have made since I began writing my reflective journal, I can appreciate the significant part it has played in my personal and professional development, and also of the position of the research.

Use of research supervision

Research supervision

In-person, and latterly, virtual and e-mail research supervision provided a much valued opportunity for discussion, reflection and support. Supervision took place at least monthly from the development of the research proposal and application for ethical review, right through to data collection, analysis and write-up.

Final thoughts

Concluding thoughts

As I come to the end of this research journey, I feel physically and emotionally exhausted. Whilst it has, in hindsight, been a rewarding experience overall, I often lost sight of how far I had come in respect to my goals and reasoning for wanting to pursue doctoral level training. I moved between 'seeing the light at the end of the tunnel', right back to feeling overwhelmed with how far I had left to go. It was often extremely difficult to manage competing demands and balance academic work with my clinical work, particularly in the final year when I took on greater responsibilities in my clinical placements. This, combined with the COVID-19 pandemic, left me feeling

overwhelmed and uncertain. Having these experiences validated by my peers was reassuring. It is only now, when I near closer to the course finish line, that I can see what I have achieved. It has been a journey to say the least, and I have learnt so much along the way, including the need to prepare thoroughly, to remain flexible in my approach, and to recognise my own personal limitations and when to seek support. I think that my research skills have been further refined, and I am more confident about conducting additional research in the future. I am keen to disseminate my findings and will be in a brilliant position to build on this research since I have secured a qualified psychologist position in the Dementia and Huntington's disease service where the current project was completed. The service actively encourages and supports research.

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Appendix C

Ethical approval email from the University of Birmingham

Samantha Waldron (Research Support Group)
Mon 13/05/2019 15:11
To:
John Rose (School of Psychology)
Cc:
Vincent Harding (ForenClinPsyD (St Andrews) FT)

Dear Professor John Rose,

Re: "Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital" Application for Ethical Review ERN_18-1671

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

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

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or 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 also 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 and referred to in any future applications for ethical review. It is now a requirement on the revised application form (https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

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,

Ms Sam Waldron
Deputy Research Ethics Officer
Research Support Group
C Block Dome (room 132)
Aston Webb Building
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Tel:
Email:

Web: https://intranet.birmingham.ac.uk/finance/RSS/Research-Support-Group/Research-Ethics/Research-Integrity-at-the-University-of-Birmingham.aspx

Please remember to submit a new Self-Assessment Form for each new project. Click Ethical Review Process for further details regarding the University's Ethical Review process.

Click Research Governance for further details regarding the University's Research Governance and Clinical Trials Insurance processes, or email researchgovernance@contacts.bham.ac.uk with any queries

Appendix D
Research and Innovation approval

20th May 2019

Dear Vincent

RE: 104_Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Thank you for all your completed documents. I am pleased to advise that we are now able to give unconditional approval for you to conduct your research study at

The clinical lead for this project is Please liaise directly with , in regard to the on-site management of the project.

Next steps

1. Commence data collection!
2. Your project has now been classified as 'live' on our database. Please advise me when you have completed all your data collection and you are moving onto the write-up of your study.

Expectations

In relation to research conducted at , you will be required to:

- Update the department on a regular basis
- Comply with any requests related to audits or service evaluation
- Comply with policies
- Follow Authorship Good Practice, as shown over

Project completion

On completion of your study, we require:

- An executive summary report of the research
- A copy of the final report
- Your affiliation to be referenced in any publications relating to this research, including journal articles, posters and conference materials. Please use the following wording: [insert title, e.g. Visiting Researcher], ,

- Updates about dissemination activities; including conference presentations and publications in peer-reviewed journals – please see Authorship Good Practice below

- You may also be invited to present the results of your research to a wider audience within

Authorship Good practice

It is good practice to discuss and agree the expected roles, contribution and responsibilities, including authorship of all collaborators, at the very start of the research process. This includes the appropriate recognition of any substantial intellectual contribution of members of the Research Centre at , such as:

- Conception or design of the work
- Acquisition, analysis or interpretation of data for the work
- Drafting the work or revising it critically for important intellectual content
- Final approval of the version to be published

Yours sincerely

Research Administrator

Copied to:

Appendix E

Researcher context

In order to facilitate transparency of the dyad between the author and individual participants, this account details the author's position. The author has thirteen years of clinical experience consisting of the long term and high secure prison estate, inpatient and community settings. Their work has been with men; women; children; adolescents and older people with anxiety; depression; acute mental health; intellectual and developmental disabilities; cognitive and physical impairment; and forensic histories. The author has himself worked closely with people with a diagnosis of HD for approximately four years. They were aware that this research may elicit feelings of unease and/ or further distress in participants. The author is fully aware that his thoughts, feelings, experiences and beliefs in regards to HD may differ from that of others who have different training, protected characteristics, and experiences of working with this client group. Whilst there were attempts by the author to 'bracket off' his own thoughts, feelings, experiences, and beliefs, it was acknowledged that there would be an inherent subjective interpretation of accounts as the author's own experiences inevitably guide his own sense making of their narratives.

Appendix F

Epistemological position

The author adopted the epistemological position of a critical realist, which was thought to best fit the methodological approach of the current research. An outline of epistemological positions is detailed here, situating the critical realist position.

A social constructionist stance puts forward that one's insights are not a direct representation of the environment. Instead, knowledge stems from historical, cultural and social factors (Gergen, 1985). In contrast, positivism asserts that knowledge is the outcome of scientific empirical methods, which alludes to the presence of an objective outside observer (Cruickshank, 2012). As a result, a constructionist approach is concerned with the subjective experience of the person and a positivist approach considers behaviours which can be observed and measured with relative ease. Smith et al. (2009) suggest that IPA sits between the two positions, and therefore takes a critical realist stance.

The critical realist theory (Bhaskar, 1975, 1977, as cited in Cruickshank, 2012) proposes that social structures are the outcome of individual actions. In spite of critical realists acquiring knowledge through observations rooted in reality, it is recognised that this reality may present in different ways, including for those experiencing the same phenomena (O'Gorman & Macintosh, 2015). Moreover, the authors asserted that our realities are influenced by our own views. The meaning that individuals ascribe to such phenomena might therefore be influenced by their own assumptions, experiences, principles, and values. Considering the nature of relationships, critical realism appears to capture both the reality and the interpretation of individuals.

References

Gergen, K. J. (1985). The social constructionist movement in modern psychology. *American Psychologist, 40*(3), 266.

O'Gorman, K., & MacIntosh, R. (2015). *Research Methods for Business & Management: A guide to writing your dissertation* (2nd Ed.). Oxford: Goodfellow Publishers Ltd.

Appendix G

Methodological rigour

Elliott et al. (1999) developed a set of guidelines to assess the quality of qualitative research. The guidelines comprised the importance of the author owning one's perspective (outlining personal experiences related to the topic of research), grounding in examples (providing adequate verbatim extracts from transcripts to sufficiently support themes) and credibility checks (seeking independent reviews of the analysis by other people). The quality of the present research was reinforced in several ways. The author attended qualitative workshops in order to enhance their knowledge and skills in its use, from interviewing to analysis of data. The coding and emerging themes were reviewed with the author's research and clinical supervisors, in addition to peers, in order to support credibility and to test the coherence and plausibility of the interpretations made.

The recommendations of Yardley (2000) are also particularly helpful. She presents numerous ways in which research can address three main criteria. Sensitivity to context was established by grounding claims in the words of individual participants. Commitment was demonstrated in the thoughtfulness to participants during data collection, ensuring that they were comfortable, and also that close attention was paid to what they were saying. Rigour was achieved by generating an appropriate sample, ensuring that interviews were of appropriate quality, and that the analysis was thorough, sufficiently interpreted, and supported by verbatim extracts. Transparency and coherence was apparent in the clarity of the write up, in respect to adequate description in relation to the selection of participants, the construction of the semi-structured interview schedule, and the approach to analysis. The final broad principle proposed by

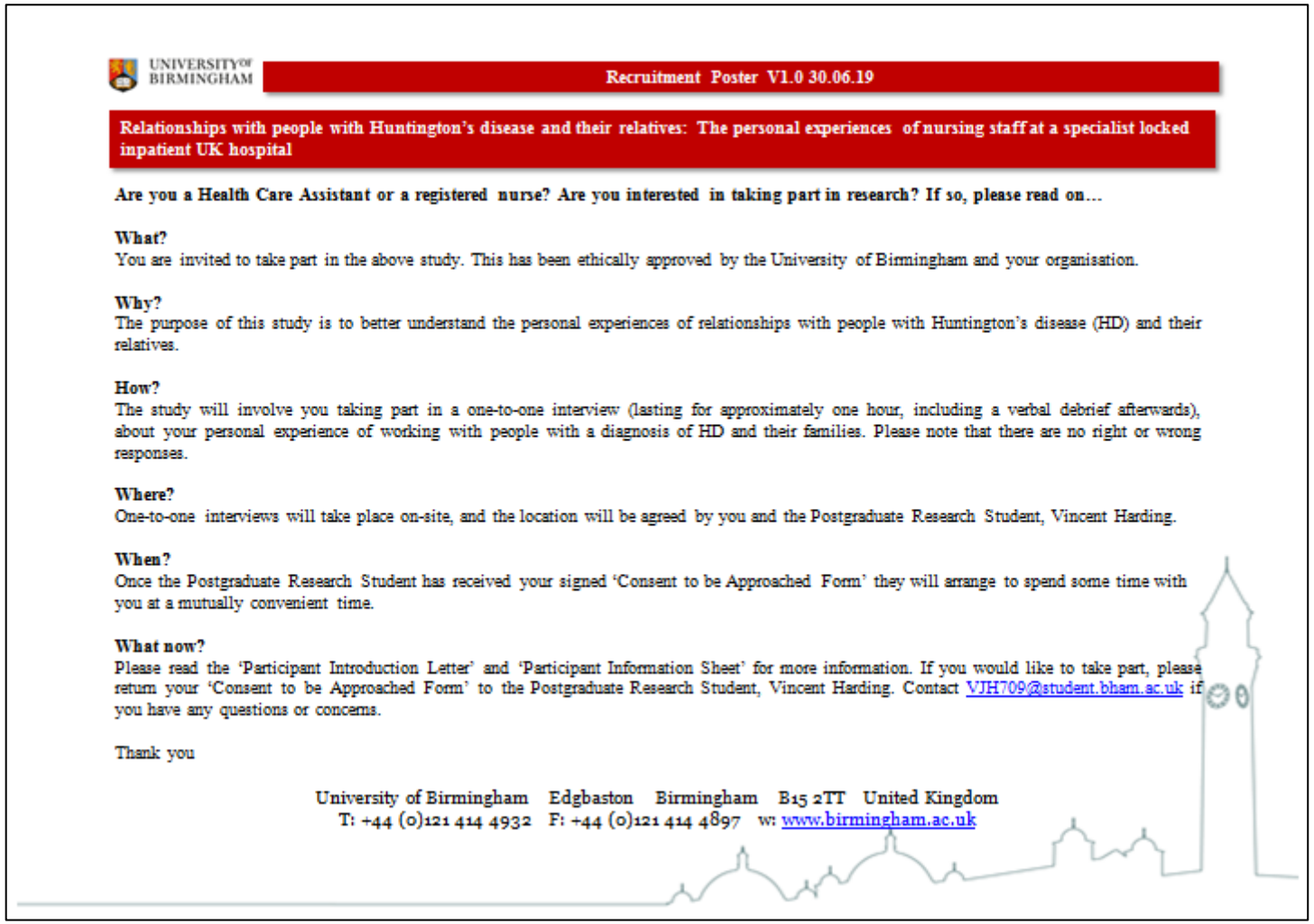
Yardley (2000) relates to the impact and importance of the research. The author would suggest that this research tells the reader something interesting that holds implications for patients, their families, and members of staff, as well as the organisation in which the research was completed.

References

Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology, 38*(3), 215-19.

Appendix H

Recruitment Poster



UNIVERSITY OF BIRMINGHAM

Recruitment Poster V1.0 30.06.19

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Are you a Health Care Assistant or a registered nurse? Are you interested in taking part in research? If so, please read on…

What?
You are invited to take part in the above study. This has been ethically approved by the University of Birmingham and your organisation.

Why?
The purpose of this study is to better understand the personal experiences of relationships with people with Huntington's disease (HD) and their relatives.

How?
The study will involve you taking part in a one-to-one interview (lasting for approximately one hour, including a verbal debrief afterwards), about your personal experience of working with people with a diagnosis of HD and their families. Please note that there are no right or wrong responses.

Where?
One-to-one interviews will take place on-site, and the location will be agreed by you and the Postgraduate Research Student, Vincent Harding.

When?
Once the Postgraduate Research Student has received your signed 'Consent to be Approached Form' they will arrange to spend some time with you at a mutually convenient time.

What now?
Please read the 'Participant Introduction Letter' and 'Participant Information Sheet' for more information. If you would like to take part, please return your 'Consent to be Approached Form' to the Postgraduate Research Student, Vincent Harding. Contact VJH709@student.bham.ac.uk if you have any questions or concerns.

Thank you

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Appendix I

Participant Introduction Letter

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Participant Introduction Letter V1.0 30.06.19

You are invited to take part in a study. The purpose of this study is to better understand the personal experiences of relationships with people with Huntington's disease (HD) and their relatives from the perspective of nursing staff at a specialist locked inpatient UK hospital.

The study will involve you taking part in a one-to-one interview about your personal experience of working with people with a diagnosis of HD and their families. There will be scope to move onto related topics if you think that these are relevant and appropriate. Please note that there are no right or wrong responses. This has been reviewed and ethically approved by the University of Birmingham and by your organisation.

You will be required to talk for no longer than one hour, although you will be given the choice to end the interview at any time or to talk for more than one hour if you wish to do so.

With your consent the interview will be audio recorded to allow for this to be transcribed (typed up) and analysed afterwards. Please read the 'Participant Information Sheet' dated 30.06.19 Version 1.0 enclosed for more information.

If you would like to take part, please return your 'Consent to be Approached Form' to the Postgraduate Research Student, Vincent Harding.

Thank you

Contact details

If you have any questions or comments you can contact the Postgraduate Research Student as follows:

Vincent Harding
Trainee Forensic and Clinical Psychologist
E-mail: VJH709@student.bham.ac.uk

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Appendix J

Participant Information Sheet

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Participant Information Sheet V1.0 30.06.19

I would like to invite you to take part in my study. Before you decide, I would like you to understand why the study is being carried out and what taking part would involve for you. Please read this information carefully and contact us if you have any questions.

Who has the reviewed the study?

This study has been reviewed and approved by the University of Birmingham and by your organisation.

What is the purpose of the study?

The purpose of the current study is to develop a better understanding of personal experiences of relationships with people with Huntington's disease (HD) and their relatives from the perspective of nursing staff at a specialist locked inpatient UK hospital.

Why have I been invited to take part and am I eligible?

You have been invited to take part because you are over 18 years of age, and have direct experience of supporting people with a diagnosis of HD.

What will my taking part involve?

1. I will arrange to spend some time with you on one occasion at a mutually convenient time.
2. If you are in agreement and are able and willing to participate, I will ask you to sign a 'Consent Form' to indicate that you wish to take part.
3. Your taking part will involve the completion of a demographics questionnaire, and a one-to-one, face-to-face interview. This will take place during your own time. It will focus on your personal experience of relationships with people with HD and their relatives at a specialist locked inpatient UK hospital. There will be scope for us to move onto related topics if you think that these are relevant and appropriate. Please note that there are no right or wrong responses. You will have the right to end the interview at any time and to choose not to answer any particular questions. You will be required to talk for approximately one hour, and will be verbally debriefed during this time. With your consent the interview will be audio recorded to allow for this to be transcribed (typed up) and analysed afterwards.

How will information about me be kept confidential?

I will protect your privacy at all times. The steps taken to ensure confidentiality are detailed below:

- Your consent to take part in the study will be recorded on a form that will contain identifiers including your name.
- Pseudonyms will be used in place of real names and any other identifying information in order to protect your anonymity.
- A password protected document linking your pseudonym to your real name will be saved to an encrypted, password protected USB device and will be accessible to the Postgraduate Research Student only.

- Consent Forms will be kept in a locked cabinet at your organisation during the study. They will be scanned and saved electronically as soon as practicable following your interview. After this point, they will be shredded and disposed of confidentially.
- Data from the Dictaphone will be transferred to a password protected USB device and deleted from the Dictaphone as soon as is practicable following your interview. Audio recordings will be heard and transcribed (typed up) by the Postgraduate Research Student only.
- Personal information will be kept by the University of Birmingham for 10 years, following which it will be shredded and disposed of confidentially.
- No data, other than an anonymised copy of the study findings will be kept by your organisation.

If any information is disclosed which refers to current or potential risk to participants or other people then confidence will need to be broken. This will be in line with policy and procedure to follow in the event of such information being disclosed. If concerns were to arise then I would inform you at the time, and discuss any action to be taken if necessary.

What are the possible advantages of taking part?

Your responses will help others to understand what might facilitate and/ or hinder relationships when working with people with a diagnosis of HD at a specialist locked inpatient setting, as well as their families. This could benefit the experience of both those with HD, their families, and members of staff.

What are the possible disadvantages and risks of me taking part?

You will be required to use your own time for interview. If you find that you feel distressed during the interview, then the Postgraduate Research Student will stop, provide support, and ask you whether you would like a break, or to stop altogether. You will not need to answer any questions that you would rather not. Time will be designated at the end of each interview for verbal debriefing, and contact with the Postgraduate Research Student and Academic Supervisor will be possible at a later date should further concerns arise. If necessary, you will be signposted to a 'Trauma Response' service and 'HELP Employee Assistance' service with a 24-hour, 7 days per week telephone helpline that you can call/ self-refer to should distress arise through your participation in the interview.

What happens if something goes wrong?

In the unlikely event that you are harmed by taking part in this study, there are no special compensation arrangements. If you are harmed due to negligence of another person, then you may have grounds for legal action but may have to pay for this. You are entitled to make a complaint about any aspect of the way you have been approached or treated during the study. You will need to follow the complaints procedure and it will be handled according to the formal and correct procedures.

How do I withdraw if I want to do so?

The study will be most valuable if few people withdraw from it, so it is important to discuss any concerns you may have with the Postgraduate Research Student before you decide to participate. However, you can withdraw from the study on the day of interview of for up to two weeks afterwards without giving a reason. Deciding not to participate or withdrawing from the study will not affect you in any way. You can withdraw by emailing the Postgraduate Research Student by e-mail with your pseudonym. If you do decide to withdraw

then you will be sent a withdrawal form to confirm your wishes in writing. Your signed consent and withdrawal forms will be scanned and saved electronically. Paper copies will be shredded and disposed of confidentially.

What will happen to the results of the study?

The results will be reviewed by the research team and tutors at the University of Birmingham to ensure that the analysis is a fair and reasonable representation of the data. The results will be written up as Vincent Harding's thesis which will be submitted to the University of Birmingham as part of their requirements to enable them to gain a doctoral qualification in forensic and clinical psychology. This will be held at the University of Birmingham library. Direct quotes from your interview may be published in the write-up of the data but these will not be identifiable. External examiners may request to see entire transcripts (which will be anonymised). The anonymised paper may be published in a peer-reviewed scientific journal and/ or presented at conference level. You can request a copy of the results if you would like them once the study is complete.

A reminder of what happens next

If you are able and willing to participate, please could you:

1. Read and sign two copies of the attached 'Consent to be Approached Form'. Please return one copy of the form to the Postgraduate Research Student. Please keep the second copy as well as this 'Participant Information Sheet' for your reference.
2. Once the Postgraduate Research Student has received your signed 'Consent to be Approached Form' they will arrange to spend some time with you on one occasion at a mutually convenient time
3. If you are in agreement and are able and willing to participate, the Postgraduate Research Student will ask you to sign a 'Consent Form' to indicate that you wish to take part. As outlined earlier, signing this form does not commit you to taking part in the study.

Thank you very much for thinking about taking part in this study. It would be very much appreciated if you are able and willing to participate.

What happens if I have any questions or concerns?

Please contact:

1. Vincent Harding
   Trainee Forensic and Clinical Psychologist
   E-mail: VJH709@student.bham.ac.uk
2. Owen Forster
   Lecturer and Academic Coordinator
   University of Birmingham
   O.Forster@bham.ac.uk

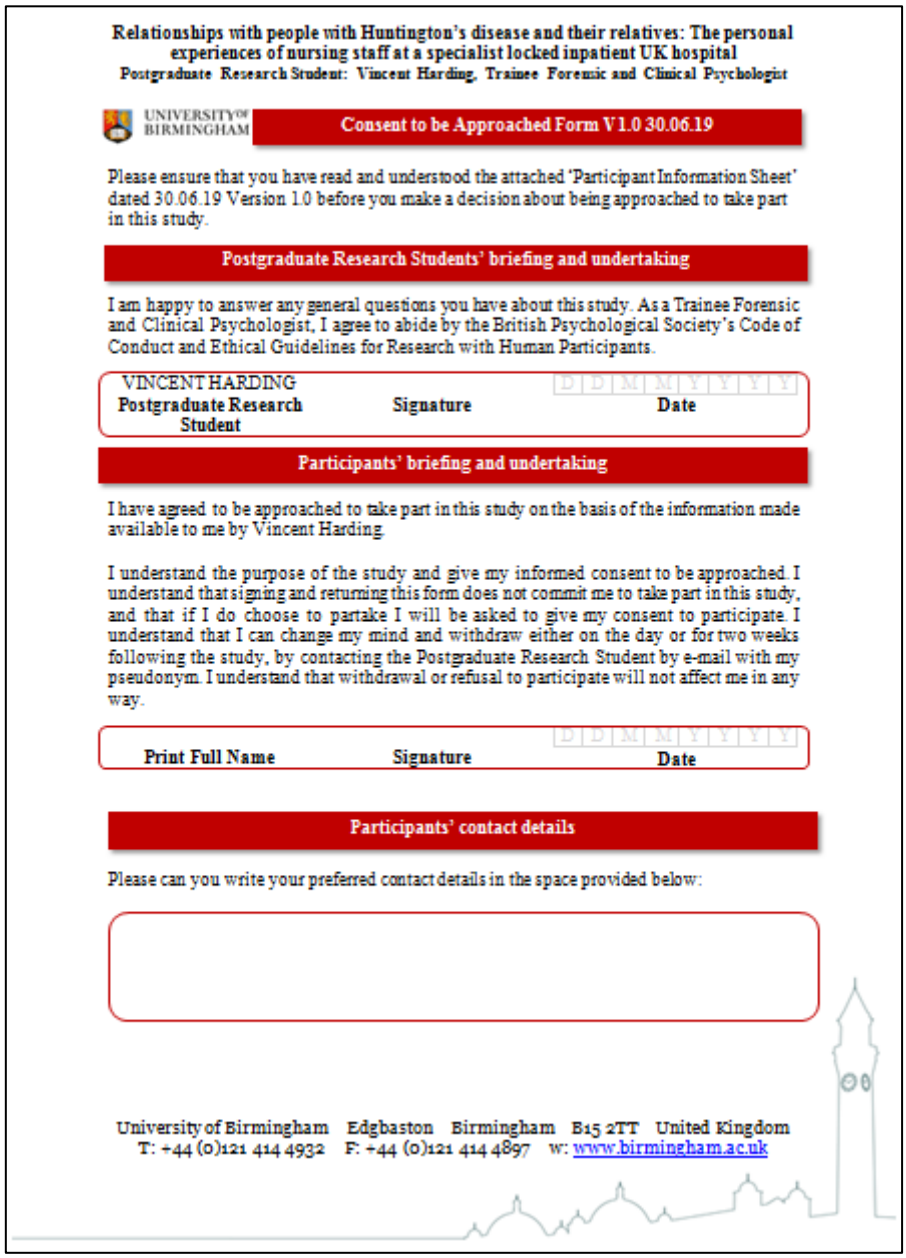
If you do not wish to make a complaint to the Postgraduate Research Student, you can make a formal complaint through your organisation by contacting complaints@standrew.co.uk

Please keep this copy. If you misplace it please contact the Postgraduate Research Student who will provide you with another copy

University of Birmingham Edgbaston Birmingham B15 2TT United Kingdom
T: +44 (0)121 414 4932 F: +44 (0)121 414 4897 w: www.birmingham.ac.uk

Appendix K

Consent to be Approached Form



Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Consent to be Approached Form V1.0 30.06.19

Please ensure that you have read and understood the attached 'Participant Information Sheet' dated 30.06.19 Version 1.0 before you make a decision about being approached to take part in this study.

Postgraduate Research Students' briefing and undertaking

I am happy to answer any general questions you have about this study. As a Trainee Forensic and Clinical Psychologist, I agree to abide by the British Psychological Society's Code of Conduct and Ethical Guidelines for Research with Human Participants.

VINCENT HARDING **Postgraduate Research Student**	**Signature**	D D M M Y Y Y Y **Date**

Participants' briefing and undertaking

I have agreed to be approached to take part in this study on the basis of the information made available to me by Vincent Harding.

I understand the purpose of the study and give my informed consent to be approached. I understand that signing and returning this form does not commit me to take part in this study, and that if I do choose to partake I will be asked to give my consent to participate. I understand that I can change my mind and withdraw either on the day or for two weeks following the study, by contacting the Postgraduate Research Student by e-mail with my pseudonym. I understand that withdrawal or refusal to participate will not affect me in any way.

Print Full Name	**Signature**	D D M M Y Y Y Y **Date**

Participants' contact details

Please can you write your preferred contact details in the space provided below:

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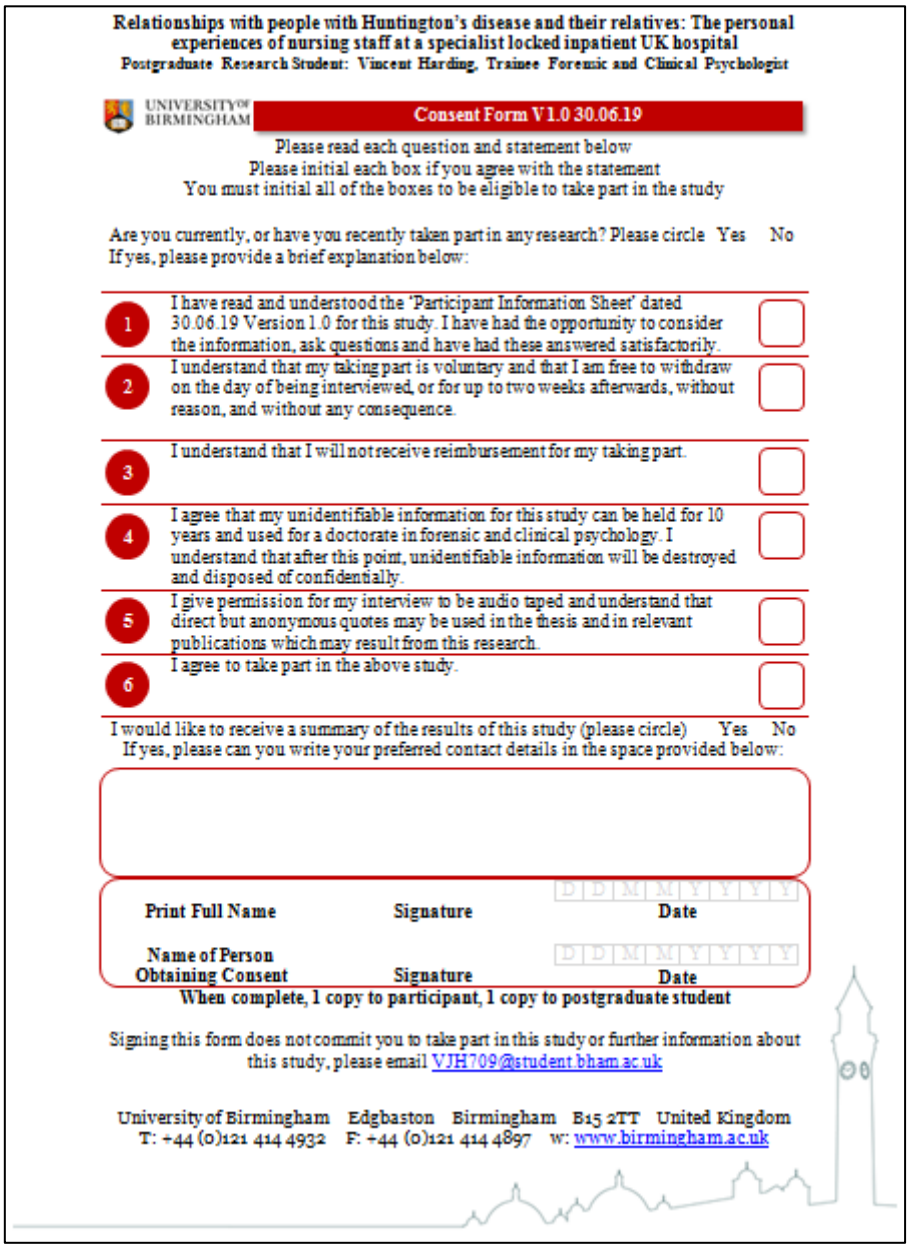
Appendix L

Consent Form



Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Consent Form V1.0 30.06.19

Please read each question and statement below
Please initial each box if you agree with the statement
You must initial all of the boxes to be eligible to take part in the study

Are you currently, or have you recently taken part in any research? Please circle Yes No
If yes, please provide a brief explanation below:

1	I have read and understood the 'Participant Information Sheet' dated 30.06.19 Version 1.0 for this study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2	I understand that my taking part is voluntary and that I am free to withdraw on the day of being interviewed, or for up to two weeks afterwards, without reason, and without any consequence.	☐
3	I understand that I will not receive reimbursement for my taking part.	☐
4	I agree that my unidentifiable information for this study can be held for 10 years and used for a doctorate in forensic and clinical psychology. I understand that after this point, unidentifiable information will be destroyed and disposed of confidentially.	☐
5	I give permission for my interview to be audio taped and understand that direct but anonymous quotes may be used in the thesis and in relevant publications which may result from this research.	☐
6	I agree to take part in the above study.	☐

I would like to receive a summary of the results of this study (please circle) Yes No
If yes, please can you write your preferred contact details in the space provided below:

Print Full Name	Signature	Date (D D M M Y Y Y Y)
Name of Person Obtaining Consent	Signature	Date (D D M M Y Y Y Y)

When complete, 1 copy to participant, 1 copy to postgraduate student

Signing this form does not commit you to take part in this study or further information about this study, please email VJH709@student.bham.ac.uk

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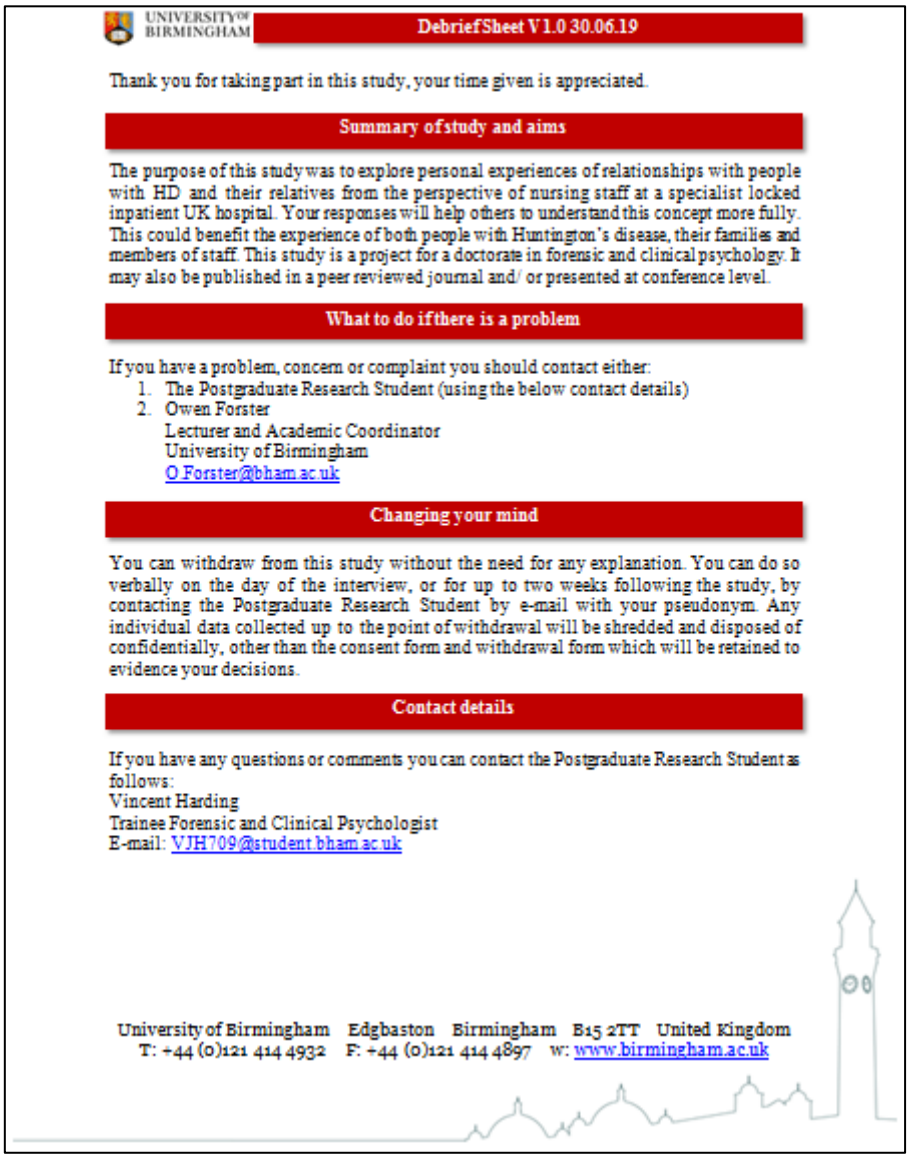
Appendix M
Debrief Sheet



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Debrief Sheet V 1.0 30.06.19

Thank you for taking part in this study, your time given is appreciated.

Summary of study and aims

The purpose of this study was to explore personal experiences of relationships with people with HD and their relatives from the perspective of nursing staff at a specialist locked inpatient UK hospital. Your responses will help others to understand this concept more fully. This could benefit the experience of both people with Huntington's disease, their families and members of staff. This study is a project for a doctorate in forensic and clinical psychology. It may also be published in a peer reviewed journal and/ or presented at conference level.

What to do if there is a problem

If you have a problem, concern or complaint you should contact either:

1. The Postgraduate Research Student (using the below contact details)
2. Owen Forster
   Lecturer and Academic Coordinator
   University of Birmingham
   O.Forster@bham.ac.uk

Changing your mind

You can withdraw from this study without the need for any explanation. You can do so verbally on the day of the interview, or for up to two weeks following the study, by contacting the Postgraduate Research Student by e-mail with your pseudonym. Any individual data collected up to the point of withdrawal will be shredded and disposed of confidentially, other than the consent form and withdrawal form which will be retained to evidence your decisions.

Contact details

If you have any questions or comments you can contact the Postgraduate Research Student as follows:
Vincent Harding
Trainee Forensic and Clinical Psychologist
E-mail: VJH709@student.bham.ac.uk

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Appendix N

Semi-structured interview schedule

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Semi-Structured Interview Schedule V1.0 30.06.19

Please take as much time as you need to answer each question. It is important to me that you are able to express your thoughts, feelings, experiences, and beliefs in your own words and as accurately as possible. If you would rather not answer any particular questions, please feel free not to. If any questions are unclear, then please let me know and I will try to clarify them. Please feel free to share any additional information which I may not have asked about.

Introduction

1. When you think about Huntington's disease (HD), what comes to mind?
2. What drew you to working with people with HD (pwHD)?
3. What did you expect your work to be like?
4. Did your experience meet your expectations?

Experience

5. Please can you tell me about your experiences of working with pwHD?
6. What can you tell me about your connections with pwHD? How have these been formed and developed?
7. What can you tell me about your connections with families? How have these been formed and developed?
8. What has been most helpful in forming and developing connections with pwHD and families?
9. What has been least helpful in forming and developing connections with pwHD and families?
10. What are the benefits of forming and developing connections with pwHD and families?
11. What (if any) are the consequences of forming and developing connections with pwHD and families?
12. What have you found challenging (if anything)?

- How did this impact on you?
- How did you respond?

13. What have you found rewarding (if anything)?

Support

14. What supports forming and developing connections with pwHD and families?
15. What hinders forming and developing connections with pwHD and families?
16. What access to support are you aware of?

Closing

Would you like to share any aspects of your experience(s) of HD that we have not discussed?

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Appendix O

Example of transcript

Line	Original transcript	Exploratory comments (Experiential claims) **Descriptive comments –** Standard text **Linguistic comments** – *Italic* text **Conceptual comments** – Underlined text **Direct quotes** – Red text	Emergent themes (Objects of concern)
97 **98** **99** **100** **101** **102** **103** **104** **105** **106** **107** **108** **109** **110** **111** **112** **113** **114** **115** **116** **117** **118**	R: You know even with the most challenging of patient I've never give up even though I may have been hit so many times or attempted to or cups thrown at me I: Yeah R: You know I will carry on and the next minute is a new minute, the next day is a new day, you know and you just carry on really I: Yeah R: To help build that and they see that perseverance especially for those who have got that rejection in their life you know if someone keeps trying and that resilience almost to keep going back I: Yeah R: It shows you know what I keep trying to push this person away but actually they're not giving up on me so there must be something there and it just slowly it does build trust	Even with – emphasis on inclusivity, regardless of challenge "I've never given up even though…" – demonstrates resilience when could have given up Again, demonstrates resilience You just carry on – minimisation of the challenges with the use of "you *just* carry on" pwHD will recognise perseverance With perseverance and resilience, trust is built with pwHD	Persevering in the face of challenge Need to be resilient Rupture and repair It takes time to build trust

Appendix P

Research timeline

Relationships with people with Huntington's disease and their relatives: The personal experiences of nursing staff at a specialist locked inpatient UK hospital

Postgraduate Research Student: Vincent Harding, Trainee Forensic and Clinical Psychologist

UNIVERSITY OF BIRMINGHAM

Working Study Timeline

March 2018

- Nominate a provisional project title and an academic supervisor at the University of Birmingham
- Register interest in the project, outlining the names of all supervisors who will be worked with.

April 2018 – May 2018

Conduct a preliminary literature review to use as the basis for discussions with supervisors and to supplement the information sent to research tutors at least one week prior to the research proposal facilitation session (RPFS).

June 2018

Research Proposal Facilitation Session.

August 2018

Submit research proposal.

September 2018

Feedback received from research proposal.

October 2018 – April 2019

- Prepare materials
- Finalise the study design
- Prepare the literature review.

May 2019

- Ethical approval granted by the University of Birmingham
- Approval granted by research and innovation team at host site

June 2019

Meeting with field supervisors to discuss recruitment.

July 2019 – December 2020

- Arrange contact with participants
- Collect data
- Write up initial parts of the empirical paper (introduction and method sections)
- Write literature review
- Data analysis and write results and discussion section.

No later than April 2021

- Provide complete draft of empirical paper to supervisors
- Make final revisions
- Ensure research supervisor has seen the final version of the thesis

May 2021 – June 2021

Submit thesis and prepare for viva

Following submission, arrange a meeting with supervisors to finalise the project and ensure that:

- All relevant persons have been debriefed
- Data has been archived safely and confidentially

Considering:

- How the project might be further advanced
- How the plans for publication are progressing
- How the work might be disseminated locally.