Psychosis and Obsessive-Compulsive Symptoms: A Systematic Review and Meta-Analysis of Transition Risk and a Survey of Clinicians' Perspectives on Assessment and Treatment

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Thesis Portfolio Abstract

Background: The overlap of obsessive-compulsive symptoms (OCS) and psychosis has been discussed for over a century, with contemporary research indicating high rates of co-occurrence and poorer outcomes compared to either condition alone. However, there are conflicting findings about the risk of developing psychosis associated with OCS and an absence of evidence on how co-occurring symptoms are managed in practice.

Methods: A systematic review, including two meta-analyses, was conducted to estimate the risk ratio of developing psychosis associated with OCS in clinical high-risk (CHR) and population-level samples. The empirical paper employed a clinician survey ($N = 136$) to investigate assessment and psychological intervention for individuals with psychosis and co-occurring OCS, including assessment and intervention methods, barriers, adaptations, and confidence.

Results: The findings from the systematic review indicate that OCS do not influence transition risk in CHR cohorts but substantially increased the risk of developing psychosis at population-level that includes OCS in the general population and later stages than CHR. Clinicians completing the survey predominantly used informal assessment methods and cognitive-behavioural approaches to intervention. Barriers included engagement difficulties and insufficient training, and adaptations included family involvement and idiosyncratic approaches. Clinicians reported moderate confidence levels in assessing and delivering psychological intervention for people with psychosis and OCS. For assessment, confidence was predicted by years of experience, while for psychological intervention, confidence was also predicted by receiving supervision and monthly working frequency.

Conclusion: This portfolio highlights the importance of considering OCS at various stages of the psychosis trajectory, emphasising the potential utility of clinical staging models. The empirical project indicates a reliance on eclectic approaches to the co-occurring symptoms

and clinical issues with engagement and training. Future research should help to clarify the phenomenology of OCS at different stages of psychosis using qualitative and quantitative methods. This may help to inform the design and implementation of assessment and psychological intervention for people with psychosis and co-occurring OCS.

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Chapter One

Introduction

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Psychosis, Obsessions and Compulsions

The National Institute of Health and Care Excellence (NICE, 2025) define psychosis as a heterogenous collection of symptoms that significantly alter an individual's perceptions, thoughts, mood and behaviour (Gaebel & Zielasek, 2015). This is similar to conceptualisations that psychosis is 'a gross impairment in reality testing' and 'loss of ego boundaries' in classification manuals from the 1990s, although this was criticised for being overinclusive as it also captured non-psychotic disorders (Arciniegas, 2015). Recent editions of the Diagnostic and Statistical Manual of Mental Health Disorders (DSM) and International Classification of Diseases (ICD) do not offer a formal definition of psychosis but define psychotic disorders based on the criteria of delusions, hallucinations, disorganised speech, grossly disorganised or catatonic behaviour, or negative symptoms (American Psychiatric Association, 2013; World Health Organization, 2019). Hallucinations are defined as sensory perception in the absence of an external stimulus and delusions as fixed false beliefs, but these definitions also overlap with other psychiatric diagnoses and are commonly experienced in non-clinical populations (Arciniegas, 2015).

The lifetime prevalence of any psychotic disorder is estimated to be 0.75% (Moreno-Küstner et al., 2018). However, the overlap of psychotic symptoms with other disorders and non-clinical populations has led to the hypothesis of a psychosis continuum (Beer, 1996) which explains psychotic experiences as ranging from attenuated psychotic symptoms (APS), such as seeing colours more vividly or hearing faint knocking sounds others cannot hear, to frank psychotic symptoms, such as responding to unseen stimuli or conversing with voices in one's own head (Fusar-Poli et al., 2016). While the former represents psychotic-like experiences, common in the general population (Staines et al., 2022), the latter may meet the thresholds for symptoms of a psychotic disorder in diagnostic manuals, such as schizophrenia.

What exactly constitutes the separation between attenuated experiences and psychosis is unclear and has been criticised for reflecting dimensional shifts in natural fluctuation of symptoms (Van Oz & Guloksuz, 2017). However, assessment instruments like the Structured Interview for Psychosis-Risk Prodromes and the Comprehensive Assessment of At-Risk Mental States (CAARMS) outline frequency and intensity thresholds for when symptoms become psychotic (Miller et al., 2003; Yung et al., 2005). For example, on the CAARMS, an individual may score 4 out of 6 on intensity of perceptual abnormalities (e.g., name being called) twice a week for less than an hour, or score 2 out 6 on intensity (e.g. alteration in the colour of objects) consistency throughout the day, but neither would be classified as having APS. However, an individual scoring 6 out of 6 on intensity for unusual thought content and experiencing these symptoms daily for an hour would be considered to be experiencing an acute psychotic episode.

Obsessive-compulsive disorder (OCD) has been defined as persistent, intrusive and distressing obsessions and compulsions (Pigott, 1998). Obsessions have been conceptualised as repetitive and unwanted thoughts, images, impulses or urges, whereas compulsions are the behavioural or mental responses to neutralise the obsessions (Stein et al., 2019). Research estimates that the lifetime prevalence is between 1% and 4% (Pampaloni et al., 2024). The DSM and ICD both require that these symptoms are time consuming (e.g., experienced most days or for at least an hour per day), are distressing for the individual and interfere with functioning (APA, 2013; WHO, 2019). However, like psychosis, the definitions of obsessive-compulsive phenomena have also been critiqued for precision and overlap (Leckman et al., 2010).

Approximately a quarter of people may experience an obsession or compulsion during their lifetime and up to 12.6% may experience distressing obsessive-compulsive symptoms (OCS) that do not meet the diagnostic threshold for OCD (Ruscio et al., 2010). Therefore,

some research includes individuals who do not meet the threshold for OCD but do experience OCS, often measured by psychometric questionnaires such as the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) or Obsessive-Compulsive Inventory (Foa et al., 2002; Woody et al., 1995). While not diagnostic, these questionnaires provide cut-offs to distinguish severity that can separate OCS and OCD. For example, the Y-BOCS classifies OCS as mild if scoring between 0 and 13, moderate between 14 and 25, moderate-severe between 26 to 34 and severe if over 34 (Storch et al., 2015).

The current portfolio adopts the broader approach to psychosis and OCS. References to OCD refer to the diagnostic entity, whereas OCS and psychosis refer to the continuum of experiences from mild symptoms to cases that meet diagnostic thresholds. A framework to conceptualise this is clinical staging developed in the 1990s as a method to capture the progression of psychosis from stage 0 where psychotic symptoms are not experienced, to stage 1, where an individual experiences attenuated psychotic symptoms, to stage 2 to 4 where an individual meets diagnostic threshold with later stages signal greater severity and chronicity (Fusar-Poli et al., 2017; McGorry et al., 1996). A similar staging approach has been suggested for other diagnostic categories, such as OCD, and will be used throughout the portfolio to operationalise OCS (including stages 1 to 4), OCD (stage 2 and beyond), and psychosis (including stages 1 to 4). While these definitions broadly capture clusters of symptoms, both psychosis and OCD are heterogenous and elusive clinical phenomena warranting exploration.

Historical Context

Understanding and defining psychosis and OCS has been a longstanding challenge as, historically, OCD was not clearly distinguished from psychotic disorders. Early psychiatric nosology struggled to differentiate obsessions and delusions, reflecting blurred boundaries between neurotic and psychotic phenomena (Berrios, 1989). By the early twentieth century,

OCD had obtained a clearer clinical definition as an affective disorder, although psychodynamic accounts such as by Freud (1895; 1907), considered obsessional neuroses as a defence against psychotic disintegration. This influenced research including a case series by Stengel (1945) who hypothesised obsessional symptoms functioned as a defence mechanism against a psychotic reaction. Similarly, Rosen (1957) observed lower rates of personality disintegration and higher rates of remission among individuals with schizophrenia following OCD compared to those with schizophrenia without OCD.

However, observational studies in the mid-20th century investigating individuals initially diagnosed with OCD yielded inconsistent results (Bottas et al., 2005). The introduction of standardised assessment measures (such as the third and fourth editions of the Diagnostic and Statistical Manual of Mental Disorders; DSM-IV and DSM-V) enabled more reliable estimates, suggesting approximately 5% of individuals with OCD later develop schizophrenia (Eisen et al., 1997; Thomsen & Jensen, 1994). Consistent with this, recent evidence demonstrates that OCS are prevalent in those at risk of psychosis (7.9% for OCD and 21.4% for OCS; Martinho et al., 2023) and are associated with greater severity of positive, disorganised and affective symptoms compared to those without OCS (Alessandro et al., 2024). This is greater than the estimated prevalence of OCD in the UK general population of 1.3% and European estimates of OCS at approximately 10% (Fineberg et al., 2013; Fullana et al., 2010; McManus, 2016; Rössler, 2004).

Contemporary Research

Building on this, more recent studies support the claim that OCS can contribute to the development of psychosis. A meta-analysis by Devulapalli et al. (2008) found a non-significant trend of earlier age of onset of OCD in individuals with comorbid OCD and schizophrenia. Similarly, Van Dael et al. (2011) found a bidirectional effect where OCD increased the risk of psychosis and psychosis increased the risk of OCD in the general

population. They also found co-occurring psychosis and OCS increased the likelihood of developing a diagnosis of a psychotic disorder, but not OCD, suggesting OCS may create an additive risk amplifying impairments in reality testing and insight.

When psychosis and OCS co-occur, the relationship may be more complex. Some research indicates mild OCS in psychosis may be protective of functioning, compared to people with psychosis without OCS or with moderate-severe OCD, producing an inverse-U relationship (de Haan et al., 2013; Tonna et al., 2015). Tonna et al. (2015) postulated that the routine created by repetitive behaviours adds stability to daily activities for people with psychosis, thereby improving functioning, but that the interference negatively impacts functioning at moderate to severe levels. A later study by Tonna et al. (2024) found OCS conferred benefits to occupational and daily living skills, but not interpersonal or functional capacity, potentially explaining the lower rates of personal recovery in individuals with psychosis and OCD (Jelsma et al., 2025). Furthermore, a meta-analysis found people with schizophrenia and OCS have increased depressive symptoms, suicidality and reduced global functioning. (Tezenas du Montcel et al., 2019). Therefore, these findings suggest that, while a group may exist whereby mild OCS are protective of some domains of functioning, comorbid OCS in psychosis are generally associated with greater distress and poorer outcomes.

The poorer outcomes when psychosis presents with OCS may be explained by their overlapping features and common mechanisms. Insel and Akiskal (1986) proposed a continuum of insight, with people with OCD and poor insight described as having an obsessive-compulsive psychosis. The DSM-IV introduced insight as a specifier (APA, 1994) which has been categorised into ‘good or fair’, ‘poor’ and ‘absent or delusional’ in the DSM-V (APA, 2013). However, insight may be an unreliable indicator due to evidence that between 15% and 36% of people with OCD experience low insight (Catapano et al., 2010) and up to 25% of patients experiencing delusions viewed their beliefs as senseless based on a

question rating their belief between ‘entirely sensible’ and ‘entirely senseless’ (Garety & Hemsley, 1987). These findings challenge earlier assumptions of a clear distinction between psychosis and OCD.

Beyond phenomenology, there is evidence of shared aetiological and neurobiological mechanisms. Adverse childhood experiences are common in both people with OCD and psychosis (Bonoldi et al., 2013; Destrée et al., 2021). There is evidence of a genetic overlap with patients with OCD having increased parental odds of schizophrenia and those with schizophrenia having increased parental odds of OCD (Hsu et al., 2024; Poyurovsky et al., 2005). Additionally, there are common neuroanatomical abnormalities in the frontal lobe, basal ganglia, thalamus, cerebellum, and both conditions display similar patterns of neurotransmitter dysfunction in the serotonin, dopamine and glutamate systems (Tibbo & Warneke, 1999; Venkatasubramanian et al., 2009).

Psychosis and OCD may also share psychological mechanisms. Magical thinking is commonly reported in OCD and schizophrenia (Berle et al., 2006; Einstein & Menzies, 2004) and forms part of the criteria for being at risk of developing psychosis (Thompson et al., 2016). Intolerance of uncertainty, a key mechanism in OCD (Tolin et al., 2003), has been associated with psychotic symptoms such as paranoia and persecutory delusions (Lebert et al., 2021; Morriss, 2024). Additionally, an inflated sense of responsibility, another key mechanism in OCD (Salkovskis et al., 2000), has been associated with persecutory delusions in individuals with acute and chronic psychotic symptoms (Luzón et al., 2009; Pugh et al., 2018). Likewise, source monitoring errors, which have substantial evidence of impairment in people with schizophrenia, are also common in individuals with OCD (Lavallé et al., 2020).

Current Treatment Approaches

The overlapping mechanisms offer an explanation of why OCS are prevalent across the course of psychosis with high prevalence rates recorded prior to psychosis, during the at-

risk state, concurrent with a first episode of psychosis, occurring with chronic presentations, and induced from antipsychotic medication (Grover et al., 2017). However, less is known about how to offer support across these stages. Pharmacological approaches are complicated by some second-generation antipsychotics inducing OCS, while other antipsychotics are less efficacious and dose reduction may exacerbate psychotic symptoms (Pardossi et al., 2024).

The APA recommends combining antipsychotics with selective serotonin reuptake inhibitors and cognitive behavioural therapy (CBT) in cases of limited effectiveness (Keepers et al., 2020). While there is preliminary evidence supporting the effectiveness of CBT for OCD when symptoms co-occur, research on implementation, sequencing and clinician confidence remains limited (Tundo & Necci, 2016). This is a significant gap as clinicians can be concerned exposure work will exacerbate psychotic symptoms, which can restrict access to effective interventions (Hill, 2024).

Thesis Aims

Furthermore, psychosis and OCS are heterogenous and overlapping conditions, which present as a prevalent and significant clinical issue due to the poorer outcomes and limited evidence-based treatment. The present thesis aims to improve the understanding of the relationship between OCS and psychosis, and how these co-occurring symptoms are managed in clinical practice. Only two previous reviews have examined whether OCS increase the risk of developing psychosis (Albert et al., 2018; Martinho et al., 2023), both limited to small study numbers and drawn from clinical high-risk (CHR) cohorts. These cohorts recruit individuals with attenuated psychotic symptoms (APS) but are prone to sampling biases that may not capture transition to psychosis from other populations (van Os & Guloksuz, 2017). Therefore, Chapter 2 presents a systematic review and meta-analysis investigating the risk of OCS on developing psychosis across both CHR and population-level samples, addressing

methodological gaps from prior studies. Subsequently, Chapter 3 provides a bridging discussion linking the findings to clinical practice.

At present, there are no clinical guidelines on how to support individuals with psychosis and co-occurring OCS, and little is known about current practice. Accordingly, Chapter 4 reports an empirical survey exploring clinicians' perceptions and practice when assessing and providing psychological intervention for individuals with psychosis and co-occurring OCS. The survey collected predominantly quantitative data on assessment methods, treatment modalities, adaptations, perceived barriers, and clinician confidence. Finally, Chapter 6 synthesises the portfolio's findings and provides a critical appraisal outlining strengths, limitations, clinical implications, directions for future research, the author's reflections and an overarching conclusion.

Chapter Two

Systematic Review

Do obsessive-compulsive symptoms increase the risk of developing psychosis? A systematic review and meta-analysis

Prepared for Submission to *Schizophrenia Bulletin Open*

(Author guidelines in Appendix A)

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Abstract

Background and Hypothesis: There is a phenomenological overlap of obsessive-compulsive symptoms (OCS) and psychosis, leading to discussion about whether OCS increase the risk of developing psychosis. Previous reviews have focused on clinical high-risk (CHR) cohorts which may misestimate risk due to sampling biases. The current systematic review and meta-analyses aimed to determine the risk of OCS on developing psychosis in individuals classified at CHR and at the population level.

Study Design: A total of 2,081 articles were screened, with 11 studies meeting criteria for inclusion. Two separate meta-analyses were conducted for CHR cohorts and for register-based cohorts to estimate the risk ratio of OCS on developing psychosis.

Study Results: In CHR cohorts, the meta-analysis found no significant difference in the risk of developing psychosis between individuals with and without OCS (RR = 0.99, 95% CI [0.71, 1.38], P = .95) across 8 studies which observed low heterogeneity (I^2 < .000%, 95% CI [0%, 67.03%]). In population-level cohorts, OCD were associated with a 15-fold risk increase of developing psychosis (RR = 15.01, 95% CI [8.36, 26.93], P < .001), although this estimate was derived from 3 studies with significant heterogeneity (I^2 = 85.1%, 95% CI [37.14%, 99.67%]).

Conclusions: The limited number of studies and high heterogeneity in the population-level cohort limit any firm conclusions. However, findings indicate that OCS may increase the risk of developing psychosis in the general population, but not in CHR cohorts. The discrepancy may reflect shared underlying vulnerabilities present in OCS and psychosis that are obscured by samples enriched for psychosis risk.

Key words: OCD, schizophrenia, longitudinal, clinical high risk, transition, conversion

Introduction

A wealth of research has been dedicated to identifying and preventing psychosis in the early stages to reduce the severity of illness and burden of disease.[1,2] The duration of untreated psychosis is associated with poorer functional outcome, treatment resistance, higher rates of relapse, and iatrogenic harm.[3] The critical period hypothesis suggests the early phase of psychosis offers a crucial opportunity for intervention.[4] Early intervention in psychosis (EIP) services that provide support during this critical period, have demonstrated effectiveness in improving symptom severity, functioning, and treatment adherence, highlighting the importance of early detection.[5]

This led to the development of the clinical high-risk (CHR) paradigm to identify individuals at risk of psychosis and offer preventative intervention.[6] Classification typically includes attenuated psychotic symptoms (APS), basic symptoms (e.g., perceptual or cognitive disturbances), or genetic risk and functional decline.[7] Tools such as the Structured Interview for Psychosis-Risk Syndromes (SIPS) and Comprehensive Assessment of At-Risk Mental States (CAARMS) have been validated for identifying people at CHR, showing high sensitivity but low specificity, meaning that those who develop psychosis are likely to test positive for psychosis risk, but two-thirds of those who screen positive do not transition.[8-10]

Many of those at CHR who do not develop psychosis will experience persistent symptoms, poorer functioning, and comorbid anxiety or depression, suggesting CHR may reflect vulnerability to broader psychopathology.[11,12] Conversely, psychosis may have a heterotypic course where, for example, non-psychotic symptoms evolve into psychotic symptoms.[13] Although comorbid mood and anxiety disorders in CHR youth do not appear to predict transition,[14] some clinical risk syndromes for emerging non-psychotic conditions (e.g., bipolar disorder) are associated with an elevated risk of psychosis compared to the general population.[15] The Clinical High At-Risk Mental States (CHARMS) framework

recognises multiple pathways to and from the CHR state, describing overlapping exit syndromes such as bipolar, depressive and personality disorders, where subthreshold symptoms precede full disorder.[16]

There is also considerable overlap between obsessive-compulsive symptoms (OCS) and psychosis.[17] Like psychosis, people with OCD report subthreshold symptoms several years prior to meeting diagnostic thresholds,[18,19] and OCS share multiple overlaps with psychosis, including genetic risk,[20-22] brain abnormalities,[23] early adversity,[24,25] and cognitive and psychological mechanisms such as magical thinking,[26-28] intolerance of uncertainty,[29,30] inflated sense of responsibility[31,32] and source monitoring errors.[33,34] This overlap presents a theoretical and clinical challenge which obscures clear boundaries between OCS and psychosis[17], and what constitutes transition.[35]

Due to the overlap, it has been proposed that OCS may form part of a risk profile for psychosis.[36] However, findings are mixed with CHR studies finding no association,[37] an increased risk,[38] and a protective effect.[39] A systematic review found OCS did not increase the risk of developing psychosis based on a narrative synthesis of four studies.[40] Similarly, another meta-analysis of five studies (three were included from the previous review) found there was no increased risk of OCS on psychosis with an odds ratio of 0.82 (95% CI 0.42 to 1.61). [41] In contrast, register-based studies using population data have consistently found an elevated risk of psychosis.[21,22]

The contrasting findings may reflect methodological issues such as sampling biases, leading to an overrepresentation of help-seeking people with multiple comorbidities but low psychosis risk, and underrepresentation of people who develop psychosis but were never identified as CHR.[14,35] For example, there is evidence that only 4-5% of people presenting to secondary care with psychosis had previously been in contact with the local CHR service,[42,43] and only around 40% of individuals with OCD seek treatment,[44] and those who do are often

seen by other teams (e.g., community mental health or inpatient teams). Consequently, people with OCS may be underrepresented in CHR samples, obscuring their true risk contribution.

The present systematic review and meta-analyses aim to determine the risk of OCS on developing psychosis from CHR participants, providing an update on previous reviews, but also including population-level data that captures people experiencing OCS who proceed to develop psychosis that may not be captured in CHR studies.

Methods

A systematic review protocol was developed in line with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[45] The protocol was registered on the International Register of Prospective Systematic Reviews (PROSPERO; CRD420250653682, 05/03/2025) to ensure transparency of the research, rationale, objectives, methods and the process of data analysis.

Eligibility

Inclusion Criteria

For inclusion, studies must have (i) measured baseline OCS by a validated questionnaire or structured diagnostic interview; (ii) a control group with an absence of baseline OCS measured with a validated questionnaire or structured diagnostic interview; (iii) data on the number of people in the exposure and control group who did and did not develop psychosis measured with a validated questionnaire or structured diagnostic interview; (iv) psychosis or schizophrenia measured with a validated questionnaire or structured diagnostic interview; and (v) longitudinal data of at least 6 months between measurements. The current review focused on articles published from 2005 to capture recent estimates of the risk of developing psychosis using contemporary assessment methods, such as the CAARMS and SIPS, which were validated and more widely used after this period.[46,47] The increased

standardisation of measures reduces heterogeneity and enhances methodological comparability. Some studies include data before this period but use modern instruments, like the CAARMS, or medical linkage of more recent additions of diagnostic manuals that reduce the risk of bias of unstandardised measure prior to the release measures.

Exclusion Criteria

Studies were excluded if (i) the follow-up period was shorter than 6 months; (ii) the article was a case report or non-peer-reviewed; (iii) part or all of the data was missing; or (iv) there was no full text or English language article available. The follow-up period of 6 months was chosen as shorter intervals are less likely to observe transition events which can lead to underpowered studies.[48] However, this was balanced with capturing faster transitions as just under 10% will occur within 6 months.[10]

Search Strategy

Standardised search terms were used on PsycINFO, PubMed, and OVID to identify studies from 2005 to 2025. The search terms were the following: (("OCD" OR "obsessive-compulsive disorder" OR "OCS") AND ("psychosis" OR "psychotic" OR "schizophrenia" OR "schizo*") AND ("conversion" OR "transition" OR "prodrome" OR "predict*" OR "risk")). The search was conducted on 20th May 2025. Backward and forward reference mining was also conducted to identify additional studies not found from the database search.

Data Extraction

The lead author (WH) extracted data from the included studies using the PRISMA guidelines. The following data were extracted: author, year of publication, location, study design, participant type, sample size, data collection period, follow-up period, age and gender of the sample (by group or, if this was not available, from the whole sample), measures of

OCS and psychosis, and proportion of control and exposed participants who had OCS at baseline and psychosis at follow-up.

Data Analysis

Data were analysed using relative risk ratios of the proportion of experimental and control groups that developed and did not develop psychosis. The risk ratio (RR) was chosen as the preferred effect size for longitudinal data because it provides a more interpretable measure of risk than the odds ratio.[49] Risk ratios were calculated from four data points; the number of people with and without OCS that did and did not develop psychosis. A pooled risk ratio of 1 indicates no difference in risk, greater than 1 indicates an increased risk and below 1 indicates a reduced risk or protective effect. This is reported alongside 95% confidence intervals and p-values.

Although the initial protocol specified a single meta-analysis with subgroup analyses, two meta-analyses were conducted due to distinct populations used in studies. One set of studies compared the risk of psychosis in CHR cohorts while the other investigated the risk at a population level. Due to the differing sampling frames, it would be inappropriate to pool an effect size. Power analysis suggests that to detect an RR of 1.3 at $\alpha = .05$ and power = .8 with a transition rate of 25%,[10] 1145 participants would be required.

Due to the expected heterogeneity between studies, a random-effects model was used in both analyses. Heterogeneity was assessed using Cochran's Q, I^2, tau and tau-squared for a thorough overview. An I^2 of 25% or below indicates low heterogeneity, 50% moderate and above 75% high heterogeneity.[50] As both meta-analyses had fewer than 10 studies resulting in being under-powered, funnel plot inspection and Egger's test were not conducted, as recommended.[51] Outlier analysis was conducted for both meta-analyses, and leave-one-out analysis was conducted for the meta-analysis of the CHR cohort.

All data were analysed using RStudio (version 2025.05.1+513) using the "metafor" package.[52] Outlier analyses were conducted using the "dmetar" package.[53]

Quality Appraisal

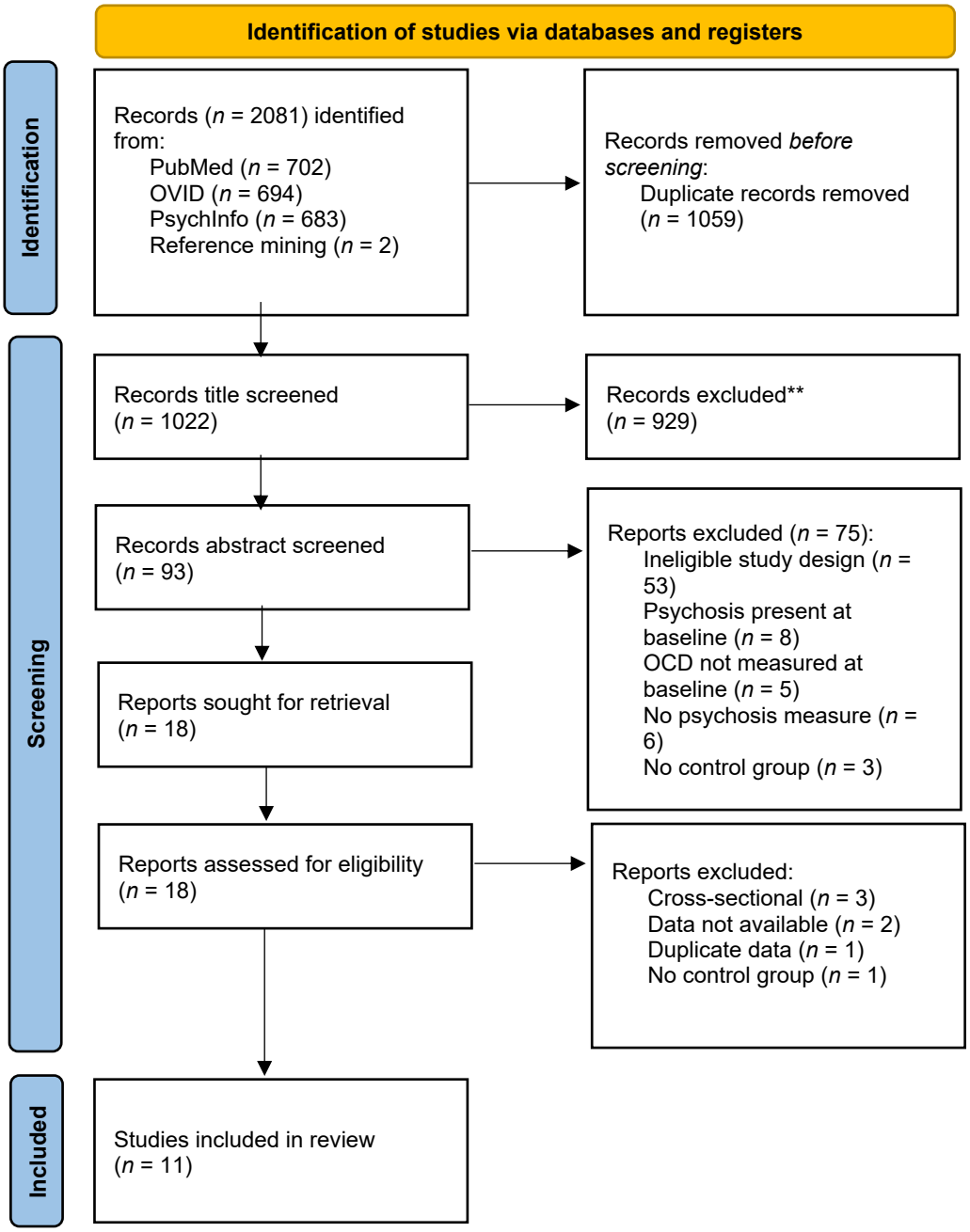
The quality of the included articles was assessed using the Newcastle-Ottawa Quality Assessment Form for Cohort Studies (NOS; Appendix B), which can be used to assess the risk of bias in non-randomised and observational studies. The NOS is a validated and widely used tool for assessing methodological quality.[54] The NOS categorises studies into good, fair or poor quality by meeting criteria for stars across selection, comparability and outcome. A second author appraised three of the eleven included studies for inter-rater reliability. The raters discussed any discrepancies to agree a resolved score. A follow-up period of more than a year was considered adequate for the outcome section based on previous research finding more than half of those who do develop psychosis after being classified as CHR will transition by one year.[10]

Results

Study Selection

Of the 2079 papers screened, 11 were included for analysis, as shown in Figure 2.1. Title screening was conducted by one author (WH). A second reviewer screened 50% of the articles at the abstract stage with inter-rater reliability of 93% (Cohen's $k = 0.76$), indicating substantial agreement. There was complete agreement of the 25% of full-text articles screened by the same reviewers as the abstract stage.

Figure 2.1. PRISMA flow chart of study selection process.



Study Characteristics

Of the 11 articles included in the review, 8 were prospective studies and 3 were retrospective studies. The eight prospective studies used a CHR cohort, and the 3 retrospective studies used national registers. The studies were conducted from USA (k = 5), South Korea (k = 2), Australia, Italy, Sweden and Taiwan (all k = 1).

There were 1 303 participants across CHR studies ranging from 20 to 352 participants. The average follow-up period was 2.64 years (SD = 1.96) ranging from 11 months to 7.4 years. OCS were measured by the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (SCID) in seven studies and the Diagnostic Interview for Genetic Studies (DIGS) in one study. Psychosis transition was measured by SCID in four studies, SIPS in three studies, and CAARMS in one study. The average transition rate in the CHR studies was 19.26%.

There were 236 781 participants in the register-based studies ranging from 10 036 to 216 700 participants. The average follow-up period was 4.81 years (SD = 2.2) ranging from 2.4 to 6.7 years. All psychosis and OCS measures were using International Classification of Diseases (ICD) codes with one study using ICD-9, another using ICD-10, and the final study using ICD-10 for OCD and ICD-8 to ICD-10 for psychosis. Therefore, register-based studies explored OCD as a diagnosis rather than milder symptoms. The average transition rate in the register-based studies was 0.52%.

Participant Characteristics

Further demographic information is summarised in Table 2.1. alongside proportions of people who had OCS at baseline and how many developed psychosis.

Table 2.1. Study and Participant Characteristics[a]

Study	Sample size	Data collection period	Follow-up period (years)	NOS rating	Mean age (SD)		N Females (%)		N			
					OCS+	OCS-	OCS+	OCS-	P+ OCS+	P- OCS+	P+ OCS-	P- OCS-
CHR												
Fontenelle et al. (2011)[37]; Australia	312	1994 – 2005	7.4	Poor	19.3 (3.1)	19.9 (3.3)	16 (61%)	158 (54.9%)	4	22	34	252
Niendam et al. (2009)[39]; USA	64	N/K	0.92	Poor	15.58 (2.03)	16.68 (2.39)	6 (46%)	19 (37%)	0	13	11	40
DeVylder et al. (2012)[55]; USA	20	N/K	3.44	Poor	21.2 (3.1)	20.1 (4.8)	5 (41.7%)	3 (37.5%)	3	9	2	6
Hur et al. (2012)[56]; South Korea	53	2004 – 2010	1	Poor	20.79 (3.96)	20.95 (3.81)	10 (41.7%)	15 (36.6%)	3	15	7	28
Alessandro et al. (2024)[57]; Italy	180	2016 – 2021	2	Poor	19.55 (3.78)	19.52 (3.82)	28 (42.4%)	62 (54.5%)	11	55	18	96
Kennedy et al. (2021)[58]; USA	122	N/K	2	Poor	19.83 (3.78)		58 (37%)		5	16	34	67
Brucato et al. (2017)[38]; USA	200	2003 – 2015	2	Poor	20.03 (3.85)		54 (27.0%)		7	27	27	139
Addington et al. (2017)[59]; USA	352	N/K	2	Poor	18.52 (4.24)		318 (42.7%)		4	14	81	263

Register-based												
Cederlöf et al. (2015)[21]; Sweden	216 700	1969 – 2009	2.4	Good	N/K	N/K	56.5%		476	196 524	557	19 143
Cheng et al. (2019)[60]; Taiwan	10 045	1997 – 2013	6.7	Good	<20: 376 (18.72%); 20–39: 833 (41.46%); ≥40: 800 (39.82%)	<20: 1504 (18.72). 20–39: 3332 (41.46); ≥40: 3200 (39.82)	1,027 (51.12%)	4,108 (51.12%)	16	8020	115	1894
Kim et al. (2023)[61]; South Korea	10 036	2002 – 2013	5.35	Good	0–9: 1344 (13.4%); 10–19: 1972 (19.6%); 20–29 :1868 (18.6%); 30–39: 1700 (16.9%); 40–49: 1380 (13.8%); 50–59: 876 (8.7%); ⩾60: 896 (8.9%)		4848 (48.3%)		17	7510	61	2448

Abbreviations: P, psychosis; OCS, obsessive-compulsive symptoms; +, presence of symptoms; -, absence of symptoms; N/K, not known.

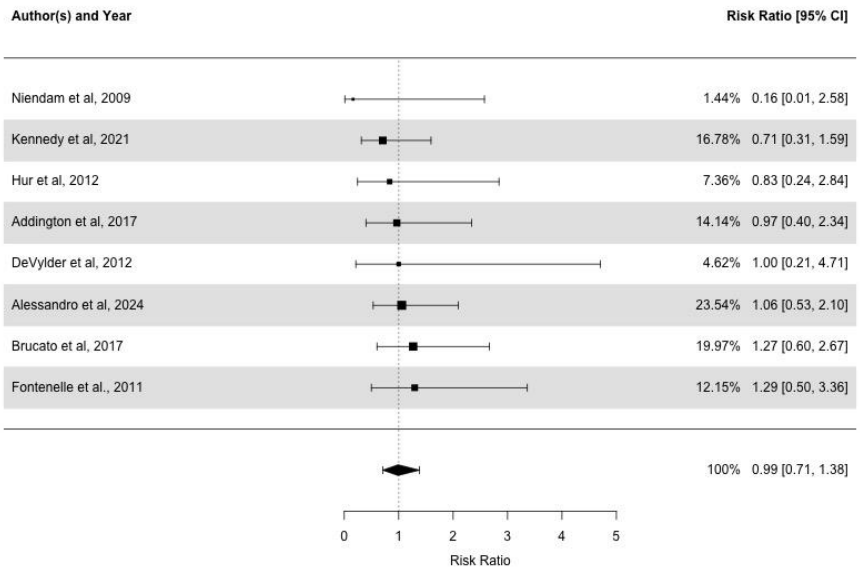
[a]Data is given by OCS group when available from manuscripts but otherwise given for the whole sample.

[b]The first three prospective studies give the average follow-up period and the remaining reported the follow-up as a set period (e.g., 2 years).

The Risk Ratio of OCS on Developing Psychosis in CHR Cohorts

The relative risk ratio of OCS on developing psychosis in individuals at CHR from the 8 included studies was 0.99 (95% CI [0.71, 1.38], $P = .95$). Between-study heterogeneity was low measured by Cochran's Q ($Q = 3.14$, df = 7, $P = .87$), I^2 ($I^2 < .000\%$, 95% CI [0%, 67.03%]), tau ($\tau < .000$, 95% CI [0, 0.70]) and tau-squared ($\tau^2 < .000$, 95% CI [0, 0.49]. The prediction intervals (0.71 to 1.38) indicated that the risk ratio in 95% of future studies would fall in a range around 1, indicative of no increase, or a small increase or decrease in risk of developing psychosis for individuals with OCS. No outliers were identified, and leave-one-out analysis revealed no study significantly influenced the findings. This RR suggests that people at CHR with OCS do not have a significantly different risk of developing psychosis compared to those at CHR without OCS, as shown in Figure 1.2.

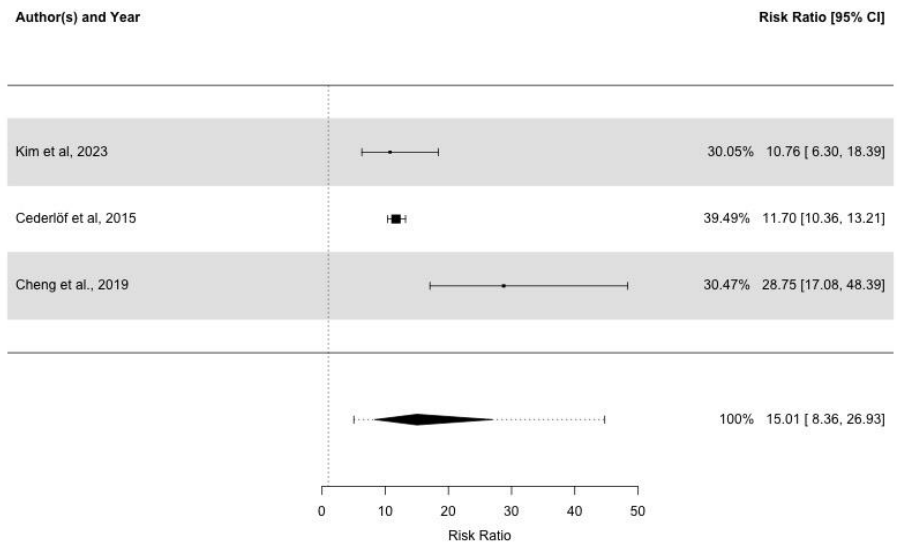
Figure 2.2. Forest Plot of Risk Ratio in CHR Studies



The Risk Ratio of OCD on Developing Psychosis in Population Level Samples

A meta-analysis of the three studies investigating the risk of developing psychosis in population samples found a relative risk ratio of 15.01 (95% CI [8.36, 26.93], $P < .001$). However, between-study heterogeneity was high measured by Cochran's Q ($Q = 11.07$, df = 2, $P = .004$), I^2 ($I^2 = 85.1\%$, 95% CI [37.14%, 99.67%]), tau ($\tau = 0.47$, 95% CI [0.15, 3.41]) and tau-squared ($\tau^2 = 0.22$, 95% CI [0.02, 11.65]). The prediction intervals were wide (5.03 to 44.75) indicating there is uncertainty about the magnitude of the risk ratio in future studies. No outliers were identified. This suggests that OCD are associated with approximately a 15-fold increased risk of developing psychosis in the general population, as illustrated in Figure 2.3, although the small number of studies and high heterogeneity limit any conclusions.

Figure 2.3. Forest Plot of Risk Ratio in Register-Based Studies



Quality Assessment

Three studies, all population-level, scored as good quality on the NOS and the remaining eight, all CHR studies, scored as poor (see Appendix C). The inter-rater reliability found one discrepancy among the 24 rated items of the 3 studies which was resolved through discussion and consensus. The data of the population-level studies were drawn from national registries, which were representative of the general population, and all controlled for confounders with a matched control design. The retrospective design of all the studies meant that follow-up duration was adequate.

The low overall score for the CHR studies was largely due to not scoring on the comparator section due to absence of control for confounders in design or analysis. All the CHR studies scored highly in the selection section and were representative of CHR populations, being recruited through typical routes with common inclusion and exclusion criteria. However, there was greater variation in the outcome section. All except one study had an adequate follow-up period of more than a year but only half reported drop-out rates. Two of the CHR studies independently assessed for exposure and a different two had adequately followed up the cohort.

Discussion

To the authors' knowledge, this is the first systematic review and meta-analysis to investigate the risk of OCS for developing psychosis in both CHR and population-level samples. Findings indicate that OCS do not significantly increase the risk of psychosis in CHR cohorts but are associated with a 15-fold increased risk in population-level data. The results should be interpreted cautiously given the small number of studies (eight CHR and three population-level) and high heterogeneity observed in the population-level meta-analysis.

No Significant Association Between OCS and Psychosis Risk in CHR Samples

The findings in the CHR analysis corroborate previous reviews showing OCS do not elevate the risk of developing psychosis,[40,41] similar to findings of no association between transition and comorbid anxiety or depression in CHR youth.[14] Although this meta-analysis had adequate power, based on power analysis and previous studies,[62] comparable null results have been found for cannabis use[63] and trauma[64-66] where, although highly prevalent, there is no greater risk of transition. This suggests there may be a restriction of range in CHR samples that limits observable relationships between risk factors and transition.[67]

Another possible explanation is that OCS in CHR groups may reflect incidental psychotic-like experiences (PLEs) that are distressing but do not confer a risk of developing psychosis like APS do.[68] This may result in measurement overlap between OCS and APS, resulting in individuals with ostensibly co-occurring symptoms without additive risk. For example, individuals with OCD often score similarly to those with psychosis on measures of hallucinations and delusions[69], and clinicians can struggle to distinguish intrusive thoughts from delusions.[70] Future studies could clarify whether phenomenological features overlap and factors that help distinguish symptoms.

Elevated Risk of Psychosis in People with OCD at Population-Level

In contrast, population-level data revealed that OCD confer a substantial risk for developing psychosis, exceeding established risk factors such as mild traumatic brain injury (*RR* = 1.57, 95% CI [1.28-1.91]),[71] urbanicity (*OR* = 2.37, 95% CI [2.01–2.81]),[72] cannabis use (*OR* = 5.4, 95% CI [2·81-11·31] for everyday compared to not at all),[73] childhood trauma (*OR* = 6.46, 95% CI [4.37-9.53] for more than 5 exposure vs none)[74], and socioeconomic status (*OR*, 8.10; 95% CI, 3.24-20.3 for 6 vs none).[75] The relative risk is comparable to strong established risk factors such as familial risk (*OR* = 11.11, 95% CI [1.45–85.02])[76] and 22q11.2 deletion syndrome.[77]

As noted, there are shared genetic, neurobiological, and psycho-social mechanisms underlying OCS and psychosis. It may be that OCS represent a proximal risk factor, closer in the causal chain to frank psychosis, than distal factors such as trauma and familial history of the disorder, hence the larger risk ratio.[78] Common mechanisms may mediate this link such as appraisal of intrusions as personally significant leading to OCS,[79] whereas attributing them to external causes may contribute to hallucinations in psychosis.[80] Similarly, fluctuations in insight,[81] interpretation of thoughts as uncontrollable or dangerous,[82] and degree of superstitious beliefs may be factors that shift OCS towards psychotic symptoms.[83] However, future research should empirically investigate if OCS can transform into psychotic symptoms through these mechanisms.

Differences Between CHR and Register-Based Cohorts

One explanation for the difference between CHR and register-based cohorts is sampling biases arising from risk enrichment. Meta-analytic evidence indicates that CHR samples are substantially enriched for transition risk increasing observations of development of psychosis,[84] but restricting informative variance in baseline risk and dominant predictors. Similarly, Berkson's bias[85] may obscure associations between OCS and psychosis because of other strong predictors (e.g., APS, negative symptoms[86]) being common pathways to study inclusion. Together, these factors may limit the ability to detect the effects of risk factors such as OCS where pretest risk is high and variance is restricted.

Although register-based studies typically had longer follow-up periods and larger sample sizes, follow-up alone is unlikely to account for the discrepancy. Most transitions in CHR cohorts occur within three years[10] with a median of 11 months,[87] suggesting that the average follow-up period of the included CHR studies (2.6 years) would capture most transitions. In contrast, register-based studies may capture a broader range of individuals, including those with severe or untreated OCS, associated with poorer outcomes[88], who

present to community mental health teams or inpatient services. Additionally, detection may be better for individuals with OCS and poor insight, who have a reduced likelihood of accessing services but a risk of developing delusions.[89,90] Consequently, register-based designs may be more sensitive to earlier or alternative transition pathways that lose discriminative value at later enriched CHR stages. Conversely, the register-based studies were all retrospective which may increase the risk of misclassification bias (e.g., non-standardised diagnostic protocols) and detection bias (e.g., more intensive screening for psychosis in those with OCD than those without).

Limitations

Interpretations of the findings were constrained by methodological issues such as the small number of studies, particularly for register-based cohorts, which limited power to assess risk of publication bias or conduct meta-regression. While direction of effect was consistent in register-based cohorts, the magnitude remains uncertain due to significant heterogeneity with very wide prediction intervals. Two studies with potential data (both at the population-level) were excluded after failure to obtain data from the authors and data availability was generally limited. Likewise, the quality ratings for all the CHR studies were rated poor, mostly due to limited control for confounders in design or analysis. Failure to adjust for demographic characteristics may distort associations between OCS and psychosis, given demographic influences on psychosis risk such as age, gender and ethnicity.[91]

Additionally, conceptual issues such as defining OCS, psychosis, and transition varied across studies, contributing to heterogeneity. For example, OCS classification (i.e., categorically or dimensionally) was inconsistent between studies. Subgroup analyses of OCS classification, recruitment strategy, and follow-up periods would have provided insight into the effects of the varied definitions. Unfortunately, there was insufficient data availability to

account for this in the current analysis, but future research should aim to standardise definitions and provide adequate recruitment and follow-up details.

Clinical and Research Implications

The findings can be interpreted within a clinical staging model suggesting that OCS confer a risk of psychosis in earlier stages but lose predictive value in later stages when multiple vulnerabilities are present.[92] Traditional staging models assume a homotypic progression from subthreshold to full psychotic symptoms but there is evidence of psychosis occurring after non-psychotic disorders and that around one-third of FEP cases lack preceding subthreshold symptoms.[93] Additionally, a higher population attributable fraction (that accounts for risk and incidence rate) is observed in mood disorders compared to CHR groups.[94] Together, this suggests that a broader identification strategy that captures both homotypic and heterotypic pathways may better reduce the overall burden of psychosis.[95] For example, using the CHARMS criteria in EIP and secondary care services may improve detection efforts.

Early identification of OCS and other distress could offer an opportunity for intervention before the emergence of psychosis. Evidence from OCD research shows that longer duration of untreated OCD predicts poorer outcomes[88], paralleling findings in psychosis. It is yet to be empirically validated if OCS may predict progression to CHR, as they are highly prevalent in CHR cohorts and linked to poorer outcomes.[96,97] Future research should examine the phenomenology of overlapping symptoms (e.g., intrusive guilt thoughts correlating with unusual thought content[98]), to determine when and how specific OCS may mediate progression to psychosis.

Predictive models combining multiple variables, including known risk factors in CHR cohorts, such as cognitive and functioning deficits[86], alongside other demographic and clinical characteristics, show good prognostic accuracy and a promising area to refine risk

prediction.[99] While preventing transition to psychosis remains a valuable goal, it may be a challenging task, as sole focus on transition may neglect broader distress and impairment in individuals at CHR.[100] This is important as most CHR youth seek treatment for anxiety and depression, rather than psychosis, and affective presentations predict poor functional outcomes, suggesting the importance of factors beyond transition.[101] Future research should collect outcome data on transition, distress and functioning to determine their associations with different risk profiles to improve treatment precision.

Future prospective studies should strengthen design quality by controlling for demographic factors, reporting detailed recruitment and follow-up data, and ensuring independent assessments. Clear, consistent definitions of variables, such as OCS and psychosis, as well as clear reporting of categorical and dimensional measurement approaches, would also improve comparability across studies.

Conclusion

In CHR samples, the risk of developing psychosis was comparable between individuals with and without OCS. However, population-level studies indicate people with OCD have a 15-times greater risk of developing psychosis. This exceeds established risk factors such as childhood trauma, cannabis use and familial risk. Furthermore, OCS may represent a proximal risk factor with direct influence on the development of psychotic symptoms such as through cognitive or insight-related mechanisms. However, conclusions are limited by the small number of studies and high heterogeneity among the population-level data. Differences between CHR and register-based cohorts might reflect methodological and sampling biases that restrict the representativeness of CHR studies. Conceptualising the findings within a clinical staging model that accounts for multiple, heterotypic entry and exit pathways, and integrating demographic, clinical, and cognitive variables may improve early identification of individuals at risk of developing psychosis.

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Chapter Three

Bridging Chapter

Word count: 943

Summarising the Systematic Review

Chapter 2 provides an updated synthesis of the evidence examining whether obsessive-compulsive symptoms (OCS) increase the risk of developing psychosis in clinical high risk (CHR) and population-level samples. In line with Martinho et al. (2023) and Albert et al. (2018), the estimated risk ratio derived from CHR studies indicated that OCS neither increased nor decreased the risk of developing psychosis. In contrast, population-level studies suggested a substantially elevated risk associated with obsessive-compulsive disorder (OCD), with effect sizes exceeding those reported for established environmental risk factors, such as trauma (Grivel et al., 2018; Kraan et al., 2015; Stowkowy et al., 2016) and cannabis use (Kraan et al., 2016). However, the population-level estimate was characterised by substantial heterogeneity, and both meta-analyses had a small number of studies, precluding the use of sensitivity and moderation analyses. Consequently, while there appears to be an elevated risk of psychosis among those with OCD in register populations, the precise magnitude of this effect is uncertain.

The systematic review situated these findings in the context of clinical staging frameworks, overlapping mechanisms, methodological rigour, and sampling biases. Psychosis risk is enriched in CHR samples and reflects help-seeking individuals defined by attenuated psychotic symptoms (Fusar-Poli et al., 2016). However, existing identification methods may fail to capture alternative or heterotypic pathways to psychosis such as progression from non-psychotic disorders to psychotic disorders, which is estimated to occur in one-third of cases (Shah et al., 2017). This presents a significant clinical challenge as services supporting these individuals who have heterotypic pathways to psychosis (e.g., inpatient units, community mental health teams) may be more likely to observe transitions without the benefit of formal risk frameworks.

The Psychosis Trajectory

The overlapping mechanisms discussed in Chapter 2 may not only confer vulnerability to transition risk but also contribute to symptom maintenance following the onset of psychosis, potentially accounting for the high rates of co-occurrence (Mawn et al., 2020). This complexity is further compounded by evidence that OCS may emerge prior to the onset of psychosis, during the prodromal phase, or following the development of a psychotic disorder, with distinct clinical challenges and treatment implications for each course (Devulapalli et al., 2008). For example, earlier-onset OCS may benefit from cognitive behavioural approaches in line with National Institute for Health and Care Excellence (2005) guidance for OCD. However, OCS emerging from antipsychotic treatment, such as clozapine, appear to be influenced by treatment dose and duration, alongside cognitive and affective vulnerabilities, that may require a different focus, such as pharmacological modification (Biria et al., 2025).

The overlapping mechanisms between psychosis and OCS create challenges for assessment and intervention. Mullen and Linscott (2010) demonstrated that levels of insight and conviction did not reliably distinguish delusions from overvalued ideas. Scotti-Muzzi and Saide (2018) reported a clinical example of this in a case study in which improvement in an individual's OCS coincided with the development of an overvalued belief that his girlfriend would oppose an application for medical disability, despite the absence of a verifiable relationship. Similarly, Veale et al. (2009) highlighted how overlapping symptom expression can generate risk management difficulties; for instance, shouting to neutralise obsessions may be misinterpreted as escalating psychotic agitation, and avoidance or self-neglect driven by OCS may be mistaken for negative symptoms. Therefore, accurate assessment, careful formulation and appropriate intervention are necessary to ensure both safety and therapeutic effectiveness.

Current Guidelines

While the systematic review sets the epidemiological context for the relationship between OCS and psychosis risk, there remains a lack of research on how clinicians manage these co-occurring presentations in routine practice. This is complicated by the absence of formal guidelines for supporting people with psychosis and OCS. There are separate guidelines for psychosis and OCD by NICE, which have recommendations for assessment and psychological intervention, both of which recommend cognitive behavioural therapy as a psychological intervention. However, the gold standard for OCD is CBT with exposure and response prevention (NICE, 2005), but the gold standard for psychosis is CBT for psychosis (NICE, 2014). While similar, these approaches differ in their focus on symptoms, techniques and goals. Therefore, clinicians currently must exercise clinical judgement when encountering psychosis with co-occurring OCS without the support of formal frameworks.

Surveys provide a valuable methodological approach for capturing how clinicians currently conceptualise, assess, and treat complex clinical presentations in real-world settings. They allow for the identification of broad patterns of practice across professional groups and service contexts, which may not be accessible through experimental or small-scale qualitative designs alone (Krause et al., 2014). The inclusion of clinician perspectives is particularly important, as failure to integrate stakeholder views has been associated with significant barriers to guideline implementation and public opposition to initiatives (Concannon et al., 2014). For example, the NICE guidelines on depression were delayed from the planned release in 2018 due to opposition from 35 health organisations arguing the guidelines were inconsistent and methodologically flawed (Wise, 2019). This led to the draft guidelines being revised three times, which was an unprecedented number of revisions, and the eventual release in 2022 (NICE, 2022). Furthermore, mapping existing practice, alongside perceived barriers and facilitators, prior to the development of new interventions is

considered critical for optimising feasibility, acceptability, and clinical impact (Field et al., 2014).

Accordingly, the following chapter presents an empirical paper that aims to address these gaps by surveying clinicians who work with individuals with psychosis and OCS. The survey investigated current assessment practices, psychological intervention approaches, the management of risk and insight, as well as adaptations, barriers and levels of confidence. An exploratory regression analysis was conducted to identify what clinical and professional factors are associated with clinicians' confidence when working with people with psychosis and OCS.

Chapter Four

Empirical Paper

Clinicians' Perceptions of Assessment and Psychological Intervention for Psychosis with Co-Occurring Obsessive-Compulsive Symptoms

Prepared for submission to the *British Journal of Clinical Psychology*

(Author guidelines in Appendix D)

Word count (excluding abstract, references, appendices, tables and figures): 5297

Abstract

Objectives

Obsessive-compulsive symptoms (OCS) occur in approximately 25% of individuals with psychosis, yet there are no formal guidelines for assessment or intervention when symptoms co-occur. Little is known about how clinicians currently approach assessment and psychological intervention. This study aimed to investigate clinicians' practice, perceived barriers, adaptations, and confidence when working with individuals with psychosis and co-occurring OCS (P-OCS).

Methods

A predominantly quantitative cross-sectional survey with optional open-ended questions was conducted with 136 UK clinicians working with individuals with P-OCS. The survey examined assessment and intervention approaches, barriers, adaptations, and clinical confidence through descriptive questions and multiple regression analysis.

Results

Clinicians primarily relied on informal assessment methods and observable characteristics. Cognitive behavioural therapy for psychosis was the most frequently endorsed intervention (91%), followed by CBT (75%) and CBT with exposure and response prevention (73%). Mean confidence in assessment of P-OCS was moderate (M = 7.08 out of 10, SD = 1.63) and was predicted by years of mental health experience. Mean confidence in psychological intervention of P-OCS was also moderate (M = 6.89 out of 10, SD = 2.00) and was predicted by years of experience, receiving supervision, and a monthly frequency working with P-OCS (compared to less than monthly and weekly). Key barriers endorsed from the closed questions included insufficient training and engagement difficulties, while key adaptations included family involvement, psychoeducation, formulation tools, and tailored interventions.

Conclusions

The survey highlights important challenges and areas for development when working with P-OCS, indicating the need for further mixed-methods research to refine assessment and intervention approaches.

Keywords: psychosis, obsessive-compulsive disorder, CBT, barriers, facilitators, assessment, psychological intervention

Practitioner Points

- Obsessive-compulsive symptoms are common in psychosis, yet clinicians primarily rely on informal assessment methods, indicating a need for greater support with structured and integrative assessment approaches.
- Clinicians report moderate confidence in both assessment and intervention, with confidence more strongly associated with clinical experience, working frequency and supervision than with formal qualifications.
- Family involvement, formulation-based working and psychoeducation are viewed as key adaptations to support engagement during both assessment and psychological intervention.
- Clinicians express a desire for training, supervision, and guidance on integrated approaches for psychosis with co-occurring OCS, but further research is needed to determine effective frameworks.

Introduction

Obsessive-compulsive symptoms (OCS) occur in 25% of individuals with psychosis and 12.5% meet the threshold for obsessive-compulsive disorder (Mawn et al., 2020). Evidence on clinical characteristics of psychosis with co-occurring OCS (P-OCS) is inconsistent, although meta-analyses indicate there are no significant differences in neurocognitive deficits or negative symptoms, and only small increases in psychotic symptom severity compared with those with psychosis alone (Cunill et al., 2023; Dijkstra et al., 2021). However, outcomes are consistently poorer (Tezenas du Montcel et al., 2019) with greater depressive symptoms and suicidality (Frías-Ibáñez et al., 2014), lower global functioning (Hur et al., 2012; Hwang et al., 2006) and reduced quality of life (Lysaker & Whitney, 2009; Tiryaki & Özkorumak, 2010).

Determining symptom aetiology is complex and has significant clinical implications (Pardossi et al., 2024). A clinician survey found a small majority recommended removing delusional insight as a specifier in OCD, however, over one-third of clinicians believed the specifier should remain, reflecting the complexity of distinguishing psychosis and OCS (Moritz et al., 2025). This uncertainty complicates the use of assessment methods. For example, semi-structured assessment tools such as the Brown Assessment of Beliefs Scale and Nepean Beliefs Scale demonstrate good discriminative validity for people with OCD and psychosis, although there is no evidence for when symptoms are co-occurring (Camprodon-Boadas et al., 2023; Rajendran et al., 2022). The National Institute of Health and Care Excellence (NICE; 2005, 2014) has separate guidance for assessment for psychosis and OCD but not the co-occurrence.

Likewise, NICE (2005, 2014) have separate recommendations for cognitive behavioural therapy (CBT) for both psychosis and OCD but not for when they co-occur. The gold standard is CBT with exposure and response prevention (ERP) for OCD and CBT for

psychosis (CBTp) for psychotic disorders. These distinct approaches may complicate intervention when symptoms co-occur as clinicians can be hesitant to offer exposure interventions in psychosis due to potentially exacerbating symptoms and specific concerns have been raised regarding the tolerability of CBT with ERP in psychosis (Chadwick & Billings, 2022; Ekers et al., 2004). However, Tundo and Necci (2016) conducted a systematic review of CBT interventions for OCD in people with psychosis and found it to be safe, acceptable, and effective, although this was drawn from mostly case reports.

The United Kingdom Medical Research Council (MRC) guidance on developing complex interventions recommends engaging stakeholders, for example by ascertaining clinicians' perspectives on treatment development (Skivington et al., 2021). Clinicians' perspectives are crucial as the literature on psychosis co-occurring with trauma found clinicians' confidence predicted the adoption of psychological interventions, whether symptoms were discussed with the patient and if trauma symptoms were documented in clinical records (Harned et al., 2013; Salyers et al., 2004). Alongside fears that exposure interventions are not well tolerated, low confidence may result in delaying treatment which can extend the duration of untreated psychosis and OCD, which are both associated with worse outcomes (Howes et al., 2017; Perris et al., 2023).

Traditionally, CBTp has treated clusters of symptoms but there has been a recent shift to offering interventions that target specific symptoms, such as worry or negative self-beliefs, which are thought to be key maintenance factors in persecutory delusions (Freeman, 2016; Newman-Taylor & Bentall, 2024). Similarly, there is increasing awareness that comorbid conditions, like depression, social anxiety and trauma, are significantly distressing to individuals with psychosis and require appropriate support (Hardy et al., 2024; Michail et al., 2017). Extending this symptom-focused approach to OCS is important given the overlap with psychosis (Palermo et al., 2020). However, given the absence of formal guidelines and

limited empirical evidence, it is important to understand the current landscape of clinical practice to inform the development of tailored intervention for those with psychosis and OCS.

Therefore, ascertaining clinicians' views on providing assessment and psychological intervention for those experiencing P-OCS may offer important insights that can improve access to effective support. The present study investigated current assessment and psychological intervention practice among clinicians in the UK. This was based on a set of descriptive questions to gain an understanding of what methods, modalities and adaptations are currently made and an exploratory regression analysis of what factors predict confidence when working with individuals with P-OCS.

The descriptive research questions were:

1. Are obsessive-compulsive symptoms routinely explored or assessed in individuals with P-OCS and, if so, how?
2. What do clinicians identify as the barriers, adaptations, and factors that would improve confidence in assessment for individuals with P-OCS?
3. What, if any, psychological interventions are currently offered to individuals with P-OCS?
4. What do clinicians identify as the barriers and adaptations for psychological intervention for individuals with P-OCS?

The exploratory research question was:

5. What factors predict how confident clinicians are at assessing and providing psychological intervention to individuals with P-OCS?

Materials and Methods

Design

Due to the lack of literature on current practice, a cross-sectional survey was designed to investigate clinicians' perceptions of working with individuals with P-OCS (Appendix E). The survey, hosted on Jisc Online, was predominantly quantitative with free-text options to provide qualitative responses.

Participants

Inclusion criteria were (1) UK-based clinicians with (2) past or current experience working with individuals with P-OCS and (3) involvement in assessment or psychological intervention. Participants were ineligible if they (1) worked in non-clinical professional roles or (2) were clinicians without direct contact with individuals with P-OCS. It was important to capture a range of clinicians' perspectives as psychosis care is provided by multidisciplinary teams, involving a range of stakeholders in the development of interventions (National Institute for Health and Care Excellence, 2014; Skivington et al., 2021). To capture experiences across the psychosis spectrum, this study includes early psychosis in the definition of P-OCS, such as at-risk mental states which are not classified as a psychotic disorder but experience attenuated psychotic symptoms (APS). Due to the high prevalence of co-occurring APS and OCS in those at-risk for psychosis (Mawn et al., 2020), clinicians working with these individuals can offer insight on providing assessment and psychological intervention that may benefit support across psychosis stages.

Clinicians were recruited via convenience sampling on forums at the British Psychological Society, British Association of Behavioural and Cognitive Psychotherapists, the Royal College of Psychiatrists, and special interest groups. Physical copies of the

advertisement poster (Appendix F) were placed in staff rooms in various consenting services across the UK. Finally, the survey was advertised on Facebook, X, BlueSky and LinkedIn.

Procedure

Participants accessed the survey through a link or QR code to an information sheet and consent form (Appendix G and H), which had to be completed before proceeding. No personal details were collected to ensure anonymity. Participants completed eligibility screening to determine if they had only assessed individuals with P-OCS, only provided psychological intervention, neither, or both. Participants were then directed through the relevant sections. For example, if 'neither' was selected, an ineligibility message was displayed; otherwise, participants proceeded to demographic questions. After completion, participants were shown a debrief form (Appendix I) and then provided a link to a separate survey to ensure anonymity, where they could provide their details for a prize draw.

Materials

There are no validated surveys on attitudes and confidence in assessing and treating co-occurring OCS in individuals with psychotic symptoms, therefore a survey was developed from the literature (Gairns et al., 2015; Rehman et al., 2017) and informed by experts in the field. A pilot survey was trialled with four clinical psychologists working in services such as early intervention in psychosis (EIP) and community mental health teams (CMHT). Confidence is a common construct in implementation science frameworks and was utilised in the current study due to the associations with acceptability, adherence and continued use of interventions (Damschroder et al., 2009).

Demographic and experience information

Participants were asked to complete demographic information, specifically, their age, gender, job role and highest academic qualification. In addition, participants reported their

years of experience in mental health, the service they work in, frequency of work with individuals with P-OCS, training and supervision.

Assessment

The assessment section asked 11 questions about assessment methods, outcomes, determining symptoms, risk, barriers, adaptations, and confidence. Formats included Likert, multiple choice, optional free-text and closed questions. For example, 'After assessment, how often would you refer to or offer medical support (e.g. medication) for individuals with psychosis and co-occurring obsessive-compulsive symptoms?'. Likert scales included 1 to 10 for confidence ratings, 'Never' to 'Always' for assessment methods and types of support, 'Not important' to 'Important' for barriers and adaptations, and 'Strongly Disagree' to 'Strongly Agree' for confidence factors. The Likert scales ranges were to balance granularity (to capture sufficient variation), interpretability (to be easily understood) and burden (without providing excessive options). A list of options was provided for all closed questions on the topics of assessment methods, determining symptoms, insight, barriers, adaptations, and confidence with an 'other' option to provide further details. For example, 'How important do you consider the following barriers when assessing individuals with psychosis and co-occurring obsessive-compulsive symptoms?'

Psychological Intervention

The psychological intervention section asked eight questions about the modality, techniques, effectiveness, safety, barriers, adaptations, and confidence relating to providing psychological intervention to individuals with P-OCS. There were also two optional questions regarding other interventions. Types of questions included Likert (1 to 10 for effectiveness, safety and confidence), multiple choice, and optional free-text responses. For example, 'What psychological support would you recommend or refer to or offer?' was asked with a list of psychological interventions and an 'other' option. An optional question specific

to cognitive behavioural techniques was asked as NICE (2005; 2014) recommend CBT for psychosis and OCD and therefore this is likely to be a common intervention. An additional question invited clinicians to report 'other intervention' that does not meet the NICE criteria for CBT to capture broader practices in clinical settings.

Analysis

All questions were mandatory to complete the survey, except for the optional 'other' questions. Therefore, there was no missing data for the primary descriptive or exploratory analysis. To analyse the descriptive research questions, descriptive statistics were reported as means, standard deviations and percentages. See Chapter 5 for the analysis of the 'other' responses findings. The open-ended questions were analysed using conventional manifest content analysis in cases of more than 20 responses by inductively coding responses, then categorising them to produce frequencies (Hsieh & Shannon, 2005). A descriptive approach was used to summarise data with fewer responses to avoid over-interpretation of data. Responses could provide more than one code, which may lead to frequencies beyond the total response rate, or be excluded if a non-applicable response.

To evaluate the exploratory research questions, regression analyses were conducted separately for those who had assessed and those who had offered psychological intervention. Alpha level was set at .05 and assumptions of linearity, normality of residuals, homoscedasticity, multicollinearity (variance inflation factor) and outliers were all checked with no serious violations of these assumptions (see Chapter 5). All statistical analysis was conducted using RStudio (version 2025.05.1+513).

A power analysis was conducted using G* Power (Faul et al., 2007) with 80% power, alpha of .05 and 7 predictor variables indicating a minimum of 103 participants required to detect a medium effect size (R^2 = .13; Appendix J). The outcome variable was clinician confidence measured by a self-report question of confidence (1 to 10). The predictors were

years of experience in mental health, highest academic qualification, receiving supervision for cases of co-occurring psychosis and OCS, and training. These were selected based on previous literature on barriers and facilitators to implementing interventions for people with psychosis (Ince et al., 2016). Highest academic qualification achieved comprised three levels of up to bachelor's degree, postgraduates (e.g., certificates, diplomas and masters) and doctorate level (e.g., academic, professional or medical). Frequency of working was collapsed into three levels of every few months or less, monthly, and at least weekly. The training variable included all those that had received training on psychosis, OCD or both. The psychological intervention regression excluded the training variable due to the small group size of clinicians without training (n = 1).

Ethical Considerations

The study was granted favourable ethical approval by the University of East Anglia's Faculty of Medical and Health Sciences (ETH2324-3012; Appendix K). The survey did not collect any identifiable information to ensure anonymity and data security. A link to a separate survey with an optional prize draw of four £20 vouchers was provided upon completion. The survey could not be completed without confirming consent and participants were informed they could withdraw at any point up until submission, where, due to anonymity of responses, data could no longer be removed.

Results

Participant Characteristics

Table 4.1 shows the demographic and experience characteristics of the whole sample (N = 136). The survey recruited a diverse group of professionals across services but predominantly included clinical psychologists, CBT therapists and nurses from EIP and CMHTs. Almost all clinicians had received training in psychosis, OCD or both, and many

had at least monthly contact working with individuals with P-OCS. Most clinicians had at least a postgraduate level qualification and, on average, were highly experienced in mental health.

Table 4.1

Demographic and Experience Characteristics of the Whole Sample

Characteristic	*M*	*SD*
Age	42.82	11.06
Years of experience working in MH	17.5	10.15
	Frequency (*N* = 136)	%
Gender		
Female	96	71%
Male	39	29%
Non-binary	1	1%
Role		
Clinical psychologist	46	34%
CBT therapist	25	18%
Nurse	24	18%
Psychiatrist	12	9%
Care coordinator	6	4%
Assistant psychologist	4	3%

Occupational therapist	3	2%
Trainee clinical psychologist	3	2%
Counselling psychologist	3	2%
Social worker	2	1%
Clinical associate psychologist	2	1%
Peer support worker	2	1%
Forensic psychologist	1	1%
Psychotherapist	1	1%
MHWP	1	1%
Family link worker	1	1%
Highest education		
Bachelor’s	30	22%
Postgraduate	50	37%
Doctorate	56	41%
Service		
EIP	89	65%
CMHT	31	23%
ARMS	14	10%

Inpatient	12	9%
Independent practice	7	5%
Assertive outreach	2	1%
Clinical training	2	1%
Perinatal MH	1	1%
Working frequency		
Daily	19	14%
Weekly	43	32%
Monthly	14	10%
Every few months	42	31%
Rarely	18	13%
Supervision		
Yes	95	70%
No	41	30%
Training		
Yes	130	96%
No	6	4%

Note. Participants could select more than one service type therefore percentages sum to more than 100%. MH = mental health. MHWP = mental health and wellbeing practitioner. EIP = early intervention in psychosis. CMHT = community mental health team. ARMS = at-risk mental state.

Are Obsessive-Compulsive Symptoms Routinely Explored or Assessed in individuals with P-OCS, and, if so, How?

One hundred and thirty-four clinicians had provided assessment to individuals with P-OCS. Clinicians rated their confidence in conducting assessments with individuals with P-OCS as 7.08 out of ten (*SD* = 1.63). Table 4.2 shows the frequency of various assessment methods used.

Most clinicians reported referring to medical (55%) or psychological support (87%) at least 'Most of the time'. It was relatively infrequent for referrals to be made 'Rarely' or 'Never' for medical (10%) or psychological support (2%). When assessing for OCS, almost all clinicians assessed for impact on functioning (99%), intrusive thoughts (98%), distress (98%), repetitive behaviours (96%), and duration and frequency (95%). Insight (87%) and the interaction of psychotic and OCS (84%) were slightly less frequently endorsed.

Table 4.2

Frequency of Assessment Methods

Method	Always	Often	Sometimes	Occasionally	Rarely/Never
Structured and semi-structured interviews	28 (21%)	31 (23%)	16 (12%)	12 (9%)	47 (35%)
Unstructured or informal interview	71 (53%)	40 (30%)	11 (8%)	7 (5%)	5 (4%)

Clinician-administered measures	25 (19%)	41 (31%)	32 (24%)	6 (4%)	30 (22%)
Informal conversation	61 (46%)	38 (28%)	28 (21%)	3 (2%)	4 (3%)
Questionnaires	25 (19%)	48 (36%)	33 (25%)	6 (4%)	22 (16%)

Differentiating Psychosis and OCS

To differentiate between OCS and psychotic beliefs, clinicians most frequently endorsed determining if compulsions were linked to delusional beliefs (86%), alignment with diagnostic criteria (78%) and exploring specific scenarios of avoidance (78%). Insight (69%), distress (69%), and cross-checking (62%) were less common strategies. From the 15 open-ended responses, several clinicians reported that differentiating symptoms can be difficult or unhelpful (n = 6) but some clinicians reported exploring if the intrusion feels irrational (n = 3), asking about the appraisal (n = 3), and using the antecedent, behaviour, consequence method (ABC; n = 2). Other responses recommended asking about: conviction; preoccupation; rigidity; coping, plans or actions; ego-dystonicity and -syntonicity; the relationship between intrusions and voices; family observations; feared consequences of not mitigating the intrusion; and cultural norms (all n = 1).

Insight

Insight was assessed using multiple domains such as asking about distress (85%), direct questions about unusualness (81%), or observing non-verbal cues of distress (81%). Direct questions about excessiveness (70%) and comparison with previous records (66%) were less common. Of the 11 open-ended responses, approaches included asking about

appraisals (*n* = 3), internality, out-of-character, duration, frequency, onset, functioning, health belief model, and liaising with family (all *n* = 1).

Risk

Many clinicians were unsure if OCS increases risk (45%), although 37% agreed and 18% disagreed. Clinicians rated their confidence in assessing risk as a 7.07 out of 10 (SD = 1.55). The content analysis (*N* = 134) showed most clinicians believed risk was unique to each case (*n* = 54) and some were unsure (*n* = 13). However, responses also noted that the intersecting symptoms increase risk (*n* = 24), there is a greater degree of hopelessness (*n* = 18), suicidality (*n* = 12), and engagement or treatment is more difficult (*n* = 9) resulting in greater risk. Some respondents stated risk was only worse in terms of functioning (*n* = 17).

What Do Clinicians Identify as the Barriers, Adaptations, and Factors That Would Improve Confidence in Assessment for Individuals With P-OCS?

Table 4.3 reports how clinicians rated the importance of various barriers, adaptations and factors that would improve confidence when working with people with P-OCS based on their responses to the closed questions. Insufficient training (81%) and challenges with patient engagement (74%) were rated as the most important barriers to assessment. Involvement of family members (94%), training on the co-occurrence (88%) and formulation tools (86%) were the most endorsed adaptations. Similarly, workshops (94%), specialised training (90%) and expert consultation (93%) had the highest agreement to improve confidence.

Table 4.3

Clinician Rated Importance of Adaptations, and Agreement with Barriers and Factors to Improve Confidence of Assessment

	Very important	Important	Moderately important	Slightly important	Not important
Barriers					
Distinguishing between obsessive-compulsive symptoms and psychotic symptoms	38 (28%)	53 (40%)	24 (18%)	16 (12%)	3 (2%)
Lack of standardised assessment tools	28 (21%)	46 (34%)	35 (26%)	15 (11%)	10 (7%)
Limited time and resources for comprehensive assessments	37 (28%)	46 (34%)	35 (26%)	14 (10%)	2 (1%)
Insufficient training or expertise	56 (42%)	52 (39%)	19 (14%)	7 (5%)	0 (0%)
Patient-related challenges to engagement	46 (34%)	53 (40%)	23 (17%)	12 (9%)	0 (0%)
Comorbid conditions	29 (22%)	60 (45%)	29 (22%)	14 (10%)	2 (1%)
Risk management prioritisation	28 (21%)	37 (28%)	49 (37%)	16 (12%)	4 (3%)

Institutional or systemic barriers	48 (36%)	43 (32%)	24 (18%)	18 (13%)	1 (1%)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Adaptations					
Development of tailored assessment tools	57 (43%)	52 (39%)	21 (16%)	4 (3%)	0 (0%)
Longer assessment periods	46 (34%)	61 (46%)	25 (19%)	2 (1%)	0 (0%)
More training focused on differentiating OCS from psychotic symptoms	72 (54%)	46 (34%)	11 (8%)	3 (2%)	2 (1%)
Enhanced strategies for engaging patients	46 (34%)	59 (44%)	26 (19%)	2 (1%)	1 (1%)
Increased interdisciplinary collaboration	57 (43%)	53 (40%)	24 (18%)	0 (0%)	0 (0%)
Access to comprehensive patient history	54 (40%)	59 (44%)	18 (13%)	3 (2%)	0 (0%)
Involvement of family members	68 (51%)	58 (43%)	6 (4%)	2 (1%)	0 (0%)
Guidelines for risk management	52 (39%)	58 (43%)	21 (16%)	3 (2%)	0 (0%)
Case formulation support tools	66 (49%)	49 (37%)	14 (10%)	3 (2%)	2 (1%)

Confidence					
More specialized training	73 (54%)	48 (36%)	11 (8%)	2 (1%)	0 (0%)
Clearer clinical guidelines or protocols	54 (40%)	58 (43%)	21 (16%)	1 (1 (1%)	0 (0%)
Better collaboration with multidisciplinary teams	49 (37%)	55 (41%)	29 (22%)	1 (1%)	0 (0%)
Access to consultation/supervision from experts	65 (49%)	59 (44%)	9 (7%)	1 (1%)	0 (0%)
More time for patient assessment and intervention	48 (36%)	55 (41%)	29 (22%)	2 (1%)	0 (0%)
Access to case studies or best practice examples	58 (43%)	56 (42%)	19 (14%)	1 (1%)	0 (0%)
Participation in workshops or continuing professional development	75 (56%)	51 (38%)	7 (5%)	1 (1%)	0 (0%)
Peer support groups or discussion forums	46 (34%)	56 (42%)	25 (19%)	6 (4%)	1 (1%)

What, if any, Psychological Interventions are Currently Offered to Individuals With P-OCS?

One hundred and fourteen clinicians reported having provided psychological intervention to individuals with P-OCS The mean rating of confidence delivering psychological intervention was 6.89 out of 10 (*SD* = 2), perceived safety 7.97 (*SD* = 1.5), and effectiveness 7.3 (*SD* = 1.49). Cognitive behavioural approaches were the most used with CBTp (91%) followed by CBT (75%) and CBT with ERP (73%). Many clinicians also recommended family intervention (69%) and approximately half endorsed CFT (51%) or ACT (40%). Table 4.4 shows the frequency of specific CBT techniques used and alternative interventions offered. Another intervention reported was eye movement desensitisation and reprocessing (*n* = 9) as well as schema therapy (*n* = 2), narrative therapy (*n* = 1), ecological approaches, metacognitive therapy and voice dialogue (all *n* = 1).

Table 4.4

Frequency of CBT Techniques and Adapted Interventions

	n (%)
Technique	
Psychoeducation	101 (91%)
Relapse prevention	93 (84%)
Behavioural experiments	89 (80%)
Behavioural activation	88 (79%)
Thought monitoring	85 (77%)
Socratic questioning	83 (75%)
Problem-solving skills	83 (75%)
Exposure and Response Prevention	79 (71%)
Mindfulness	74 (67%)
Self-monitoring techniques	74 (67%)
Intolerance of uncertainty work	70 (63%)
Functional analysis	68 (61%)
Cognitive restructuring	67 (60%)
Visualisation techniques	50 (45%)
Role-playing social skills or coping strategies	42 (38%)
Other interventions	

Distress tolerance skills	73 (64%)
Psychoeducation for co-occurring symptoms	65 (57%)
Compassion-focused exercises	62 (54%)
Motivational interviewing	61 (54%)
Adaptations of ERP	57 (50%)
Relaxation techniques	56 (49%)
Mindfulness based approaches	50 (44%)
Systemic concepts	40 (35%)
Supportive therapy techniques	22 (19%)
Inference based techniques	20 (18%)
Interpersonal therapy techniques	18 (16%)

What Do Clinicians Identify as the Barriers and Adaptations for Psychological Intervention for Individuals With P-OCS?

Table 4.5 shows how clinicians rated barriers and adaptations to delivery of psychological intervention for people with P-OCS. By summing the 'Important' and 'Very Important' categories, limited availability of trained clinicians was rated as a key barrier (77%) alongside difficulty sustaining engagement (72%) and psychotic symptoms interfering

with treatment (70%). By summing the agreement categories, the highest overall agreement was for increasing psychoeducation for patients and families (91%) although greater flexibility in therapy sessions had the greatest 'Strongly agreed' frequency. Many clinicians also agreed more specialised or tailored therapy (86%) and integrating OCS into existing psychosis framework (85%) would be key adaptations.

Table 4.5

Clinician Rated Importance of Barriers and Agreement with Adaptations of Psychological Intervention

	Very important	Important	Moderately important	Slightly important	Not important
Barriers					
Limited evidence-based treatment protocols	26 (23%)	33 (29%)	30 (26%)	22 (19%)	3 (3%)
Challenges in initial patient engagement	34 (30%)	42 (37%)	28 (25%)	8 (7%)	2 (2%)
Difficulty sustaining engagement throughout treatment	38 (33%)	45 (39%)	24 (21%)	6 (5%)	1 (1%)
Psychotic symptoms	29 (25%)	51 (45%)	24 (21%)	10 (9%)	0 (0%)

interfering with the treatment of OCS					
Institutional or systemic barriers	39 (34%)	29 (25%)	30 (26%)	15 (13%)	1 (1%)
Limited availability of trained clinicians	48 (42%)	40 (35%)	15 (13%)	11 (10%)	0 (0%)
Risk management being prioritized over psychological treatment	25 (22%)	33 (29%)	39 (34%)	15 (13%)	2 (2%)
Other comorbid conditions	24 (21%)	39 (34%)	33 (29%)	17 (15%)	1 (1%)
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Adaptations					
Integrating OCS interventions into existing psychosis treatment frameworks	39 (34%)	58 (51%)	15 (13%)	2 (2%)	0 (0%)

Offering more specialised and tailored therapy approaches	41 (36%)	57 (50%)	13 (11%)	3 (3%)	0 (0%)
Increased focus on psychoeducation for patients and their families	50 (44%)	54 (47%)	10 (9%)	0 (0%)	0 (0%)
Enhanced interdisciplinary collaboration	39 (34%)	52 (46%)	21 (18%)	2 (2%)	0 (0%)
Greater flexibility in therapy sessions	56 (49%)	40 (35%)	17 (15%)	1 (1%)	0 (0%)
Development of guidelines for managing risk while providing psychological treatment	35 (31%)	45 (39%)	30 (26%)	4 (4%)	0 (0%)

What Factors Predict How Confident Clinicians are at Assessing and Providing Psychological Intervention to Individuals With P-OCS?

A multiple regression was conducted to predict confidence when assessing individuals with P-OCS using highest qualification, years of experience in mental health, frequency of working, supervision and training. In the assessment section, 28 (21%) participants' highest qualification was a bachelor's degree, 50 (37%) was a postgraduate and 56 (41%) was a doctorate. Fifty-nine participants (44%) worked with P-OCS less than monthly, 14 (10%) approximately monthly, and 61 (45%) at least weekly. Ninety-four (70%) received supervision and 40 (30%) had not. Six (4%) had not received any training on psychosis, OCS or both, compared to 128 (96%) that had. The model significantly predicted confidence assessing P-OCS, $F(7, 126) = 4.87$, $p < .001$, and accounted for 21.3% of the overall variance with the significant predictor accounting for 16.9% of the variance. Years of experience in mental health was the only significant predictor of confidence when assessing individuals with P-OCS, as shown in Table 6.

A second regression examined confidence when delivering psychological intervention with individuals with P-OCS using highest qualification, years of experience in mental health, frequency of working and supervision. In the psychological intervention section, 21 (18%) participants' highest qualification was a bachelor's degree, 42 (37%) was a postgraduate and 51 (45%) was a doctorate. Fifty participants (44%) worked with P-OCS less than monthly, 10 (9%) were approximately monthly and 54 (47%) were at least weekly. Eighty-six (75%) received supervision and 28 (25%) did not. The model significantly predicted confidence in delivering psychological intervention to individuals with P-OCS $F(6, 107) = 2.83$, $p = .013$, and accounted for 13.7% of the overall variance with the significant predictors accounting for 8.9% of the variance. As shown in Table 4.6, years of experience,

monthly working frequency and receiving supervision were significant predictors of confidence when delivering psychological intervention.

Table 4.6

Multiple Regression Model Predicting Confidence in Assessment and Psychological Intervention

Predictors	*B*	*SE*	β	*p*
Assessment				
Intercept	4.00	.07		< .001***
Postgraduate	0.18	0.35	.06	.6
Doctorate	0.65	0.35	.2	.07
Years of experience in mental health	0.06	0.01	.35	< .001***
Weekly or greater working frequency	0.44	0.28	.14	.11
Monthly working frequency	0.74	0.46	.14	.11
Supervision	0.58	0.31	.16	.06
Training	1.13	0.64	.14	.08
Psychological intervention				
Intercept	4.18	0.73		< .001***
Postgraduate	0.48	0.51	.09	.35
Doctorate	0.86	0.50	.21	.09
Years of experience in mental health	0.05	0.02	.21	.01*
Weekly or greater working frequency	0.59	0.38	.14	.12
Monthly working frequency	1.59	0.70	.22	.02*
Supervision	1.15	0.45	.22	.01*

Note. *** = $p < .001$, * = $p < .05$

Discussion

To the authors' knowledge, this survey is the first study exploring clinicians' perceptions of assessment and psychological intervention for individuals with P-OCS.

Assessment

In addressing the first research question, approximately half of clinicians reported always using an informal interview or conversation to assess individuals with P-OCS whereas questionnaires, clinician-administered measures, and structured interviews were reported to be used 'Rarely' by many clinicians indicating a use of informal methods of assessment. Previous research has found a common perception among clinicians is that standardised measures do not capture complexity (Jensen-Doss & Hawley, 2010), which may be particularly true for assessing individuals with P-OCS given the overlapping features and lack of validated measures (Palermo et al., 2020). However, standardised measures may improve decision-making and treatment outcomes (Lambert et al., 2018), and systematic monitoring is recommended in the NICE (2014) guidelines for psychosis. The development of standardised measures and investigation of their reliability and acceptability could clarify their clinical utility.

In terms of the content of assessment, almost all clinicians assessed intrusions, repetitive behaviours, duration, frequency, distress and impact on functioning. However, insight and the integration of psychosis and OCS were less frequently assessed. An explanation could be clinicians feel less equipped to explore the overlap of symptoms or assess domains such as insight which are multi-dimensional and have an evolving definition (Reddy, 2015). Contrastingly, clinicians may find insight an unhelpful specifier, which may relate to the reliability of the concept in the presence of poor education or alternative cultural beliefs (Marks et al., 2000; Tranulis et al., 2008). Assessing risk of harm to self and others was individualised and case-specific, however, many clinicians associated the co-occurring

symptoms with greater hopelessness, complex symptom interactions and difficulty engaging or supporting patients, consistent with existing literature (Tezenas du Montcel et al., 2019).

Regarding the second research question, insufficient training and patient-related engagement issues were rated as the most important barriers whereas limited availability of standardised assessment tools was not. This suggests barriers may be related to how assessments are conducted rather than the availability of standardised tools. Staff confidence and supervision can impact implementing EIP services (O'Connell et al., 2021), therefore the present findings may mean clinicians want methods to improve competence when adapting current practice rather than developing new measures.

The findings suggest formulation-driven approaches that account for systemic factors may be more desirable than individual-level assessment tools. Standardised assessment tools were not rated a highly important barrier, but developing tailored tools was rated as a highly important adaptation. High ratings for case formulation support and family involvement suggest assessment would benefit from systemic approaches to managing complex presentations. This mirrors literature that building trust and considering family influence are important factors in engagement for those with psychosis (Lucksted et al., 2015). The importance of family factors, in particular, has been highlighted in the literature to be associated with symptom severity, functioning and relapse (Keegan et al., 2025). For example, family involvement can provide collateral information about history, warning signs and resources (Hestmark et al., 2023).

Psychological Intervention

Regarding the third research question, the most used psychotherapeutic approach was CBTp which may reflect the prevalence of EIP clinicians in the sample. It may also reflect preference for CBTp over CBT or ERP. The most common CBT techniques also suggest components such as behavioural experiments and behavioural activation are more frequently

used than ERP and intolerance of uncertainty techniques, despite these being the recommended approach for OCD (NICE, 2005). It is unclear whether this reflects clinicians finding CBTp more helpful, a patient preference or whether there are concerns over using exposure interventions, although psychological intervention was rated as safe and effective in this group.

The use of third wave approaches, such as CFT and ACT, and alternative interventions, such as distress tolerance and motivational interviewing, suggests that an eclectic range of psychotherapeutic techniques are currently employed. This may reflect limited evidence-based protocols, although this was not rated an important barrier. Rather, in relation to the fourth research question, insufficient number of trained clinicians, engagement difficulties and interference of psychotic symptoms were rated higher, which may reflect that transdiagnostic models may be perceived as more clinically acceptable. There is a growing evidence base for integrating third wave CBT in supporting people with psychosis (Ellett & Kingston, 2020; Wright, 2014) and OCD (Manjula & Sudhir, 2019; Trent et al., 2021). Therefore, integrating existing therapeutic approaches that focus on the context and function may help to overcome issues with engagement and overlapping symptoms.

Clinicians endorsed tailored psychotherapeutic approaches integrating psychotic and OCS as an important adaptation. The evidence for the fourth research question indicates greater flexibility in sessions was rated as the most strongly agreed with adaptation, although there was greater general agreement in increasing provision of psychoeducation for patients and their families. This corroborates evidence from the assessment section that systemic factors may be particularly important for individuals with P-OCS, with evidence that family involvement in psychological intervention improves outcomes for those with psychosis and OCD, although this has not been validated when symptoms are co-occurring (Claxton et al., 2017; Thompson-Hollands et al., 2014).

Confidence

A regression analysis indicated that only years of experience in mental health significantly predicted assessment confidence suggesting experiential learning may be more important than formal qualification or training. Clinicians' tacit knowledge gained from experience may be useful when faced with complex and ambiguous presentations such as those present in P-OCS (Welsh & Lyons, 2001). Similarly, experience was also a significant predictor of confidence in delivering psychological intervention. However, a monthly working frequency and supervision also significantly predicted confidence in psychological intervention. A weekly frequency working was not a significant predictor which could be explained by higher working frequency being associated with more complex caseloads although this was not measured in the analysis.

Regression findings suggest clinical exposure and supervision are associated with confidence, which may explain the desire for expert consultation. Lack of training and supervision are established barriers to implementing CBTp that impact confidence and delivery of psychological intervention (Berry & Haddock, 2008). Of note is a higher level of formal qualifications did not predict confidence in both models implying issues in assessment and psychological intervention are pervasive across roles, reinforcing the need for service-level training and resources.

Clinical Implications and Future Research

It can be difficult to differentiate psychosis and OCS, which presents a significant clinical challenge (Pardossi et al., 2024). This hinders delivery of effective intervention as co-occurring symptoms can be influenced by multiple and interacting factors (Haynes, 2003). Persons (2007) suggests formulation is crucial in complex cases, which echoes findings from the present study. Providing clinicians with time and resources to formulate cases of P-OCS is therefore important to understand the presentation of each individual and offer the most

effective intervention. However, the absence of integrated models for psychosis and OCS may also limit clinicians' confidence formulating this profile of patient. Research has begun to delineate models for psychosis with co-occurring social anxiety (Michail, 2013) and PTSD (Hardy, 2017) with evidence of effectiveness of disorder-specific protocols (Michail et al., 2017; Sin & Spain, 2017). A similar research agenda may support in identifying whether novel approaches are required to address complexity or if existing frameworks, such as for OCD, are sufficient.

Another key theme from the survey was involving family in assessment and psychological intervention. This reflects NICE guidelines on OCD and psychosis on the importance of involving families and carers (NICE, 2005; 2014). Families' model of illness impacts their attitudes and behaviours toward the individual (Barrowclough et al., 1994) with evidence of high expressed emotion in both families of those with psychosis and OCD (Ng et al., 2020; Shanmugiah et al., 2002). There is robust evidence supporting family intervention in psychosis and OCD (Claxton et al., 2017; Thompson-Hollands et al., 2014), but the feasibility when symptoms co-occur is currently unknown and further research should help to clarify how to optimally adapt and implement family intervention.

Clinicians reported using a broad range of CBT techniques, though the frequency of which components were endorsed varied. Clinicians generally perceived psychological intervention as safe and effective, but exposure components were endorsed less frequently than other behavioural components. While CBTp may include exposure work, the comparatively lower endorsement of exposure strategies suggests a preference for other approaches when working with P-OCS. There are several possible explanations. Clinicians may be concerned about exacerbating symptoms (Ekers et al., 2004), hold beliefs that psychological intervention is ineffective, or complex presentations require complex or medical interventions (Prytys et al., 2011), or be making an informed decision that exposure

is contraindicated (McMillan and Lee, 2010; Middleton et al., 2019). Further research should examine what components of interventions are effective and clinicians' attitudes to implementing them through quantitative and qualitative methods. Additionally, individuals with P-OCS accessing services may seek help for a variety of reasons, which would reflect the broader psychosis population, and their goals may be focused on OCS, psychosis or issues that are seemingly unrelated to these symptoms (Addington et al., 2002; Nordgaard et al., 2021). Further research should recruit individuals experiencing P-OCS to explore experiences of care and determine what are common goals when accessing services such as for preference for psychological intervention.

Although confidence was moderate, there was a significant desire for training, supervision and consultation which suggests barriers to assessment and intervention are not restricted by motivation (Atkins et al., 2017). Increasing confidence through supervision that improves competencies such as knowledge and procedural learning has been suggested to enhance the delivery of CBTp (Harris et al., 2022). Similar support may improve managing overlapping OCS, however, further research is needed to develop frameworks, strategies to improve engagement and best practice for involving families and determining effective treatment components.

Strengths and Limitations

The survey collected data from a range of professionals in a variety of services across the UK with diverse qualifications strengthening the representativeness of the sample and enhancing the breadth of perspectives. However, the results may not extrapolate to non-UK contexts. In addition, the survey intended to scope the current landscape, but this meant questions were intentionally broad (e.g., on insight and risk) and styled such that it may have reduced the applicability to some clinicians.

The predominantly quantitative, closed-question format may limit nuance and interpretability. Although there were open-ended responses to ascertain more details, responses were often brief or may not have directly answered the question. This meant several questions were reported descriptively by their frequencies and other questions were analysed using content analysis, potentially losing richness compared to qualitative methods.

In addition, while the regression analyses were adequately powered, the findings may have been influenced by group sizes of predictors such as training and working frequency. The analysis also collapsed the working frequency from five to three categories which may have reduced the granularity of the data and therefore the conclusions that can be drawn. Overall, the model explained a small amount of variance, suggesting other factors, such as attitudes, knowledge and service-level barriers, could also be relevant (Muse et al., 2025).

The survey investigated working with P-OCS but did not require a specific case or provide a vignette which therefore may produce general findings that do not reflect the specifics of an individual's care. The survey also sits within a stage of developing complex interventions and requires further research to determine perspectives from individuals experiencing P-OCS, family and carers, and other networks involved in support. Involving individuals experiencing P-OCS in throughout the research process, including as experts by experience, will enhance the development of person-centred, effective and safe care.

Conclusion

Clinicians completing this survey reported mostly having at least monthly contact, moderate confidence and primarily using informal assessment methods when working with individuals with P-OCS. The most common psychotherapeutic approach was CBTp, with key components such as psychoeducation, behavioural activation and behavioural experiments, but ERP was less common. Training, engagement difficulties and lack of family involvement were key barriers to assessment and psychological intervention. Future research should

consider how to integrate frameworks of psychosis and OCS, increasing family involvement and psychoeducation, and implementing quality training and supervision to improve clinician confidence and effective care.

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Chapter Five

Additional Results

Word count: 1221

This chapter presents additional results from the clinician survey in the empirical paper that supplements and contextualises the main findings in Chapter 4. This chapter provides the full table of findings for the questions of assessing insight and differentiating psychosis and OCS. The other findings related to open-ended free-text options that are analysed with content analysis or reported descriptively as frequencies. These are presented as additional results due to space constraints. All the data presented here was collected as part of the survey in the empirical project and full methodological details can be found in Chapter 4.

Assessment

Assessment Methods

Clinicians were asked to indicate the frequency with which they use assessment methods when assessing individuals with psychosis and co-occurring OCS from a list of options. The closed question about assessment methods (i.e., structured interviews, questionnaires, informal conversations) had an optional 'other' option to specify options not listed. The most common assessment method for assessing psychosis and OCS mentioned in the optional free-text box (n = 31) was the CAARMS (n = 11). However, the Positive and Negative Syndrome Scale (n = 4), involving family (n = 4), and the OCI (n = 3) also had some agreement. Other responses with 2 mentions include observations, in-vivo assessment, and the antecedent, behaviour and consequence method. The following had 1 response only: The Psychotic Symptom Rating Scales, Interpretations of Voices Inventory, Persecutory Ideation Questionnaire , Social and Occupational Functioning Assessment Scale, Questionnaire about the Process of Recovery, DIALOG, The Yale-Brown Obsessive-Compulsive Scale, Brief Psychiatric Rating Scale, Calgary Depression Scale, trauma questionnaire, sleep questionnaire, developmental history, record review, behavioural test, picture cards, OT specific assessment, sharing lived experience, and an eclectic approach.

Insight and Differentiating Psychosis and OCS

Chapter 4 contains key findings from the survey items examining how clinicians differentiate psychosis and OCS and how insight is assessed in individuals with psychosis with OCS. To supplement this, the list of options and their endorsement are shown in Table 5.1.

Barriers to Assessment

The question listing barriers to assessment for individuals with psychosis and OCS included an optional free-text 'other' option. The content analysis of this question ($N = 38$) regarding other barriers to assessment for individuals with psychosis and OCS emphasised lack of training ($n = 16$), difficulties with diagnostic boundaries ($n = 9$), comorbidities such as autism or trauma ($n = 7$), service provision ($n = 5$), shame, stage of change (both $n = 4$), family dynamics, and socio-cultural factors (both $n = 3$).

Adaptations to Assessment

Similarly, the question regarding adaptations had an optional free-text 'other option. The content analysis of adaptations ($N = 17$) identified adjusting for contextual factors such as neurodiversity, culture and lived experience, alongside extended assessments (both $n = 4$) as important. Also, an idiosyncratic approach, extended assessments and further training ($n = 3$) were also reported.

Table 5.1

Frequency of Responses to the Questions About Differentiating Psychosis and OCS and How Insight is Assessed

Question	*n* (%)
Differentiation	
Link of the compulsion to a delusional ideation	115 (86%)
Alignment with diagnostic criteria	105 (78%)
Exploring specific scenarios of fear or avoidance	104 (78%)
Insight into behaviour	92 (69%)
Cross reference with records	92 (69%)
Level of distress if behaviour is interrupted	83 (62%)
Insight	
Exploring distress	114 (85%)
Inquiring belief in out-of-character	108 (81%)
Observing non-verbal signs of distress	108 (81%)
Cross reference with records	89 (66%)
Directly asking about excessiveness	94 (74%)
I do not assess insight	11 (8%)

Confidence

Similarly, the 'other' option for the factors that would improve clinician confidence are descriptively reported (N = 13). Further training (n = 4), an idiosyncratic approach (n = 3) and access to individuals with lived experience (n = 2) were all reported by clinicians as factors that may improve their confidence. Also, family involvement, understanding neurodiversity, and increasing the focus on treatment instead of solely assessment were reported (n = 1).

Psychological Intervention

Barriers to Psychological Intervention

The survey also asked about barriers to psychological intervention for individuals with psychosis and OCS which included an optional free-text 'other' option. The most common barriers reported in response to the open-ended question on psychological intervention (N = 23) were engagement difficulties (n = 9) and comorbidities (n = 7). Other factors mentioned were social issues (n = 4), stigma (n = 2), family involvement (n = 2), risk and over-protocolisation (both n = 1).

Adaptations to Psychological Intervention

The free-text option was also given for adaptations that clinicians would find helpful for working with individuals with psychosis and OCS. To support clinicians with psychological intervention (N = 11), adaptations reported were an idiosyncratic approach (n = 3), trauma-informed approaches (n = 3), psychoeducational resources (n = 2), more time and flexibility (n = 2), adjustment for neurodiversity (n = 2), a multi-disciplinary approach, and development of an integrated cognitive model of psychosis with OCD (both n = 1).

Predictors of Use of Exposure and Response Prevention

An additional multiple logistic regression analysis was conducted to examine what factors are associated with use of CBT with ERP among the 71% of clinicians who endorsed the modality in the psychological intervention section. The predictors were highest qualification, years of experience in mental health, frequency of working, supervision and confidence in psychological intervention. As shown in Table 5.2, holding other variables constant, clinicians with a doctorate-level qualification had significantly higher odds of using exposure and response prevention compared to those without a doctorate (*OR* = 11.52, 95% CI [2.96, 52.32], $p < .001$). Higher self-reported confidence in delivering psychological intervention was also associated with increased odds of ERP use (*OR* = 1.30, 95% CI [1.01, 1.71], $p = .044$).

In contrast, clinicians who reported a high frequency of working with individuals with psychosis and co-occurring obsessive-compulsive symptoms had lower odds of ERP use compared to those working less frequently (*OR* = 0.32, 95% CI [0.10, 0.92], $p = .041$). Receipt of supervision showed a positive trend towards increased ERP use but did not reach the threshold of statistical significance (*OR* = 3.15, 95% CI [0.96, 10.88], $p = .061$). Years of experience, postgraduate qualification (relative to bachelor's level), and medium working frequency were not significantly associated with ERP use.

Table 5.2

Multiple Logistic Regression Model Predicting Use of Exposure and Response Prevention

Predictors	*OR*	LB CI	UB CI	*p*
Intercept	0.19	0.02	1.53	.12
Postgraduate	1.55	0.46	5.29	.48
Doctorate	11.52	2.96	52.32	< .001***
Years of experience in mental health	0.97	0.93	1.03	.33
Weekly or greater working frequency	0.32	0.10	0.92	.04*
Monthly working frequency	0.24	0.03	1.50	.13
Supervision	3.15	0.96	10.88	.06
Confidence	1.30	1.01	1.71	.04*

Note. *** = $p < .001$, * = $p < .05$. *OR* = odds ratio, LB CI = lower bound confident interval, UB CI = upper bound confidence interval

Assumptions of Regression Analyses

In chapter 4, two multiple hierarchical regression analyses were conducted to examine what factors predict confidence in assessment and psychological intervention. The factors were years of experience in mental health, highest academic attainment (up to bachelor's, master's or doctoral), working frequency (low, medium, high), supervision and training. As reported in Chapter 4, the assumptions of regression were checked specifically for assumptions of linearity, normality of residuals, homoscedasticity, multicollinearity and outliers.

Linearity was checked through scatterplots of fitted and residual variances. In addition, scatterplots were used to check the linearity of years of experience and outcome which indicated the assumption was met. Also, a Q-Q plot indicated that residuals were normally distributed.

Heteroscedasticity was visually inspected using Scale-Location plots which was approximately horizontal but indicated minor variability at some fitted values in the assessment regression analysis. To supplement the visual inspection, a Breusch-Pagan test was conducted to formally assess heteroscedasticity which indicated a non-significant result, $BP(7)$ 5.34, $p = .62$. Therefore, the assumption of heteroscedasticity was met.

The variable inflation factor of all variables in both assessment and psychological intervention regressions did not exceed two, indicating the variables are not highly intercorrelated supporting the assumption of no multicollinearity. An influence plot and Cook's distance was used to examine outliers. Cook's distance indicated some moderately influential cases, but none exceed 0.1 suggesting there are no cases that disproportionately influence the mode.

Assumptions specific to logistic regression were assessed, including absence of multicollinearity, linearity of the logit for continuous predictors, model fit, and influential cases. Variance inflation factors were low, indicating no multicollinearity. Box–Tidwell tests indicated no substantial violations of the linearity of the logit assumption. No influential cases exceeded recommended Cook's distance thresholds, and the Hosmer–Lemeshow test indicated acceptable model fit.

Chapter Six

General Discussion and Critical Evaluation

Word count: 5273

The present thesis aimed to further the understanding of the relationship between obsessive-compulsive symptoms (OCS) and psychosis by investigating the risk of OCS on developing psychosis and how co-occurring symptoms are managed in clinical practice. The final chapter provides a broad overview of the findings from the previous chapters, a critical appraisal of the strengths and limitations, and considers clinical and theoretical implications.

Main Findings

Systematic Review

The systematic review aimed to synthesise findings from clinical high-risk (CHR) and population-level studies to estimate the risk ratios (*RR*) for the association between OCS and the subsequent development of psychosis. Separate meta-analyses were conducted for CHR and population-level samples, as these represent different sampling frames with distinct baseline risks. Eight CHR studies were included, updating previous reviews of three and five studies respectively (Albert et al., 2018; Martinho et al., 2023). Three population-level studies met inclusion criteria.

In CHR cohorts, the pooled risk ratio was 0.99 (95% CI [0.71, 1.38]), indicating no evidence that OCS either increased or decreased the likelihood of transition to psychosis. This finding is consistent with previous reviews reporting no significant difference in transition risk between individuals with and without OCS (Albert et al., 2018; Martinho et al., 2023). Historically, OCS were conceptualised as potentially protective against psychosis, with the suggestion they functioned as a defensive mechanism and their resolution might precipitate psychotic symptoms (Stengel, 1945). In contrast, more recent research has proposed that OCS exert a “toxic” or exacerbating effect on psychosis risk (Van Dael et al., 2011). The present findings challenge both positions within CHR samples, suggesting that once individuals meet CHR criteria, OCS neither meaningfully mitigate nor amplify transition risk.

Population-level cohorts demonstrated a markedly elevated pooled risk ratio of 15.01 (95% CI [8.36, 26.93]), indicating that OCD was associated with a substantially increased relative risk of developing psychosis in the general population. The magnitude of this association exceeds that reported for several established risk factors, including childhood trauma, socioeconomic adversity, and familial liability (Agerbo et al., 2015; Flinn et al., 2025; Le et al., 2020). These findings align with contemporary perspectives conceptualising OCD as a significant risk marker for psychosis, rather than as a protective factor. Taken together, the review contributes to longstanding debates regarding the relationship between OCS and psychosis by demonstrating a stage- and context-dependent association.

The discrepancy between population-level and CHR findings can be contextualised within clinical staging models, which conceptualise psychosis as emerging through progressively severe and frequent subthreshold experiences before the onset of frank disorder (Yung & McGorry, 2007). Within this framework, OCS and anxiety symptoms represent risk factors earlier in the psychosis trajectory, when overall risk remains relatively low and fewer risk factors are present (Fusar-Poli et al., 2014). In contrast, CHR cohorts are characterised by greater clinical complexity, including attenuated psychotic symptoms, comorbidity, and functional impairment (Fusar-Poli et al., 2014; Fusar-Poli et al., 2015), which may dilute the relative contribution of OCS to transition risk. One possible interpretation is that obsessions in the general population may evolve into delusional beliefs in the presence of additional vulnerabilities, whereas in CHR samples, progression along this continuum is moderated by other risk factors.

Clinical staging frameworks have become a common way to conceptualise the development of mental health difficulties (Clarke et al., 2024). One longstanding issue with clinical staging frameworks is whether to split or lump mental health conditions due to the common overlap of symptoms (Scott et al., 2013). Splitting would involve separate pathways

for each condition (e.g., a pathway each for bipolar, psychosis and depression) whereas lumping would involve a heterotypic pathway where subthreshold symptoms of one condition develop into threshold symptoms of another. The observation that OCD was associated with increased psychosis risk at population level supports a lumping approach, in which subthreshold symptoms of one condition may precede threshold manifestations of another. This is consistent with international consensus statements advocating for staging models that move beyond diagnostic silos to account for transdiagnostic and heterotypic courses (Shah et al., 2020).

However, the present findings also highlight limitations of current staging frameworks. Although OCS are associated with poorer functioning in CHR cohorts (Averna et al., 2018; Vergara et al., 2023; Zink et al., 2014), they do not predict transition within this group, highlighting within-stage heterogeneity and the difficulty of mapping comorbidity, functioning, and symptom burden onto linear stages (Scott et al., 2024). These complexities are further compounded by the pluripotential nature of mental disorder trajectories, for example, early symptoms leading to multiple outcomes or to remission. For example, in later stages of illness, comorbidity becomes more common, and specific symptom clusters may be less likely to progress in isolation (Shah et al., 2025). While there has been a development of clinical staging frameworks that account for the transdiagnostic nature of mental health conditions (Hickie et al., 2013) and comorbidity (Bokma et al., 2020), the current findings highlight challenges of integrating comorbidity and pluripotentiality within existing staging models.

Finally, the review highlights the influence of sampling and enrichment strategies on observed risk estimates. CHR cohorts are recruited using diverse methods designed to enrich for psychosis transition, with referral from mental health services associated with higher transition rates than community-based recruitment (Fusar-Poli et al., 2016). The present

review demonstrates how such methodological differences, particularly recruitment strategy and risk enrichment, influence the observable association between OCS and psychosis. This aligns with research emphasising the importance of recording recruitment source alongside clinical and demographic variables (Addington et al., 2025). These findings are relevant for the development of risk prediction models, as sampling methods shape pre-test risk and therefore affect the apparent contribution of individual risk factors, providing empirical support for cumulative and context-dependent approaches to psychosis risk estimation (Fusar-Poli et al., 2020).

Empirical Project

The empirical project employed a cross-sectional survey design to investigate how clinicians manage individuals who experience psychosis with co-occurring OCS. A range of clinicians from a variety of services were recruited to understand how these symptoms are managed from multiple perspectives. The project aimed to understand if and how the co-occurring symptoms are currently assessed, if and what psychological intervention is offered, and to understand barriers, adaptations, and confidence when working with individuals with psychosis and OCS.

Clinicians reported predominantly using informal assessment methods rather than semi-structured or standardised tools which may suggest that clinicians do not find standardised tools helpful or, alternatively, that there are barriers to implementation of standardised tools in this population. Measures such as the Brown Assessment of Beliefs Scale and Nepean Beliefs Scale were not mentioned in the free-text responses despite evidence that they can reliably discriminate overvalued ideas and delusions, including delusional OCD (Eisen et al., 1998; Ishigaki et al., 2023). These measures are quicker to administer compared to measures commonly reported by clinicians from the survey such as the Comprehensive Assessment of At-Risk Mental States (CAARMS) or the Structured

Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders (SCID). Therefore, the greater use of informal methods relative to standardised tools may be due to poor translation of reliable measures into clinical practice, which could explain difficulties with distinguishing symptoms.

In addition, clinicians used mostly observable characteristics (e.g., repetitive behaviours, frequency, distress, impact on functioning) with fewer reporting assessing insight or the interaction between psychosis and OCS. This finding aligns with the literature regarding clinical decisions, indicating that clinicians may use concrete thinking or observable characteristics when faced with diagnostic ambiguity (Goldberg & Stahl, 2024). Ambiguity has been widely reported for cases of psychosis with OCS due to variable insight leading to difficulties distinguishing obsessions from delusions and compulsions from repetitive behaviours in psychosis (Rodriguez et al., 2010). While insight has been extensively studied as a differentiating construct, it is increasingly recognised as multidimensional and context-dependent, limiting its direct translation into routine clinical assessment (Reddy, 2015). The lower endorsement of insight-based assessment in the present study may therefore reflect broader tensions between research constructs and clinical utility, as well as concerns that insight-focused approaches may conflict with service-user narratives and autonomy (Slade & Sweeney, 2020). Similarly, clinicians' perceptions of risk broadly mirrored the literature that individuals with psychosis and OCS present greater risk, such as suicidality and duration of hospitalisation (Fenton & McGlashan, 1986; Tezenas du Montcel et al., 2019), although endorsed a more individualised approach.

Regarding psychological intervention, almost all clinicians endorsed cognitive behavioural therapy for psychosis (CBTp), whereas fewer endorsed CBT and CBT with exposure and response prevention (ERP), although this may be due to the number of clinicians from EIP services. The most frequently endorsed techniques were behavioural

experiments, psychoeducation and behavioural activation, which were more commonly endorsed than ERP. This is consistent with evidence that exposure-based interventions are employed less frequently than non-exposure interventions (Reid et al., 2017; Reid et al., 2018) and provides some support for research finding exposure interventions for people with psychosis are underutilised (Meyer et al., 2014). However, approximately three-quarters of clinicians reported using CBT with ERP, suggesting a substantial acceptability of exposure techniques for this population. Several possible explanations are given in the discussion of Chapter 4. Regression analysis in Chapter 5 suggests confidence is a statistically significant factor in implementing CBT with ERP (OR = 1.3) but the small effect size and common usage of ERP techniques suggests exposure interventions are not necessarily avoided or that solely confidence accounts for underutilisation. This finding provides partial support to literature suggesting clinician beliefs and confidence are primary barriers to implementation of exposure interventions, but also indicates the role of other barriers such as patient preference, training gaps or organisational constraints (Moses et al., 2023; Wolitzky-Taylor et al., 2018).

Barriers to assessment and intervention overlapped considerably, with insufficient training and engagement difficulties most frequently endorsed. Clinicians also identified greater flexibility in therapy sessions, enhanced psychoeducational provision for patients and families, and idiosyncratic, transdiagnostic formulation and intervention as key adaptations that would improve confidence. This reflects broader findings that clinicians often adopt eclectic approaches when evidence bases are limited or fragmented, rather than adhering strictly to interventions (Dalgleish et al., 2020). Clinician confidence was moderate in both assessment and psychological intervention and was predicted by years of experience working in mental health services. This aligns with prior findings that clinical experience is associated with greater confidence, alongside a reduced reliance on formal evidence-based protocols

(Dawson, 2018). In the absence of specific guidelines for psychosis with co-occurring OCS, experienced clinicians may therefore feel more comfortable drawing on clinical judgement. However, this risks inaccurate decision-making based on a range of biases, such as cognitive heuristics, that can negatively impact care (Fava & Guidi, 2025; Grove et al., 2000; Miller et al., 2015). While experience may help with tolerating ambiguity, it may not equate to optimal decision-making necessitating further research into best practice for assessment and psychological intervention for individuals with psychosis and co-occurring OCS.

Confidence in psychological intervention was also predicted by monthly working frequency (compared to less than monthly or weekly) with this population and access to supervision, consistent with literature demonstrating that exposure to relevant clinical presentations and reflective support enhances therapeutic confidence (McMahon & Hevey, 2017; Rackemann et al., 2024). Training was not significantly associated with confidence in the present study, likely reflecting the uneven group sizes and broadness of the operationalisation of the training variable, which was due to the limited availability of training specifically addressing the co-occurrence of psychosis and OCS. However, existing evidence indicates that targeted training packages can improve clinician attitudes and confidence in psychosis care (Eisen et al., 2022; Sivec et al., 2020). Moreover, specific training, supervision and greater exposure to working with individuals with psychosis and co-occurring OCS may improve confidence and implementation of interventions.

Strengths and Limitations

The current portfolio contributes to literature with a rich historical context but comparatively limited contemporary research and practice integration. The relationship between OCS and psychosis has been discussed for several decades, with evolving conceptualisations leading to substantive changes in care, including the increased availability of psychological interventions and greater emphasis on collaborative involvement in

treatment (Foa, 2010; Kozak & Foa, 1994). By integrating a systematic review of longitudinal risk with an empirical investigation of contemporary clinical practice, the portfolio addresses both the developmental and applied dimensions of psychosis and OCS.

A key strength of the portfolio is its engagement with a range of important topics such as clinical staging, risk enrichment, transition prediction, diagnostic versus transdiagnostic frameworks, and the clinical utility of symptom-based conceptualisations. However, this scope also represents a limitation. Given the complexity and relative underdevelopment of these areas, the thesis addresses questions at a rudimentary and exploratory level.

Systematic Review

Strengths

The review provides an update on previous research on the risk of OCS on developing psychosis in CHR cohorts and additionally meta-analyses of population-level data, which has not been conducted before. Therefore, the review provides an understanding of risk across different populations and stages of the psychosis trajectory. In addition, the review contributes to the literature on risk factors for transition to psychosis, the overlapping nature of psychosis and OCS, and clinical staging models for mental health conditions. The review also provided a critical appraisal of methodological quality which highlights the need for future research to blind outcomes, provide adequate follow-up data and consistently report demographic data.

Limitations

Despite these strengths, several limitations impact the meta-analytic findings. First, the number of eligible studies was small for both analyses, particularly for the population-level synthesis, which included only three studies. Although the CHR meta-analysis included a larger number of studies, the total remained modest, limiting statistical power and the precision of pooled estimates. In addition, three potentially eligible studies were excluded due

to unavailable data, either because authors could not be contacted or did not respond, which may have introduced selection bias.

Second, data availability and reporting were inconsistent across included studies. Key variables such as age were reported heterogeneously (e.g., continuous versus categorical formats), sometimes not stratified by OCS status, or absent altogether in the case of certain demographic characteristics. These inconsistencies, combined with the limited number of studies, precluded subgroup and meta-regression analyses that could have explored the influence of diagnostic definitions, follow-up duration, or demographic factors on risk estimates.

Third, methodological quality was generally poor among CHR studies, largely due to inadequate control for confounding variables in study design or analysis. Unmeasured confounding may have attenuated or obscured associations between OCS and psychosis transition, especially as demographic variables are known to be influential in psychosis research (Kirkbride et al., 2012).

Finally, heterogeneity was high in the population-level analysis, which may reflect conceptual variability in how OCS, psychosis, and transition outcomes were defined and measured. There is evidence clinicians may struggle to differentiate psychotic and OCS and pinpoint what exactly constitutes a transition to psychosis (van Os & Guloksuz, 2017). Such definitional ambiguity likely contributes to variability in case identification and outcome classification, thereby inflating heterogeneity in pooled estimates.

Empirical Project

Strengths

The empirical project represents the first study, to the author's knowledge, to systematically examine clinicians' perspectives on assessing and managing psychosis with co-occurring OCS across multiple service contexts. A major strength of the survey is its broad scope, capturing current practice across assessment, psychological intervention, perceived barriers, adaptations, and clinician confidence. The inclusion of clinicians from a range of professional backgrounds and services enhances the ecological validity of the findings and provides insight into real-world practice.

The study also employed exploratory regression analyses to examine predictors of clinician confidence, allowing for a more nuanced understanding of how educational qualification, experience, working frequency, supervision, and training relate to confidence. By documenting what clinicians report doing in the absence of formal guidelines, the study adds descriptive depth to a literature that has largely focused on symptom profiles and outcomes, rather than implementation and decision-making.

Limitations

Several limitations should be considered when interpreting the findings. First, although clinicians from diverse professional backgrounds were recruited, the sample was relatively homogeneous in terms of service context, with a predominance of psychologists, nurses, and psychiatrists working in EIP and community mental health teams. This likely reflects the services where individuals with psychosis and OCS most commonly present, although evidence indicates a similar prevalence rate in first-episode psychosis to schizophrenia (Martinho et al., 2023; Swets et al., 2014). In addition, all participants were based in the UK, which may limit generalisability to healthcare systems with different service structures and treatment pathways.

Second, the survey relied primarily on quantitative data, which is informative for identifying broader patterns, but did not obtain rich data regarding clinicians' reasoning. Although free-text responses were included, these were often brief and could not be explored further, constraining interpretation and limiting insight into clinicians' practice.

Third, the survey questions were intentionally broad and exploratory, reflecting the limited prior research in this area. While this approach reduced the risk of imposing assumptions about best practice, it may also have resulted in questions that were perceived as overly general or leading, particularly in domains such as risk assessment and barriers to care. This may have influenced response patterns and reduced specificity in some domains.

A parallel criticism is the lack of involvement of individuals experiencing psychosis with OCS throughout the research process and the limitation in the scope of the study to capture person-centred goals for care. Also, the study primarily focused on clinicians' perspectives, without reference to a specific case or vignette, but did not capture patient preference such as whether CBT with ERP is desired or if individuals with co-occurring psychosis and OCS seek help for other reasons.

Finally, the regression models explained a relatively small proportion of variance in clinician confidence, indicating that important influencing factors were not captured in the analysis. Small group sizes within certain categories, particularly training and supervision, further limited statistical power. As a result, the predictive findings should be interpreted cautiously and viewed as indicative rather than definitive.

Clinical and Theoretical Implications

The portfolio presents evidence that OCS have clinically meaningful but stage-dependent relevance across the psychosis trajectory. Findings from the systematic review indicate that OCS are associated with a substantially elevated risk of developing psychosis at the population level, but not at the CHR stage despite associations with poorer functioning.

Meanwhile, the empirical project highlights how clinicians manage psychosis with co-occurring OCS in routine practice, characterised by informal assessment, formulation-led intervention, variable confidence, and a perceived need for training in the absence of formal guidelines. Together, these findings suggest that OCS cannot be understood as uniformly predictive or benign, but rather as phenomena whose clinical significance varies according to illness stage, service context, and baseline risk.

Systematic Review

In CHR services, where baseline risk is already elevated through risk-enriched recruitment strategies, the absence of an association between OCS and later psychosis suggests that OCS may have limited utility as a predictor of transition. This finding is consistent with evidence that individual risk factors often lose predictive value in highly enriched samples (Kraan et al., 2015; Kraan et al., 2016). However, OCS remain highly prevalent in CHR cohorts and are associated with poorer functioning and greater clinical complexity (Averna et al., 2018; Vergara et al., 2023; Zink et al., 2014). As such, within CHR contexts, the clinical relevance of OCS may lie less in predicting transition and more in understanding distress, engagement, and functional impairment. This mirrors guidelines recommending providing support for presenting issues (e.g., depression, anxiety, substance use) based on the disorder-specific protocols (Addington et al., 2017). Therefore, CHR services should offer intervention for the issue the individual is raising, rather than attempting to reduce attenuated psychotic or obsessive-compulsive experiences, which may involve improving functioning, such as socially, rather than preventing transition by reducing symptoms (Addington et al., 2010).

Outside of CHR contexts, these findings support conceptual models in which psychosis may emerge through heterotypic pathways, rather than exclusively through attenuated psychotic symptoms (Shah et al., 2022). From a clinical perspective, this

highlights the importance of awareness of psychosis risk trajectories beyond CHR services, particularly those supporting individuals with OCD where insight fluctuates, beliefs become increasingly rigid, or distress escalates. It is unclear what services those with OCD who are most likely to transition present to but, in line with recent developments, applying a transdiagnostic clinical staging framework could improve the allocation of resources to match the care need and chance of progression (Shah et al., 2025). A transdiagnostic staging model is important as the systematic review presents evidence that transition to psychosis can follow heterotypic pathways and evidence indicating that 95% of first-episode psychosis cases did not access at-risk mental state services (Ajnakina, 2017) suggests that staging framework based on lumping, or diagnostic silos, may result in missing important points to prevent transition. In these contexts, where OCS are predictive of transition, NICE (2005) recommended interventions for OCD may be helpful in ameliorating distress and reducing transition risk.

The findings also reinforce the value of cumulative and probabilistic models of psychosis risk, which demonstrate improved prognostic accuracy by integrating demographic, clinical, cognitive, and functional variables (Montemagni et al., 2020). The present findings provide empirical support for situating OCS within such cumulative models, rather than interpreting their presence in isolation. However, many risk prediction studies do not consider translation into practice although evidence exists that the models are feasible and acceptable (Lee et al., 2022; Oliver et al., 2021). Applying these models into clinical workflows across services may amplify the effectiveness of clinical staging frameworks described above.

Empirical Project

Across services, clinicians report a reliance on informal assessment strategies and formulation-driven approaches when working with individuals with psychosis and co-

occurring OCS. Previous research has highlighted the difficulty clinicians experience in differentiating overlapping features such as obsessions and delusions, and compulsions and repetitive behaviours (Poletti & Raballo, 2019; Rodriguez et al., 2010). Therefore, formulation and focusing on processes may be a pragmatic strategy to deal with complexity (Hayes & Hofmann, 2021). Given the high prevalence of the co-occurrence, clinicians may use an identification process firstly by asking direct questions about possible symptoms as recommended by the NICE (2005) for OCD such as "do you check things a lot?", "do your daily activities take a long time to finish" and "do these problems trouble you?". If the responses indicate OCS, a more thorough assessment should be conducted. Secondly, measures such as the BABS and NBS could be used to help distinguish between obsession, overvalued ideas and delusions and whether one of a mix of these beliefs are present. This can be used to guide a formulation to determine maintenance factors and a treatment plan.

Freeman (2016) argues that delusions share maintenance factors with a range of psychopathology and are not, therefore, qualitatively different phenomena. Existing cognitive-behavioural models of psychosis include features from anxiety disorders, in particular OCD. For example, intrusive thoughts are included in Morrison's (2001) model of auditory hallucinations, safety behaviours are included in Freeman et al.'s (2002) model of persecutory delusions, and inflated responsibility is included in Gumley's (1999) model of relapse in psychosis. Based on this, Freeman's (2016) research inspired the Feeling Safe model which targets key processes in the maintenance of persecutory delusions. Considering shared underlying cognitive and behavioural processes of OCD and psychosis, such as inflated sense of responsibility, intolerance of uncertainty and insight, may improve outcomes similar to the Feeling Safe programme (Freeman et al., 2021).

Regarding psychological intervention, clinicians most frequently endorsed CBT for psychosis (CBTp), with exposure-based techniques slightly less endorsed but still commonly

used. Importantly, the current findings suggest that exposure is not categorically avoided, which may help to ease anxiety associated with exposure interventions in individuals with psychosis that can negatively impact implementation (Chadwick & Billings, 2022; Racz et al., 2024). It has been demonstrated that training can improve clinicians' confidence, attitudes and implementation of exposure therapy (Trivasse et al., 2020), which aligns with the greater use in the empirical project among those with greater confidence and doctoral-level qualification. Preliminary evidence points toward the effectiveness of exposure interventions for individuals with OCD and psychosis (Tundo & Necci, 2016) suggesting the need for clearer guidance and training on CBT for OCD in the context of psychosis,

Additionally, family intervention and psychoeducation were highly endorsed across professional groups, reflecting the perceived importance of systemic and contextual factors in managing co-occurring psychosis and OCS. This aligns with existing guidelines recommending family involvement for both psychosis and OCD (NICE, 2005; 2014). Therefore, family approaches may offer a means of improving functioning, minimising burden, aiding understanding of the impact, encouraging engagement and managing accommodation of symptoms (Addington et al., 2005; Renshaw et al., 2005). Given the consensus across guidelines and high endorsement from clinicians, services should routinely consider integrating family intervention for individuals with psychosis and co-occurring OCS.

Future Directions

There are clear developments that would benefit the understanding and management of psychosis and OCS. The portfolio emphasises the significance that OCS can have across the development of psychosis and therefore developing clinical staging models to account for heterotypic and pluripotent pathways, alongside comorbidity, functioning and neuropsychological profiles, may help improve detection and prevention (Shah et al., 2025).

This portfolio presents evidence that initial conceptualisation of clinical staging may not capture transitions from heterotypic pathways and therefore adopting a splitting approach may enhance prevention strategy. In addition, clinical staging research should investigate illness extension, which are features of each stage that do not progress illness but are important clinically (Shah et al., 2020). Nelson et al. (2021) discussed integrating phenomenological research, such as disturbances of the basic self, into clinical staging to increase the resolution of each stage which may help to differentiate stages using a splitting approach, differentiate ostensibly overlapping symptoms, and provide individualised intervention. However, future research is needed to delineate staging models that utilise these features and consider the limitations of this approach, such as the impact of increasingly complex models on clinical utility.

Unusual thought content, a feature overlapping psychosis and OCS, is commonly included in risk prediction models, but future research could investigate if including other specific symptoms improves detection when examined within robust frameworks such as the Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis guidelines (Hunt et al., 2024). For example, violent intrusions have been found to be predictive of transition to psychosis (Brucato et al., 2018; Brucato et al., 2019) and it may be that specific types of obsessions or compulsions increase risk.

While single variables may uniquely contribute to transition risk at specific stages, future research should consider how interacting variables influence trajectories to refine prognostic accuracy (Schmidt et al., 2017). Integrating clinical staging frameworks with multivariable risk prediction models that include OCS and other variables, such as clinical and demographic characteristics, may help to improve the implementation gap of risk prediction research to routine practice which has been a significant issue for risk prediction models (Salazar de Pablo et al., 2021). Transdiagnostic and individualised risk predictors

have been proposed as a means of improving detection of psychosis risk, yet clinician engagement and application remain key barriers (Oliver et al., 2021). Parallel research in suicide risk has begun to consider how risk prediction models can inform formulation in clinical practice (Orr et al., 2022). Applying similar principles to psychosis and OCS may support clinicians to integrate research findings into person-centred clinical decision-making.

The empirical project demonstrates how clinicians provide assessment and psychological intervention in the absence of guidelines and what methods clinicians use and find acceptable. To inform the development of guidance, future research should delineate how psychosis and OCS can be managed in routine practice, including assessment, formulation, and intervention. The Medical Research Council framework for developing complex interventions (Skivington et al., 2021) provides a useful structure for progressing from exploratory work to feasibility testing and evaluation (Skivington et al., 2021). The current portfolio sits in the early development phase of defining the problem, understanding the mechanisms and mapping the implementation context.

Trials of psychological interventions, as previously recommended (Tundo & Necci, 2016), are needed to determine whether approaches such as exposure-based techniques are acceptable, safe, and effective for individuals with psychosis and co-occurring OCS. However, limited research exists on treatments for OCS in the context of psychosis although Hadek and Rasmussen (2023) argue that OCS in psychosis should be treated under the same guidelines as any individual with OCD but with a modified therapeutic stance, flexibility of sessions and an initial focus on obsessions or compulsions that do not intertwine with delusion content. Before investing in large-scale evaluation, intervention modelling of the proposed mechanisms, psychological techniques, and factors impacting delivery would provide a clear theoretical basis to empirically test mediation of clinical improvement. For example, identifying what maintenance processes (e.g., inflated responsibility, intolerance of

uncertainty) underlie the comorbidity compared to psychosis or OCD alone would strengthen the theoretical model. This would inform whether standard treatments for OCD are effective or if intervention should be adapted to include other target mechanisms, techniques or modalities.

Quantitative trials alone are unlikely to address the nuanced barriers identified by clinicians in the present study. Qualitative research with experts by experience, families and carers, and clinicians will be essential to understand engagement, risk perceptions, and implementation challenges. While project constraints limited patient involvement, further research, in line with best practice guidelines, should aim to include patient and public involvement in the planning, conduct and design of the study in addition to the analysis, interpretation and dissemination of the findings (Werner et al., 2025). Next steps may include interviews with individuals experiencing these symptoms to explore their experiences of care and goals for accessing services, alongside qualitative studies examining clinicians' use of formulation, transdiagnostic models, and specific therapeutic components in practice. For example, interpretative phenomenological analysis could explore individual experiences of psychosis and OCS to inform intervention. Likewise, Delphi interviews with clinicians could provide further detail on effective components for intervention and improve acceptability. Once a model is clearly delineated, feasibility and pilot testing could be conducted that evaluates acceptability, cost-effectiveness and implementation factors.

Conclusion

This portfolio contributes to a long-standing literature examining the relationship between psychosis and obsessive–compulsive symptoms. Early theoretical accounts conceptualised OCS as protective or defensive against the development of psychosis (Rosen, 1957). However, the systematic review demonstrated that OCS are associated with a substantially increased risk of developing psychosis at the population level. Although no

additional transition risk was observed once individuals were classified as being at clinical high risk (CHR), this may reflect risk enrichment within CHR services that obscures the contribution of individual symptom dimensions such as OCS. Together, these findings support the utility of a clinical staging perspective to understand how OCS exert different effects across the psychosis trajectory. Future research should therefore consider how heterotypic, pluripotent, and comorbid pathways can be integrated within staging and risk models to better reflect clinical reality and account for complexity.

The empirical project extended this work by exploring clinicians' experiences of working with individuals with psychosis and co-occurring OCS. Clinicians reported moderate confidence but identified key barriers, including difficulties with engagement, limited training, and uncertainty around overlapping symptoms. In the absence of formal guidance, clinicians relied heavily on informal assessment and formulation-driven approaches and expressed a slight preference for CBT for psychosis over OCD-specific interventions such as ERP. Nonetheless, clinicians highlighted a desire for further training, transdiagnostic and individualised approaches, and greater involvement of families and carers.

Overall, this portfolio highlights that the significance of OCS varies by stage, context, and service setting. In line with guidance for developing interventions, addressing the identified gaps in evidence, guidance, and training requires quantitative and qualitative research involving clinicians, researchers, and experts by experience before piloting large-scale evaluations. Such work has the potential to improve the acceptability, safety, and effectiveness of psychological care for individuals across all stages of psychosis.

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Appendix B

Newcastle-Ottawa Scale for Cohort Studies Appraisal Tool

Newcastle-Ottawa Quality Assessment Form for Cohort Studies

Note: A study can be given a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability.

Selection

1) Representativeness of the exposed cohort
a) Truly representative ***(one star)***
b) Somewhat representative ***(one star)***
c) Selected group
d) No description of the derivation of the cohort
2) Selection of the non-exposed cohort
a) Drawn from the same community as the exposed cohort ***(one star)***
b) Drawn from a different source
c) No description of the derivation of the non exposed cohort
3) Ascertainment of exposure
a) Secure record (e.g., surgical record) ***(one star)***
b) Structured interview ***(one star)***
c) Written self report
d) No description
e) Other
4) Demonstration that outcome of interest was not present at start of study
a) Yes ***(one star)***
b) No

Comparability

1) Comparability of cohorts on the basis of the design or analysis controlled for confounders
a) The study controls for age, sex and marital status ***(one star)***
b) Study controls for other factors (list) _____ ***(one star)***
c) Cohorts are not comparable on the basis of the design or analysis controlled for confounders

Outcome

1) Assessment of outcome
a) Independent blind assessment ***(one star)***
b) Record linkage ***(one star)***
c) Self report
d) No description
e) Other
2) Was follow-up long enough for outcomes to occur
a) Yes ***(one star)***
b) No
Indicate the median duration of follow-up and a brief rationale for the assessment above:_____
3) Adequacy of follow-up of cohorts
a) Complete follow up- all subject accounted for ***(one star)***
b) Subjects lost to follow up unlikely to introduce bias- number lost less than or equal to 20% or description of those lost suggested no different from those followed. ***(one star)***
c) Follow up rate less than 80% and no description of those lost
d) No statement

Appendix C

Newcastle-Ottawa Scale Ratings

Table A.1. Newcastle-Ottawa Scale for Cohort Studies Scores by Study

Study	Overall	Selection				Comparability	Outcome		
		1	2	3	4	1	1	2	3
Prospective									
Fontenelle et al. (2011)[a]	Poor	1	1	1	1	0	0	1	1
Niendam et al. (2009)	Poor	1	1	1	1	0	0	0	1
DeVylder et al. (2012)[a]	Poor	1	1	1	1	0	1	1	0
Hur et al. (2012)	Poor	1	1	1	1	0	0	1	0
Alessandro et al. (2024)	Poor	1	1	1	1	0	0	1	1
Kennedy et al. (2021)	Poor	1	1	1	1	0	0	1	0
Brucato et al. (2017)	Poor	1	1	1	1	2	0	1	0
Addington et al. (2017)	Poor	1	1	1	1	0	1	1	0
Retrospective									
Cederlöf et al. (2015)[a]	Good	1	1	1	1	2	1	1	1
Cheng et al. (2019)	Good	1	1	1	1	2	1	1	1
Kim et al. (2023)	Good	1	1	1	1	2	1	1	1

[a] Studies screened by a second reviewer for inter-rater reliability

Appendix D

Author Guidelines for the British Journal of Clinical Psychology

AUTHOR GUIDELINES

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Appendix E

Clinician Survey

Step 1 Eligibility

i) Have you explored or assessed obsessive-compulsive symptoms/disorder in individuals with psychosis?

[If no, redirect to part 2 eligibility question,

If yes, continue]

Ø Explored may mean a conversation with someone with psychosis exploring the presence of obsessive-compulsive symptoms, with details around frequency, triggers, content or distress. It may also mean more formal assessments such as administering questionnaires, completing a structured or unstructured interview, or a diagnostic assessment.

Ø An individual with psychosis may have symptoms such as:

a. Hallucinations such as seeing people or hearing voices that do not exist outside a patient's experience.
b. Delusions such as an individual or organisation is going to kill them or that they are all-powerful and can bring people back from the dead.
c. Disorganised thought or speech such as rapidly switching topics mid-conversation or abrupt pauses in conversation after losing their train of thought.

Ø An individual with obsessive-compulsive symptoms may have symptoms such as:

a. Obsessions such as unwanted thoughts (in the form of words, images or voices) against someone's moral code such as thoughts of someone falling ill, harm to a

person (such as themselves, a family member or a child), or doing something inappropriate (such as aggressively or sexually).

b. Compulsions such as excessive cleaning, repeated checking, counting, hoarding, thinking something to neutralise bad thoughts

Ø In particular, we are exploring people whose primary presenting problem or diagnosis is a psychosis spectrum disorder (e.g. schizophrenia, schizoaffective disorder, brief psychotic disorder) who also have co-occurring obsessive-compulsive symptoms or disorder. However, we are not exploring people who have a primary diagnosis of obsessive-compulsive disorder who also have psychotic experiences or features. For example, people who repeatedly check doors and windows (compulsion) may have poor insight and strongly believe that someone is going to harm them if they do not check despite this being unlikely (psychotic feature); however they may not experience hallucinations, other delusions or other psychotic symptoms.

Demographic

1a) What is your age?

[ ]

1b) What is your gender?

[ ]

1c) What is your job role?

• Clinical psychologist

• Psychiatrist

• CBT therapist

• Social worker

• Nurse

• Occupational therapist

• Care coordinator

• Assistant psychologist

• Clinical associate practitioner

• General Practitioner

• Other (please specify)

1d) What is your highest educational qualification?

• Bachelors

• Masters

• Doctorate

• Other (please specify)

1e) Approximately, how many years of experience do you have within the mental health field?

[ ]

1f) Please state what type of service you currently work in (or if multiple, those in which you work with people with individuals with psychosis and co-occurring obsessive-compulsive symptoms).

• Community mental health team

• Early intervention service

• Inpatient service

• National Psychosis Service

• At Risk Mental State Services

• NHS Talking Therapies (Improving Access to Psychological Therapies)

• Other (please specify)

Experience

1g) How frequently do you work with individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Daily

• Weekly

• Monthly

• Every few months

• Rarely/never

1h) What training have you received on OCD and/or psychosis? [select all that apply]

• Training focused on OCD

• Training focused on Psychosis

• Training focused on OCD and Psychosis

• Professional training (e.g., doctoral course)

• Post-qualification training (e.g., diploma in CBT for psychosis)

• Workshops

• None

• Other (please specify)

1j) Do you receive supervision for supporting individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Yes

• No

Assessment

2a) When you assess individuals with psychosis and co-occurring obsessive-compulsive symptoms, how frequently do you use the following methods?

•.Structured interviews/semi-structured interviews (SCID OCSD) [Always, Often, Sometimes, Occasionally, Rarely/never]

• Unstructured or informal interview (triage, routine assessment) [Always, Often, Sometimes, Occasionally, Rarely/never]

• Clinician-administered measures (Y-BOCS, PANSS) [Always, Often, Sometimes, Occasionally, Rarely/never]

• Informal conversation [Always, Often, Sometimes, Occasionally, Rarely/never]

• Questionnaires (OCI, PQ-B, PCS) [Always, Often, Sometimes, Occasionally, Rarely/never]

• Other (please specify) [Always, Often, Sometimes, Occasionally, Rarely/never]

Ø For example, a self-report measure may be the obsessive-compulsive inventory (OCI).A structured interview may be the Structured Clinical Interview for Diagnosing Obsessive Compulsive Spectrum Disorders (SCID OCSD). An unstructed interview may be a psychology assessment or triage. A clinician-administered measure may be the Yale-Brown Obsessive Compulsive Scale (Y-BOCS).

2b) After assessment, how often would you refer to or offer medical support (e.g. medication) for individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Always

• Most of the time

• About half of the time

• Only some of the time

• Rarely/never

• Not applicable (I would not assess or refer)

2c) After assessment, how often would you refer to or offer psychological intervention (e.g., CBT) for individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Always

• Most of the time

• About half of the time

• Only some of the time

• Rarely/never

• Not applicable (I would not assess or refer)

2d) When assessing for obsessive-compulsive symptoms in individuals with psychosis, do you check for any of the following? (Select all that apply)

• Repetitive behaviours (compulsions)

• Intrusive thoughts (obsessions)

• Impact of symptoms on daily activities

• Level of distress caused by symptoms

• How psychotic and obsessive-compulsive symptoms interact

• Insight into the irrationality of symptoms

• Duration and frequency of symptoms

• Unsure

• None

• Other (please specify)

2e) If you explore insight in people with psychosis and co-occurring obsessive-compulsive symptoms which approach do you most often use? (Select all that apply)

• Direct questions about whether they believe their thoughts/behaviours are excessive

• Asking about distress related to specific symptoms

• Observing non-verbal cues for signs of distress

• Comparing the patient's current perspective with prior records or reports

• Inquiring if they believe the behaviour/thought is unusual or out of character

• I do not assess insight specifically

• Unsure

• Other (please specify)

2f) How do you differentiate whether a behaviour is driven by obsessive-compulsive thoughts, by a psychotic delusion, or something else? (Select all that apply)

• Assessing whether the patient has insight into the irrationality of the behaviour

• Determining if the compulsion is directly tied to a delusional belief

• Evaluating the level of distress if the behaviour is interrupted

• Cross-referencing with past behaviours or symptom history

• Exploring whether the behaviour aligns with OCD diagnostic criteria (e.g., rituals, excessive checking)

• Asking about fear or avoidance linked to specific scenarios

• Unsure

• Other (please specify)

2g i) Do you believe individuals with psychosis and co-occurring obsessive-compulsive symptoms present with greater risk concerns than other individuals with psychosis that do not have obsessive-compulsive symptoms?

• Yes

• No

• Unsure

2g ii) Please explain your answer

[]

2g iii) How confident do you feel when assessing risk in individuals with psychosis and co-occurring obsessive-compulsive symptoms?

[1-10]

2h) How important do you consider the following barriers when assessing individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Difficulty distinguishing between obsessive-compulsive symptoms and psychotic symptoms [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Lack of standardized assessment tools for this population [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Limited time and resources for comprehensive assessments [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Insufficient training or expertise among clinicians regarding OCS in psychosis [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Patient-related challenges to engagement (e.g., reluctance to discuss symptoms, chaotic lifestyle) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Comorbid conditions impacting assessment [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Risk management being prioritized over assessment of OCS [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Institutional or systemic barriers (e.g., lack of funding or time) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Other (please specify) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

2i) How much do you agree the following adaptations would improve assessment for individuals with psychosis and co-occurring obsessive-compulsive symptoms?

• Development of tailored assessment tools for this population [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Longer assessment periods to allow for thorough evaluation [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• More training focused on differentiating OCS from psychotic symptoms [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Enhanced strategies for engaging patients during assessments [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Increased interdisciplinary collaboration among care providers [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Access to comprehensive patient history (e.g., past diagnoses, treatment responses, comorbid conditions) [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Involvement of family members to gain a fuller understanding of symptoms [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Guidelines for risk management when OCS co-occur with psychosis [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Case formulation support tools for clarifying symptom distinctions [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Other (please specify) [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

2j i) How confident do you feel exploring or assessing **individuals with psychosis and co-occurring obsessive-compulsive symptoms?**

[1-10]

2j ii) How much do you agree the following would improve your confidence when working with individuals with psychosis and co-occurring OCS?

• More specialized training on this population [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Clearer clinical guidelines or protocols [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Better collaboration with multidisciplinary teams [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Access to consultation/supervision from experts [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• More time for patient assessment and intervention [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Access to case studies or best practice examples [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Participation in workshops or continuing professional development (CPD) focused on comorbid OCS and psychosis [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Peer support groups or discussion forums for sharing experiences and strategies [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

Other (please specify) [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

Step 2 Eligibility

i) Have you worked psychotherapeutically with individuals with psychosis and co-occurring obsessive-compulsive symptoms?

[If no to part 1 and 2, redirect to indelibility question.

If no to just part 2, redirect to 'thank you for participation and prize draw'.

If yes, continue]

Ø Psychotherapeutically may mean using therapy models such as cognitive behavioural therapy (CBT), third wave approaches (e.g., acceptance and commitment therapy, compassion focused therapy), family intervention, psychodynamic therapy among others. Also, it could be providing formulation, psychoeducation and low intensity intervention.

Treatment

3a) How effective do you believe psychological intervention is for individuals with psychosis and co-occurring obsessive-compulsive symptoms?

[1-10]

3b) How safe do you believe psychological intervention is for individuals with psychosis and co-occurring obsessive-compulsive symptoms?

[1-10]

Ø In this context, safe means that psychological intervention does not exacerbate psychotic or obsessive-compulsive symptoms, increase the patient's risk (e.g., suicide or self-harm) or produce any other long-term negative consequences for the patient.

3c) How confident do you feel offering psychological intervention to individuals with psychosis and co-occurring obsessive-compulsive symptoms?

[1-10]

3d) What psychological support would you recommend or refer to or offer? **(Select all that apply)**

• Cognitive behavioural therapy (CBT)

• Cognitive behavioural therapy for psychosis (CBTp)

• Cognitive behavioural therapy with exposure and response prevention (CBT/ERP)

• Family intervention (FI)

• Acceptance and Commitment Therapy (ACT)

• Compassion Focused Therapy (CFT)

• Inference-based therapy

• Psychodynamic

• None

• Other (please specify)

3d ii) If selected 'CBT': which of the following cognitive-behavioural therapy (CBT) techniques do you use when working with individuals who have psychosis and co-occurring obsessive-compulsive symptoms? (Select all that apply)

• Cognitive restructuring

• Exposure and Response Prevention (ERP)

• Thought monitoring (e.g., keeping a diary of intrusive thoughts and compulsions)

• Socratic questioning to evaluate irrational thoughts

• Behavioural experiments to test beliefs (including theory A/B)

• Psychoeducation about symptoms and treatment

• Mindfulness techniques to focus on the present moment

• Problem-solving skills to address specific issues

• Relapse prevention strategies to maintain progress

• Intolerance of uncertainty work to reduce compulsive behaviours

• Behavioural activation to encourage meaningful activities

• Functional analysis of behaviour to identify triggers

• Self-monitoring techniques to track symptoms and responses

• Role-playing to practice social skills or coping strategies

• Visualization techniques for anxiety reduction

• Other (please specify)

3d iii) If selected any but 'None': if you offer alternative or adapted interventions for individuals with psychosis and co-occurring OCS, please select which ones you use. (Select all that apply)

• Mindfulness-Based Approaches (e.g., Acceptance and Commitment Therapy, Mindfulness-Based Cognitive Therapy)

• Distress Tolerance Skills (e.g., adapted DBT techniques)

• Supportive Therapy Techniques (e.g., emotion-focused, person-centred approaches)

• Motivational Interviewing strategies (e.g., enhancing engagement, addressing ambivalence)

• Psychoeducation tailored for comorbid psychosis and OCS

• Relaxation Techniques (e.g., guided imagery, progressive muscle relaxation)

• Interpersonal Therapy elements (e.g., role-playing, communication skills)

• Systemic concepts (e.g., involving family dynamics or social systems in treatment)

• Inference-based therapy techniques (e.g., addressing faulty reasoning and beliefs)

• Adaptations of ERP (e.g., graded exposure with psychosis considerations)

• Compassion-focused exercises (e.g., self-compassion practices)

• Other (please specify)

3d iv) If selected 'None': if you do not use the standard interventions listed above, what are the primary reasons? (Select all that apply)

• Lack of training or familiarity with these interventions for OCS in psychosis

• Perceived ineffectiveness of standard interventions in these cases

• Concerns about patient suitability for exposure or other CBT techniques

• Limited access to resources or support for delivering these interventions

• Prefer other therapeutic approaches (e.g., mindfulness, supportive therapy)

• Concerns about risk (e.g., suicide, self-harm)

• Exasperating symptoms

• Other (please specify)

3e) What factors influence your decision to offer psychological interventions for OCS in patients with psychosis? (Select all that apply)

• Severity of OCS

• Patient's insight into symptoms

• Overall mental health status

• Availability of specialized therapy or trained clinicians

• Patient preference

• Other (please specify)

3f) How important do you consider the following barriers when providing psychological interventions for individuals with psychosis and co-occurring OCS? (Select all that apply)

• Limited evidence-based treatment protocols for this population [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Challenges in initial patient engagement (e.g., reluctance to discuss symptoms, avoidance) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Difficulty sustaining engagement throughout treatment, particularly due to the impact of psychotic symptoms [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Psychotic symptoms interfering with the treatment of OCS [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Institutional or systemic barriers (e.g., lack of funding or time) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Limited availability of trained clinicians [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Risk management being prioritized over psychological treatment [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Other comorbid conditions impacting intervention [Not Important, Slightly Important, Moderately Important, Important, Very Important]

• Other (please specify) [Not Important, Slightly Important, Moderately Important, Important, Very Important]

3g) How much do you agree the following adaptations would improve psychological interventions for individuals with psychosis and co-occurring OCS? (Select all that apply)

• Integrating OCS interventions into existing psychosis treatment frameworks [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Offering more specialized therapy approaches tailored for this population [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Increased focus on psychoeducation for patients and their families [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Enhanced interdisciplinary collaboration among care providers [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Greater flexibility in therapy sessions (e.g., more frequent, shorter sessions) [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Development of guidelines for managing risk while providing psychological treatment [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

• Other (please specify) [Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

Appendix F

Participant Information Sheet

William Hinton
Trainee Clinical Psychologist

Faculty of Medical and Health Sciences
Norwich Medical School

University of East Anglia
Norwich Research Park
Norwich NR4 7TJ
United Kingdom

Email: w.hinton@uea.ac.uk

Information Sheet

Clinicians' Perceptions of Psychosis with Co-Occurring Obsessive-Compulsive Symptoms

Researcher: William Hinton
Research supervisors: Dr Joanne Hodgekins and Dr Marco Vivolo

What is the study about?

You are invited to take part in a study aiming to understand clinicians' perceptions of assessing and treating people with psychosis and co-occurring obsessive-compulsive symptoms. Research suggests people with psychosis and co-occurring obsessive-compulsive symptoms have worse outcomes than people with psychosis alone (such as functioning and quality of life) yet little research has explored the experience of clinicians' working with people with these symptoms.

Specifically, the study employs a survey that will explore clinicians' current practice and confidence when working with people with psychosis and co-occurring obsessive-compulsive symptoms with the aim to understand the barriers to effective support and what adaptations could be made to improve their experience of care.

What will my involvement in the study be?

If you agree to take part in the study, you will be asked to complete a survey that takes approximately 30 minutes to complete. The questions will ask you about your attitudes and confidence in assessing and treating (if relevant) people with psychosis and co-occurring obsessive-compulsive symptoms.

Do I have to take part?

Participation is voluntary and you can withdraw from the study at any point before submitting your responses. It is not possible to withdraw your responses once submitted however we will not ask for any identifiable information so all data will be anonymous.

What are the potential disadvantages or risks of taking part?

Working with people with psychosis and co-occurring obsessive-compulsive symptoms can be highly emotive work that has the potential to cause distress. This survey will explore barriers to working with people with these symptoms which may be distressing. If you experience distress when completing the survey there are charities who can offer support such as the Samaritans (116 123).

What are the potential benefits of taking part?

Understanding clinicians' perceptions of working with people with psychosis and co-occurring obsessive-compulsive symptoms may help identify the barriers to providing support and what adaptations can be made to improve the effectiveness of care.

Information on clinicians' confidence may help prioritise clinical and research aims. Also, understanding what psychological interventions are commonly used and how they can be made more effective may help to improve outcomes for this profile of patients.

What will happen with my information?
We will not ask for any identifiable information in the survey such as your name or contact details. Your responses will be used to represent clinicians' attitudes and confidence which may be quotes from your responses. However, it will not identify the response as yours.
If you wish to take part in an optional prize draw, we will ask for your name and an email address to contact you if you win. These personal details will be stored separately from the anonymised questionnaire data so we cannot match your name to your responses.
All data will be stored securely and used in line with General Data Protection Regulations (GDPR; 2018) and the University of East Anglia's Research Data Management Policy. The anonymous data will be securely stored for 10 years (per UEA's Research Data Management Policy) as raw data although any identifiable information (e.g. names) will be de-identified. This data may be used in publication or future research.
Some questions are open-ended and verbatim quotes included in the findings from these responses will be anonymised and all potentially identifying information removed. However, despite the full anonymisation of any verbatim quotes, it cannot be guaranteed that these quotes or any other data in the research reports and publications will not be recognised by other people.

Where can I find further information about the study?
If you have any questions after reading this information, please contact the researcher, William Hinton, on: w.hinton@uea.ac.uk

What will happen to the findings of the study?
The findings will be published as part of my doctoral thesis and are expected to be published in an academic journal. None of the published information will be identifiable. As a participant in this study, you have the right to request a one-page lay summary of the findings once the study has finished.

What if I have any concerns or complaints about the study?
This study has been approved by the University of East Anglia's Faculty of Medical and Health Sciences Research Ethics Committee. If you have any other concerns or wish to complain to someone independent of the study, please contact the Head of Department, Professor Niall Broomfield at: n.broomfield@uea.ac.uk

How do I take part?
To take part, please carefully read the consent form. If you consent to taking part, click 'Continue' and you will be directed to the survey.

Appendix G

Consent Form

William Hinton
Trainee Clinical Psychologist

Faculty of Medical and Health Sciences
Norwich Medical School

University of East Anglia
Norwich Research Park
Norwich NR4 7TJ
United Kingdom

Email: w.hinton@uea.ac.uk

Consent Form
Clinicians' Perceptions of Psychosis with Co-Occurring Obsessive-Compulsive Symptoms

In giving my consent, I confirm that:

- ✓ I understand the purpose of the study, what I will be asked to do, and any risk/benefits involved.
- ✓ I have read the participant information sheet and had the opportunity to consider the information, ask any questions and had these answered satisfactorily.
- ✓ I understand that my participation is voluntary and I can withdraw at any time up until I submit my answers.
- ✓ I understand that once I have submitted my responses I will not be able to withdraw but all the responses will be kept anonymous.
- ✓ I understand that my responses will be stored in accordance with General Data Protection Regulations and the University of East Anglia's Research Data Management Policy, and any identifiable information I include in the main survey (e.g. names) will be de-identified.
- ✓ I understand that any personal information collected (e.g. contact details for optional prize draw) will be strictly confidential and stored securely in line with General Data Protection Regulations (GDPR; 2018)
- ✓ I understand that the data from the study may be published or used in future research, but this will not contain any identifiable information about me. This means the anonymised data will be held in a repository accessible for researchers to use in future projects.

If you wish to take part in the study and agree with the statements above, please click 'Continue' to be redirected to the survey. If not, please do not continue and close this window.

Appendix H

Debrief Sheet

William Hinton
Trainee Clinical Psychologist

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Norwich Research Park
Norwich NR4 7TJ
United Kingdom

Email: w.hinton@uea.ac.uk

Debrief

Clinicians' Perceptions of Psychosis with Co-Occurring Obsessive-Compulsive Symptoms

Thank you for taking part in this study investigating clinicians' perceptions of people with psychosis and co-occurring obsessive-compulsive symptoms. Your responses will be crucial in understanding current practice, and how assessment and treatment can be adapted to improve clinical outcomes for people with psychosis and co-occurring obsessive-compulsive symptoms.

If you have any questions or concerns about the study, or wish to receive a lay summary of the findings (once the study has finished), please contact me on: w.hinton@uea.ac.uk

The results of the study are expected to be published in an academic journal, a report for services and presented at research conferences.

If the study has caused you any distress, we recommend you contact a helpline such as the Samaritans (visit www.samaritans.org or call 116 123) or a charity such as Mind (visit www.mind.org.uk or call 0300 123 3393). Alternately, if you feel like you need further support, please contact your GP.

You can also contact me on the email above, however note that I have limited availability and cannot provide immediate support. If you have any concerns or complaints about the study you can also contact me or, for support independent from the study, please contact the Head of Department, Professor Niall Broomfield at: n.broomfield@uea.ac.uk

Thank you again for your participation.

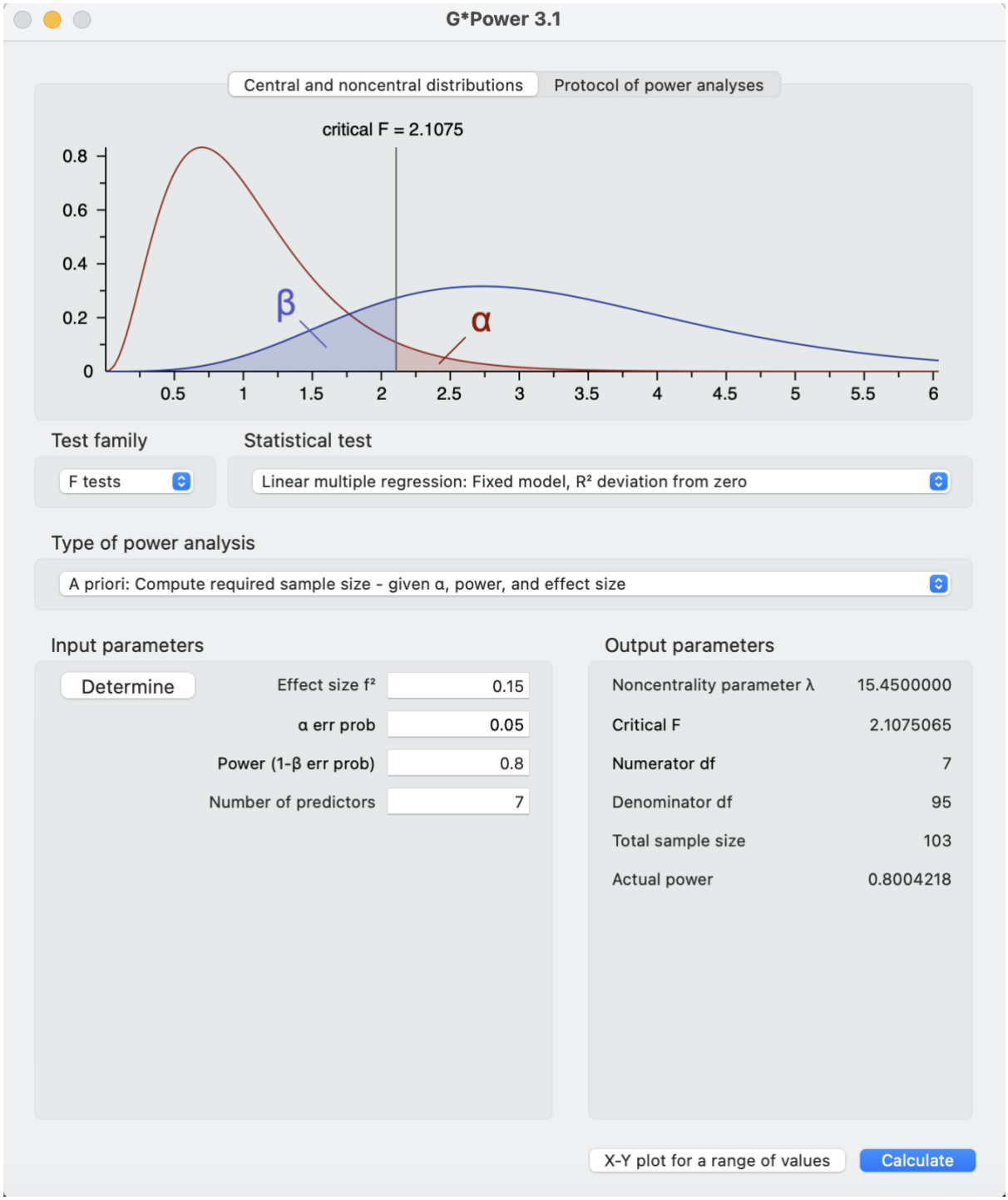
Appendix I

Recruitment Poster



Appendix J

G* Power Output for Regression Analyses



Appendix K

Letter of Approval from the UEA FMH Research Ethics Committee

Study title: Clinicians' Perceptions of Psychosis with Co-Occurring Obsessive-Compulsive Symptoms

Application ID: ETH2324-3012

Dear William,

Your application was considered on 20th December 2024 by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee).

The decision is: **approved**.

You are therefore able to start your project subject to any other necessary approvals being given.

This approval will expire on **2nd March 2026**.

Please note that your project is granted ethics approval only for the length of time identified above. Any extension to a project must obtain ethics approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) before continuing.

It is a requirement of this ethics approval that you should report any adverse events which occur during your project to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) as soon as possible. An adverse event is one which was not anticipated in the research design, and which could potentially cause risk or harm to the participants or the researcher, or which reveals potential risks in the treatment under evaluation. For research involving animals, it may be the unintended death of an animal after trapping or carrying out a procedure.

Any amendments to your submitted project in terms of design, sample, data collection, focus etc. should be notified to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) in advance to ensure ethical compliance. If the amendments are substantial a new application may be required.

Approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) should not be taken as evidence that your study is compliant with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. If you need guidance on how to make your study UK GDPR compliant, please contact the UEA Data Protection Officer (dataprotection@uea.ac.uk).

Please can you send your report once your project is completed to the FMH S-REC (fmh.ethics@uea.ac.uk).

I would like to wish you every success with your project.

On behalf of the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee)

Yours sincerely,

Dr Paul Linsley