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I declare that this dissertation is my own unaided work.

Literature sources have been identified and acknowledged.

I declare that the work has not already been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.

Signature:

Date: 9th September 2024

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GLOSSARY OF TERMS

AQ   Anthropomorphism questionnaire

CBT   Cognitive-behavioural disorder

UK   United Kingdom

HD   Hoarding disorder

EA   Experiential avoidance

IDAQ Individual differences in Anthropomorphism questionnaire

PTSD Post-traumatic stress disorder

PRISMA Preferred Reporting Items for Systematic Reviews and Meta-analyses

OCD   Obsessive-compulsive disorder

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ABSTRACT

Hoarding behaviour is a complex psychological phenomenon that has sparked debates about its underlying causes. While some attribute it to clinical factors, others point to environmental influences. This work undertakes a review aimed at identifying key social and cultural factors that influence hoarding behaviour, analysing their patterns and trends, and providing policy recommendations for public health practitioners.

The study employed a systematic review approach guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework and sourced data from multiple academic databases, including SCOPUS, AMED, EMBASE, MEDLINE, and PUBMED. The research drew on studies across disciplines such as medicine, nursing, psychology, sociology, and anthropology. The initial search identified over 2,330 works, which were narrowed down to 124 for data analysis.

The review highlighted significant influences of parental rearing practices, family dynamics, histories of abuse, early family experiences, and adverse childhood events on hoarding symptoms. Additionally, the impact of globalisation and consumer culture was found to exacerbate hoarding behaviour, while cultural values, religious beliefs, and community ties were also identified as critical factors shaping these tendencies.

This study underscores the importance of considering social and cultural contexts in understanding and addressing hoarding behaviour globally. The findings offer valuable insights for public health practitioners, policymakers, and researchers in developing effective interventions and strategies to combat hoarding behaviour.

CHAPTER ONE

INTRODUCTION

1.1. Background to Study

Hoarding behaviour is a multifaceted psychological issue marked by an unwillingness to part with possessions, regardless of their actual worth, and it affects individuals across various cultures and societies. Although considerable research on hoarding has been conducted within Western contexts, there has been limited exploration of this behaviour in developing or transitional economies, particularly in sub-Saharan Africa.

Numerous factors contribute to hoarding, including emotional attachment and sentimental value (Tolin et al., 2018), fright of loss and waste (Steketee & Frost, 2003), perceived usefulness of items (Frost & Gross, 1993), difficulties in decision-making (Steketee & Frost, 2003), psychological trauma and significant life events (Ayers et al., 2010), challenges with attention and information processing (Tolin et al., 2018), and genetic or neurobiological influences (Mataix-Cols et al., 2010).

Additionally, socioeconomic elements such as income inequality, fluctuating economic stability, financial insecurity, the quest for social status, and limited access to mental health services in certain regions have been identified as contributing factors to hoarding behaviour (Grisham et al., 2008). The repercussions of this behaviour extend beyond individuals to impact communities and governments.

Hoarding behaviour significantly affects an individual's mental health and overall quality of life. As noted by Thorin et al. (2018), individuals with hoarding tendencies often experience considerable stress, anxiety, and depression due to their difficulty in discarding possessions. This can lead to social isolation, impaired functioning, and diminished well-being. While efforts to tackle hoarding behaviour in Africa have largely centered on interventions, public awareness campaigns, and research, advanced nations have primarily relied on clinical interventions.

Although specific government measures addressing hoarding in Africa may be limited, global research and mental health organisations have provided valuable insights. Cognitive-behavioural therapy (CBT) tailored for hoarding has been shown to be effective in alleviating symptoms (Steketee & Frost, 2003). Furthermore, combining CBT with motivational interviewing or skills training has yielded promising results in managing hoarding behaviour (Tolins et al., 2015).

Globally, various initiatives have been undertaken to enhance public awareness of hoarding behaviour, its consequences, and available support. These efforts, led by mental health organisations such as the International OCD Foundation and Hoarding UK, aim to reduce stigma, improve understanding, and encourage individuals affected by hoarding to seek assistance. Many of the existing studies on hoarding have focused mainly on clinical interventions, often overlooking other significant factors.

The intention of this study was to explore cultural and social influences on hoarding behaviour in Sub-Saharan Africa, but given limited literature, this study will explore cultural and social influences on hoarding behaviour across different continents of the World. Specifically, it will investigate how family attitudes towards possessions, social isolation, peer pressure, sentimental value of items, and cultural norms and rituals contribute to hoarding tendencies. To achieve this, the study will employ a systematic review methodology.

1.2. Statement of problem

Cultural factors are crucial in shaping hoarding behaviour (Amslem, 2022), as culture encompasses the values, ethics, and knowledge that influence individuals' thoughts and actions. An individual's emotions can be profoundly affected by these cultural values, which may include both tangible and intangible elements. For instance, in certain cultures, the emotional significance of possessions is highly emphasised. In these societies, objects may carry symbolic and emotional weight, making it challenging for individuals to part with them (Tolin et al., 2018).

Additionally, cultural norms related to collectivism and individualism can impact hoarding tendencies. In cultures that prioritise collective family and community bonds, individuals might accumulate possessions to strengthen connections and uphold traditions, potentially leading to clutter and disorder (Frost et al., 2000). Social factors also play a significant role in hoarding behaviour, encompassing various dimensions of a person's social environment and interactions. For instance, family influences, including upbringing and attitudes toward property, can markedly affect hoarding tendencies. Learned behaviours related to acquiring and storing items within families may contribute to hoarding (Steketee & Frost, 2003). Furthermore, hoarding behaviour is often linked to social isolation and loneliness. Individuals who feel isolated might form attachments to possessions as substitutes for social relationships, thus exacerbating hoarding behaviour (Tolin et al., 2018). Consequently, this study aims to explore the connections between social and cultural variables and hoarding behaviour.

1.3. Aim of Study

The goal of this study is to identify and analyse the relationship between social and cultural factors and hoarding behaviour through a systematic review of existing research.

1.4. Objectives of Study

  i. To systematically analyse the influence of social factors on hoarding behaviour
  ii. To analyse the impact of cultural factors on hoarding behaviour

CHAPTER TWO

LITERATURE REVIEW

2.1. Conceptual framework

While hoarding behaviour has been thoroughly investigated in Western settings, its development due to social and cultural influences has not been fully examined across different regions (Timpano et al., 2011). Cultural norms, beliefs about possessions, and socio-economic factors vary between societies and may affect how hoarding behaviour is expressed and perceived (Adebowale et al., 2019). It is essential to understand how cultural values interact with hoarding behaviour in diverse societies to create effective interventions and support systems that are culturally appropriate (Sundby & Stayner, 2015).

In various societies, grasping the family dynamics related to hoarding behaviour is critical for designing effective interventions and support strategies. By addressing the underlying factors and attitudes that contribute to hoarding, it becomes possible to assist individuals and families in managing their hoarding tendencies and enhancing their overall well-being. This review will therefore concentrate on the primary themes of social and cultural behaviours influencing hoarding across different societies.

2.2. Family Attitudes and Hoarding Behaviour

Evidence suggests that social and cultural factors, particularly family attitudes towards possessions, can significantly impact hoarding behaviour. Research has demonstrated that family dynamics and attitudes are crucial in both the onset and persistence of hoarding tendencies. For instance, Frost and Gross (1993) found that individuals exhibiting hoarding behaviour frequently reported a family history of similar issues, indicating a possible familial influence on the development of such tendencies.

Moreover, a study by Tolin, Meunier, Frost, and Steketee (2011) revealed that people with hoarding disorder were more inclined to have relatives who also exhibited hoarding behaviour. This indicates that family attitudes and behaviours related to possessions and accumulation may play a role in fostering hoarding tendencies within family settings. Additionally, Grisham, Brown, Liverant, and Campbell (2005) discovered that individuals with hoarding behaviour often experienced higher levels of family conflict and criticism, which may reflect less supportive family attitudes towards possessions and acquisition. These findings provide robust evidence of the impact of family attitudes on hoarding behaviour. Understanding these familial dynamics is essential for creating effective interventions and support mechanisms for those affected by hoarding.

David et al. (2008) explored the impact of compulsive hoarding on family members through an internet survey, aiming to assess the familial burden associated with hoarding. Their study, which involved 665 family members or friends of individuals with hoarding behaviour, highlighted that compulsive hoarding negatively affects not only the individuals who hoard but also their cohabitants.

A study conducted in 2020 by Eliza et al. examines the connection between the severity of hoarding and various aspects of family and social functioning in 60 adults with hoarding disorder (HD) who were seeking treatment. Participants completed a series of self-assessment questionnaires during a baseline evaluation before starting treatment. Nearly half of the participants (47%) reported living alone, while 48% mentioned that family and friends never visited them at home. Additionally, 33% of participants indicated they never received visitors at their home, including service workers or repair personnel. While 12% of participants said they never visited family or friends outside their home, 55% reported calling family or friends more than nine times per month. The study found that increased clutter and the severity of hoarding were linked to a decrease in the frequency of home visits by family and friends. Moreover, both family competence and conflict were positively correlated with the severity of hoarding.

2.3. Peer Influence and Hoarding Behaviour

Mathews et al. (2018) conducted a randomised clinical trial in the United States to compare the effectiveness of community-based peer-led and psychologist-led group treatments for hoarding disorder. The trial involved 323 adults with hoarding disorder who were randomly assigned to either 15 weeks of group peer-facilitated therapy (G-PFT) or 16 weeks of group cognitive behavioural therapy (G-CBT). Participants were assessed at baseline, post-treatment, and at follow-up intervals averaging 14.4 months post-treatment (range 3–25 months). The study examined predictors of treatment response. Results indicated that G-PFT (effect size 1.20) was just as effective as G-CBT (effect size 1.21), with a slight between-group difference of 1.82 points ($t = -1.71$, df = 245, P = 0.04). Greater homework completion and ongoing support from family and friends were associated with lower severity scores at the follow-up ($t = 2.79$, df = 175, P = 0.006; $t = 2.89$, df = 175, P = 0.004). The study concluded that peer-led groups were as effective as those led by psychologists, offering a new treatment option for individuals without access to mental health professionals.

Hoorn et al. (2016) explored the impact of peer influence on risk-taking and prosocial decision-making in adolescence, using insights from neuroimaging studies. Their findings suggest that in the context of risk-taking, peer influence is linked to heightened activity in motivational circuitry, including the ventral striatum. The social brain, encompassing the medial prefrontal cortex, temporo-parietal junction, and superior temporal sulcus, is implicated in peer influence within neutral and prosocial contexts. The researchers propose that peer influence may increase activation in brain areas related to tasks, and they emphasise the importance of investigating the interaction between motivational circuits and social brain regions to enhance understanding of the neural basis of peer influence.

Gallupe et al. (2019) conducted a meta-analysis on the relationship between peer and personal offending, using a systematic approach known as Stochastic Actor-Oriented Models (SAOMs) to test peer selection and influence effects. Their analysis revealed evidence for both influence (mean log odds ratio = 1.23, p < 0.01, 21 effects, pooled n = 21,193) and selection dynamics (mean log odds ratio = 0.31, p < 0.01, 28 effects, pooled n = 21,269). The type of behaviour, country, and timing of data collection moderated the influence effect, although no significant moderation was found for peer

selection on offending. The findings indicate that individuals are influenced by the offending behaviour of their peers and tend to form friendships based on similarities in offending.

2.4.   Sentimental Beliefs and Hoarding Behaviour

Steketee and Frost (2003) examined compulsive hoarding, focusing on deficits in information processing (such as attention, organisation, memory, and decision-making), beliefs about possessions, emotional attachments, and distress and avoidance behaviours. Their research into the diagnostic categorisation, progression, and phenomenology of hoarding provides evidence supporting their model. The limited studies on treatment suggest that current serotonergic medications for obsessive-compulsive disorder (OCD) are largely ineffective in treating hoarding. However, cognitive and behavioural therapies, particularly those targeting deficits identified in the model, have shown some effectiveness.

Wheaton et al. (2013) investigated experiential avoidance (EA) in individuals with hoarding disorder, alongside cultural norms and hoarding behaviour. Their study aimed to replicate and extend previous findings in a clinical sample, comparing individuals diagnosed with hoarding disorder (HD, n = 33) to match healthy controls (n = 30) and individuals with other anxiety disorders (n = 32). Results indicated that the HD group exhibited lower levels of EA compared to those with other anxiety disorders. While individuals with HD showed higher EA than healthy controls, this difference was attributed to variations in depression, anxiety, and stress symptoms between the groups. Within the HD group, EA was not associated with any specific hoarding symptoms. Instead, beliefs about possessions were stronger predictors of hoarding behaviour, particularly in relation to excessive acquisition and difficulty discarding, beyond the general distress experienced.

Tinlin et al. (2022) conducted a study to explore the underlying beliefs and vulnerabilities associated with hoarding disorder using Q-methodology. They developed a comprehensive list of beliefs about possessions and had 32 adults with clinically significant hoarding disorder complete a Q-sort task, along with measures of proposed vulnerabilities such as co-morbidity, trauma, and attachment style. The Q-factor analysis identified four profiles, each representing groups of participants who shared similar beliefs and characteristics. These profiles were distinguished by different categories of beliefs and co-morbid symptoms, suggesting that more targeted assessment tools and interventions could be beneficial to address the heterogeneity within the clinical population. Notably, beliefs about identity and self-concept emerged as the most prominent profile, while beliefs about stability and predictability introduced a new category of beliefs.

2.5.   Cultural norms and hoarding behaviour

A study conducted in 2015 by Neave, et al. delved into the relationship between the tendency to attribute human characteristics to non-human entities and the propensity to accumulate excessive possessions. The researchers investigated the extent to which anthropomorphic inclinations can influence human hoarding behaviors. (2015) examined the effects of anthropomorphic situations on the hoarding behaviour of humans. The study assessed the psychometric properties of a new

Anthropomorphism Questionnaire (AQ) in a nonclinical sample of 264 adults. A further sample of 93 participants was then recruited to assess relationships between hoarding behaviour and cognitions, scores on the AQ, an existing anthropomorphism questionnaire (Individual Differences in Anthropomorphism Questionnaire: IDAQ), and a measure of social anxiety. Regression analyses revealed the AQ but not the IDAQ to be a significant predictor for hoarding behaviour. Women showed stronger childhood anthropomorphising behaviours than men, and younger participants showed stronger anthropomorphising and hoarding cognitions and behaviours. They concluded that the AQ better supports the predicted relationship between anthropomorphism and hoarding than the IDAQ and also suggested that age and sex should be considered in future studies on anthropomorphism and hoarding.

Malik & Kamal (2020) examined perception of hoarding behaviour among general population of Rawalpindi and Islamabad cities of Pakistan: an exploratory qualitative inquiry. Sample of 46 subjects from different socio-cultural backgrounds were selected from otherwise healthy adult (20-60 years) population of Rawalpindi & Islamabad cities of Pakistan by purposive sampling and FGD with six groups were conducted to assess existence and phenomenology of hoarding behaviour in present cultural framework. Data was analysed using the grounded theory method. The findings support current literature concerning the role of emotional attachments, associated positive and negative affect, certain personality characteristics and early experiences in development and maintenance of hoarding behaviour. This study also confirms that material possessions are a source of security by providing a sense of identity to the owner and are considered symbols of status in society. Finally, it involves the account of socio-cultural aspects like status transformation, with resulting sense of competition, gender role, impact of material deprivation, and religious construction of phenomenon that emerged as more of culture specific elements in indigenous settings of Pakistan.

Nordsletten et al (2018) conducted a study on transcultural study of hoarding disorder which showcased knowledge gathered from countries such as Japan, the United Kingdom and two others. Participants were 82 individuals meeting DSM-5 diagnostic criteria for HD, recruited and assessed by trained clinicians at one of four project sites: London, Barcelona, Fukuoka, and Rio de Janeiro. A series of semi-structured interviews and self-report scales were administered, including assessments of socio-demographic characteristics, psychiatric comorbidity, and severity of hoarding and related features. Results indicate that the severity and core features of HD, as well as the cognitions and behaviours commonly associated with this condition, are largely stable across cultures. However, some differences in patient demographics—in particular age, marital status, and clinical expression—as well as comorbid psychiatric features also emerged. These findings confirm that HD, as defined in DSM-5, exists and presents similar phenomenology across the studied cultures. Future, more fine-grained, research will be needed to study the features of the disorder in additional cultures (e.g., non-industrialised nations) and to evaluate the impact of these cultural aspects on the design of interventions for the disorder.

2.6.   Hoarding behaviour and social isolation

Hoarding behaviour in this study will be characterised and limited to the domain of persistent difficulty discarding possessions, excessive accumulation, sentimental attachments, strong emotional attachment/connection to objects and living spaces cluttered to the extent that their intended use is compromised, represents a complex

psychological phenomenon with profound implications for affected individuals and their communities (American Psychiatric Association, 2013, Tolin et al., 2015, Frost & Gross, 1993, Tolin et al., 2008).

Roane, et al (2017) examined the effect of hoarding in the elderly: a critical review of the recent literature with the objective of evaluating recent literature on hoarding disorder (HD) in ageing patients. A literature search was conducted using PubMed and PsychINFO to identify papers from 2000 to 2015 that examined HD and hoarding symptoms in late-life participants. Thirteen studies met inclusion criteria. Findings show that hoarding in the elderly started before 40; increased in severity after middle age and was linked with social isolation. Depression was associated with hoarding in 14–54% of geriatric cases. Co-morbid anxiety and PTSD were also identified. Seniors with hoarding tendencies were more likely to have various medical conditions, such as arthritis and sleep apnea. Late-life hoarding was linked to impairments in memory, attention, and executive function. HD in the elderly has distinct features. A combination of self-neglect, psychiatric and medical co-morbidities, and executive dysfunction may contribute to the progression of hoarding symptoms in the elderly.

Mathes, et al (2019) carried out a study on examination of the relationship between hoarding symptoms and hostility. The study examined the relationship between hoarding symptoms and hostility across two undergraduate samples. In study 1, unselected undergraduates (N = 195) were administered measures of hoarding symptoms, hostile interpretations, and depression and anxiety symptoms. Participants in study 2 (N = 117) were selected for reporting elevated hoarding symptoms. Study 2 participants were administered the same measures as in study 1 and were additionally randomised to an inclusion or exclusion condition in a social exclusion manipulation. Total hoarding symptoms and hostile interpretations were positively associated across both samples, even when controlling for depression and anxiety. Further, greater hoarding symptoms were associated with increased feelings of hostility in response to social exclusion in study 2. Results suggest that increased sensitivity to social threat may confer risk for hoarding. These findings add to a growing body of research implicating interpersonal factors in the development and maintenance of hoarding disorders.

2.7. Theoretical Framework

Based on the preceding discussion, the following theories will serve as the foundation for this study: Attachment Theory by John Bowlby (1950), Cultural Syndromes Theory, Acculturation Theory, and Intersectionality Theory.

2.7.1. Attachment Theory by John Bowlby (1950)

Attachment Theory highlights the significance of early bonds between infants and their caregivers and how these relationships impact emotional and social development later in life. In 1958, Bowlby proposed that attachment is an intrinsic, biologically driven need crucial for human survival and emotional health. He suggested that infants are naturally inclined to form emotional connections, particularly with their primary caregivers, to ensure proximity and a sense of security. This theory posits that secure attachments lay the groundwork for emotional and psychological growth, fostering trust, emotional regulation, and the ability to form healthy relationships as one

matures—concepts embodied in the attachment behavioural system and internal working models. Although there is no direct link between attachment theory and hoarding behaviour, it is possible to draw connections by considering how attachment experiences might influence such behaviour. Individuals with insecure attachment styles, such as anxious or avoidant attachment, may resort to hoarding as a coping mechanism. Hoarding possessions might provide a false sense of security, compensating for emotional voids left by insecure attachments formed during childhood.

2.7.2. Cultural Syndromes Theory

Cultural Syndromes Theory, developed by Clifford Geertz, Richard A. Shweder, and other cultural anthropologists and psychologists during the 20th century, underscores the role of culture in shaping distinctive patterns of beliefs, values, and practices within a society. This framework emphasises that cultural norms and beliefs significantly influence individuals' behaviours and perceptions within a given cultural context—referred to as cultural syndromes. These syndromes mirror a society's collective norms and values, shaping individuals' understanding of the world, their interactions, and their approaches to various aspects of life, including their relationship with possessions.

The relevance of Cultural Syndromes Theory to the study of hoarding behaviour lies in its capacity to identify and elucidate specific cultural norms, values, and belief systems related to possessions within a particular cultural context. This theory enables researchers to explore how cultural syndromes affect individuals' attitudes toward possessions, their emotional attachments to items, and their tendencies to accumulate or hoard objects, all within the framework of cultural values and norms.

2.7.3. Acculturation Theory by Berry & Ward (1978)

Acculturation Theory focuses on the interaction between different cultures and the process of cultural change that occurs between a dominant culture and a minority or non-dominant culture. It outlines various strategies that individuals employ as they navigate cultural transitions, including assimilation (adopting the new culture while abandoning the original), integration (blending elements of both cultures), separation (maintaining the original culture while rejecting the new one), and marginalisation (rejecting both cultures). Acculturation influences behaviours, attitudes, and identity formation, shaping how individuals adjust to cultural changes, including their values, norms, and behaviours.

In the context of hoarding behaviour, Acculturation Theory can provide valuable insights into how cultural factors shape individuals' relationships with possessions. The theory offers a framework for understanding how cultural adaptation impacts behaviours related to acquiring, using, and becoming attached to possessions, which is especially pertinent when studying hoarding behaviour in culturally diverse settings.

2.7.4. Intersectionality Theory by Kimberlé Crenshaw (1989)

Intersectionality Theory examines how various social categories—such as race, gender, class, sexuality, disability, and other identities—intersect and interact, resulting in unique experiences of discrimination and privilege. The core premise is that individuals possess multiple social identities that intersect, influencing their experiences, opportunities, and privileges. The theory recognises that systems of oppression (e.g., racism, sexism, classism) are interconnected and cannot be fully understood or addressed in isolation. Intersectionality emphasises the complexity of experiences and highlights the need for inclusive, intersectional approaches to social justice activism and policymaking to address the diverse needs of individuals and communities. Crenshaw originally used this framework to address the experiences of Black women who faced both racial and gender discrimination within the legal system, illustrating how existing legal frameworks often failed to address the specific challenges faced by individuals with intersecting identities.

When applied to hoarding behaviour, Intersectionality Theory advocates for a comprehensive, holistic approach. It suggests that hoarding may be influenced by a combination of psychological factors, socio-economic status, cultural background, trauma history, access to resources, and other intersecting identities. This theory underscores the complexity of hoarding behaviour, indicating that a singular explanation or approach may not be adequate. It encourages researchers to consider multiple layers of influence, including societal norms, historical contexts, and systemic inequalities, all of which may contribute to hoarding tendencies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

This study employed a systematic review approach emphasising document analysis. The research focused on two primary questions: the impact of cultural factors on hoarding behaviour and the influence of social factors on hoarding behaviour. The PRISMA framework served as the methodological foundation for the study.

The PRISMA framework is designed to ensure comprehensive and transparent reporting in systematic reviews. It begins by defining the eligibility criteria, which determine the inclusion of studies based on design, population, interventions, and outcomes. The next step involves identifying information sources, specifying the databases (such as SCOPUS, CINAHL (Cumulative Index To Nursing And Allied Health Literature), PUBMED, EMBASE, MEDLINE (Medical Literature Analysis And Retrieval System Online), AMED (Allied And Complimentary Medicine) (Via EBSCO) and other resources (including reference lists and grey literature) used to find relevant studies. The search strategy is carefully detailed, describing the search methods, keywords, and the time period covered. The selection process explains how studies were screened and selected for inclusion, including any tools or criteria used in this process. Data extraction outlines how information was collected from the chosen studies, followed by data synthesis, which describes how the data were analysed and combined. An assessment of bias reviews the approaches taken to evaluate the risk of bias in the included studies. The results section reports on the number of studies screened, included, and excluded, and provides details about the characteristics of the studies that were included. The summary of results offers a concise overview of the findings, and the discussion section addresses the review's limitations, concluding with overall conclusions and recommendations.

3.2. Search Strategy Report:

3.2.1. Academic Databases

The search strategy for this systematic review was meticulously designed to capture a comprehensive range of studies related to hoarding behaviour and its social and cultural influences. The primary academic database used was Scopus, renowned for its extensive coverage of high-quality research across multiple disciplines.

3.2.2. Keywords and Search Terms

To effectively identify relevant studies, a combination of carefully selected keywords was employed. The search terms included:

- "Hoarding behaviour"
- "Compulsive hoarding"
- "Social factors" AND "hoarding behaviour"
- "Cultural factors" AND "hoarding behaviour"

These keywords were chosen to cover various aspects of hoarding behaviour and its intersection with social and cultural factors. The use of "AND" in the search terms ensured that the studies included addressed both the behavioural and contextual elements of hoarding.

3.2.3. Inclusion Criteria

The inclusion criteria for selecting studies were defined to ensure relevance and quality. The criteria included:

- **Language:** Only studies published in English were considered to ensure clarity and accessibility for analysis.
- **Source Type:** Only journal articles were included. Studies published as conference papers, book chapters, or other non-journal formats were excluded to maintain a focus on peer-reviewed, scholarly work.
- **Study Design:** Both qualitative and quantitative studies were included to provide a comprehensive understanding of the topic from various methodological perspectives.
- **Relevance:** Studies had to be directly relevant to the social and cultural factors influencing hoarding behaviour to be included in the review. There was no country that was excluded in the study as exclusion criteria will be presented below

3.2.4. Exclusion Criteria

In addition to the inclusion criteria, specific exclusion criteria were also applied:

- **Non-English Studies:** Studies not published in English were excluded to ensure uniformity in language and ease of synthesis.
- **Non-Journal Publications:** Conference papers, book chapters, and other non-journal articles were excluded to focus on high-quality, peer-reviewed research.
- **Irrelevant Focus:** Studies that did not specifically address the intersection of hoarding behaviour with social and cultural factors were excluded from the review.

3.2.5. Screening and Selection Process

The screening process involved several steps to ensure the inclusion of relevant studies:

- **Initial Screening:** Titles and abstracts of studies identified through the database search were screened against the inclusion criteria.
- **Full-Text Review:** Studies that passed the initial screening underwent a full-text review to further assess their eligibility based on the detailed inclusion and exclusion criteria.
- **Data Extraction:** Relevant data from the selected studies were systematically extracted using a structured form, focusing on study design, participant demographics, methodologies, and findings related to social and cultural factors influencing hoarding behaviour.

3.2.6. Synthesis of Results

The selected studies were synthesised using thematic analysis to identify common themes and patterns related to social and cultural influences on hoarding behaviour. The synthesis aimed to provide a comprehensive understanding of how these factors impact hoarding behaviour across different cultural contexts.

3.2.7. Quality Assessment

Quality assessment tools were applied to evaluate the methodological rigor and potential biases of the included studies. This assessment ensured that the review findings were based on high-quality research.

3.3. Selection of Literature

Given the potential for a large volume of literature, the results from the database search, snowballing, and additional grey literature searches will initially be screened by title. The search results from each database will be saved in specifically named folders, and the search will be limited to studies published between 2004 and 2024. The grey literature search results will be compiled into a single file. Additionally, the references from the literature identified in the database search will be reviewed for any missing studies, which will then be saved in a separate file. Both grey literature and these additional references will also be limited to the same publication dates as the database search.

The combined search results will be consolidated into a single file, and duplicates will be removed using Zotero reference management software. The literature will then be further narrowed down to focus on the key variables in the research question by evaluating the abstracts, which will determine the quality and relevance of each study based on predefined criteria. The remaining literature will be carefully examined to identify studies that have documented the measured social and cultural factors and their relationship with hoarding behaviour.

The set of questions on the CASP Checklist will include:

1. Did the research study address focus question?
2. Did authors cite the right, important and relevant method of study for their research?
3. Was the study methodologically sound?
4. Was a domain of social and/or cultural factor assessed?
5. Was hoarding behaviour substantially assessed?
6. Can the result be applied generally?
7. Were all important outcomes considered?
8. Were there any sources of bias?
9. Were the sources of bias mitigated?
10. Are there any policy implications to this study?
11. Does the study result fit with other available evidence?

3.4. Extraction of data

Data extraction was done by obtaining the necessary information from the qualified literature characteristics and findings. McClean, (2019) asserts that it is important that each paper when assessed is considered equally using a standardised approach to ensure that no emphasis is laid on one paper over the other. Therefore, the data extraction form will be tailored to answer the research question. McClean, (2019) recommends that at the very least it should contain the following information:

- Study details (Author (s), year of publication, country of origin)
- Study methods (Study design, number of participants, gender split, recruitment strategy, follow-up procedures)
- Outcome(s) measured (List all outcomes relevant to the research question)
- Authors' conclusions
- Comments from the review (Results from the critical appraisal and personal views on the authors' interpretation)
- References

3.5. Data Synthesis

The selected studies for this review utilised various indicators, such as population description, study setting, research methods, and different variables to measure social and cultural factors in relation to various aspects of hoarding behaviour. As previously mentioned, the studies included in this review predominantly employed quantitative and qualitative methodologies. The synthesis of these studies involved combining the extracted documents focused on cultural and social factors.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0.   Descriptive Analysis

This study assessed the impact of social and cultural factors on hoarding behaviour from a systematic review perspective. The aim was to uncover previous research on these topics, with the intention of identifying earlier efforts that could inform policy direction on the various factors identified, ultimately guiding future actions. To achieve these objectives, a literature search was conducted using the Scopus database.

As previously mentioned, the study focuses on the intersection of three main subject areas: 'cultural factors,' 'social factors,' and 'hoarding behaviour.' Recognising that this targeted selection might exclude some relevant papers, a stepwise iterative search approach was employed. This approach is crucial not only for selecting content but also for emphasising the synthesis of topics in ongoing development (Cook & West, 2012).

To ensure a comprehensive selection of relevant papers, the search encompassed: (1) derivatives of the terms 'cultural factors,' 'social factors,' and 'hoarding behaviour,' as well as (2) words related to the content of these three terms. As noted by Kraus et al. (2021), the use of an asterisk after 'hoarding behaviour' allows for access to a broader range of research derived from the term, considering both British and American spellings. The search began with 'hoarding behaviour' as the main topic, initially yielding over 2,330 academic articles.

To narrow down the most relevant literature, the search was first limited to titles containing the words 'cultural factors' and 'hoarding behaviour,' resulting in 30 articles. A second search using the words 'social factors' and 'hoarding behaviour' in the title produced 143 articles. To ensure completeness, the search was further refined to include 'cultural factors OR social factors AND hoarding behaviour' in the title, which resulted in 30 additional articles.

Regarding the type of sources, the search was restricted to academic articles to align with the study's focus on exploring the state of academic research in this area. Additionally, the search was confined to the two terms 'cultural factors' and 'social factors,' yielding a total of 173 articles (30 and 143 articles, respectively). Screening was conducted based on source type and language, resulting in a final selection of 124 articles for the study.

4.1.   Research Profile

4.1.1. Historical Developments

The analysis of publication years aimed to present the trends in research on this topic. The results, as shown in Figure 1, identified the first publication in 1975. This indicates that the topic was somewhat isolated, as only 12 articles were published between 1975 and 2006, a span of 31 years. It wasn't until 2007 that researchers began to focus

more on this area, with the number of articles increasing and peaking in 2020, possibly due to the effects of the COVID-19 pandemic.

This trend suggests that social scientists have gradually risen to the challenge of addressing issues related to hoarding from various perspectives. Among the effects of hoarding behaviour, authors like Samuels et al. (2008) have noted tendencies for higher rates of hospital attendance, among other issues. However, these authors have not extensively discussed the potential positive effects of hoarding, particularly during times of war, famine, and natural disasters, as was observed during the COVID-19 pandemic, as illustrated in Figure 1.
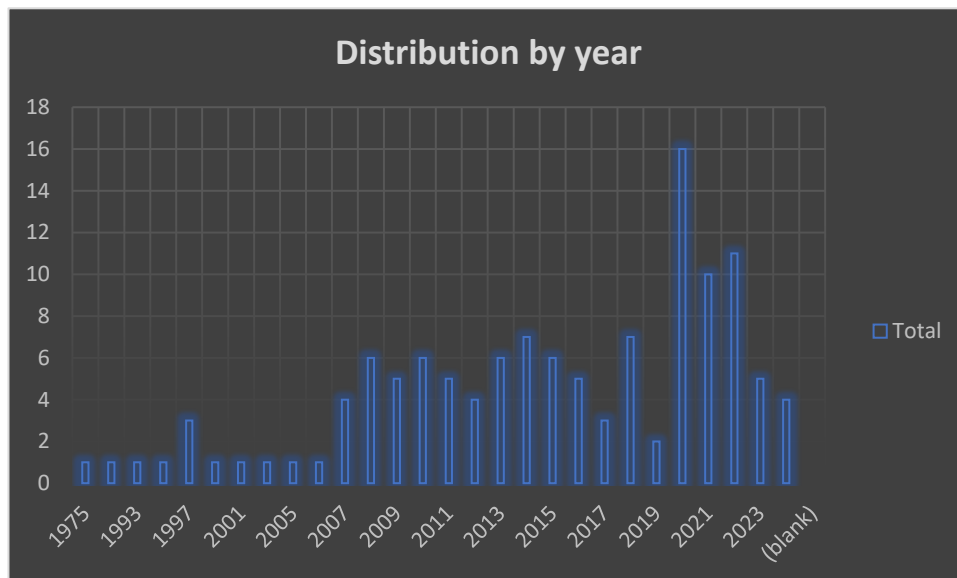
Figure 1: Analysis of publication by year.

4.1.2. Distribution by Source of Publication

The analysis of academic journals publishing on this topic reveals two crucial aspects: identifying the journals that actively contribute to the subject and determining where the most highly cited articles are published. Applying the SCImago Journal Rank (SJRQ1) criteria, which ranks journals based on their impact and prestige, it was found that publications on this topic are spread across a wide range of journals, each with varying degrees of influence.

Among the journals analysed, the "Journal of Obsessive-Compulsion and Related Disorders" emerges as the most prolific, with 9 articles published on the topic. These articles have accumulated a total of 127 citations, indicating a moderate level of influence within the academic community. Although this journal has the highest number of publications, its citation count suggests that the impact of its research is not as substantial as that of other journals with fewer publications.

Psychiatric Research is another significant journal in this field, with 7 articles on the topic. However, it surpasses the "Journal of Obsessive-Compulsion and Related Disorders" in terms of citation impact, with a total of 231 citations. This higher citation

count indicates the greater influence of the research published in Psychiatric Research, making it a notable source for widely referenced studies.

Behavioural Research and Therapy stands out as a particularly impactful journal in this analysis. Although it has published only 4 articles on the topic, these have received an impressive 600 citations. This high citation count highlights the significant influence of the research published in this journal, underscoring its role as a key source of high-impact studies in the field.

Finally, the American Journal of Psychiatry is noteworthy for its exceptional citation impact. Despite publishing just one article on the topic, this journal has garnered the highest number of citations, with a total of 607. This indicates that the single publication in this journal is of considerable influence and visibility, further emphasising the importance of not just the quantity of articles produced, but also where the research is published.
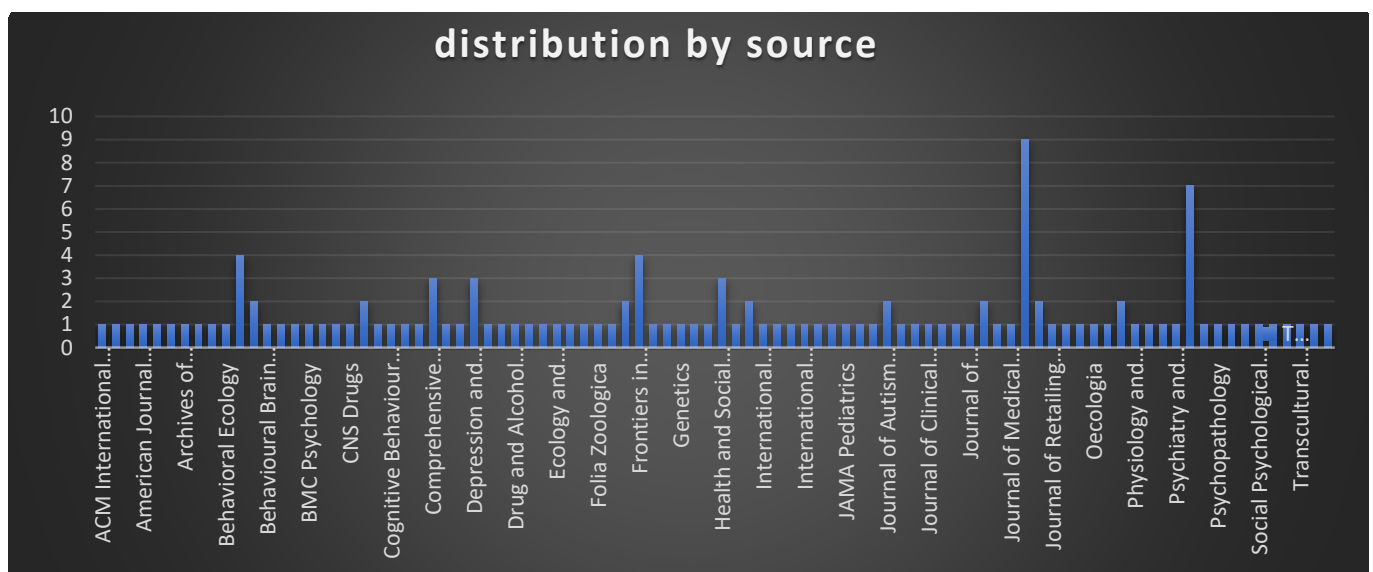
Figure 2: Analysis of distribution by source

4.1.3. Distribution by method of study

Figure 3 presents the distribution by methods used in various studies. The result showed that survey research method was the most common methods that are used in these studies. This is followed by experimental studies and them qualitative studies. The study revealed that longitudinal studies that collects information over a period of time and mixed studies that provide in-depth knowledge of the phenomenon under studies have not been adequately used in these studies under review.
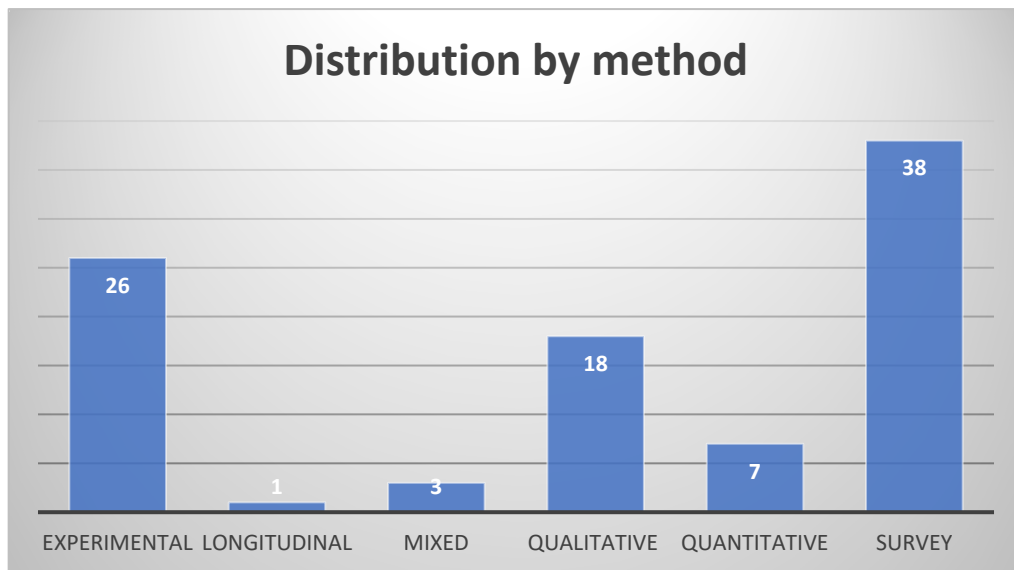
Figure 3: Analysis of publication by method

4.1.4 Distribution by type of hoarding

The figure below shows the different hoarding behaviour of individuals and societies. According to figure 4 the most common hoarding behaviour is the general hoarding behaviour followed by obsessive compulsive disorder, compulsive buying disorder and then scatter hoarding, squalor and then stock piling before panic buying among others.
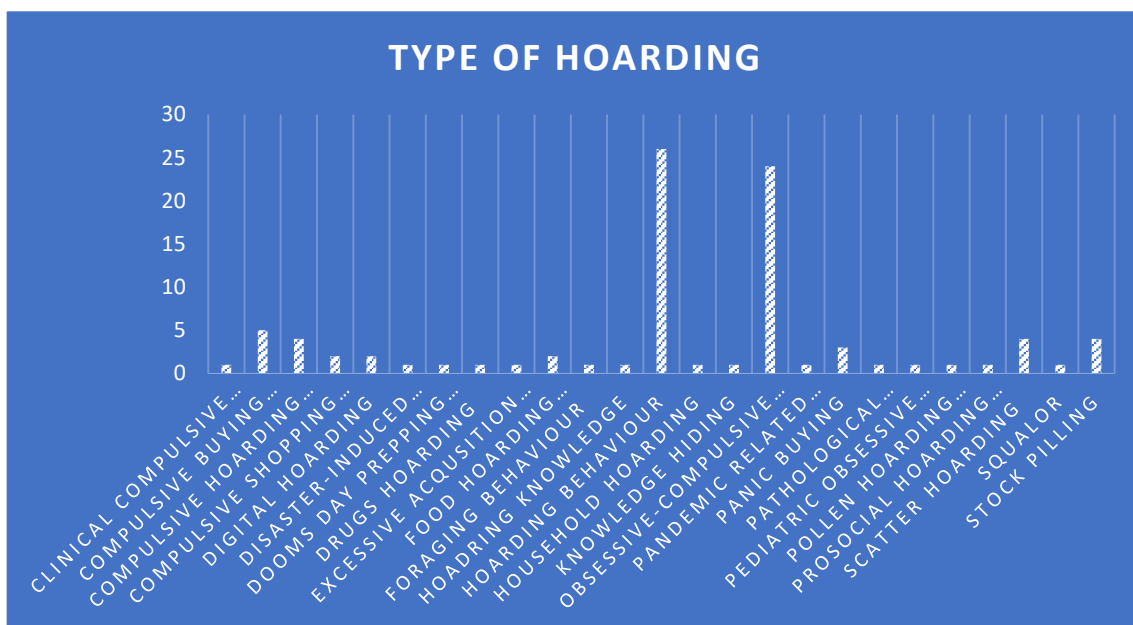
Figure 4: Analysis of publication by type of hoarding

4.2. Results

4.2.1. Research Question One

What are the social factors influencing hoarding behaviour?

Social factors influencing hoarding behaviour encompass a range of influences from familial, social, and demographic sources. Parental and family influences play a significant role, with factors such as parental rearing practices and overprotection (Alonso et al., 2004), family relations including a history of abuse (Eapen & Črnčec, 2014), and parental bonding (Chen et al., 2017). Additionally, parental psychopathology (Samuels et al., 2008) and aspects of maternal care, including overprotection and overcontrol (Chen et al., 2017), are also influential.

Social and interpersonal relationships further contribute to hoarding behaviour. Social exclusion and a lack of social support (Rajkumar, 2021), as well as substance abuse (Gentil et al., 2009; Al Zoubi et al., 2021; Samuels et al., 2008), are key factors. Marriage status (Archer et al., 2019), social functioning, living alone (Archer et al., 2019), and feelings of loneliness (Chen et al., 2023) also impact hoarding behaviour. The effect on relationships and experiences of marginalisation (Wilbram et al., 2018), social phobia (Masi et al., 2010), higher rates of hospitalisation (Samuels et al., 2018), and feelings of being unsupported (Norberg et al., 2020) are significant contributors as well.

The use of social media and social networks also plays a role, with research indicating that social media use (Goodwin et al., 2021), social networks (Su, 2020), and trust in information from these sources (Goodwin et al., 2021) can influence hoarding behaviour. Demographic attributes such as gender differences and other social differences (La Buissonnière-Ariza et al., 2018; Smith & Thomas, 2021; RuNeppell et al., 2006; Kim et al., 2018; Masi et al., 2010; Narayanaswamy et al., 2012; Højgaard et al., 2017) are also relevant factors.

Additional social factors include educational qualification, employment status (Lo & Harvey, 2014), job security (Li et al., 2007), and comfort related to holding wealth (Norberg et al., 2020). Cohabitation, occupational functioning (Archer et al., 2019), and quality of care (Eapen & Črnčec, 2014) are also influential. Further factors noted by scholars include social phobia (Frost et al., 2011), substance use and alcohol dependence (Gentil et al., 2009), insecurity and hostility bias (Samuels et al., 2008; Chen et al., 2023), bereavement (Pallanti & Hollander, 2008), strain and panic buying (Rebouças & Schmidek, 1997; Al Zoubi et al., 2021), and access to wealth and poor home conditions (Luu et al., 2018). The lack of clinical management tools (Bodryzlova & O'Connor, 2009) and difficulty in discarding items (Vinoi et al., 2024) are additional factors to consider.

Organisational factors within the social sphere, such as procedural justice (Huo et al., 2016), social restrictiveness, the influence of reality television shows (Bates et al., 2020), social distance, and non-coercive versus coercive social influence (Sheu & Kuo, 2020) also contribute to the understanding of hoarding behaviour.

Table 1:Social factors and hoarding behaviour

Title	social factors	Authors
Perceived parental rearing style in obsessive-compulsive disorder: Relation to symptom dimensions	parental rearing practice, over protection	Alonso et al, 2004
Cognitive correlates of hoarding symptoms: An exploratory study with a non-Western community sample	belief in supernatural forces	(Yorulmaz &Dermihan 2015)
Impact of Chinese Culture Values on Knowledge Sharing Through Online Communities of Practice	competitiveness, organisational culture behaviour	(li et al, 2007)
Mental Health Factors That Guide Individuals to Engage in Overconsumption behaviour During the COVID-19 Pandemic: A Cross-Cultural Study Between USA and Ecuador	individualism vs collectivism	(Franklin et al, 2022)
Exploring yale-brown obsessive-compulsive scale symptom structure in Iranian OCD patients using item-based factor analysis	class of products	(Asadi et al, 2016)
Hoarding behaviour in an Italian non-clinical sample	educational qualification, employment status	Lo & Harvey, 2014
Optimism-pessimism, conspiracy theories and general trust as factors contributing to COVID-19 related behaviour – A cross-cultural study	fear of food shortage	Jovančević & Milićević, 2020
Second-order factor structure of the Vancouver Obsessive Compulsive Inventory (VOCI) in a non-clinical sample		Chiorri et al., 2021
Antecedents and intervention mechanisms: a multi-level study of R&D team's knowledge hiding behaviour	territoriality, interaction justice, organisational result justice	Huo et al, 2016)
The Relationship Between Compulsive Buying and Hoarding in China: A Multicenter Study	impulsive control disorder	He et al, 2021
A transcultural study of hoarding disorder: Insights from the United Kingdom, Spain, Japan, and Brazil	demographic characteristics	Nordsletten et al.,2018
Structure and clinical correlates of obsessive–compulsive symptoms in a large sample of children and adolescents: a factor analytic study across five nations	consistent behaviour based on gender and age	Højgaard et al.2017
Impact of age of onset of illness on clinical phenotype in OCD	age of onset, gender	Narayanaswamy et al.,2012

Prosociality and hoarding amid the COVID-19 pandemic: A tale of four countries	threat perception, prosocial act	Tse et al, 2022
Motivation, incentives and organisational culture	cultural change	Milne P.,2007
Ten-year follow-up study of Japanese patients with obsessive–compulsive disorder	sociocultural factors	Nakajima et al, 2018
Hoarding and the multi-faceted construct of impulsivity: A cross-cultural investigation	attentional deficit, impulsivity	Timpano et al, 2013
Prevalence of Obsessive-Compulsive Symptoms in Elderly Parkinson Disease Patients: A Case-Control Study	Parkinson disease	Lo et al 2020
Association between fear of COVID-19 and hoarding behaviour during the outbreak of the COVID-19 pandemic: The mediating role of mental health status	educational level, economic level, subject social status, objective social status	Zhao et al 2022
Dual speculative hoarding: A wholesaler-retailer channel behavioural phenomenon behind potential natural hazard threats	non-coercive social influence, coercive social influence	Sheu & Kuo ,2020
Anxiety, perceived control and pandemic behaviour in Thailand during COVID-19: Results from a national survey	social media	Goodwin et al ,2021
Squalor in community-referred hoarded homes	access to the kitchen, access to bathroom	Luu et al ,2018
A pilot study of adapted social cognition and intervention training (SCIT) for hoarding disorder	Loneliness	Chen et al 2023
Alcohol use disorders in patients with obsessive-compulsive disorder: The importance of appropriate dual-diagnosis	substance use	Gentil et al 2009
A Biopsychosocial Approach to Understanding Panic Buying: Integrating Neurobiological, Attachment-Based, and Social-Anthropological Perspectives	social exclusion, lack of social support	Rajkumar R.,2021
Hoarding in obsessive-compulsive disorder: Results from the OCD Collaborative Genetics Study	miserliness, preoccupation with details, difficulty making decisions,	Samuels et al 2007
Predicting obsessive compulsive disorder subtypes using cognitive factors	intolerance to uncertainty	Ramezani et al, 2016

Exploring the relationship between OCD symptom subtypes and domains of functional impairment	quality of life, increased health care services	Vorstenbosch et al ,2012
Give or keep? A transactive memory approach to understanding knowledge hoarding on the organisational digital knowledge repository	expertise, social networks	Su ,2020
Compulsive buying	overpowering urge to buy	Müller et al, 2015
Processes in group cognitive and behavioural treatment for hoarding	excessive cluster at home, difficulty in discarding objects	Schmalisch et al ,2010
Characterising the hoarding phenotype in individuals with OCD: Associations with comorbidity, severity and gender	gender differences	Wheaton et al, 2018
Determinants of object choice and object attachment: Compensatory consumption in compulsive buying-shopping disorder and hoarding disorder	unsupported individuals	Norberg et al .2020
Presentation and Correlates of Hoarding Behaviour in Children with Autism Spectrum Disorders and Comorbid Anxiety or Obsessive-Compulsive Symptoms	gender differences, social differences	La Buissonnière-Ariza et al 2018
The genetic architecture of sucrose responsiveness in the honeybee (Apis mellifera L.)	gender differences	RuNeppell et al 2006
The personality puzzle: a comprehensive analysis of its impact on three buying behaviours		Aquino & Lins, 2023
Attitudes and Psychological Factors Associated with News Monitoring, Social Distancing, Disinfecting, and Hoarding Behaviour among US Adolescents during the Coronavirus Disease 2019 Pandemic	social distances	Oosterhoff & Palmer,2020
Prevalence and correlates of hoarding behaviour in a community-based sample	alcohol dependence, insecurity	Samuels et al ,2008
Doomsday Prepping During the COVID-19 Pandemic	gender, age	Smith & Thomas, 2021
Buried in stigma: Experimental investigation of the impact of hoarding depictions in reality television on public perception	social restrictiveness, reality television show, social distance	Bates et al ,2020
Parental bonding and hoarding in obsessive–compulsive disorder	parental bonding	Chen et al, 2017

Is it time to stock up? Understanding panic buying during the COVID-19 pandemic	Attitude	Rune & Keech, 2023
Community hoarding task forces: A comparative case study of five task forces in the United States	social services	Bratiotis, 2013
A naturalistic exploratory study of the impact of demographic, phenotypic and comorbid features in pediatric obsessive-compulsive disorder	gender, social phobia, marginalization	Masi et al, 2010
Compulsive hoarding: A qualitative investigation of partner and carer perspectives	Impact in the relationship, Marginalization	Wilbram et al. 2018
The Family Impact Scale for Hoarding (FISH): Measure development and initial validation	quality of life	Nordsletten et al, 2014
Relationship between symptom severity, psychiatric comorbidity, social/occupational impairment, and suicidality in hoarding disorder	unemployment, social functioning, living alone, marriage	Archer et al, 2019
Household Drug Stockpiling and Panic Buying of Drugs During the COVID-19 Pandemic: A Study from Jordan	drugs	Al Zoubi et al, 2021
DSM 5 and child psychiatric disorders: What is new? What has changed?	family relations, history of abuse	Eapen & Črnčec, 2014
Clinical characteristics of comorbid obsessive-compulsive disorder and bipolar disorder in children and adolescents	sexual obsession	Joshi et al ,2010
Sex-specific clinical correlates of hoarding in obsessive-compulsive disorder	higher rate of hospitality	Samuels et al, 2018
Dual diagnosis of obsessive compulsive and compulsive buying disorders: Demographic, clinical, and psychiatric correlates	Gender	Kim et al, 2018
Pediatric weight management interventions improve prevalence of overeating behaviours	parental stress, insecurity	Harshman et al ,2022
Down-regulation of honeybee IRS gene biases behaviour toward food rich in protein	social foraging	Wang et al, 2010
Time for De-cluttering: Digital clutter scaling for individuals and enterprises	educational qualification, social media, age	Uğur & Çalışkan, 2022
Tests of inferential reasoning by exclusion in Clark's nutcrackers (Nucifraga columbiana)	social organization	Tornick & Gibson, 2013
Boldness suppresses hoarding behaviour in food hoarding season and	Shynes	Gan et al, 2024

reduces over-wintering survival in a social rodent		
Anxiety Sensitivity: A Potential Vulnerability Factor for Compulsive Hoarding	anxiety, sensitivity	Medley et al, 2013
Hoarding in children and adolescents with obsessive-compulsive disorder	social communication, social motivation	Samuels et al, 2014
Mechanisms of cache decision making in fox squirrels (sciurus niger)	quality of food, number of competitors	Preston & Jacobs, 2019
Obsessive-compulsive symptoms among alcoholics in outpatient treatment: Prevalence, severity and correlates	lower income, expression, severe dependence	Campos et al, 2015
A preliminary investigation of domestic squalor in people with a history of alcohol misuse: Neuropsychological profile and hoarding behaviour - An opportunistic observational study		Gleason et al ,2015
Group cognitive and behavioural treatment for compulsive hoarding: a preliminary trial.		Muroff et al ,2009
Factors Affecting the Referral Rate of the Hoarding Disorder at Primary Mental Health Care in Quebec	health/professional services	Bodryzlova & O'Connor ,2009
Holding on to your memories: Factors influencing social media hoarding behaviour	perceived low price, cyber incivility	Vinoi et al ,2024
Council tenancies and hoarding behaviour: A study with a large social landlord in England	feeling conflicted, social care issues, working with others	Porter & Hanson ,2022
A remote cognitive behavioural therapy approach to treating hoarding disorder in an older adult	cognitive based therapy	Malone et al ,2022
Adult safeguarding managers' understandings of self-neglect and hoarding	isolation, bereavement	Owen et al,2022
Handling and isolation in three strains of rats affect open field, exploration, hoarding and predation	social isolation	Rebouças & Schmidek ,1997
Ontogeny of hoarding in the golden hamster: The development of motor patterns and their sequential coordination	social isolation	Etienne et al ,1982
Symptoms of obsessive-compulsive disorder	social relationship	Leckman et al 1997
Pattern of drug use in Addis Ababa community	gender differences, education	Amare et al ,1997

Sources (Database Search, 2024)

4.2.2. Research Question Two

What are the cultural factors that influence hoarding behaviour?

An examination of previous studies reveals a complex array of cultural factors affecting hoarding behaviour. Key cultural influences identified in the literature include beliefs in supernatural forces (Yorulmaz & Dermihan, 2015), the tension between individualism and collectivism (Franklin et al., 2022), and the impact of cultural change (Milne, 2007). Additionally, sociocultural factors (Nakajima et al., 2018), religious constructions (Malik & Kamal, 2020), and religious obsessions (Joshi et al., 2010) are relevant.

Other significant factors include preferences in tasteful choices (Rune & Keech, 2023), positive and negative beliefs (Yorulmaz & Dermihan, 2015), and consumer openness (Dammeyer, 2020). Competitiveness and organisational culture behaviours (Li et al., 2007) also play a role, as do territoriality and concepts of interaction justice and organisational result justice (Huo et al., 2016). The class of products (Asadi et al., 2016), attitudes and beliefs (Bates et al., 2020), subjective norms (Rune & Keech, 2023), and sexual and religious practices (Alonso et al., 2004) further contribute to the cultural factors influencing hoarding behaviour.

Table 2: Cultural factors and hoarding

Title	Cultural factors	Authors
Perceived parental rearing style in obsessive-compulsive disorder: Relation to symptom dimensions	sexual and religious practices	Alonso et al , 2004
Cognitive correlates of hoarding symptoms: An exploratory study with a non-Western community sample	positive and negative beliefs	(Yorulmaz &Dermihan 2015)
Impact of Chinese Culture Values on Knowledge Sharing Through Online Communities of Practice	job security	(li et al, 2007)
Antecedents and intervention mechanisms: a multi-level study of R&D team's knowledge hiding behaviour	procedure justice	(Huo et al, 2016)
Prosociality and hoarding amid the COVID-19 pandemic: A tale of four countries	positive family history, sexual obsession, repeating rituals	(Tse et al , 2022)
Motivation, incentives and organisational culture	Pulling	(Milne P.,2007)
Dual speculative hoarding: A wholesaler-retailer channel behavioural phenomenon behind potential natural hazard threats	religious construction	(Sheu & Kuo ,2020)

Hoarding in obsessive-compulsive disorder: Results from the OCD Collaborative Genetics Study	trust in information	Samuels et al 2007)
Predicting obsessive compulsive disorder subtypes using cognitive factors	indecision, procrastination	Ramezani et al , 2016)
Ethnicity, socio-economic status and health research: Insights from and implications of Charles Tilly's theory of durable inequality	poor condition of the home	Lorant & Bhopal , 2011
Exploring the relationship between OCD symptom subtypes and domains of functional impairment	hostility bias	Vorstenbosch et al ,2012
Introduction: Unique manifestations of obsessive-compulsive spectrum disorders	sexual obsession, negative family history	La Buissonniere-Ariza & Storch, 2018
Clinical correlates of obsessive-compulsive symptom dimensions in at-risk mental states and psychotic disorders at early stages	ethological factors	Mariné et al ,2015
Buried in stigma: Experimental investigation of the impact of hoarding depictions in reality television on public perception	consumer openness	Bates et al ,2020
Parental bonding and hoarding in obsessive–compulsive disorder	comfort to hold wealth	Chen et al, 2017
What COVID-19 is Teaching Us About Counseling for Weight Management	parental psychopathology	Kushner, 2020
The Prader-Willi syndrome Profile: validation of a new measure of behavioural and emotional problems in Prader-Willi syndrome	attitude and beliefs	Dykens et al ,2024
Relationship between symptom severity, psychiatric comorbidity, social/occupational impairment, and suicidality in hoarding disorder	subjective norms	Archer et al , 2019
Household Drug Stockpiling and Panic Buying of Drugs During the COVID-19 Pandemic: A Study From Jordan	demand of food	Al Zoubi et al , 2021
Clinical characteristics of comorbid obsessive-compulsive disorder and bipolar disorder in children and adolescents	leadership	Joshi et al ,2010
Pediatric weight management interventions improve prevalence of overeating behaviours	cohabitation, occupational functioning	Harshman et al ,2022

Genetic architecture of ovary size and asymmetry in European honeybee workers	panic buying, possession of health	Rueppell et al , 2011
Linking summer foraging to winter survival in yellow pine chipmunks (Tamias amoenus)	quality of care	Kuhn & Vander , 2008
Down-regulation of honey bee IRS gene biases behaviour toward food rich in protein	religious obsession	Wang et al, 2010
Mechanisms of cache decision making in fox squirrels (sciurus niger)	reduced meal	Preston & Jacobs , 2019
Sociodemographic and socioeconomic characteristics of elder self-neglect in an US Chinese ageing population	Satiety	Dong, 2016
The transdiagnostic nature of disgust propensity: An examination of its associations with anxiety and obsessive compulsive-related disorder symptoms	lack of clinical management tools	Stasik-O'Brien et al ,2021
Handling and isolation in three strains of rats affect open field, exploration, hoarding and predation	discarding difficulty	Rebouças & Schmidek ,1997
Ontogeny of hoarding in the golden hamster: The development of motor patterns and their sequential coordination	Bereavement	Etienne et al ,1982

Sources (Database Search, 2024)

4.3. Bibliometric Analysis of the Data

4.3.1. Co-authorship Citation by Authors

The citation analysis was conducted using a minimum threshold of eight citations per document. Out of 127 documents, 87 met this criterion. The analysis, as shown in Figure 5, resulted in a total of 87 clusters, with only Cluster 1 containing two cited documents (Chen, 2017; Mathes, 2020). The central position and prominence of the Dubey (2020) node indicate its crucial role within the research network on hoarding behaviour, likely serving as a cornerstone for subsequent studies and citations. The proximity and connections to other key nodes suggest that Dubey (2020) is frequently referenced alongside other influential works, reinforcing its foundational status in the field.

Clusters of nodes, distinguished by varying colours, reveal distinct areas of focus within hoarding behaviour research. For instance, a concentration of related nodes around Samuels (2007) and Müller (2015) may indicate a cohesive body of work addressing specific psychological aspects or intervention strategies for hoarding behaviour, while other clusters might represent research on the social and environmental impacts of hoarding. The network also highlights the collaborative

nature of the research community studying hoarding behaviour, with multiple nodes interconnected through co-authorship links. These connections underscore the interdisciplinary and collaborative efforts within the field, as researchers from diverse backgrounds contribute to the collective understanding of hoarding behaviour.
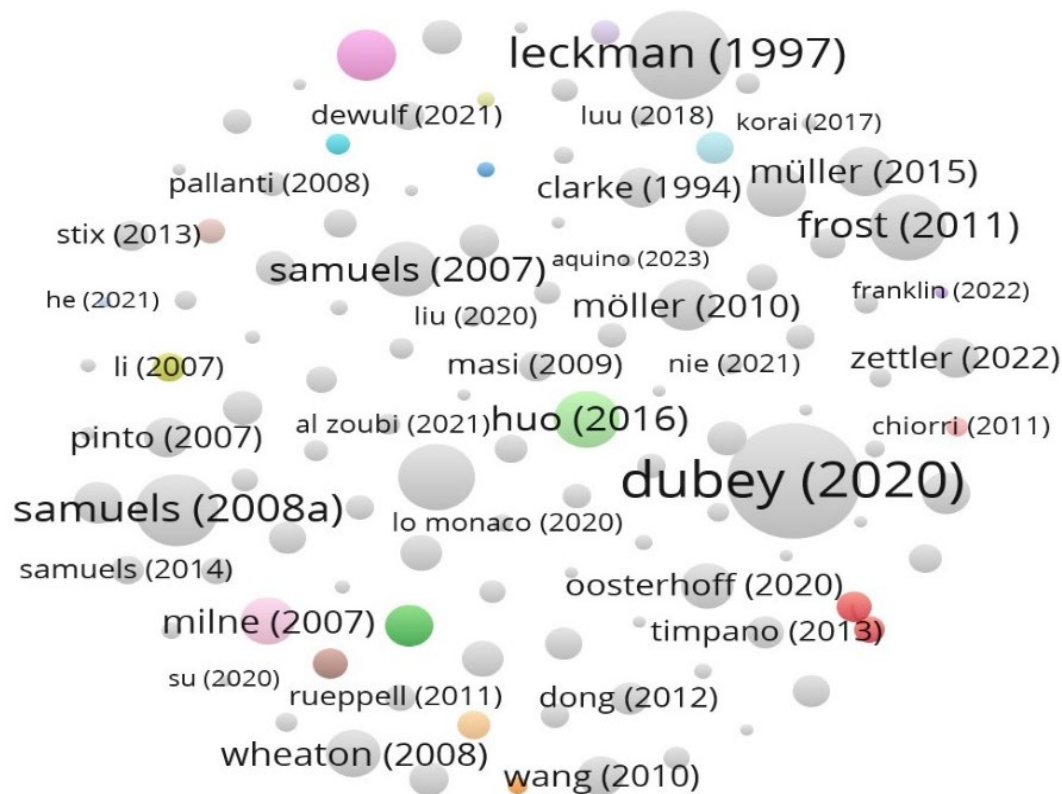

Figure 5: Citation analysis by author

4.3.2. Citation by Source

The analysis was conducted with a maximum limit of two documents per author out of 541, resulting in 61 authors meeting the threshold for selection. As shown in Figure 6, two clusters emerged, with each cluster revealing specific patterns.

The central position and size of nodes such as Piacentini, John, Nestadt, Gerald, and Samuels, Jack within the clusters highlight their pivotal roles in the research network on hoarding behaviour. Their work is frequently co-cited with other influential authors, underscoring their significant contributions to the field. These authors serve as key references for researchers investigating various aspects of hoarding behaviour, from genetic predispositions to clinical interventions.

The clusters of nodes, distinguished by different colours, reveal distinct research focuses within hoarding behaviour. For example, the red cluster, which includes prominent authors such as Cullen, Bernadette, and Greenberg, Benjamin, likely represents research on the biological and genetic factors influencing hoarding

behaviour. In contrast, the green cluster, including authors such as Bienvenu, Joseph, and Geller, Dan, might focus on clinical and therapeutic aspects, highlighting the multifaceted nature of the field.

The network also underscores the collaborative nature of the research community studying hoarding behaviour. Multiple nodes connected through co-citation links reflect a robust interdisciplinary effort. Researchers from diverse backgrounds contribute to the collective understanding of hoarding behaviour, demonstrating the integration of various research perspectives.
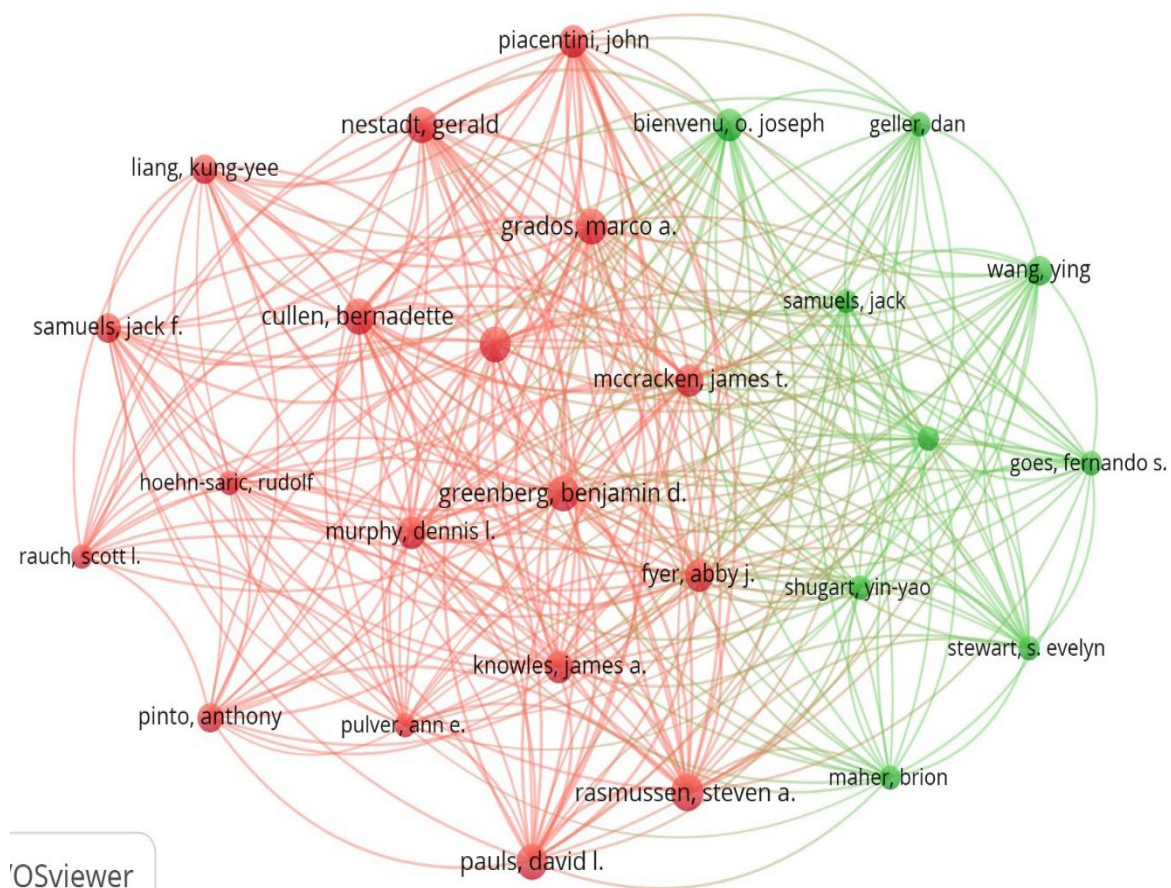
Figure 6:Citation analysis by source

4.3.3. Network map by co-occurrence using title and abstracts

The result in the figure 7 was carried out using 7 items as the minimum number of occurrence and out of 3886 terms, 89 met the criteria or the threshold and a total of 3 clusters were obtained. The largest cluster was cluster 1 with a total of 26 items with items revolving around cluster two was made up of 22 items with items captured as social and psychological issues of hoarding while cluster three was made up of 4 items addressing hoarding behaviour properly.

Figure 7: Network map by co-occurrence using title and abstracts

4.4. Discussion of Findings

4.4.1. Social Factors and Hoarding Behaviour

Hoarding behaviour often arises from complex interactions within the family environment during childhood and adolescence. Research consistently shows that parental rearing practices, family dynamics, and histories of abuse significantly affect the development and severity of hoarding symptoms later in life. It is evident that early familial experiences play a crucial role in shaping an individual's propensity for hoarding.
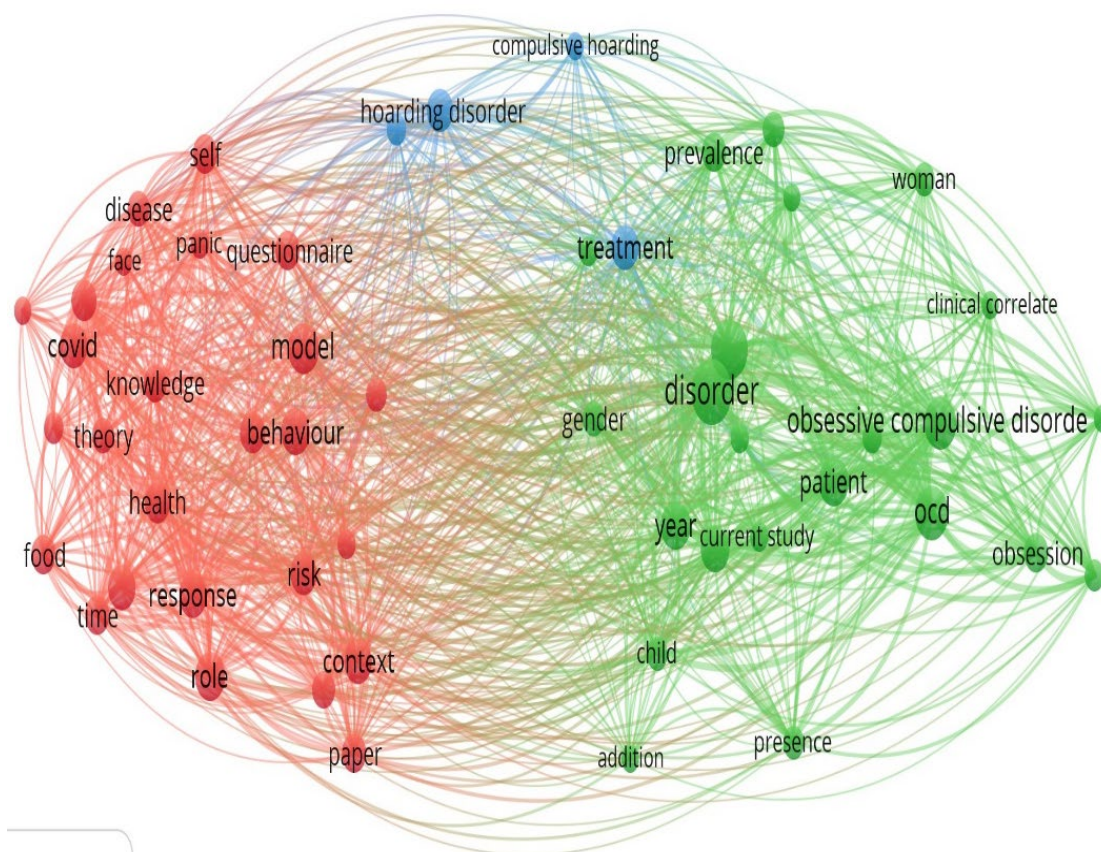
Studies by Alonso et al. (2004), Eapen & Črnčec (2014), Chen et al. (2017), and Samuels et al. (2008) underscore the significance of parental rearing practices, such as overprotection and inadequate bonding, in predisposing individuals to hoarding behaviour. Children raised in environments characterised by overprotective parenting or a lack of emotional warmth may develop maladaptive coping mechanisms, such as hoarding, as a way to assert control or find comfort in their surroundings. Additionally, family dynamics and histories of abuse are linked to hoarding symptoms, with individuals who have experienced adverse childhood events more likely to exhibit hoarding behaviour in adulthood.

Furthermore, parental psychopathology, particularly maternal mental health, has been identified as a significant factor influencing hoarding behaviour. Research indicates that individuals with mothers who have a history of psychiatric disorders or exhibit

symptoms of depression or anxiety are more likely to display hoarding tendencies (Chen et al., 2017; Samuels et al., 2008). These findings highlight the intergenerational transmission of psychopathology and the role of familial influences in shaping hoarding behaviour across generations. The quality of maternal care is also significant, with Chen et al. (2017) finding that maternal overprotection and overcontrol were associated with increased hoarding severity in their study sample. This suggests that the nature of the mother-child relationship, particularly the degree of autonomy and independence granted to the child, may impact the development of hoarding behaviour. Thus, parental and family influences profoundly impact the development and manifestation of hoarding behaviour. Early experiences within the family environment, including parenting practices, family dynamics, and maternal mental health, are critical in shaping an individual's propensity for hoarding. Addressing these familial influences is essential for developing effective interventions and support strategies for individuals affected by hoarding disorder.

Similarly, the findings indicate that hoarding behaviour is intricately linked to the quality of social and interpersonal relationships. Research consistently shows that social factors, such as social exclusion, lack of social support, and difficulties in forming and maintaining relationships, are associated with increased hoarding severity. Studies by Rajkumar (2021), Gentil et al. (2009), Al Zoubi et al. (2021), and Samuels et al. (2008) highlight the detrimental effects of social exclusion and lack of social support on hoarding behaviour. Individuals who feel socially isolated or marginalised may resort to hoarding as a means of coping with feelings of loneliness or creating a sense of security and control in their lives. Moreover, substance abuse is commonly associated with hoarding disorder, further exacerbating social challenges and hindering the formation of meaningful relationships.

Loneliness is also consistently linked to hoarding severity, with individuals reporting higher levels of loneliness exhibiting more pronounced hoarding behaviour (Chen et al., 2023). Loneliness may drive the desire to accumulate possessions as a substitute for meaningful social connections, leading to further isolation and withdrawal from social interactions. Additionally, difficulties in relationships and interpersonal conflicts have been identified as triggers for hoarding behaviour. Individuals who struggle with social interactions or experience strained relationships with family members or peers may retreat into hoarding as a way to avoid confrontation or alleviate distress (Wilbram et al., 2018). Social and interpersonal relationships, therefore, play a crucial role in the development and maintenance of hoarding behaviour. The quality of social support networks, social exclusion, and loneliness all contribute to the severity of hoarding symptoms. Recognising the impact of social factors on hoarding disorder is essential for designing interventions that address underlying social challenges and promote social connectedness and support for affected individuals.

Additionally, the emergence of social media and online networks has introduced new dimensions to hoarding behaviour, influencing individuals' attitudes and behaviours towards possessions and accumulation. Research suggests that social media platforms and online content consumption may impact hoarding tendencies, albeit in nuanced ways. Studies by Goodwin et al. (2021) and Su (2020) explore the relationship between social media use and hoarding behaviour, highlighting the potential role of digital environments in perpetuating hoarding tendencies. Individuals may be exposed to triggering content or misinformation online, reinforcing maladaptive

beliefs and behaviours related to possession acquisition and retention. Moreover, the anonymity and accessibility of online platforms may facilitate compulsive acquisition and hoarding behaviour, as individuals can easily acquire items without facing social scrutiny or judgement.

Trust in information disseminated through social media platforms may also impact hoarding behaviour. Individuals who place greater trust in online information sources may be more susceptible to hoarding-related content, leading to increased engagement with such material and reinforcement of hoarding behaviour. However, the relationship between social media use and hoarding behaviour is complex and multifaceted. While some individuals may be influenced by online content to engage in hoarding behaviour, others may use social media as a means of seeking support or connecting with others who share similar experiences. Additionally, social media can serve as a valuable resource for disseminating information about hoarding disorder and connecting individuals with appropriate support services and treatment options. Thus, social media and online networks have the potential to influence hoarding behaviour, although the nature and extent of this influence warrant further investigation. Recognising the role of digital environments in shaping hoarding tendencies is crucial for developing targeted interventions and support strategies that address the unique challenges posed by online platforms.

Hoarding behaviour is also influenced by various demographic factors, including gender, social status, cultural background, and socioeconomic status. Research consistently shows that demographic characteristics play a significant role in shaping individuals' attitudes and behaviours towards possessions and accumulation. Studies by La Buissonnière-Ariza et al. (2018), Smith & Thomas (2021), RuNeppell et al. (2006), Kim et al. (2018), Narayanaswamy et al. (2012), and Højgaard et al. (2017) have explored the relationship between demographic attributes and hoarding behaviour, highlighting the diverse ways in which gender differences, social disparities, and cultural influences impact hoarding tendencies.

Gender differences in hoarding behaviour have been observed, with some studies suggesting that women may be more likely to exhibit hoarding symptoms than men. However, the extent to which gender influences hoarding severity remains debated, with some researchers proposing that gender differences may be mediated by factors such as age, socioeconomic status, and cultural background. Social disparities are also implicated in hoarding behaviour, with individuals from lower socioeconomic backgrounds more likely to exhibit hoarding symptoms. Economic instability, limited access to resources, and lack of social support may contribute to the development and persistence of hoarding behaviour among marginalised populations.

Cultural influences play a crucial role in shaping individuals' attitudes towards possessions and accumulation. Cultural norms and values regarding materialism, consumerism, and personal space can influence hoarding tendencies, with some cultures placing greater emphasis on material possessions and accumulation than others. Thus, demographic attributes exert a significant influence on hoarding behaviour, shaping individuals' attitudes and behaviours towards possessions and accumulation. Recognising the role of demographic factors in hoarding disorder is essential for developing culturally sensitive interventions and support strategies that address the unique needs of diverse populations affected by hoarding disorder.

In addition to familial, social, and demographic influences, hoarding behaviour is also shaped by various socioeconomic factors, including educational attainment, employment status, job security, and financial stability. Research indicates that individuals' socioeconomic circumstances play a significant role in shaping their attitudes and behaviours towards possessions and accumulation. Studies by Lo & Harvey (2014), Li et al. (2007), and Norberg et al. (2020) have explored the relationship between socioeconomic factors and hoarding behaviour, highlighting the diverse ways in which educational qualifications, employment status, and financial stability impact hoarding tendencies.

Educational qualifications are linked to hoarding behaviour, with individuals with lower levels of education more likely to exhibit hoarding symptoms. Limited access to educational opportunities and resources may contribute to the development and persistence of hoarding behaviour among individuals with lower levels of education. Employment status and job security are also relevant, with individuals facing economic instability or lacking job security more likely to exhibit hoarding symptoms. Financial insecurity and uncertainty about the future may lead individuals to engage in hoarding as a way to cope with stress and anxiety. Furthermore, comfort with holding wealth and occupational functioning have been identified as significant predictors of hoarding severity. Individuals who feel insecure about their financial situation or struggle to maintain stable employment may resort to hoarding to exert control over their lives and surroundings. Therefore, socioeconomic factors play a critical role in shaping hoarding behaviour, influencing individuals' attitudes and behaviours towards possessions and accumulation. Recognising the impact of socioeconomic circumstances on hoarding disorder is essential for developing interventions and support strategies that address underlying economic inequalities and promote financial literacy and stability among affected individuals.

4.4.2. Cultural Factors and Hoarding Behaviour

The impact of supernatural beliefs and religious practices on hoarding behaviour underscores the significant role that cultural beliefs and traditions play in shaping attitudes towards possessions and accumulation. In various cultures and belief systems, material objects often acquire meanings that extend beyond their practical use, encompassing symbolic, spiritual, or supernatural significance. In cultures where belief in supernatural forces is prevalent, individuals might ascribe special powers or meanings to certain objects, leading to their accumulation. For instance, in some traditions, specific amulets or talismans are believed to offer protection or ward off malevolent forces, prompting individuals to hoard these items to safeguard themselves or maintain a connection with their cultural or spiritual heritage (Yorulmaz & Dermihan, 2015).

Similarly, religious beliefs and practices significantly influence hoarding behaviour. Religious relics, sacred texts, or ritualistic items often hold profound spiritual significance for believers, leading them to accumulate and preserve these items. Individuals might view such objects as sacred or imbued with divine power, which can drive them to hoard them as a means of demonstrating their religious devotion or maintaining a link to their faith (Malik & Kamal, 2020). Additionally, religious obsession can manifest as compulsive hoarding behaviour, where individuals excessively collect religious artifacts or engage in ritualistic practices. For example, those with religious

OCD (obsessive-compulsive disorder) might feel compelled to gather religious objects or repeatedly perform rituals to alleviate anxiety or guilt (Joshi et al., 2010).

The cultural significance of objects and the associated beliefs vary greatly across different societies and religious traditions. For instance, in Nigerian regions such as Delta State, Anambra State, and Cross River State, certain objects may be revered as symbols of prosperity, fertility, or protection, prompting individuals to hoard them to harness their perceived benefits. Conversely, in cultures that emphasise minimalism or detachment from material possessions, hoarding behaviour may be less common or viewed negatively. Hence, the influence of supernatural beliefs and religious practices on hoarding behaviour highlights the intricate relationship between cultural beliefs, spiritual practices, and attitudes toward possessions. Understanding these cultural dimensions is crucial for developing culturally sensitive interventions for those affected by hoarding disorder.

The study also indicates that cultural values such as individualism and collectivism shape attitudes toward possessions and accumulation, influencing hoarding behaviour. Individualistic cultures prioritise personal autonomy, self-expression, and personal achievement, while collectivist cultures emphasise group harmony, social cohesion, and interdependence.

In individualistic cultures, where personal autonomy and self-expression are highly valued, hoarding behaviour might emerge as individuals seek to assert their independence and identity through their possessions. Accumulating material objects can be seen as a way to express one's unique identity, tastes, and preferences (Franklin et al., 2022). Additionally, in societies that emphasise consumerism and material wealth, hoarding may be a means of signaling social status or success. In contrast, collectivist cultures, which prioritise group harmony and social cohesion, might see hoarding behaviour as a way to maintain social connections and preserve familial or communal ties. Possessions in these cultures may be valued not only for their practical utility but also for their symbolic importance within the community. Hoarding might be used to strengthen relationships, show loyalty to the group, or fulfill social obligations (Franklin et al., 2022).

The prevalence and expression of hoarding behaviour vary across cultures based on dominant cultural values and norms. For instance, in individualistic cultures like the United States, where consumerism is widespread, hoarding might be more closely linked to personal identity and achievement. Conversely, in collectivist cultures such as Japan or South Korea, where social harmony is prioritised, hoarding might be driven by concerns about family reputation or societal expectations (Franklin et al., 2022). Understanding the influence of individualism and collectivism on hoarding behaviour is essential for creating culturally sensitive interventions that address the needs of individuals in diverse cultural contexts.

Cultural change and broader sociocultural factors also play a significant role in shaping attitudes towards possessions and accumulation, influencing hoarding behaviour. Rapid societal changes such as urbanisation, globalisation, and technological advancements can disrupt traditional cultural norms and values, leading to shifts in how individuals relate to material objects. Urbanisation often leads to changes in living conditions, social structures, and economic systems, which can affect attitudes toward

possessions. In urban areas, where space is limited and housing costs are high, individuals may adopt more minimalist lifestyles and reduce their reliance on material possessions (Milne, 2007). In contrast, in rural or less developed areas, where resources might be more plentiful and social norms differ, hoarding behaviour could be more common due to cultural norms and economic conditions.

Globalisation and the spread of consumer culture further influence attitudes towards possessions and accumulation. Exposure to global media, advertising, and consumer trends can shape desires and consumption patterns, leading to increased materialism and acquisition behaviours (Nakajima et al., 2018). The normalisation of materialistic values and the commodification of culture contribute to the rise of consumer culture and its impact on hoarding behaviour. Additionally, sociocultural factors such as social norms, media influences, and peer pressure play a significant role in shaping attitudes towards possessions. Social norms regarding consumption, status symbols, and lifestyle choices can drive individuals to conform and emulate others' behaviours (Nakajima et al., 2018). Media portrayals of wealth and success often reinforce materialistic values and promote conspicuous consumption, further fueling hoarding behaviour. Therefore, cultural change and sociocultural factors have profound implications for attitudes towards possessions and accumulation, influencing the prevalence and expression of hoarding behaviour. Recognising these societal trends and cultural dynamics is crucial for understanding and addressing hoarding disorder in contemporary society. Culturally sensitive interventions that consider individuals' social and cultural contexts are essential for effectively supporting those affected by hoarding disorder amid rapid societal changes.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMEDATION/ IMPLICATIONS OF THE STUDY

5.1. Summary

This study investigated the social and cultural factors influencing hoarding behaviour across various societies. It employed a systematic analysis approach guided by two research questions. To address potential exclusions of relevant papers, a stepwise iterative search strategy was used. The Initial search focused on "hoarding behaviour," yielded over 2,330 academic articles. For a more targeted selection, the search was refined to articles with "cultural factors" and "hoarding behaviour" in the title, resulting in 30 articles. A subsequent search with "social factors" and "hoarding behaviour" in the title produced 143 articles.

To ensure comprehensive coverage, the final search was combined using the terms "cultural factors OR social factors AND hoarding behaviour," which resulted in 30 articles. The search was limited to academic articles to align with the researcher's interest in exploring the development of academic research on the topic.

A total of 173 articles were screened based on source type and language, with 124 articles ultimately selected for data analysis. A systematic analysis was conducted on the selected documents, focusing on research methods, sources, types of hoarding, publication dates, and other factors. The analysis revealed various social and cultural factors that influence hoarding behaviour.
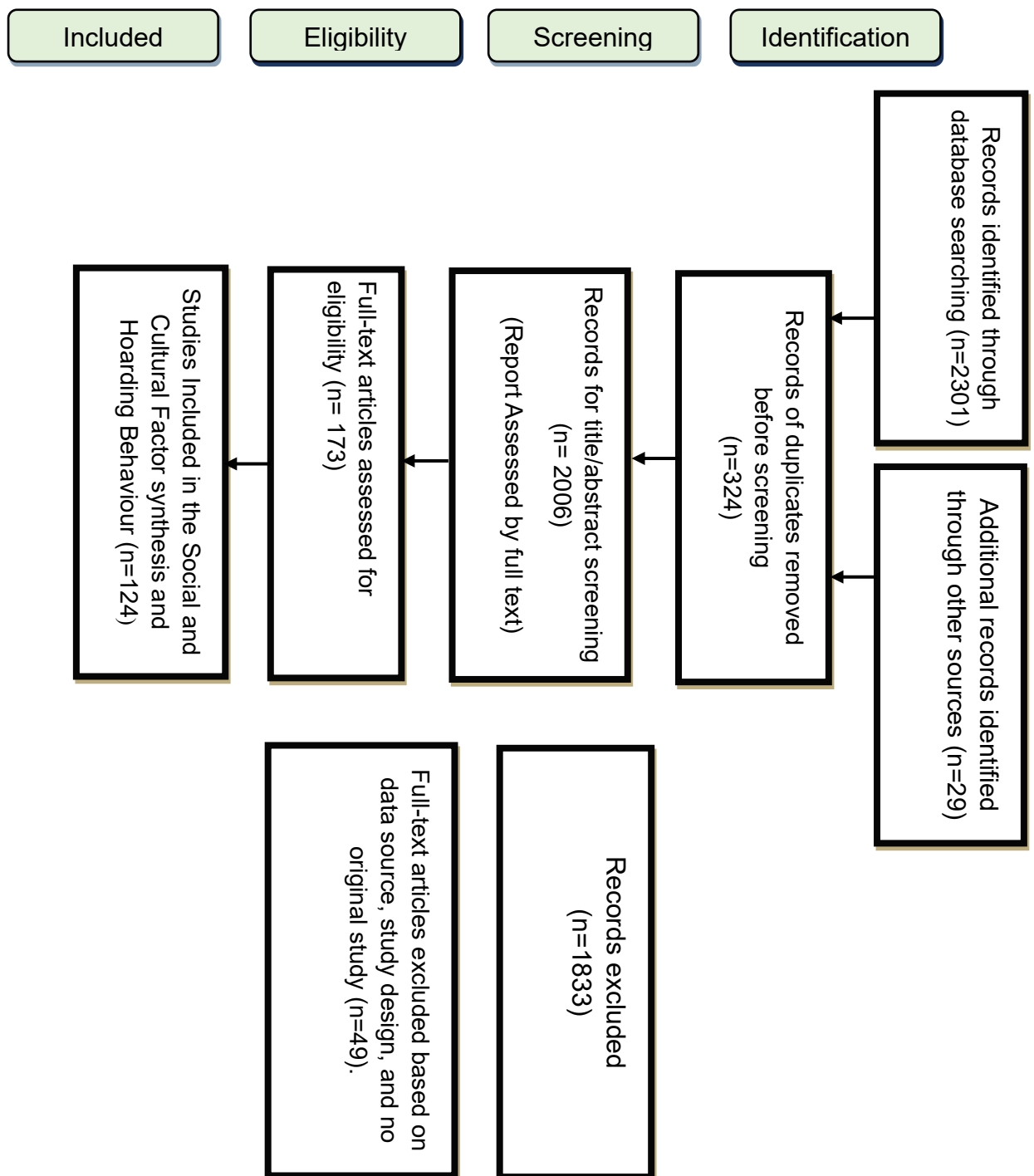
Figure 8: Flow Chart for Systematic Analysis

The flow chart contains the following elements:

Stage labels: Included | Eligibility | Screening | Identification

Identification:
- Records identified through database searching (n=2301)
- Additional records identified through other sources (n=29)

Screening:
- Records of duplicates removed before screening (n=324)
- Records for title/abstract screening (n= 2006) (Report Assessed by full text)
- Records excluded (n=1833)

Eligibility:
- Full-text articles assessed for eligibility (n= 173)
- Full-text articles excluded based on data source, study design, and no original study (n=49).

Included:
- Studies Included in the Social and Cultural Factor synthesis and Hoarding Behaviour (n=124)

5.2.   Conclusion

The systematic review highlights the significant impact of parental rearing practices, family dynamics, and histories of abuse on the development and severity of hoarding symptoms later in life. The evidence consistently shows that early familial experiences play a crucial role in shaping an individual's propensity for hoarding behaviour. Numerous studies document how adverse childhood experiences, such as neglect, overprotection, and abuse, contribute to hoarding tendencies. Additionally, family dynamics characterised by high conflict, poor communication, and emotional unavailability significantly contribute to these behaviours.

Globalisation and the spread of consumer culture also affect the prevalence of hoarding behaviour by promoting materialism and the accumulation of possessions. Cultural changes driven by these global influences often exacerbate hoarding tendencies by shifting societal values towards increased consumption. In individualistic cultures, where personal autonomy and self-expression are highly valued, hoarding behaviour may thrive as individuals prioritise personal accumulation over communal sharing. In contrast, collectivist cultures, which emphasise community and familial ties, may exhibit less pronounced or differently manifested hoarding behaviour, influenced by social norms and collective well-being.

Religious beliefs and practices also significantly impact hoarding behaviour. Some religious teachings may discourage hoarding, while others that view material wealth as a sign of divine favor might inadvertently encourage it.

5.3   Recommendation

5.3.1. Theoretical Implications

The findings reinforce the relevance of attachment theory in understanding hoarding behaviour. Attachment theory suggests that early interactions with caregivers establish the foundation for future emotional and behavioural patterns. In the context of hoarding, insecure attachment styles resulting from inconsistent or neglectful parenting can lead to difficulties in regulating emotions and an increased reliance on material possessions for emotional security. These findings also align with the cognitive-behavioral model of hoarding, which posits that early adverse experiences can lead to maladaptive beliefs about possessions, such as viewing them as essential for safety and comfort.

Furthermore, the findings call for a multidisciplinary approach to understanding hoarding behaviour, integrating insights from cultural psychology, sociology, and religious studies. The influence of globalisation and cultural values should be incorporated into existing psychological models of hoarding, highlighting that hoarding is not solely an individual disorder but also culturally constructed and maintained.

5.3.2. Practical Implications

The results underscore the need for early intervention and prevention strategies targeting at-risk families. Mental health professionals should consider the impact of parental and familial influences when assessing and treating individuals with hoarding behaviour. Interventions that focus on improving family dynamics, enhancing communication skills, and addressing past traumas can be particularly beneficial. Family therapy, for example, can help restructure dysfunctional family patterns and create a supportive home environment. Additionally, educating parents about the long-term effects of their rearing practices and providing resources and training for adopting positive parenting strategies can help reduce the risk of children developing hoarding behaviour.

Culturally sensitive approaches are essential for assessing and treating hoarding behaviour. Understanding the cultural context, including societal values and religious beliefs, can lead to more effective and personalised interventions. In collectivist cultures, community and family-based interventions may be more effective. Programs involving family members and community leaders can address hoarding behaviour within the cultural context and promote collective well-being.

Public health campaigns aimed at reducing hoarding behaviour should consider cultural values and norms. Educating communities about the impacts of consumer culture and promoting alternative values, such as minimalism and sustainable living, can help mitigate the influence of globalisation on hoarding. Policymakers should address the role of consumer culture in fostering hoarding behaviour and consider regulating advertising and marketing practices that encourage excessive consumption. Supporting policies that promote sustainable consumption and reduce materialistic values could positively impact hoarding behaviour.

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Items of PRISMA for systematic reviews in behavioural science

Section/topic	Item number in PRISMA	Checklist item
TITLE		
Title	1	Identify the report as a systematic review.
ABSTRACT Structured summary	2	This structured summary provides a comprehensive overview of the study, encompassing its background, objectives, data sources, inclusion criteria, methodological approach, key findings, limitations, and conclusions. The summary aims to present a clear and concise understanding of the study's scope, purpose, and significance.
INTRODUCTION Rationale	3	Explain the reason for conducting the review based on the existing knowledge and understanding of the topic. A well-defined rationale for conducting a systematic review is crucial.
Objectives	4	Provide responses to questions being asked. The specific objectives of the systematic review should be clearly stated.
METHODS Protocol and registration	5	The existence and accessibility (e.g., web address) of a review protocol, along with registration information, should be reported.
Eligibility criteria	6	The specific characteristics of included studies (e.g., study design, participants, outcomes) and reports (e.g., publication date, language) are defined here.
Information sources	7	A comprehensive description of all information sources used in the search strategy (e.g., databases with coverage dates, contact with authors) and the final search date is required.
Search	8	The complete electronic search strategy for at least one database, including search terms and any filters applied, should be presented in a replicable format.
Study selection	9	The process for selecting studies, including screening and eligibility assessment, needs to be outlined.
Data collection process	10	The method employed for extracting data from the identified studies (e.g., standardized forms, independent extraction) and any processes for obtaining or confirming data with study authors are described.
Data items	11	A list of all extracted variables and their definitions, along with any assumptions or simplifications made during data extraction, is presented.

RESULTS Study selection	17	The number of studies identified, screened, assessed for eligibility, and ultimately included in the review, along with reasons for exclusions, is reported. Ideally, this information is presented in a flow diagram format.
Study characteristics	18	Key characteristics extracted from each included study (e.g., sample size, setting, methods) are listed along with corresponding citations.
Synthesis of results	21	Present the main results of the review.
DISCUSSION Summary of evidence	24	The core findings of the review, highlighting the key outcomes, are summarised. A concise summary of the review's main findings, including the strength of evidence for each primary outcome, is presented.
Limitations	25	Limitations at the study level (e.g., potential biases), outcome level, and the review itself (e.g., incomplete retrieval of research) are discussed.
Conclusions	26	This section offers a general interpretation of the results, considering them within the context of existing research in the field. "The implications of these findings for future research directions are also discussed".
FUNDING Funding	27	The source(s) of funding for the systematic review and any other forms of support (e.g., data provision) need to be disclosed, along with the role of funders in the review process.