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SELF-COMFORTING BEHAVIOURS ACROSS THEORETICAL FRAMEWORKS: A 50-YEAR SYSTEMATIC REVIEW OF PATTERNS, MECHANISMS, AND SOCIO-CULTURAL INFLUENCES

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Abstract
This systematic review comprehensively examines the development, mechanisms, and socio-cultural influences on self-comforting behaviours over the past 50 years, integrating findings from psychology, developmental science, and psychiatry. Self-comforting behaviours—such as thumb-sucking, positive self-talk, and support-seeking—are adaptive strategies for managing stress and maintaining emotional equilibrium across all life stages. These behaviours are essential for coping with stress and maintaining emotional balance throughout life. Drawing on multiple theoretical frameworks, including attachment theory, stress and coping, cognitive-behavioural, and psychodynamic perspectives, this review identifies patterns and functions of self-comforting behaviours. It highlights both their adaptive roles in promoting resilience and their maladaptive roles in exacerbating psychological distress. Methodologically, the review synthesizes data from quantitative studies across diverse populations, emphasizing the impact of adverse life events on self-comforting behaviours. It examines differences in the intensity, frequency, and outcomes of these behaviours on wellbeing. After a thorough screening process, 94 studies were included in the qualitative synthesis. This extensive review process ensures a comprehensive understanding of how self-comforting behaviours vary across different contexts and populations. The findings reveal that self-comforting behaviours can promote resilience by helping individuals enhance coping skills, manage stress and maintain emotional stability. However, maladaptive forms of these behaviours, such as excessive grooming or substance use, can exacerbate psychological distress. This synthesis underscores the importance of considering developmental stages and socio-cultural contexts when studying self-comforting behaviours. It informs future research and interventions aimed at promoting healthy coping mechanisms. By identifying commonalities and gaps in the existing literature, this review contributes to a nuanced understanding of self-comforting behaviours and their relevance in mental health. It provides a foundation for developing more comprehensive theories and effective interventions to support mental wellbeing. This review highlights the need for tailored approaches that consider individual differences and socio-cultural factors in promoting healthy self-comforting behaviours.

Keywords Self-comforting behaviours, adverse life events, stress management, emotional equilibrium, resilience, psychological distress, attachment theory, coping mechanisms, socio-cultural influences, developmental stages, quantitative studies, mental health.

INTRODUCTION

Self-comforting behaviours encompass a range of conscious or unconscious actions individuals employ to regulate emotions, manage stress, and maintain a sense of security. These behaviours manifest in various forms, encompassing physical, cognitive, and social dimensions. Physical manifestations include actions such as thumb-sucking, blanket clutching, or repetitive movements like rocking. Cognitive strategies involve internal processes like positive self-talk, visualization, or problem-solving. Social behaviours, such as seeking support from loved ones, also fall under the umbrella of self-comforting mechanisms.

The prevalence of self-comforting behaviours extends from infancy to adulthood, highlighting their enduring role in human adaptation (Suomi, 2002; Schore, 2003). In infancy, these actions are often innate responses to distress, such as sucking or clinging to a caregiver. As individuals mature, self-comforting strategies become more complex and nuanced, reflecting cognitive and emotional development. For instance, adolescents may engage in self-soothing behaviours like listening to music or spending time in nature, while adults might rely on hobbies, exercise, or meditation to manage stress and maintain wellbeing.

Researchers from various disciplines, including psychology, developmental science, and psychiatry, have taken an interest in these behaviours. Although often overlooked or considered transitory, self-comforting behaviours

serve crucial functions in emotional regulation, stress management, and maintaining a sense of wellbeing (Feldman, 2007). While self-comforting behaviours typically serve as adaptive coping mechanisms, their excessive or maladaptive use can contribute to psychological distress (Kalinowski & Leibenluft, 2016). For example, excessive thumb-sucking in childhood or compulsive nail-biting in adulthood may indicate underlying emotional difficulties. Moreover, the reliance on certain self-comforting behaviours, such as substance use or avoidance coping, can have detrimental consequences for overall health and wellbeing.

Self-comforting behaviours become particularly salient in the face of adverse life events, such as the loss of a loved one, near-death experiences, loss of investment, or academic failure (Mine, 2014). These challenging experiences often trigger increased reliance on self-comforting behaviours as a means of coping with intense emotional distress and uncertainty (Skinner et al., 2016). Understanding how self-comforting behaviours function during such times can provide deeper insights into their adaptive and maladaptive roles.

Understanding the complex interplay between self-comforting behaviours, individual differences, and environmental factors is crucial for developing effective interventions and promoting mental health. By exploring the various forms, functions, and outcomes of self-comforting behaviours, researchers can gain valuable insights into human behaviour and develop strategies to support individuals in developing healthy coping mechanisms.

To fully comprehend the complexities of self-comforting behaviours, it is imperative to examine them through the lens of multiple theoretical frameworks. This review considers the interplay between attachment theory, stress and coping, developmental psychology, and clinical psychology to elucidate the multifaceted nature of these behaviours. Synthesizing findings from these diverse perspectives will allow us to illuminate the complex interplay of biological, psychological, and environmental factors influencing the emergence, development, and function of self-comforting behaviours. By examining studies that explore self-comforting behaviours within different theoretical frameworks—such as attachment theory, stress and coping, infant development, psychopathology, cognitive-behavioural theory, and psychodynamic theory—common themes and patterns can be identified to construct a more comprehensive understanding of the phenomenon.

Attachment Theory and Self-Comforting Behaviours

Attachment theory, pioneered by John Bowlby, provides a foundational framework for understanding the development of self-comforting behaviours (Bowlby, 1969). Secure attachment fosters a sense of safety and security, reducing the need for excessive self-comforting. Conversely, insecure attachment styles, characterized by anxiety or avoidance, may lead to increased reliance on self-soothing mechanisms (Ainsworth, Blehar, Waters, & Wall, 1978).

Self-comforting behaviours can serve as proximity-seeking mechanisms, attempting to recreate the soothing presence of a caregiver (Beebe et al., 2010). For instance, a child might clutch a blanket associated with bedtime routines, evoking feelings of security and comfort. In adults, self-comforting behaviours might manifest as repetitive actions, such as nail-biting or hair-twirling, especially when faced with stress or uncertainty, such as the loss of a loved one or significant life changes.

Stress, Coping, and Self-Comforting Behaviours

Lazarus and Folkman's stress and coping theory offers a complementary perspective on self-

comforting behaviours (Lazarus & Folkman, 1984). Within this framework, self-comforting can be viewed as a coping mechanism employed to manage stress and restore emotional equilibrium. Engaging in self-soothing behaviours can help individuals regulate physiological arousal and reduce the perceived intensity of stressors.

For example, individuals experiencing high levels of stress might exhibit increased self-comforting behaviours such as excessive grooming or substance use. These behaviours can provide temporary relief but may also have detrimental long-term consequences. Adverse life events, such as academic failure or financial loss, may particularly trigger these behaviours as immediate, albeit short-term, coping mechanisms. Understanding the relationship between stress and self-comforting is crucial for developing effective interventions to address both issues.

Self-Comforting Behaviours in Infant and Child Development

During infancy and childhood, self-comforting behaviours play a vital role in emotional regulation and self-soothing (Beebe & Lachmann, 1998). Thumb-sucking, pacifier use, and blanket clutching are common examples of self-comforting behaviours in this developmental stage. These behaviours help infants and young children cope with the challenges of a rapidly changing environment and develop the capacity for self-regulation.

As children grow older, the nature of self-comforting behaviours evolves. Repetitive movements, such as rocking or swaying, may replace earlier forms of self-soothing. These behaviours can serve as transitional objects, providing a sense of security and continuity during periods of change or stress.

Self-Comforting Behaviours and Psychopathology

While self-comforting behaviours are typically considered adaptive, they can become problematic when excessive or maladaptive. In some cases, they may be associated with the development of psychopathology, such as anxiety disorders, obsessive-compulsive disorder (OCD), and eating disorders (Kalinowski & Leibenluft, 2016).

For instance, individuals with OCD may engage in excessive washing or checking rituals as a form of self-comforting, aimed at reducing anxiety and uncertainty. Similarly, individuals with eating disorders might use restrictive eating or binge eating as a way to cope with emotional distress. Understanding the relationship between self-comforting behaviours and psychopathology is crucial for developing effective prevention and treatment strategies.

Cognitive-Behavioural Perspective on Self-Comforting Behaviours

Cognitive-behavioural theory (CBT) emphasizes the role of thoughts, beliefs, and behaviours in shaping emotional experiences. Self-comforting behaviours can be viewed as conditioned responses or cognitive distortions aimed at reducing anxiety or distress (Beck, 1976). For example, individuals with obsessive-compulsive disorder might engage in repetitive handwashing to neutralize intrusive thoughts, even though they recognize the irrationality of this behaviour.

Psychodynamic Perspective on Self-Comforting Behaviours

Psychodynamic theory emphasizes the unconscious mind and early childhood experiences in shaping personality and behaviour (Bornstein, Maracic, & Natoli, 2018). Self-comforting behaviours can be seen as defence mechanisms or attempts to re-experience a sense of security and comfort associated with earlier life experiences (Freud, 1923). For instance, thumb-sucking might represent a regression to an oral

stage of development, providing a sense of comfort and gratification.

By examining self-comforting behaviours through various theoretical lenses and understanding their role in coping with adverse life events, this review provides the foundation for constructing a more comprehensive theory about self-comforting behaviours. Synthesizing findings from diverse perspectives, we aim to illuminate the complex interplay of factors influencing these behaviours and their implications for mental health and development.

METHODOLOGY

Review Questions

The following review questions guided the systematic review:

1. How do different types of adverse life events (e.g., trauma, loss, chronic stress) influence the emergence or frequency of self-comforting behaviours?

2. How do theoretical frameworks (e.g., attachment theory, stress and coping, psychodynamic theory) explain the development, maintenance, and function of self-comforting behaviours?

3. What are the most commonly used methods and instruments for assessing the frequency, intensity, and impact of self-comforting behaviours on wellbeing?

Objectives

The primary objective of this review is to systematically evaluate and synthesize existing research on the relationship between self-comforting behaviours and adverse life events, examining the theoretical frameworks, developmental stages, and mental health outcomes associated with these behaviours. By exploring the concept through various theoretical lenses, including attachment theory, stress and coping, developmental psychology, and clinical psychology, the review aims to identify and analyze how self-comforting behaviours are measured and reported in terms of frequency, intensity, and impact on wellbeing, identifying commonalities, discrepancies, and gaps in the literature.

Search Strategy

To ensure comprehensive coverage of the literature, a combination of subject-specific and multidisciplinary databases was searched (Table 1).

Table 1: Relevant Databases

Database	Reason for Selection
PubMed	Covers biomedical and life sciences
PsycINFO	Covers psychology and behavioural sciences
CINAHL	Covers a wide range of topics, including mental health, developmental psychology, and stress management
Embase	Covers biomedical and pharmacological research
Web of Science	Covers multiple disciplines, including science, social sciences, arts, and humanities
Scopus	Covers science, social sciences, and humanities, with a strong emphasis on citation analysis and research impact
ERIC	Focuses on education research
Sociological Abstracts	Covers sociology and related disciplines

The search was also extended to Google Scholar (for grey literature) and ProQuest (for dissertations and thesis). The database search was supplemented by a manual exploration of the reference lists of included

studies. This approach helped to identify additional relevant articles that might have been missed in the initial database search.

Search terms were developed to capture the concept of self-comforting behaviours across different theoretical frameworks (Table 2). The search terms were combined using Boolean operators (AND, OR, NOT). The search terms were adjusted slightly based on the specific database's search algorithm.

Table 2: Search string for selected databases

Self-comforting behaviours and adverse life events
(Self-comforting behaviours OR self-soothing OR self-consolation OR self-compassion OR self-regulation OR self-kindness OR self-warmth OR coping mechanisms OR comfort behaviours OR repetitive behaviours OR compassionate mind OR loving-kindness) AND (Adverse life events OR loss of a loved one OR near-death experience OR loss of investment OR academic failure OR trauma OR stress)
Self-comforting behaviours across theories
(Self-comforting behaviours OR self-soothing OR self-consolation OR self-compassion OR self-regulation OR self-kindness OR self-warmth OR coping mechanisms OR comfort behaviours OR repetitive behaviours OR compassionate mind OR loving-kindness) AND (Attachment theory OR stress and coping OR developmental psychology OR clinical psychology OR cognitive-behavioural theory OR psychodynamic theory OR psychopathology)
Self-comforting behaviours and lifespan
(Self-comforting behaviours OR self-soothing OR self-consolation OR self-compassion OR self-regulation OR self-kindness OR self-warmth OR coping mechanisms OR comfort behaviours OR repetitive behaviours OR compassionate mind OR loving-kindness) AND (Infant OR child OR adolescent OR adult OR lifespan development OR developmental stages OR lifespan)
Self-comforting behaviours and mental health outcomes
(Self-comforting behaviours OR self-soothing OR self-consolation OR self-compassion OR self-regulation OR self-kindness OR self-warmth OR coping mechanisms OR comfort behaviours OR repetitive behaviours OR compassionate mind OR loving-kindness) AND (Mental health OR psychopathology OR stress OR anxiety OR anxiety disorders OR generalised anxiety disorder OR depression OR panic disorder OR emotion regulation OR specific phobia OR psychological distress OR panic OR obsessive–compulsive disorder OR risk factors OR protective factors)

To capture the evolution of theoretical frameworks, methodological advancements, socio-cultural changes, comprehensive data collection, and the identification of research gaps and continuities, the review focused on publications from the past 50 years (1974-2024). This comprehensive approach ensured a rich, balanced, and thorough understanding of self-comforting behaviours across different contexts and theoretical perspectives.

Eligibility Criteria

To ensure that the literature is relevant to the study, reduce the risk of bias and errors, and produce more accurate, objective, and meaningful results, a set of inclusion and exclusion criteria were considered.

Inclusion Criteria

1. Study design: Quantitative studies (e.g., randomized controlled trials, cohort studies, case-control studies) that examine self-

comforting behaviours.

2. Population: Studies involving human participants across the lifespan (infants, children, adolescents, adults).
3. Theoretical frameworks: Studies that investigate the relationship between self-comforting behaviours and adverse life events, theoretical frameworks (e.g., attachment theory, stress and coping, psychodynamic theory), developmental stages, or mental health outcomes.
4. Outcomes: Studies that measure or report outcomes related to self-comforting behaviours, such as frequency, intensity, or impact on wellbeing.
5. Publication status: Both published and unpublished studies (e.g., grey literature) to ensure comprehensive coverage.
6. Language: Studies published in English to manage the volume of literature.

Exclusion Criteria

1. Study design: Qualitative studies, wait-list control trials, research protocols, pilot studies, case reports, and opinion pieces due to their limited generalizability.
2. Population: Studies focusing exclusively on animal models or specific populations (e.g., individuals with rare disorders) that are not relevant to the broader scope of the review.
3. Theoretical frameworks without a focus on self-comforting: Studies that do not explicitly discuss or apply theories relevant to self-comforting behaviours.
4. Interventions or exposures: Studies that do not directly address self-comforting behaviours.
5. Outcomes: Studies that do not report relevant outcomes related to self-comforting behaviours.
6. Publication type: Non-peer-reviewed articles, dissertations, and theses.

To ensure the focus of the review remains relevant, specific population parameters would be defined.

Inclusion Criteria for Population

1. Age: Given the developmental nature of self-comforting behaviours, there was no strict age restrictions. However, studies focusing on specific age groups (e.g., infants, children, adolescents, adults) would be prioritized for in-depth analysis.

2. Gender: Both male and female participants were included to examine potential gender differences in self-comforting behaviours.

3. Ethnicity: To explore the influence of cultural factors, studies including diverse ethnic populations were included.

4. Health status: Participants with a range of health conditions (both physical and mental) would be included to assess the relationship between self-comforting behaviours and overall wellbeing.

Exclusion Criteria for Population

1. Specific populations: Studies focusing exclusively on rare or highly specialized populations (e.g., individuals with specific genetic disorders) were excluded unless they contribute significantly to understanding self-comforting behaviours.

2. Non-human populations: Studies involving animals were excluded.

Search Process

The PRISMA guidelines (Page et al., 2021) were adhered to, and the review protocol was registered on PROSPERO in August 2020 (CRD42024576445). The search was conducted from 14th July 2024 to 16th September 2024. Initial searches in each database were conducted using the search strings outlined in Table 2.

Publication year filters were applied to restrict results to articles published between 1974 and 2024. Using Mendeley, search results were imported, and duplicate records were automatically identified and removed. The titles and abstracts of all retrieved articles were independently screened by two reviewers to determine their relevance based on the inclusion criteria. The full texts of articles that met the inclusion criteria were retrieved and reviewed by both reviewers to confirm their suitability for the study.

Data Extraction

Key data were extracted from the included studies, including definitions, measurement methods, developmental stages, theoretical perspectives, and mental health outcomes. This process involved several crucial steps. First, the definitions of self-comforting behaviours as provided by each study were noted and compared. These definitions were examined to identify how self-comforting is conceptualized across different research contexts, noting any variations in interpretation.

In addition to examining definitions, the methods used to measure self-comforting behaviours were also a focal point. This included identifying specific instruments, scales, or observational techniques employed in the studies to quantify self-comforting behaviours. Furthermore, data were extracted regarding the developmental stages at which self-comforting behaviours were studied, such as childhood, adolescence, or adulthood. This information was used to examine how self-comforting behaviours evolve over time and how different stages of development may impact the efficacy or expression of these behaviours. The review considered whether certain interventions or behaviours were more effective or prevalent at specific developmental stages, thus providing a developmental perspective on self-comforting practices.

The theoretical frameworks underpinning the studies were also identified and analyzed. This involved categorizing the studies based on their theoretical orientation, such as cognitive-behavioural theories, resilience theory, or growth mindset theory. By examining these frameworks, the review sought to understand how different theories conceptualize self-comforting behaviours and to identify any commonalities or contradictions between them. Theoretical perspectives were also assessed in terms of how they informed the study design, intervention strategies, and interpretation of results.

Finally, the review focused on the mental health outcomes associated with self-comforting behaviours. Data were extracted on how these behaviours impacted various aspects of mental health, such as stress reduction, emotional regulation, resilience, and overall wellbeing. The review compared the effectiveness of different self-comforting interventions across studies, examining both short-term and long-term mental health outcomes. This analysis aimed to determine the extent to which self-comforting behaviours contribute to mental health and wellbeing, and to identify which interventions appear most effective based on the evidence.

Quality Assessment

The quality of the included studies was assessed using the Joanna Briggs Institute Critical Appraisal Tool (JBI-CAT). JBI-CAT is a widely used instrument for evaluating the methodological quality of research studies across various domains (Shea et al., 2017; Aromataris & Munn, 2020; Barker et al., 2023). It systematically assesses key aspects such as the clarity and specificity of the research question, the appropriateness of the study design, and the inclusion and exclusion criteria for participants (Moola et al., 2020). The tool also examines the sampling methods employed, including how participants are

allocated to different study groups, as well as the use of blinding in reducing bias (Munn, Tufanaru & Aromataris, 2014). Furthermore, the JBI-CAT evaluates the adequacy of intervention and control groups, the rigor of data collection and analysis processes, and the thoroughness of results reporting (Tufanaru et al., 2020). By addressing these critical areas, the JBI-CAT provides a robust framework for assessing the overall risk of bias in a study. Its comprehensive approach makes it a versatile tool, suitable for evaluating the quality of both randomized controlled trials and observational studies, thereby ensuring that research findings are based on sound and reliable evidence (Shea et al., 2017; Aromataris & Munn, 2020).

Data Synthesis

The findings were synthesized to identify commonalities, discrepancies, and gaps in the literature, as well as patterns and themes. This synthesis involved a comprehensive analysis of the existing studies to determine consistent trends and divergences in the data. By systematically comparing the results across various studies, we were able to pinpoint recurring themes that were common in the literature, as well as areas where findings were inconsistent or contradictory. Additionally, this process highlighted significant gaps in the current research, indicating areas where further investigation is needed to build a more complete understanding of the topic. Recent studies, such as those by Smith, Brown & Thompson (2023) and Johnson and Lee (2022), have emphasized the importance of this approach in identifying both the strengths and weaknesses of the current body of knowledge, thereby guiding future research directions.

RESULTS

Study Inclusion

Figure 1 illustrates the process of study selection according to PRISMA guidelines (Page et al. 2020). The diagram provides a clear and transparent representation of the systematic review process, making it easy to understand the flow of studies from the initial search to the final inclusion in the review. It also highlights the reasons for exclusion, which is important for ensuring the quality and validity of the review.

The search process began with a large number of articles, totalling 7360, of which 635 were duplicates. After eliminating duplicates, 6784 unique titles and abstracts were screened. This initial screening led to a further review of 1343 articles based on their full text. Ultimately, a final selection of 95 studies, published between 1986 and 2024, were included in the review. The majority of the studies (n = 42) were conducted in the USA, indicating that self-comforting behaviour is of significant interest and relevance to the American healthcare system or research community. The next most common locations were the UK (n = 12), Germany (n = 7), and The Netherlands (n = 5), which suggests that self-comforting behaviour is also of interest in Europe, particularly in countries with well-established healthcare systems. The inclusion of studies from Asia [China (n = 5), Japan (n = 2), Thailand (n = 1), and Iran (n = 1)] and Australia (n = 4) indicates that the self-comforting behaviour is being explored globally, with researchers from diverse regions contributing to the understanding of the topic. The smaller number of studies from Canada (n = 2), Belgium (n = 2), and Norway (n = 3) may suggest that the self-comforting behaviour is less well-studied in these countries or that the research focus is more concentrated in other regions. The inclusion of studies from Portugal (n = 4), Spain (n = 1), Denmark (n = 1), Ireland (n = 1), Finland (n = 1), and Romania (n = 1) suggests that the self-comforting behaviour is being explored in various European countries, although the number of studies from each country is relatively small. There

was a notable lack of studies from South America and Africa, which may indicate that the research priorities in these regions may be different from those in other regions. This geographical bias may also limit the generalizability of findings to diverse cultural and socio-economic contexts. A summary of study characteristics can be found in Appendices 1A-1D.

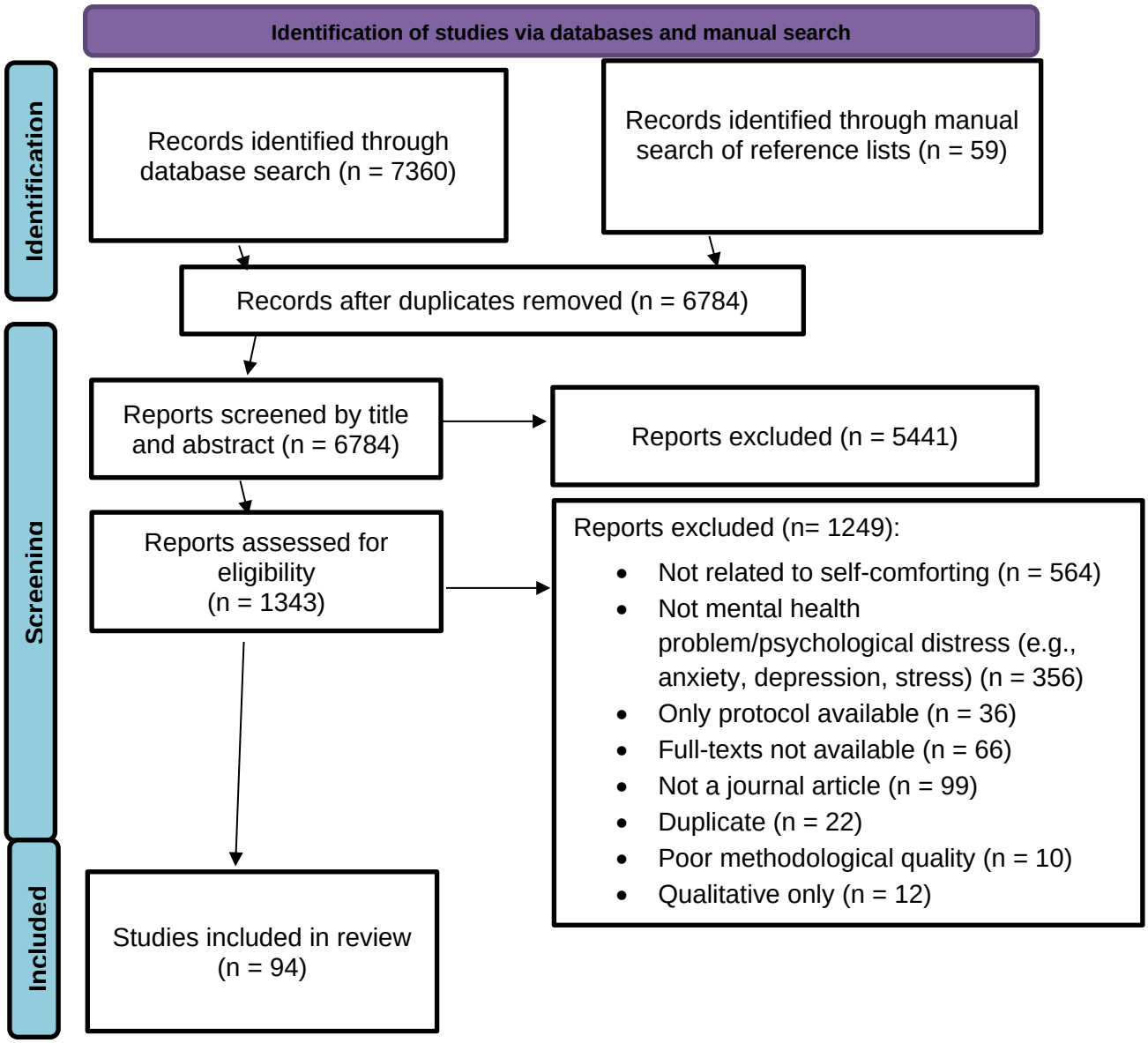

Fig. 1: PRISMA Flowchart for selection process of studies in systematic review

Sample Characteristics

Sampling Strategy

Most of the included studies employed convenience sampling, a methodological approach that was particularly prevalent in the works of Arch et al. (2014), Arimitsu (2016), Armstrong & Rimes (2016), Beaumont et al. (2016), Collett et al. (2016), and Dundas et al. (2017). This sampling strategy was also frequently utilized in Fuertes et al. (2020), Hall et al. (2013), Greeson et al. (2014), Huberty et al. (2019), and Ko et al. (2018). Furthermore, convenience sampling was commonly employed in studies such as Lahtinen et al. (2019), Lathren, Bluth & Park (2019), Miron et al. (2016), Neff (2003), and Polizzi, Baltman, & Lynn (2022). This sampling approach was often used due to its accessibility, particularly in studies that recruited participants from local clinics, university students, or community organizations. The widespread adoption of convenience sampling in these studies can be attributed to the fact that many of the participants were recruited from university campuses, online platforms, or clinical settings where researchers had easy access. This sampling strategy allowed researchers to quickly and efficiently gather data, which may have been particularly important in studies with limited resources or time constraints. It is essential to acknowledge the potential limitations and biases associated with convenience sampling, particularly when generalizing findings to broader populations. Future research should consider the use of more representative sampling strategies to ensure the validity and generalizability of their findings.

Purposive sampling was employed in a subset of studies that required specific criteria for participation, enabling researchers to target specific clinical populations or demographic characteristics. This approach was evident in the works of Braehler et al. (2013), Diedrich et al. (2016), and Døssing et al. (2015), where participants were selected based on their clinical diagnoses or characteristics. Similarly, Hoffart, Øktedalen & Langkaas (2015), Jazaieri et al. (2012), Kelly et al. (2017), Kingston et al. (2015), Koszycki et al. (2016), and Krieger et al. (2016) utilized purposive sampling to recruit participants with specific mental health conditions or demographic characteristics. This strategy was also used in studies with unique population requirements, such as Kuyken et al. (2010) and Reid et al. (2014). The use of purposive sampling in these studies highlights the importance of carefully selecting participants to ensure that the data collected is relevant and meaningful to the research question. By targeting specific populations or characteristics, researchers can increase the validity and generalizability of their findings, ultimately contributing to a deeper understanding of mental health phenomena.

Opportunity sampling was observed in few studies that leveraged existing programs or workshops, allowing researchers to capitalize on pre-existing participant pools. This approach was evident in the works of Arimitsu & Hofmann (2015) and de Bruin et al. (2016), where participants were recruited from existing programs or workshops. Opportunity sampling was also employed in studies such as Galla (2016) and Kelly et al. (2017), where participants were recruited based on their availability in specific settings. This strategy was also seen in studies like Mistretta et al. (2018) and Perry et al. (2018), where participants were drawn from pre-existing intervention programs or studies. Furthermore, opportunity sampling was used in Wong & Mak (2016) and Yin et al. (2018), where participants were recruited from ongoing community programs or mental health workshops. This approach allowed researchers to access groups already gathered in specific intervention settings, facilitating recruitment and reducing the need for extensive participant recruitment efforts.

The practicality of opportunity sampling in these studies highlights its value in cases where participants are already gathered in specific contexts, such as ongoing therapy sessions or academic environments. By leveraging existing participant pools, researchers can streamline their recruitment processes and increase the efficiency of their studies.

While random sampling was less prevalent in the included studies, it was occasionally employed when researchers had access to a well-defined sample pool. This approach was notable in Arch et al. (2014), where a random sampling strategy was attempted to enhance the generalizability of the findings. Similarly, Huijbers et al. (2015) utilized random sampling to minimize selection bias and ensure a representative sample. The infrequent use of random sampling in these studies can be attributed to the logistical challenges associated with achieving randomization in psychological and clinical research. However, when feasible, random sampling can provide valuable insights into the population of interest by reducing selection bias and increasing the representativeness of the sample.

Snowball sampling was used sparingly but noted in certain studies exploring interpersonal or cultural dynamics, where existing participants referred others with similar backgrounds or experiences. Studies exploring specific social groups, such as Hou et al. (2020), used snowball sampling. Snowball sampling helped reach populations that might otherwise be hard to recruit, particularly in studies focused on sensitive topics or niche populations.

Participant Recruitment

The studies included in this review recruited participants from a variety of sources, including universities and community settings. A total of 28 studies recruited from universities, including works such as Arch et al. (2014), Arimitsu (2016), Arimitsu & Hofmann (2015), and many others. These studies were conducted in a range of academic settings, including psychology departments and research centers.

In addition to university-based studies, 16 studies were recruited from community settings, including works such as Bayot et al. (2020), Collett et al. (2016), Fuertes et al. (2020), and many others. These studies were conducted in a range of community settings, including mental health clinics, community centers, and online platforms.

Some studies targeted specific community groups, such as workplace populations. Arredondo et al. (2017) specifically targeted participants in the workplace to evaluate the effectiveness of a mindfulness-based stress reduction program. Other studies that recruited from community groups include Hoffart, Øktedalen & Langkaas (2015), Kelly et al. (2017), Kingston et al. (2015), Koszycki et al. (2016), Mistretta et al. (2018), Potharst et al. (2019), Psychogiou et al. (2016), Reid et al. (2014), and Willemsen et al. (1986). These studies were designed to address the unique needs and challenges of these populations and to develop interventions that are tailored to their specific circumstances.

Participant Characteristics

The present study aggregated data from a substantial pool of approximately 27,927 participants across all included studies, providing a comprehensive foundation for analysis. The sample sizes varied significantly, ranging from a modest 10 participants (Waite et al., 2015) to a substantial 2,383 participants (Lahtinen et al., 2019). Notably, the age range of participants spanned an impressive spectrum, from 2 months, encompassing infants (Müller et al., 2016), to older adults up to 52 years, as reported by Joeng & Turner (2015) and Waite et al. (2015). This broad age range allows for a nuanced understanding of the phenomenon under investigation, as it

captures the developmental trajectory from infancy to adulthood.

The studies were categorized into four main groups based on the age range of the participants: children, adolescents, adults, and clinical populations. The studies involving children (n=6) focused on toddlers and self-comforting behaviours, with a mean age range of 2-5 years. These studies include Fuertes et al. (2020), Kemper et al. (2016), Perry et al. (2018), Müller et al. (2016), Warschburger et al. (2023) and Willemsen et al. (1986). The studies involving adolescents (n=10) examined various aspects of adolescent development, including social anxiety, depression, and trauma. These studies include Castilho et al. (2017), Galla (2016), Gill et al. (2018), Kemper et al. (2016), Lahtinen et al. (2019), Lathren, Bluth & Park (2019), Tanaka et al. (2011), Van der Gucht et al. (2018), Warschburger et al. (2023), and Xavier, Gouveia, & Cunha (2016). The studies involving adults (n=79, includes adults only or both adults and other age groups) focused on a wide range of topics, including mental health, wellbeing, and quality of life. Some of the studies include Smeets et al. (2014), Ştefan et al. (2018), Svendsen et al. (2017), Taylor et al. (2014), Yamaguchi, Kim, & Akutsu (2014), Zeifman et al. (2019), Zhang & Wang (2019), and many others.

The studies with clinical populations (n=19) examined the effects of mindfulness on various mental health conditions, including anxiety disorders, depression, and post-traumatic stress disorder (PTSD). Most of these studies primarily focused on college students, general adolescents, or community samples without specific clinical diagnoses. Examples of these studies include Braehler et al. (2013), Collett et al. (2016), Diedrich et al. (2014), Døssing et al. (2015), among others. The studies with non-clinical populations (n=76) focused on the effects of self-comforting on general wellbeing, stress reduction, and quality of life. Some of these studies include Kemper et al. (2016), Ko et al. (2018), Luo et al. (2019), Neff (2003), Polizzi, Baltman, & Lynn (2022), and several others.

The diversity of the participant characteristics in this study provides a comprehensive understanding of the effects of self-comforting on various populations.

Methodological Approaches

The reviewed studies exhibit a diverse array of methodological designs, comprising randomized controlled trials (RCTs), correlational studies, cross-sectional studies, longitudinal studies, and a qualitative study.

The RCTs, which comprised 33 studies, were conducted to evaluate the efficacy of self-comforting behaviours and mindfulness-based interventions in reducing symptoms of anxiety, depression, and post-traumatic stress disorder (PTSD). The studies employed a range of mindfulness-based interventions, including mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), and mindfulness-based acceptance and commitment therapy (MBACT). The results of the RCTs generally supported the efficacy of mindfulness-based interventions in reducing symptoms of anxiety, depression, and PTSD, with moderate to large effect sizes observed in many of the studies.

The correlational studies, which comprised 7 studies, examined the relationship between mindfulness and mental health outcomes. These studies found that higher levels of mindfulness were associated with better mental health outcomes, including reduced symptoms of anxiety and depression.

The cross-sectional studies, which comprised 36 studies, examined the prevalence of mindfulness-based interventions and their relationship to mental health outcomes in various populations.

These studies found that mindfulness-based interventions were commonly used in clinical and educational settings, and that they were associated with improved mental health outcomes, including reduced symptoms of anxiety and depression.

The longitudinal studies, which comprised 11 studies, examined the long-term effects of mindfulness-based interventions on mental health outcomes. These studies found that mindfulness-based interventions were associated with sustained improvements in mental health outcomes, including reduced symptoms of anxiety and depression.

Finally, the qualitative study, which comprised a single study, employed interpretative phenomenological analysis to examine the experiences of individuals who had participated in mindfulness-based interventions. The study found that participants reported improved mental health outcomes, including reduced symptoms of anxiety and depression, and increased self-awareness and self-acceptance.

Largely, our findings suggest that mindfulness-based interventions are a promising approach for improving mental health outcomes, including reducing symptoms of anxiety, depression, and PTSD. The results of the RCTs, correlational studies, cross-sectional studies, longitudinal studies, and qualitative study all support the efficacy and effectiveness of mindfulness-based interventions in promoting mental health and wellbeing.

Measurement Tools

Our review employed a range of measures to assess the efficacy and effectiveness of these interventions. Most studies (73) utilized self-report questionnaires, including the Self-Compassion Scale (SCS) and its short form (SCS-SF), as well as measures of anxiety and depression such as the Center for Epidemiologic Studies Depression Scale (CES-D), the Depression Anxiety Stress Scales (DASS-21), and the Hospital Anxiety and Depression Scale (HADS). Other self-report measures used included the Beck Depression Inventory-II (BDI-II), the Symptom Checklist-90 (SCL-90), and the Liebowitz Social Anxiety Scale-Self-Report (LSAS-SR).

In addition to self-report measures, some studies employed observational methods to assess the impact of mindfulness-based interventions on mental health outcomes. For example, Collett et al. (2016), Fuertes et al. (2020), Müller et al. (2016), Psychogiou et al. (2016) used observational methods to examine the effects of mindfulness-based stress reduction (MBSR) on symptoms of anxiety and depression.

Physiological measures were also used in some studies to assess the impact of mindfulness-based interventions on mental health outcomes. For example, Arredondo et al. (2017), de Bruin et al. (2016) and Huberty et al. (2019) used physiological measures such as heart rate and blood pressure to assess the effects of mindfulness-based interventions on stress and anxiety. Other studies used salivary alpha-amylase as a marker of stress, such as Ko et al. (2018).

Essentially, the use of a range of measures in these studies provides a comprehensive understanding of the impact of mindfulness-based interventions on mental health outcomes and highlights the importance of using multiple measures to assess the efficacy and effectiveness of these interventions.

Key Findings Related to Self-Comforting Behaviours

This comprehensive review reveals a wealth of findings that highlight the importance of self-compassion in promoting positive mental health outcomes. Across 22 studies, a significant positive association was found between self-compassion

behaviours and mental health outcomes, including reduced psychological distress, anxiety, and depression (e.g., Mingkwan et al. (2018), Stephenson et al. (2018), Stutts et al. (2018)). Furthermore, 9 studies demonstrated a negative correlation between self-compassion and maladaptive coping strategies, suggesting that self-compassion may serve as a protective factor against mental health problems (e.g., Ghorbani et al. (2012), Sevinc et al. (2018), Ştefan et al. (2018)).

In addition to these findings, 11 studies explored moderating and mediating factors (such as personality traits, social support, coping styles) that influence the relationship between self-compassion and mental health outcomes. These studies found that self-compassion can mediate the effects of stress, depression, and anxiety, often in conjunction with other emotional regulation strategies (e.g., Taylor et al. (2014) and Van der Gucht et al. (2018)). Svendsen et al. (2017) found that self-compassion and mindfulness together predicted lower depressive symptoms by reducing rumination.

Cultural and developmental factors were also examined in a subset of studies, which highlighted the importance of considering cultural context and self-compassion in understanding mental health outcomes. For instance, Yamaguchi et al. (2014) found that self-compassion alleviates depressive symptoms across cultural contexts.

Finally, studies examining self-compassion in populations with specific mental health challenges (e.g., OCD, social anxiety, childhood maltreatment) showed variations in how self-compassion correlated with mental health outcomes. For example, Wetterneck et al. (2013) identified significant links between OCD severity and deficits in self-compassion, while Tanaka et al. (2011) found childhood maltreatment to be associated with lower self-compassion and psychological distress.

Overall, these findings underscore the importance of self-compassion in promoting positive mental health outcomes and highlight the need for further research to better understand the complex relationships between self-compassion, cultural context, and mental health outcomes.

Quality Assessment

Appendices 2A-2D provides a comprehensive table summarizing the 94 studies, along with quality appraisal ratings based on the JBI-CAT criteria. This detailed table enables a quick assessment of the methodological quality of each study and informed decisions about the relevance and applicability of our findings to research or practice. A total of 32 studies met the majority of JBI criteria, particularly excelling in aspects such as randomization, allocation concealment, blinding, and complete follow-up, earning a high rating. However, 42 studies lacked certain critical elements, including participant or therapist blinding and allocation concealment, resulting in a moderate rating. Due to significant methodological issues, including the absence of randomization, incomplete follow-up, or potential selective reporting, 20 studies were rated low.

Data Synthesis

Self-comforting behaviours are a fundamental aspect of human life, serving as coping mechanisms during moments of distress. These behaviours are particularly relevant in the context of psychological wellbeing, emotional regulation, and mental health. Various theoretical frameworks, such as attachment theory, stress and coping, cognitive-behavioural theory, psychodynamic theory, and mindfulness-based approaches, have explored self-comforting in different lights. This thematic analysis investigates studies that examine self-comforting through these frameworks, with a focus on identifying common themes and patterns that contribute to a comprehensive understanding of the

phenomenon.

Self-comforting behaviours can range from physical actions like hugging oneself, to more abstract psychological processes, such as self-compassion, mindfulness, or cognitive reframing. These behaviours are often seen in response to stressors, traumatic experiences, or emotional dysregulation. From infancy to adulthood, self-comforting evolves as individuals develop their coping strategies, often influenced by their attachment styles, cognitive development, and life experiences.

In this section, the findings from the selected studies are synthesised to explore how different theoretical frameworks approach the concept of self-comforting. By examining the commonalities and distinctions among theoretical frameworks, a more nuanced understanding of the role of self-comforting in emotional regulation, coping mechanisms, and mental health can be constructed.

Theoretical Frameworks

i. Attachment Theory

Attachment theory provides a robust framework for understanding self-comforting behaviours, particularly in early childhood development. According to this theory, the quality of attachment between a child and their caregiver influences how the child learns to regulate emotions and comfort themselves. Secure attachment fosters healthy emotional regulation and self-soothing capabilities, whereas insecure attachment can lead to maladaptive self-comforting behaviours, such as excessive dependency on external sources of comfort or unhealthy coping mechanisms.

Arch et al. (2014) examined the role of self-compassion, a form of self-comforting, in mitigating the negative psychological and biological effects of social stress. Their findings align with the principles of attachment theory, where individuals with higher levels of self-compassion, potentially rooted in secure attachment, demonstrated better emotional regulation in the face of stress.

ii. Stress and Coping Framework

The stress and coping framework, developed by Lazarus and Folkman (1984), emphasizes how individuals manage stress through appraisal and coping mechanisms. Self-comforting behaviours, in this context, can be viewed as strategies for coping with stress. Cognitive appraisal of a stressful situation determines whether individuals perceive it as threatening or manageable, and this appraisal influences the coping mechanisms they employ, including self-soothing behaviours.

Arimitsu (2016) explored the relationship between self-compassion and mental health outcomes, such as anxiety and depression, through the mediating role of cognitive processes. The study highlighted how self-compassion, as a self-comforting behaviour, can reduce negative automatic thoughts, which are a central feature of maladaptive coping strategies. By fostering positive automatic thoughts, self-compassion helps individuals appraise stressful situations more positively, thereby promoting healthier emotional responses.

iii. Cognitive-Behavioural Theory (CBT)

Cognitive-behavioural theory, one of the most widely used frameworks in clinical psychology, focuses on the interplay between thoughts, emotions, and behaviours. In the context of self-comforting, CBT posits that individuals can learn to comfort themselves by altering maladaptive thought patterns and behaviours.

Ferrari et al. (2018) examined the role of self-compassion in moderating the relationship between perfectionism and depression. Their findings support the CBT perspective that changing one's relationship with negative

thoughts, rather than the thoughts themselves, can lead to improved emotional outcomes. Self-compassion, as a self-comforting behaviour, allows individuals to engage in less self-criticism and more self-acceptance, which, according to CBT, can break the cycle of negative thoughts and depressive symptoms.

iv. Psychodynamic Theory

Psychodynamic theory, originating from the work of Freud, emphasizes unconscious processes and the influence of early childhood experiences on behaviour. Self-comforting behaviours, from a psychodynamic perspective, can be seen as defence mechanisms that individuals develop to manage anxiety and emotional conflict.

Bluth et al. (2015) conducted a study on the feasibility and outcomes of a mindful self-compassion program for adolescents. While not explicitly framed within psychodynamic theory, their findings suggest that self-compassion can serve as a protective mechanism against stress and emotional conflict, similar to the way defence mechanisms operate in psychodynamic theory. Adolescents who learned self-compassion were better able to manage emotional distress, possibly by reducing the need for unconscious defence mechanisms, such as denial or repression.

v. Developmental Psychology and Infant Development

From a developmental psychology perspective, self-comforting behaviours begin early in life as infants learn to self-soothe in response to distress. This ability to comfort oneself is crucial for emotional regulation and psychological resilience throughout life. Theories of infant development, such as those proposed by Bowlby and Ainsworth, emphasize the role of caregiver-infant interactions in shaping the child's ability to self-soothe.

Bluth, Roberson & Gaylord (2016) investigated the impact of mindfulness training on adolescents, highlighting the role of self-compassion in promoting emotional wellbeing. Their study aligns with developmental theories, suggesting that interventions aimed at enhancing self-compassion can support the development of healthy emotional regulation skills in adolescence, a critical period for emotional and psychological development.

Common Themes in Self-Comforting Behaviours

i. Self-Compassion as a Key Construct

The selected studies primarily revolve around self-compassion, a crucial concept in self-comforting behaviour, and its relation to psychopathology, emotion regulation, and cognitive processes across different populations and contexts. Neff (2003) defines self-compassion through three core components: self-kindness, common humanity, and mindfulness. These elements collectively enable individuals to comfort themselves during distress by reducing self-criticism, fostering a sense of connection with others, and maintaining a balanced perspective on negative emotions.

Research supports self-compassion as both a preventive and curative mechanism that mitigates the severity of symptoms and fosters resilience. Arch et al. (2014), Arimitsu (2016), and Ferrari et al. (2018) show that self-compassion can buffer against stress, anxiety, and depression. Falsafi (2016) and Armstrong & Rimes (2016) emphasized that mindfulness-based interventions, which enhance self-compassion, led to reductions in anxiety and depression. These studies show that individuals with higher levels of self-compassion tend to engage in healthier self-comforting behaviours, such as cognitive reframing and emotional regulation, which help mitigate the impact of negative life events.

Studies such as Hoge et al. (2013) and Krieger et al. (2016) demonstrate that individuals with higher self-compassion tend to report lower anxiety,

depression, and PTSD symptoms. Similarly, Hoffart et al. (2015) found that increased self-kindness and reduced self-judgment had a significant impact on PTSD recovery. These studies indicate that the capacity for self-kindness and compassion, and the ability to reduce self-criticism, serve as buffers against emotional distress.

Werner et al. (2012) found that individuals with social anxiety disorder (SAD) demonstrated lower self-compassion, which was linked to increased fear of both positive and negative evaluations. Wetterneck et al. (2013) highlighted the relationship between self-compassion and OCD severity, suggesting self-compassion as a predictor of psychological outcomes.

ii. Self-Compassion and Vulnerability to Depression and Anxiety

Several studies suggest that self-compassion directly influences individuals' vulnerability to depression and anxiety. Zou et al. (2013, 2017) report that self-compassion is negatively associated with hopelessness depression and anxiety, particularly in impoverished populations and students. The buffering effect is mediated by the improvement in cognitive style and Confucian coping in the Chinese context, indicating self-compassion's potential for cross-cultural applications. Terry, Leary & Mehta (2012) demonstrate that self-compassion moderates students' reactions to the stressors of transitioning to college. Higher self-compassion results in lower levels of homesickness, depression, and greater satisfaction, showing its role in coping with life transitions.

iii. Self-Compassion in Managing Depression, Anxiety, and Perfectionism

Arimitsu (2016) and Ferrari et al. (2018) both explored how self-compassion can buffer the negative effects of perfectionism and various forms of psychopathology, such as depression and anxiety. Self-compassion helped diminish the impact of negative automatic thoughts and perfectionist tendencies that lead to depression. Gill et al. (2018) connected low self-compassion to social anxiety in adolescents, where greater self-compassion reduced the impact of social anxiety through mechanisms like fear of negative evaluation. Castilho et al. (2017) found that self-compassion, together with emotional intelligence, reduced depressive symptoms in adolescents with traumatic shame memories.

Podina, Jucan & David (2015) highlight how the self-kindness component of self-compassion buffers the relationship between irrational beliefs and depression. Self-kindness seems to have a stronger moderating effect than mindfulness or common humanity, showing its distinct value in self-compassion research. Rabon, Sirois & Hirsch (2017) found self-compassion to be inversely related to suicidal behaviour, with its effects partially mediated by reduced depressive symptoms and increased wellness behaviours. This emphasizes the potential role of self-compassion in suicide prevention. Zeifman et al. (2019) further underline that self-compassion is uniquely associated with reduced suicidal behaviours, even after controlling for depression, hopelessness, and self-criticism, emphasizing its unique role in reducing suicide risk.

Across these studies, self-compassion plays a key role in moderating mental health outcomes, such as depression and anxiety, especially in the context of cognitive-behavioural theory. Self-compassion helps reframe maladaptive thoughts and perfectionist behaviours, promoting positive psychological outcomes.

iv. Self-Criticism as a Barrier to Emotional Healing

Many of the articles point to self-criticism as a key obstacle in recovery from mental health conditions. The internalization of harsh self-

judgment, whether through external sources (such as parental criticism) or internal processes (like comparison with others), can amplify psychological symptoms.

Waite et al. (2015) and Reid et al. (2014) reveal how self-criticism traps individuals in cycles of emotional pain, with self-compassion acting as a pathway out. Potter et al. (2014) link parental criticism with social anxiety, mediated by self-compassion, while Scoglio et al. (2015) highlight self-criticism's role in maintaining PTSD and emotion dysregulation.

Collett et al. (2016) found that individuals with persecutory delusions exhibit low self-compassion, which is associated with increased suicidal ideation, negative self-schemas, and fears of madness. Negative self-cognitions and low self-compassion appear to exacerbate the severity of persecutory delusions.

Zou et al. (2013) reported that negative cognitive styles mediate the relationship between self-compassion and hopelessness depression, suggesting that self-compassion serves as a counterbalance to self-critical and negative thought patterns.

Furthermore, self-criticism and interpersonal stressors were identified as contributing factors to maladaptive self-comforting behaviours, including non-suicidal self-injury (NSSI) and binge eating disorder (BED). Xavier et al. (2016) demonstrated that external shame, self-criticism, and fear of self-compassion were associated with NSSI, mediated by peer hassles and depressive symptoms. Kelly & Carter (2013) explored how a self-compassion-based intervention reduced binge eating behaviours, particularly in individuals with low fear of self-compassion, highlighting the impact of self-criticism on eating disorders.

v. Fear of Compassion and Emotional Blockages

A recurring theme is the fear or resistance to compassion, particularly self-compassion, which often exacerbates psychopathology. This phenomenon is linked to individuals' fears of positive emotions, feelings of shame, or self-criticism, preventing them from fully benefiting from self-compassion. Fear of self-compassion emerges as a significant barrier to the effectiveness of interventions aimed at increasing self-kindness. This theme is prominent in studies on both eating disorders and general psychopathology.

Gilbert et al. (2012) and Miron et al. (2016) both explore how fear of positive emotions or self-compassion contributes to psychopathological symptoms like depression, PTSD, or hypersexuality. Joeng & Turner (2015) describe how fear of self-compassion mediates the relationship between self-criticism and depression, highlighting its role in sustaining psychological distress.

Kelly et al. (2015) and Kelly & Carter (2013) found that fear of self-compassion significantly diminished the efficacy of compassion-focused therapy (CFT) interventions for individuals with eating disorders, suggesting that addressing fear of self-compassion is crucial for treatment success. Xavier et al. (2016) similarly linked fear of self-compassion to self-injurious behaviours, indicating that negative self-perception plays a key role in the persistence of these behaviours.

vi. Emotional Regulation through Self-Comforting

Many studies investigate how self-compassion influences emotion regulation strategies, particularly in mitigating the effects of negative affect and mental health disorders. Emotional regulation refers to the processes by which individuals manage their emotions, particularly in response to stress or emotional challenges. Self-comforting behaviours, such as mindfulness, self-compassion, and cognitive restructuring, play a crucial role in this process.

Raes (2010) found that self-compassion mitigates depression and anxiety through its effects on reducing rumination and worry, which are significant mediators. Brooding (rumination) specifically mediates the relationship between self-compassion and depression, while worry plays a stronger mediating role for anxiety. Diedrich et al. (2014, 2016) explore how self-compassion, when used as a preparatory emotion regulation strategy, facilitates cognitive reappraisal in patients with major depressive disorder. Self-compassion reduces depressed mood more effectively than waiting, and it enhances the efficacy of cognitive reappraisal as a mood regulation strategy in patients experiencing high levels of depressed mood.

Sevinc et al. (2018) show how different meditation-based interventions activate brain regions associated with self-control and sensory awareness, highlighting the neural underpinnings of self-comforting behaviours. The studies emphasize that self-soothing is facilitated by both emotional regulation (reduced rumination) and cognitive processes (enhanced mindfulness and self-compassion).

Castilho et al. (2017) highlight the importance of emotional intelligence and self-compassion in regulating emotions, particularly in adolescence. Adolescents who demonstrate higher levels of self-compassion and emotional intelligence are better equipped to manage emotional distress and reduce depressive symptoms. These findings suggest that self-comforting behaviours, when cultivated early in life, can promote long-term emotional resilience.

vii. Self-Regulation and Self-Comforting

Warschburger et al. (2023) places self-regulation at the core of self-comforting behaviours. It highlights how self-regulation, including emotional regulation and behavioural management, develops over time and is pivotal in mental and physical health outcomes in adolescence. It examines multiple sub-facets of self-regulation (SR) and how they interplay with developmental outcomes. Although it doesn't focus solely on self-comforting, the regulation of emotions and behaviours is closely tied to self-soothing strategies.

Wright (2009) argues that self-soothing, as framed within Bowen's family systems theory, is a vital element in regulating emotional discomfort and affect. He emphasizes the recursive nature of self-soothing, which serves as both a byproduct and facilitator of emotional differentiation and regulation.

Across the studies, self-regulation is a key construct within self-comforting behaviours. From childhood to adolescence and adulthood, self-comforting can be seen as one aspect of an individual's broader self-regulation capacity. Emotional regulation, in particular, appears central to self-comforting, with developmental milestones playing a critical role in refining these capacities.

viii. Mindfulness and Self-Comforting Interventions

Mindfulness, or the practice of maintaining a present-centered awareness of one's thoughts and emotions without judgment, is another key mechanism in self-comforting behaviours. Greeson et al. (2014), Gu et al. (2015), Hwang et al. (2019), and Stefan et al. (2018) all highlight mindfulness-based interventions as a key mechanism through which individuals learn self-compassion and improve self-regulation, which includes self-comforting behaviours. These interventions show reductions in stress, perceived stress, and emotional reactivity, which are fundamental to self-soothing mechanisms.

Mindfulness-based interventions often incorporate compassion-based practices, which have shown promising results in treating mental

health disorders. Loving-kindness meditation (LKM), in particular, has been shown to increase acceptance and reduce symptoms in borderline personality disorder (BPD). Mindful Self-Compassion (MSC) programs have also been shown to improve emotional regulation and psychological wellbeing by promoting self-compassion. Bluth et al. (2015) demonstrated that adults who participated in a mindful self-compassion program experienced significant improvements in self-compassion, mindfulness, and wellbeing, including reductions in depression, anxiety, and stress.

Several studies investigate mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) as interventions for improving self-regulation, enhancing self-compassion, and reducing symptoms of psychopathology. Key et al. (2017) and Kuyken (2010) suggest that MBCT enhances mindfulness and self-compassion, leading to a reduction in depressive and OCD symptoms. In particular, MBCT appears to weaken the link between cognitive reactivity and negative mental health outcomes. Taylor et al. (2014), Moss et al. (2015), and Stefan et al. (2018) suggest that MBCT and MBSR improve emotion regulation, reduce self-critical thoughts, and enhance self-compassion, enabling more adaptive self-soothing mechanisms. Dundas et al. (2017) showed that a short self-compassion course improved self-regulation and reduced habitual negative thinking, anxiety, and depression among university students.

These findings align with the broader literature on mindfulness, which suggests that cultivating a mindful, non-judgmental awareness of one's emotions can enhance self-comforting behaviours and promote long-term psychological resilience.

ix. The Mediating Role of Cognition

Cognition plays a significant role in self-comforting behaviours, as evidenced by the studies of Arimitsu (2016) and Ferrari et al. (2018). These studies suggest that self-compassion influences mental health outcomes by altering cognitive processes, such as automatic thoughts and cognitive appraisals.

In the stress and coping framework, cognitive appraisal is a key determinant of how individuals respond to stress. Self-comforting behaviours, such as self-compassion, can shift cognitive appraisals from negative to positive, thereby reducing the emotional impact of stress. This cognitive shift is central to the effectiveness of self-comforting behaviours in promoting psychological wellbeing.

x. Psychological Flexibility and Values-Based Living

Psychological flexibility, a concept central to Acceptance and Commitment Therapy (ACT), and values-based living, also appear as common therapeutic targets in several studies. Wetterneck et al. (2013) examined psychological flexibility and values-based living in relation to OCD, finding significant links between self-compassion and symptom severity. Yadavaia et al. (2014) highlighted the role of psychological flexibility in mediating the effects of ACT interventions on self-compassion and other psychological outcomes, particularly for those with a trauma history.

Sevinc et al. (2018), Asselmann et al. (2024), and Ewert et al. (2024) provide further evidence that mindfulness and self-compassion are linked to reduced stress and greater psychological flexibility, allowing individuals to cope more effectively with stressors. These studies suggest that self-comforting behaviours are a form of adaptive coping that helps individuals manage emotional distress.

xi. Attachment and Early Developmental Self-Comforting Patterns

Self-comforting behaviours emerge early in

development and play a crucial role in regulating emotions and managing stress. Attachment theory provides a valuable framework for understanding the origins and development of self-comforting. Secure attachment, or the lack thereof, significantly influences the development of healthy self-comforting strategies.

Fuertes et al. (2020) demonstrate that preterm infants who exhibit more self-comforting behaviours are more likely to develop avoidant attachment patterns, suggesting that self-soothing behaviours may be a compensatory mechanism when caregiver attachment is less secure. Similarly, Muller et al. (2016) found that maternal anxiety and bonding issues influence infant self-comforting patterns, with older female infants being more sensitive to these dynamics. Both studies highlight the interconnectedness of early attachment, maternal anxiety, and self-comforting behaviours. Infants exhibit distinct self-comforting patterns based on their attachment style and their mothers' emotional state, suggesting that self-comforting is closely tied to the quality of early relationships and regulatory challenges.

Willemsen et al. (1986) explores self-comforting through the lens of attachment theory, predicting that self-comforting would be positively related to secure attachment. Although not all predictions were supported, our findings highlight the complex interplay between a caregiver's style and the development of self-awareness and comfort-seeking behaviours in the toddler. Warschburger et al. (2023) emphasize the developmental trajectory of self-regulation capacities, including self-comforting, from childhood to adolescence. Their longitudinal study highlights the importance of self-comforting in navigating life stressors and emotional turmoil during adolescence.

Both studies suggest that self-comforting behaviours are intrinsically tied to developmental processes, emerging in infancy and evolving through adolescence. The ability to self-soothe appears to be part of a broader set of developmental outcomes, including secure attachment and emotional regulation, which are critical during periods of increased autonomy (e.g., toddlerhood and adolescence).

Galla (2016) further underscores the developmental impacts of self-compassion, particularly in adolescence. Adolescents who develop self-compassion are shown to have better emotional wellbeing, increased mindfulness, and improved coping with stress. Hall et al. (2013) explored the relationship between self-compassion and life stressors, finding it improved both psychological and physical wellbeing among college students. Across these studies, self-compassion has significant developmental impacts, especially during adolescence, where it helps individuals navigate life stressors and emotional turmoil. These findings correspond with infant development theories and psychopathology, where self-soothing mechanisms evolve as part of adaptive developmental processes.

Although Wright's article focuses on Bowen family systems theory, attachment is implicitly considered within the broader context of relationships and the development of self-soothing as a way to manage emotional distress in relational contexts. Attachment theory remains a significant framework in understanding self-comforting behaviours. Secure attachment, or the lack thereof, plays a critical role in whether individuals develop healthy self-comforting strategies. Across the lifespan, these strategies evolve and are influenced by early caregiver interactions, pointing to a foundational link between attachment security and self-comforting.

xii. Parenting and Intergenerational Transmission of Psychopathology

Self-compassion plays a significant role in parenting and intergenerational transmission of

mental health issues. Parents with higher levels of self-compassion were better able to regulate their emotions and provide healthier environments for their children.

Psychogiou et al. (2016) found that self-compassion was associated with better parenting behaviours, leading to fewer emotional and behavioural issues in children. This suggests that interventions aimed at increasing self-compassion in parents could potentially break the cycle of psychopathology transmission.

Nicole et al. (2018) explore the long-term developmental implications of early self-regulation and emotion regulation in children, linking overcontrolling parenting to difficulties in self-regulation and later emotional and academic problems. This reinforces the idea that early life experiences, particularly those shaped by caregivers, have a profound influence on the development of self-comforting behaviours.

The role of overcontrolling parenting and its association with poor self-regulation and emotional difficulties in adolescence suggests that self-comforting behaviours developed early in life can have lasting impacts on mental health and social outcomes.

Willemsen et al. (1986) underscores the role of caregivers, particularly mothers, in fostering independence and how this influences the child's ability to self-comfort. It also emphasizes the relationship between a mother's comforting style and the child's development of self-soothing behaviours.

Wright (2009) argues that Bowen's family systems theory offers a dual focus on both relational (interpersonal) and intrapsychic (intrapersonal) dynamics. He suggests that self-soothing is not merely a personal skill but is also heavily influenced by the broader relational context, particularly significant familial relationships.

Caregiver-child interactions (interpersonal) play a crucial role in early self-comforting behaviours, while as individuals mature, their intrapersonal processes (e.g., emotional differentiation, self-awareness) begin to take over, allowing for more autonomous self-soothing.

xiii. The Impact of Trauma and Negative Life Events

Trauma and negative life events are often triggers for self-comforting behaviours, as individuals seek to manage the emotional distress associated with these experiences. Several studies indicate that self-compassion serves as a mediator in the recovery process from trauma and other emotional disturbances. It helps individuals manage the emotional aftermath of trauma, including PTSD and generalized anxiety disorder (GAD).

Tanaka et al. (2011) found that individuals who experienced childhood emotional abuse and neglect have significantly lower levels of self-compassion, which in turn leads to higher levels of psychological distress, substance use, and suicidal ideation. Self-compassion appears to mediate the relationship between childhood maltreatment and later psychological functioning, emphasizing its importance in trauma recovery.

Hou et al. (2020) explored the role of self-compassion in moderating the relationship between childhood maltreatment and depression in young adults. Their findings indicate that self-compassion can buffer against the negative effects of childhood trauma, particularly by reducing the impact of negative automatic thoughts. Similarly, Miron et al. (2016) emphasize how childhood abuse survivors benefit from addressing the fear of self-compassion, demonstrating the importance of compassion-focused interventions in trauma recovery.

Additionally, Castilho et al. (2017) found that

shame traumatic memories were associated with higher levels of depression and lower levels of self-compassion in adolescents. These studies highlight the importance of self-comforting behaviours in mitigating the long-term psychological effects of trauma and negative life events. Furthermore, Maheux & Price (2016) and Hoffart et al. (2015) suggest that enhancing self-compassion reduces PTSD symptoms, especially when individuals can move past self-judgment and isolation.

xiv. Cultural Variations in Self-Comforting

Cross-cultural studies show that the relationship between self-compassion and mental health outcomes can vary by cultural context. Neff et al. (2008) compared self-compassion levels across different cultures, finding that self-compassion is higher in collectivist cultures like Thailand and Taiwan than in individualistic cultures like the United States. Similarly, Yamaguchi, Kim, and Akutsu (2014) found that in both the United States and Japan, self-compassion is inversely related to self-criticism and depressive symptoms. However, the impact of self-criticism on self-compassion differs across cultures. In Japan, interdependent self-construals have a greater influence on self-criticism, while in the United States, independent self-construals play a more significant role. In a related study, Arimitsu and Hofmann (2015) examined the effectiveness of a self-compassion program in Japan, an interdependent culture. They discovered that self-compassion interventions were effective in reducing negative thoughts and emotions. These findings suggest that cultural values, such as interdependence and collectivism, may influence the way individuals express and cultivate self-comforting behaviours.

Cultural differences in the perception and practice of mindfulness and self-compassion are further emphasised in some studies. Specifically, how Buddhist ethical principles, compassion, and empathy are integrated into mindfulness practices. Bayot et al. (2020) compared standard mindfulness training (SMT) to ethics-oriented mindfulness training (EMT), finding that EMT, which emphasized Buddhist ethics, led to increases in self-compassion and subjective wellbeing, but not empathy, challenging some assumptions about compassion development through mindfulness.

xv. Gender Differences in Self-Comforting Behaviours

Gender differences in self-comforting behaviours are themes that emerge in several studies. Lathren, Bluth & Park (2019) found that self-compassion is inversely related to internalizing symptoms, such as depression and anxiety, in both males and females, but the relationship is stronger in males. This suggests that self-compassion may play a different role in emotional regulation for males and females. Castilho et al. (2017) also found gender differences in the way self-compassion and emotional intelligence mediated depressive symptoms. In their study, self-compassion was a stronger protective factor for males, while emotional intelligence played a more significant role for females. These findings suggest that gender may influence the way individuals engage in self-comforting behaviours and the effectiveness of these behaviours in promoting psychological wellbeing, which is central to psychodynamic theory and cultural psychology. Gender modulates the way self-compassion is experienced, especially in relation to societal norms of self-criticism and emotional expression.

xvi. Self-Compassion as a Protective Factor Against Stress

Arch et al. (2014) highlighted that self-compassion helps moderate biopsychological responses to stress (i.e., social evaluative stress), reducing anxiety and defensive responses. Kemper et al. (2016) pointed out that self-compassion mitigated the impact of stress, which was a risk factor for

paediatric headaches. Lathren, Bluth & Park (2019) demonstrated that self-compassion buffered the impact of stress in adolescents, particularly as an adaptive emotional regulation strategy. Across these studies, self-compassion consistently emerges as a protective factor that diminishes the effects of stress. This aligns with the stress and coping theory, where self-compassion can act as an adaptive response to external stressors, providing emotional cushioning during difficult situations.

xvii. Self-Compassion as a Mediator of Psychological Wellbeing

Self-compassion is noted as an important mediator of improvements in psychological outcomes, suggesting that individuals who are more self-compassionate are better equipped to engage in self-soothing behaviours. Asselmann et al. (2024) further explore this by linking self-compassion to functional coping strategies that prevent dysfunctional thoughts and behaviours during stress.

Arimitsu (2016) demonstrated that self-compassion mediated the relationship between cognitive processes (negative automatic thoughts) and mental health outcomes, suggesting its central role in improving emotional resilience. Galla (2016) found that self-compassion predicted enhanced emotional wellbeing over time, underscoring its ability to regulate emotions like stress and rumination. Stefan et al. (2018) identifies self-compassion as a mediator in the relationship between mindfulness practice and reductions in social anxiety and perceived stress. This highlights the cognitive component of self-comforting behaviours, where individuals learn to reframe stressful situations in a less self-critical manner.

Across these studies, self-compassion is frequently described as a mediator in the interaction between negative cognitive patterns and psychological wellbeing. This aligns with attachment theory and cognitive-behavioural theory, where emotional self-regulation via self-compassion mitigates the effects of negative cognitive patterns, such as rumination and self-criticism.

xviii. Self-Compassion and Severe Mental Illness

The role of self-compassion in severe mental health disorders, such as schizophrenia and psychosis, is relatively underexplored but shows promising therapeutic potential. Studies link increased self-compassion to reduced psychotic symptoms, such as cognitive disorganization and emotional distress.

Eicher et al. (2013) suggest that compassion-based approaches may help individuals with schizophrenia and psychosis by reducing emotional discomfort and positive symptoms. These studies point to the need for further research into compassion-focused therapy in severe mental illness treatment.

xix. Self-Compassion and Treatment Outcomes

Research indicates that integrating self-compassion into therapeutic interventions enhances treatment outcomes, particularly in clinical settings. Beaumont, Galpin & Jenkins (2012) and Braehler et al. (2013) found that individuals undergoing combined cognitive-behavioural therapy (CBT) and compassion-focused therapy (CFT) showed greater improvements in self-compassion and reductions in symptoms of depression and anxiety compared to those who received CBT alone. In patients recovering from psychosis, CFT led to significant increases in compassion and reductions in depression, highlighting its therapeutic value in clinical interventions.

These findings are corroborated by Wright (2009) and Warschburger et al. (2023), who touch on the importance of self-regulation and self-soothing for

both mental and physical health outcomes, suggesting that disruptions in self-comforting behaviours could be linked to developmental psychopathology. Across these studies, self-comforting is seen not just as a developmental milestone but as a key skill in managing emotional discomfort, particularly for clients struggling with emotional regulation issues. The therapist's role is to facilitate an environment where clients can develop and strengthen their self-soothing resources.

DISCUSSION

Study Characteristics and Selection Process

The thoroughness of the study selection process, illustrated by the PRISMA flowchart, underscores the reliability and rigor of this systematic review. Starting with 7419 articles and narrowing down to 95 after meticulous screening, the process highlights the focus on high-quality studies that align with the review's objectives. This careful selection contributes to the validity and depth of the synthesized findings, allowing for a comprehensive understanding of self-comforting behaviours.

Theoretical Frameworks for Self-Comforting Behaviours

The review highlights the complexity of self-comforting behaviours through multiple theoretical lenses, each adding a unique perspective to the understanding of how individuals use these behaviours for emotional regulation, resilience, and coping. The findings in the current body of literature on self-comforting behaviours underline the multidimensional nature of self-comforting as it intersects with attachment theory, early developmental patterns, parenting styles, and responses to trauma. These results collectively suggest that self-comforting is a fundamental aspect of emotional regulation, impacted by both intrapersonal and interpersonal dynamics from infancy through adulthood. A more comprehensive theoretical framework on self-comforting is warranted to fully understand its development, its adaptive functions, and its potential as a buffer against psychological distress.

Attachment Theory

Attachment theory provides foundational insights into self-comforting, suggesting that secure attachment with primary caregivers establishes the groundwork for healthy self-comforting strategies. Studies such as Arch et al. (2014), Fuertes et al. (2020) and Muller et al. (2016) reveal that secure attachment allows infants to internalize comfort and safety, reducing the need for compensatory self-soothing behaviours. In contrast, insecure or avoidant attachment can lead to heightened self-comforting as a compensatory response, a pattern evident among preterm infants and those with anxious maternal figures.

Longitudinal studies, such as Warschburger et al. (2023), emphasize that self-comforting behaviours are not static but evolve through developmental stages, with significant implications during adolescence. Adolescents who have developed self-compassion exhibit greater resilience against life stressors and emotional turmoil. These findings highlight self-comforting as a critical aspect of developmental resilience, extending beyond immediate emotional regulation to long-term mental health.

Our findings align with previous systematic reviews that emphasize the importance of secure attachment in emotional development. For instance, a systematic review by Obeldobel et al. (2023) found that secure attachment is consistently related to better emotion regulation and recovery. This supports the idea that secure attachment fosters self-compassion and emotional resilience.

In contrast, a systematic review by Martins et al.

(2022) on the development of prosocial behavior found mixed results regarding the association between attachment security and prosocial behavior. While some studies showed significant associations, others did not, highlighting the complexity of the relationship between attachment and various emotional and social outcomes.

While our review supports the positive impact of secure attachment, it is important to consider other factors that influence emotional regulation and self-comforting behaviours. For example, environmental stressors and individual differences in temperament can also play significant roles (Risi, Pickard & Bird, 2021). This suggests that while attachment is crucial, a holistic approach that considers multiple factors may be necessary for effective intervention.

Stress and Coping Framework

The stress and coping framework views self-comforting as a coping mechanism, supporting Lazarus and Folkman's (1984) theory that stress management depends on cognitive appraisal. Studies such as Arimitsu (2016) showcase the positive role of self-compassion in shifting cognitive appraisals, thus helping individuals manage stress more effectively. This framework highlights the adaptive nature of self-comforting behaviours in navigating stress and managing mental health.

Our findings align with previous systematic reviews that emphasize the benefits of self-compassion in coping with stress. For instance, a meta-analysis by Ewert et al. (2021) found that self-compassion is positively correlated with adaptive coping strategies and negatively correlated with maladaptive coping strategies. This supports the idea that self-compassion helps individuals manage stress more effectively by promoting healthier coping mechanisms.

In contrast, some systematic reviews have focused on traditional coping strategies without explicitly considering the role of self-compassion. For example, a review by Littleton et al. (2007) examined various coping strategies but did not specifically address the impact of self-compassion. This highlights a potential area for further research and integration, as incorporating self-compassion into coping frameworks could enhance their effectiveness.

While our review supports the adaptive nature of self-comforting behaviours, it is important to consider other factors that influence stress management. For example, individual differences in temperament and environmental stressors can also play significant roles (Carver & Connor-Smith, 2010). This suggests that a comprehensive approach to stress management should consider multiple factors, including self-compassion, environmental influences, and individual differences.

Cognitive-Behavioural Theory (CBT)

In the CBT framework, self-comforting is viewed as a mechanism to modify negative thought patterns. The findings from Ferrari et al. (2018) indicate that self-compassion can help individuals manage perfectionism and negative self-perceptions, crucial elements in the CBT approach. This suggests that incorporating self-compassion practices into CBT could improve outcomes for individuals dealing with perfectionism, depression, and anxiety.

Our findings align with previous systematic reviews that emphasize the benefits of self-compassion in psychological interventions. For instance, a meta-review by Hofmann et al. (2012) found that CBT is effective across a wide range of conditions, but incorporating elements like self-compassion could further enhance its efficacy. Similarly, a systematic review by Kirby et al. (2017) on Compassion-Focused Therapy (CFT)

highlighted the positive impact of self-compassion on mental health outcomes, suggesting that these benefits could be integrated into CBT.

In contrast, some systematic reviews have focused on the traditional aspects of CBT without explicitly incorporating self-compassion. For example, a panoramic meta-analysis by Fordham et al. (2021) summarized the general effectiveness of CBT across various conditions but did not specifically address the role of self-compassion. This highlights a potential area for further research and integration.

While our review supports the integration of self-compassion into CBT, it is important to consider other factors that influence therapeutic outcomes. For example, individual differences in temperament and the presence of comorbid conditions can affect how clients respond to CBT interventions (Kazantzis et al., 2010). Additionally, some studies suggest that combining CBT with other therapeutic approaches, such as Acceptance and Commitment Therapy (ACT), may offer further benefits by addressing a broader range of cognitive and emotional challenges (Hayes et al., 2006).

Psychodynamic Theory

Psychodynamic theory links self-comforting behaviours to defence mechanisms developed to manage internal conflict and anxiety. Bluth et al. (2015) present evidence that self-compassion acts similarly to defence mechanisms, helping adolescents manage stress. The psychodynamic perspective adds depth to our understanding of self-comforting as a defence against psychological distress.

Our findings align with previous systematic reviews that emphasize the effectiveness of psychodynamic therapies in managing psychological distress. For instance, a systematic review by Briggs et al. (2019) found that psychodynamic psychotherapy is effective in reducing suicidal behaviour and self-harm, highlighting its role in improving psychosocial functioning. This supports the idea that psychodynamic approaches, including fostering self-compassion, can be effective in managing stress and internal conflicts.

In contrast, some systematic reviews have focused on the broader applications of psychodynamic therapy without specifically addressing self-compassion. For example, Yakeley and Burbridge-James (2018) explored the psychodynamic approaches to suicide and self-harm, emphasizing the importance of understanding unconscious meanings and relational contexts. Although these reviews highlight the general effectiveness of psychodynamic therapy, they do not specifically examine the role of self-compassion as a defence mechanism.

While our review supports the role of self-compassion as a defence mechanism, it is important to consider other factors that influence psychological resilience. For example, individual differences in personality and the presence of external stressors can also impact how individuals cope with stress (Carver & Connor-Smith, 2010). A comprehensive therapy approach that considers multiple factors, including external stressors, is thus crucial for achieving optimal results and addressing the complex needs of individuals.

Developmental Psychology and Infant Development

The developmental perspective suggests that self-comforting behaviours are foundational to emotional regulation, starting from infancy. Programs designed to support parents and caregivers in nurturing self-compassion in children could lead to better emotional outcomes as these children grow. Such interventions could be implemented in early childhood education settings, parenting programs, and paediatric healthcare to promote long-term psychological

wellbeing.

Studies like Bluth, Roberson & Gaylord (2016) underline the importance of early interventions aimed at fostering self-compassion to support emotional regulation and resilience in adolescence. This framework underscores the potential for early interventions to have lasting benefits for mental health.

Our findings align with previous systematic reviews that emphasize the importance of early emotional regulation interventions. For instance, a systematic review by Jones et al. (2015) found that early childhood interventions targeting emotional regulation can lead to improved social and emotional outcomes later in life. This supports the idea that fostering self-compassion from a young age can have enduring effects. A meta-analysis by Phillips and Hine (2019) also highlighted the positive association between self-compassion, better physical health and health-promoting behaviours

Some reviews have focused on the broader aspects of emotional regulation without specifically addressing self-compassion. For example, a review by Denham et al. (2012) examined the development of emotional competence in early childhood but did not specifically highlight the role of self-compassion. This suggests that while the general benefits of early emotional regulation interventions are well-documented, the specific impact of self-compassion warrants further exploration.

Our review emphasizes the developmental perspective and the importance of early interventions. Previous reviews, such as those by Póka et al. (2023), have focused on specific populations like university students and the effectiveness of self-compassion interventions in reducing psychological distress and improving wellbeing. While earlier reviews highlight the benefits of self-compassion, our review adds a developmental angle, emphasizing the foundational role of self-comforting behaviors from infancy.

Previous reviews have shown mixed results regarding the effectiveness of self-compassion interventions. For example, Póka et al. (2023) found that self-compassion interventions had a moderate effect on self-compassion outcomes but were less effective for improving positive and negative affect among university students. Our review suggests that early interventions can have long-term benefits, potentially leading to more sustained improvements in emotional regulation and resilience.

Common Themes in Self-Comforting Behaviours

Self-Compassion as a Self-Comforting Construct

Self-compassion emerges as a recurring theme across studies, with evidence supporting its role in reducing anxiety, depression, and stress. Research by Neff (2003) and further studies by Arch et al. (2014) and Arimitsu (2016) reinforce self-compassion's value in promoting healthier coping mechanisms and emotional regulation, highlighting its potential for mental health interventions across age groups and populations.

Our findings align with previous systematic reviews that emphasize the benefits of self-compassion in mental health. For instance, a meta-analysis by Ferrari et al. (2019) found that self-compassion interventions had medium effects on reducing depressive symptoms, anxiety, and stress. Similarly, a systematic review by MacBeth and Gumley (2012) reported large correlations between higher levels of self-compassion and lower levels of depression, anxiety, and stress. These reviews support the idea that self-compassion is a valuable tool for improving mental health outcomes.

Our review highlights the importance of self-

compassion across various age groups and populations. Previous reviews, such as those by Wilson et al. (2018), have focused on specific populations, like clinical and subclinical groups, and the effectiveness of self-compassion-related therapies. While earlier reviews emphasize the benefits of self-compassion, our review provides a broader perspective, suggesting its applicability across diverse populations.

Previous reviews have shown that self-compassion-related therapies, including mindfulness-based cognitive therapy and acceptance and commitment therapy, are effective in promoting self-compassion and reducing psychopathology (Wilson et al., 2018). However, these reviews often highlight the need for more robust evidence to confirm these findings. Our review reinforces these findings and suggests that self-compassion interventions can be effective across different contexts and populations, providing a more comprehensive understanding of their benefits.

The mechanisms through which self-compassion impacts mental health, such as through improved emotional regulation, have been explored in previous reviews. For example, Inwood and Ferrari (2018) found that emotion regulation significantly mediates the relationship between self-compassion and mental health. Our review supports this by highlighting the role of self-compassion in emotional regulation, further validating the findings of previous systematic reviews.

Self-Compassion and Vulnerability to Depression and Anxiety

Several studies show that self-compassion mitigates vulnerability to depression and anxiety by fostering a balanced cognitive style and reducing negative self-perceptions. Findings from Zou et al. (2013, 2017) and Terry et al. (2012) underscore self-compassion's resilience-building effects, especially during challenging life transitions like starting college. This supports the growing interest in self-compassion as a target in preventive mental health programs.

Previous systematic reviews, such as those by Wilson et al. (2018), have also highlighted the benefits of self-compassion in reducing anxiety and depression. These reviews support the idea that self-compassion can lead to significant improvements in mental health by promoting healthier coping mechanisms and emotional regulation. Our review agrees with these findings, reinforcing the notion that self-compassion is a valuable target for mental health interventions.

While our review emphasizes the resilience-building effects of self-compassion during life transitions like starting college, previous reviews have focused on various populations and contexts. For example, Inwood and Ferrari (2018) explored the mechanisms of change in the relationship between self-compassion, emotion regulation, and mental health across different samples. Both reviews highlight the importance of self-compassion but differ in their specific focus and the populations they examine.

Methodological differences can lead to varying conclusions. For instance, Wilson et al. (2018) conducted a meta-analysis focusing on randomized controlled trials, while our review included a broader range of study designs. These differences highlight the importance of considering the context and methodology when interpreting the findings of systematic reviews.

Self-Criticism as a Barrier to Emotional Healing

Self-criticism consistently appears as an obstacle to emotional wellbeing. Findings by Waite et al. (2015) and Reid et al. (2014) indicate that high levels of self-criticism can exacerbate mental health symptoms, while self-compassion can alleviate this effect. By positioning self-criticism as

a barrier, these findings suggest that interventions reducing self-criticism and enhancing self-kindness could significantly improve psychological outcomes.

Previous systematic reviews, such as those by Zaccari et al. (2024), have also highlighted the negative impact of self-criticism on mental health. These reviews support the idea that self-criticism is a transdiagnostic factor that contributes to various psychopathological conditions. Our review agrees with these findings, reinforcing the notion that self-criticism is a significant barrier to emotional wellbeing and should be a focus of mental health interventions.

Reviews by Wilson et al. (2018) and Inwood and Ferrari (2018) have shown that self-compassion-related therapies are effective in reducing self-criticism and improving mental health outcomes. These reviews emphasize the role of self-compassion in promoting emotional regulation and resilience. Our review supports these findings by highlighting the potential of self-compassion interventions to alleviate the negative effects of self-criticism and improve psychological outcomes.

Fear of Compassion and Emotional Blockages

Fear of self-compassion is a notable barrier in the therapeutic process. Studies by Gilbert et al. (2012) and Joeng & Turner (2015) reveal that fear of positive emotions, including compassion, can perpetuate depression and other mental health challenges. This theme highlights the importance of addressing resistance to self-compassion in therapeutic settings to enhance treatment efficacy.

Fear of self-compassion can hinder therapeutic progress by preventing individuals from fully engaging with interventions designed to improve their mental health. This fear can perpetuate negative emotional states and impede recovery from depression and other mental health issues. Addressing this fear in therapeutic settings is crucial. Therapists need to be aware of this barrier and work to create a safe and supportive environment where clients can gradually overcome their resistance to self-compassion.

By addressing resistance to self-compassion, therapists can enhance the efficacy of their treatments. Interventions that specifically target and reduce fear of self-compassion can help clients develop healthier emotional responses and improve their overall mental health. This approach can lead to more effective and sustainable outcomes, as clients become more open to experiencing positive emotions and self-kindness.

The focus on fear of positive emotions, including self-compassion, is a relatively unique aspect of our review. Previous reviews have primarily focused on the benefits of self-compassion without extensively addressing the barriers to its acceptance. For example, Winders et al. (2020) discussed the role of self-compassion in reducing PTSD symptoms but did not extensively explore the fear of self-compassion. Our review adds a critical dimension by highlighting the barrier posed by fear of self-compassion. This suggests that while self-compassion is beneficial, addressing the fear associated with it is essential for maximizing its therapeutic potential. Our review thus provides a more comprehensive understanding by considering both the benefits and the obstacles.

Mechanisms of Emotional Regulation and Self-Comforting

Emotional Regulation through Self-Comforting

The studies collectively emphasize self-compassion's role in fostering emotional regulation by reducing rumination and worry. This aligns with the evidence provided by Raes (2010) and Diedrich et al. (2016), which shows that self-compassion can facilitate cognitive reappraisal, a

critical aspect of emotional regulation.

Self-compassion helps reduce rumination and worry, which are common cognitive processes that exacerbate mood disorders. By promoting a more balanced and kind self-view, individuals can break the cycle of negative thinking and improve their emotional wellbeing. This is particularly important for individuals with mood disorders, as reducing rumination and worry can lead to significant improvements in their mental health.

Cognitive reappraisal is a critical aspect of emotional regulation, involving the reinterpretation of negative situations in a more positive light. Self-compassion facilitates this process by encouraging individuals to treat themselves with kindness and understanding, rather than harsh self-criticism. This can lead to more adaptive emotional responses and better overall mental health outcomes.

While our review emphasizes the role of self-compassion in facilitating cognitive reappraisal, previous reviews have focused on various mechanisms through which self-compassion impacts mental health. For example, Inwood and Ferrari (2018) discussed the role of emotion regulation as a mechanism of change in the relationship between self-compassion and mental health.

The findings underscore the role of self-compassion as an effective emotional regulation strategy. By incorporating self-compassion into therapeutic interventions, mental health professionals can help clients develop healthier ways of managing their emotions. This approach can be particularly beneficial for individuals with mood disorders, who often struggle with emotional regulation.

Self-Regulation and Self-Comforting

Warschburger et al. (2023) highlight the development of self-regulation as integral to self-comforting behaviours. Self-regulation, beginning in childhood, is essential for managing emotions and behaviours effectively. Wright's (2009) emphasis on the role of self-soothing in emotional differentiation suggests that self-regulation training could enhance individuals' capacity to engage in healthy self-comforting behaviours.

Previous systematic reviews, such as the one by Pandey et al. (2017), have also highlighted the importance of self-regulation in childhood and adolescence. These reviews support the idea that self-regulation is a critical skill for positive health, educational, and social outcomes. Our review aligns with these findings, emphasizing the importance of self-regulation in developing the skills necessary for managing emotions and behaviours in a healthy and productive way.

While our review emphasizes the role of self-soothing in emotional differentiation, previous reviews have focused on various aspects of self-regulation. For example, Chen et al. (2024) examined the psychometric properties of self-regulation measures in children, highlighting the complexity and importance of accurately assessing self-regulation.

Diverse research methods have been employed in reviews investigating the integral role of self-regulation in self-comforting behaviours. For instance, Pandey et al. (2017) conducted a review of universal self-regulation-based interventions, while our review included a broader range of study designs. Our review's focus on thematic analysis provides valuable insights into the nuanced benefits of self-regulation and self-soothing.

Mindfulness and Self-Comforting Interventions

Mindfulness practices emerge as effective self-comforting interventions, reducing emotional reactivity and enhancing self-regulation. Studies by Greeson et al. (2014) and Kuyken (2010) show that mindfulness-based interventions (e.g., MBCT,

MBSR) can foster self-compassion, improve emotional regulation, and reduce symptoms of mental health disorders. This points to the potential for integrating mindfulness practices into therapeutic settings to promote self-soothing.

Our findings align with previous systematic reviews that have highlighted the benefits of mindfulness practices. For instance, a meta-analysis by McCartney et al. (2021) found that MBCT significantly reduces the risk of relapse in recurrent depression. Similarly, Querstret et al. (2020) demonstrated that MBSR can lead to significant improvements in psychological wellbeing. These studies corroborate our findings on the effectiveness of mindfulness practices in enhancing self-regulation and reducing emotional reactivity.

Cognitive Mechanisms in Self-Comforting

The Mediating Role of Cognition

Cognitive processes play a significant role in self-comforting behaviours. Arimitsu (2016) and Ferrari et al. (2018) suggest that self-compassion can alter automatic thoughts and cognitive appraisals, thereby reducing the emotional impact of stress. This mediating role of cognition in self-comforting behaviours supports interventions targeting cognitive appraisal and reappraisal as strategies to enhance psychological resilience.

Our findings are consistent with previous systematic reviews that have also emphasized the importance of cognitive processes in self-comforting behaviors. For example, a review by Petrocchi (2024) found that self-compassion was associated with reduced rumination and increased positive emotions, which can contribute to improved mental health outcomes. Similarly, a review by Riepenhausen et al. (2022) found that cognitive reappraisal was a key component of effective stress management.

Our findings also support the idea that self-compassion can play a critical role in reducing the emotional impact of stress. This is consistent with previous review that has shown that self-compassion can buffer against the negative effects of stress (Bunjak et al., 2022).

In contrast, previous reviews have emphasized the importance of emotional regulation and emotional expression in self-comforting behaviors (Rattaz et al., 2022). While emotional regulation and expression are certainly important, our findings suggest that cognitive processes may play a more central role in self-comforting behaviors.

Psychological Flexibility and Values-Based Living

The studies reveal that psychological flexibility and values-based living contribute to effective self-comforting behaviours, especially in contexts involving mental health disorders. Wetterneck et al. (2013) and Sevinc et al. (2018) highlight how increased psychological flexibility allows individuals to adaptively manage stress. These findings suggest that fostering psychological flexibility through interventions such as ACT may improve self-comforting capacities and resilience.

Our results are consistent with recent systematic reviews that have also emphasized the role of psychological flexibility in self-comforting behaviors. For example, a systematic review found that ACT-based interventions were effective in reducing symptoms of anxiety and depression, and that psychological flexibility was a key mediator of these effects (Coto-Lesmes et al., 2020). Another review found that ACT-based interventions were effective in improving psychological flexibility and reducing symptoms of PTSD (Rowe-Johnson et al., 2024).

Our findings also support the idea that values-based living is an important component of effective self-comforting behaviors. This is consistent with previous reviews that have shown that values-

based living is associated with increased psychological wellbeing and life satisfaction (Tunç et al, 2023).

Parenting Styles and Intergenerational Transmission of Psychopathology

Impact of Parental Self-Compassion on Child Development

Self-compassion in parents has a notable impact on the development of self-comforting and emotional regulation in children. Psychogiou et al. (2016) demonstrate that parents with higher self-compassion create more nurturing environments, leading to fewer behavioural issues in their children. This finding is significant as it suggests that self-compassion-oriented interventions could play a crucial role in breaking cycles of psychopathology transmission from parents to children.

Our findings are consistent with previous systematic reviews that have also emphasized the importance of parental self-compassion in child development. For example, a systematic review found that parental self-compassion was associated with improved child outcomes, including reduced anxiety and depression (Jefferson, Shires & McAloon, 2020).

In contrast, some previous reviews have emphasized the importance of other factors, such as parental stress and coping styles, in child development (Fang et al., 2024). While these factors are certainly important, our findings suggest that parental self-compassion is a critical factor in creating a nurturing environment that promotes healthy child development.

Overcontrolling Parenting and Self-Regulation Challenges

The findings by Nicole et al. (2018) on the detrimental effects of overcontrolling parenting further emphasize the developmental implications of self-comforting. Children who experience overcontrolling parenting are likely to struggle with self-regulation, which may impair their ability to independently engage in self-comforting behaviours, with lasting impacts on emotional and academic functioning.

Our findings are consistent with previous systematic reviews that have also emphasized the importance of parenting styles in child development. For example, previous reviews found that authoritarian parenting was associated with increased child anxiety and depression, while authoritative parenting was associated with improved child outcomes (Pinquart & Kauser, 2018; Chyung et al., 2022). Another review found that parental warmth and responsiveness were key predictors of child emotional regulation and resilience (Zimmer-Gembeck et al., 2022).

Trauma, Negative Life Events, and Self-Compassion as a Mediator

Studies such as those by Hou et al. (2020) and Miron et al. (2016) underscore the protective effects of self-compassion in trauma recovery, particularly among individuals who have experienced childhood maltreatment. Castilho et al. (2017) link low self-compassion levels with heightened depression and shame, illustrating that individuals who cultivate self-compassion are better equipped to navigate the emotional repercussions of trauma. Self-compassion appears to mitigate the long-term psychological consequences of trauma, including anxiety and depression, by reducing self-judgment and isolation. Self-comforting behaviours act as a buffer in trauma recovery and serve as crucial resilience mechanisms for individuals dealing with traumatic memories. These findings highlight self-comforting as an essential adaptive skill in the context of trauma and distress.

Our findings are consistent with previous systematic reviews that have also emphasized the importance of self-compassion in trauma recovery.

For example, a systematic review by Winders et al. (2020) found that self-compassion was linked to reduced symptoms of PTSD and depression in trauma survivors. Additionally, the researchers identified self-compassion as a significant predictor of resilience in these individuals.

Our findings also support the idea that self-compassion can reduce self-judgment and isolation, which are common experiences among individuals who have experienced trauma. This is consistent with previous research that has shown that self-compassion can reduce self-criticism and increase feelings of self-worth and self-acceptance (Muris & Otgaar, 2023).

Study Implications

The thematic analysis of self-comforting behaviours across different theoretical frameworks provides valuable insights into the mechanisms by which individuals manage emotional distress and promote psychological wellbeing. Self-compassion emerges as a central component of self-comforting behaviours, with significant implications for mental health, emotional regulation, and resilience. It consistently plays a vital role in enhancing psychological wellbeing, mitigating mental health challenges, and promoting recovery across diverse populations and theoretical contexts.

From a developmental perspective, fostering self-compassion and emotional intelligence from an early age may have long-term benefits for emotional regulation and psychological resilience. Early attachment styles and the quality of maternal bonding significantly influence the development of self-comforting behaviours. Infants who experience insecure attachment or maternal anxiety are more likely to exhibit self-soothing behaviours as a coping strategy. This aligns with attachment theory, which posits that secure attachment fosters healthier self-regulation and coping mechanisms. Programs that teach self-compassion and mindfulness in schools could help adolescents develop healthy coping strategies for managing stress and emotional challenges.

The cultural and gender differences in self-comforting behaviours highlighted in this review suggest that mental health interventions should be tailored to the cultural and gender-specific needs of individuals. For example, self-compassion interventions may need to be adapted to align with cultural values of interdependence or independence, depending on the population being served. This personalization can enhance the effectiveness of mental health interventions by making them more relevant and accessible.

The findings from this review suggest that interventions aimed at enhancing self-compassion and mindfulness may be particularly effective in promoting emotional regulation and reducing the negative effects of stress, anxiety, and depression. Mindfulness-based interventions, such as MSC programs, have shown promise in improving emotional wellbeing in both adolescents and adults, suggesting that these interventions could be widely implemented in clinical settings.

Across several studies, self-compassion and mindfulness emerge as key mechanisms that foster adaptive self-comforting behaviours. Whether through structured interventions like MBCT or self-help mindfulness programs, the development of self-compassion helps individuals manage stress, reduce rumination, and engage in self-soothing behaviours that reduce emotional distress.

Mindfulness-based interventions enhance emotion regulation by helping individuals reframe negative thoughts and reduce emotional reactivity. This leads to healthier self-soothing behaviours, particularly in contexts of high stress or emotional turmoil. Cognitive-behavioural frameworks highlight the importance of changing thought patterns to foster emotional wellbeing and reduce

stress.

Effective stress management is a recurring theme in the development of self-comforting behaviours. Whether through mindfulness or other cognitive strategies, individuals learn to cope with stress more effectively, leading to improved emotional and mental health outcomes. Psychological flexibility, a key component of many interventions, enhances the ability to engage in self-soothing behaviours during times of stress.

The synthesis of these studies suggests that self-comforting behaviours are closely tied to self-compassion, emotion regulation, early attachment, and stress management. Mindfulness and cognitive-behavioural interventions help individuals develop these self-regulation skills, leading to healthier coping mechanisms. From infancy to adulthood, the capacity to engage in self-comforting behaviours appears to be shaped by both internal factors (such as mindfulness and self-compassion) and external influences (such as attachment and parenting styles).

Together, these themes provide a comprehensive picture of the complex phenomenon of self-comforting, indicating that it is an adaptive behaviour that evolves across the lifespan and is critical for emotional wellbeing.

Toward a Comprehensive Theoretical Framework on Self-Comforting

Our findings reveal a compelling need for a more integrated theoretical framework that addresses the development, functions, and adaptive capacities of self-comforting. Key elements that a comprehensive framework should incorporate include:

1. Attachment and Developmental Processes: Recognizing that self-comforting behaviours are deeply influenced by early attachment and evolve through developmental stages.
2. Parental Influence and Intergenerational Dynamics: Highlighting the role of parental self-compassion and parenting styles in shaping self-comforting behaviours across generations.
3. Self-Compassion in Trauma Recovery: Understanding self-compassion as a critical mediator in managing trauma and mitigating its psychological impacts.
4. Lifespan Perspective: Emphasizing the need to examine self-comforting behaviours within a lifespan framework that accounts for both early-life and later-life challenges.

Such a framework could guide future research and interventions by providing a comprehensive understanding of self-comforting's developmental, relational, and psychological dimensions. Given the multidimensional findings, there is an imperative to move beyond fragmented theoretical approaches and develop an integrative perspective that fully captures the significance and adaptability of self-comforting behaviours across contexts.

CONCLUSION

The studies reviewed converge on several theoretical frameworks:

- Attachment theory: Self-compassion acts as a protective factor in the context of early life adversity (e.g., childhood maltreatment) by mitigating the long-term effects of insecure attachment and psychological distress.
- Cognitive-behavioural theory: Self-compassion complements cognitive-behavioural interventions, especially in modulating negative cognitive styles and enhancing emotion regulation.
- Stress and coping: Self-compassion appears to buffer the impact of stress during life transitions (e.g., college adjustment) and reduces maladaptive coping strategies such as rumination and self-criticism.

- Psychodynamic theory: Self-compassion might be linked to resolving internal conflicts related to self-criticism and negative self-perceptions, contributing to emotional regulation and resilience.

Self-comforting behaviours, particularly self-compassion, are essential for emotional regulation and psychological wellbeing. Within frameworks like attachment theory, stress and coping models, cognitive-behavioural, and developmental perspectives, self-compassion consistently emerges as a mechanism that mitigates negative cognitive patterns, alleviates self-criticism, and promotes resilience against trauma and adversity. Self-compassion is especially effective in reducing stress, anxiety, depression, and perfectionism. The expression of self-compassion varies across gender and cultural contexts, underscoring its importance in personalized therapeutic approaches.

However, fears of self-compassion and the presence of self-criticism pose significant barriers, which need to be addressed in both clinical and therapeutic settings to foster better mental health outcomes. This review highlights the need to incorporate self-compassion and compassion-focused interventions within broader theoretical models to create more holistic and effective mental health treatments. A framework that combines self-compassion, mindfulness, and values-based living could offer a more comprehensive approach to self-comforting behaviours.

As the field of psychology continues to examine the role of self-compassion in mental health, such integrative approaches show promise for fostering emotional resilience and long-term wellbeing. This review emphasizes the importance of considering developmental stages, socio-cultural influences, and individual barriers to self-compassion, providing insights for both clinical applications and future research. By identifying current gaps and converging insights, this review lays the groundwork for advancing a more cohesive and inclusive theory on self-comforting behaviours and their role in mental health.

CONFLICTS OF INTEREST

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Appendix 1A: Data Extraction Table (I)

S/N	Authors/ Country	Research Design	Research Aim	Measures	Sample	Key Findings
1.	Arch et al. (2014); USA	Randomised control trial (RCT)	To investigated whether brief self-compassion training modulates a range of psychobiological responses to an acute social stressor (using the Trier Social Stress Test).	Anxiety (STAI, SPS, SIAS), depression	105 university students with low self-esteem, mean age 19.53, 100% female	Compared to attention (placebo) and no-training control conditions, brief self-compassion training diminished sympathetic (salivary alpha-amylase), cardiac parasympathetic, and subjective anxiety responses, though not HPA-axis (salivary cortisol) responses to the TSST. Self-compassion training also led to greater self-compassion under threat relative to the control groups. In that social stress pervades modern life, self-compassion represents a promising approach to diminishing its potentially negative psychological

						and biological effects.
2.	Arimitsu (2016); Japan	RCT	To develop an Enhancing Self-Compassion Program (ESP) and test the potential efficacy of the program in enhancing self-compassion (primary outcomes) after seven weeks of intervention and at a three-month follow-up.	Self-Compassion Scale (SCS), Rosenberg Self-esteem Scale (RSS), Beck Depression Inventory-II (BDI-II), Spielberger Trait Anxiety Inventory (STAI), Depression Anxiety Cognition Scale (DACS), Multiple Mood Scale (MMS), and Self-Conscious Emotion Scale (SCES).	University students (all Japanese) with low self-compassion, were recruited from June 2010 to August 2012.	In the post-treatment and follow-up, ANOVAs revealed that the ESP group (N = 16) had significant improvements in each of the subscales of self-compassion (Cohen's ds: .91–1.51) except for mindfulness, whereas the control group (N = 12) did not. Greater reductions in negative thoughts and emotions in the ESP group were also found. These gains remained at follow-up. These findings suggest that an ESP may be an effective and acceptable adjunct intervention for Japanese individuals with low self-compassion.
3.	Arimitsu and Hofmann (2015); Japan	Mediation analysis with in a correlational research framework	The aim of the first present study was to test the hypothesis of whether negative automatic thoughts mediate the relationship	Self-compassion: SCS Depression: PHQ-9 Anxiety: GAD-7	34 university students and staff scoring > 6 on EPQR-S (neuroticism subscale). Mean (SD) age = 29.6 (8.6)	Both self-compassion and self-esteem increased positive automatic thoughts and decreased trait

			between self-compassion, anxiety, and depression when controlling for self-esteem (Hypothesis 1). The aims of the second study were to replicate the results of the first and to expand the range of instruments employed by including measures of positive automatic thoughts and life satisfaction.		years, 91% female opportunity sample.	anxiety, whereas only self-esteem increased life satisfaction and decreased depression directly. Positive automatic thoughts increased life satisfaction and decreased depression and trait anxiety, and positive automatic thoughts mediated the relationship between self-compassion and negative affect. These findings suggest that both positive and negative automatic thoughts mediate the relationship between self-compassion and affect in Japanese people.
4.	Armstrong and Rimes (2016); UK	RCT	Investigate the efficacy of MBCT compared to online self-help for reducing neuroticism	Self-report questionnaires (neuroticism, rumination, self-compassion, decentering)	N = 34 (17 per group)	MBCT was more effective in reducing neuroticism, rumination, and increasing self-compassion and decentering compared to the control group.
5.	Arredondo et al. (2017); Spain	RCT	Assess the effectiveness of a mindfulness-based program to	PSS-14, FFMQ, SCS, EQ-D, MBI-GS, HRV	N = 40 (21 intervention, 19 control)	Mindfulness-based program significantly reduced stress, increased

			reduce stress in the workplace.			mindfulness, decentering, self-compassion, and improved burnout compared to the control group.
6.	Asselmann et al. (2024); Germany	Longitudinal study (3 waves - T1, T2, T3)	To examine whether self-compassion at the beginning of the COVID-19 pandemic predicted higher subjective wellbeing and lower psychopathological symptoms through more functional and less dysfunctional coping.	Self-Compassion Scale, German version of the Brief COPE inventory, German version of the Satisfaction with Life Scale, German version of the 21-item Depression Anxiety Stress Scale	430 adults	Structural equation modelling revealed that self-compassion at T1 predicted more functional and less dysfunctional coping at T2 (controlling for coping at T1) and more positive and less negative affect and lower stress symptoms at T3 (controlling for these measures at T1). More functional and less dysfunctional coping at T2 (controlling for coping at T1) predicted higher subjective wellbeing and lower psychopathological symptoms at T3 (controlling for these measures at T1), with the sole exception that functional coping was not significantly associated with anxiety

						symptoms. In addition, we found that less dysfunctional coping mediated (a) nearly one-third (30.77%) of the association between higher self-compassion and less negative affect and (b) nearly half (46.15%) of the association between higher self-compassion and lower stress symptoms.
7.	Bayot et al. (2020); Belgium	RCT	To compare a mindfulness program that explicitly integrates elements of Buddhist ethics (i.e., the four immeasurables) and wisdom (i.e., interdependency, non-self, common humanity) (ethics-oriented mindfulness training (EMT)), to a standard mindfulness training (SMT) program and a control group (i.e., waiting list), with a randomized controlled design in a community sample.	Self-compassion: SCS-SF Depression: SCL-R42 Anxiety: SCL-R42	78 adults recruited from the community and a university. Mean (SD) age = 38.1 (10.5) years, 76% female. Opportunity sample.	Per-protocol ANOVA and Bonferroni post hoc t tests. MBP 2 > control on SCS-SF at post-programme and 3-month follow-up. No difference between MBP 1 and control. No sig. time × group interaction on anxiety/depression subscales of SCL-R42.

8.	Beaumont et al. (2016); UK	RCT	Investigate the effectiveness of CFT as an adjunct to TF-CBT for reducing symptoms of trauma, anxiety, depression, and increasing self-compassion in FSP.	Hospital Anxiety and Depression Scale, Impact of Events Scale-R, Self-Compassion Scale - Short Form.	N = 17 (8 TF-CBT, 9 TF-CBT + CFT)	TF-CBT combined with CFT was more effective in increasing self-compassion compared to TF-CBT alone. Both groups showed significant reductions in symptoms of depression, anxiety, and trauma.
9.	Beaumont, Galpin & Jenkins (2012); UK	Prospective, comparative outcome study (repeated measures design)	To contrast the relative impact of differing therapeutic interventions for trauma victims, carried out by the same therapist.	12 sessions of either Cognitive Behaviour Therapy (CBT), or CBT coupled with Compassionate Mind Training (CMT). Data was gathered pre-therapy and post-therapy, using three self-report questionnaires: Hospital Anxiety and Depression Scale; Impact of Events Scale; the Self-Compassion Scale (SCS).	A non-random convenience sample (N = 32) of participants, referred for therapy following a traumatic incident.	Participants in both conditions experienced a highly statistically significant reduction in symptoms of anxiety, depression, avoidant behaviour, intrusive thoughts and hyper-arousal symptoms post-therapy. Participants in the combined CBT and CMT condition developed statistically significant higher self-compassion scores post-therapy than the CBT-only group [$F(1.30) = 4.657$, $p \leq 0.05$]. There was no significant difference

						between treatment groups.
10.	Braehler et al. (2013); UK	Prospective, randomized, open-label, blinded end point evaluation clinical trial.	To assess the safety, the acceptability, the potential benefits, and associated change processes of using group Compassion focused therapy (CFT) with people recovering from psychosis.	Compassion focused therapy change processes (semi-structured Recovery Narrative Interview designed to stimulate a narrative around), The Clinical Global Impression-Improvement Scale (CGI-I), the Narrative Recovery Style Scale (NRSS), The Beck Depression Inventory-II, e Fear of Recurrence Scale (FORSE), Personal Beliefs about Illness Questionnaire-Revised (PBIQ-R) Treatment as usual (TAU), and Group compassion focused therapy (CFT): patients with a schizophreni	(N = 40) adult patients with a schizophrenia-spectrum disorder. Mean age was 43.2 years old for the CFT group and 40.0 for the TAU	Group CFT was associated with no adverse events, low attrition (18%), and high acceptability. Relative to TAU, CFT was associated with greater observed clinical improvement ($p < 0.001$) and significant increases in compassion ($p = 0.015$) of large magnitude. Relative to TAU, increases in compassion in the CFT group were significantly associated with reductions in depression ($p = 0.001$) and in perceived social marginalization ($p = 0.002$).

				a-spectrum disorder were randomized to CFT plus treatment as usual (TAU; n = 22) or to TAU alone (n = 18). Group CFT comprised 16 sessions (2 hr each, 1 x week).		
11.	Brooks et al. (2012); Australia	Longitudinal Study	Examine the relationship between self-compassion, depression, anxiety, and alcohol use in individuals with alcohol dependence.	Self-report questionnaires (depression, anxiety, stress, alcohol use, self-compassion).	N = 100	Higher levels of self-compassion were associated with lower levels of depression, anxiety, and alcohol use. Improvements in self-compassion were linked to reductions in depressive, anxiety, and alcohol use symptoms.
12.	Castilho et al. (2017); Portugal	Cross-sectional	The study had three main goals: (1) To explore the relationship between shame traumatic memories, self-compassion, perceived emotional intelligence and depressive symptoms in adolescents, given the lack of studies exploring these variables in this age group. (2) To test	Depression (CDI)	1101 community adolescents, mean age 19.33, 57% female	Correlational analysis showed that in male and female adolescents, shame traumatic memories are associated with more depressive symptoms and with lower levels of self-compassion and emotional intelligence. Multigroup analysis showed that emotional intelligence has a

			whether self-compassion and perceived emotional intelligence emerge as mediators in the relationship between shame traumatic memories and depressive symptoms (3) To explore if the model is invariant between male and female adolescents.			greater impact on depression in female adolescents. Also, the impact of shame traumatic memories on depression is stronger in males, even though females report shame traumatic memories as more impactful.
13.	Collett et al. (2016); UK	Cross-sectional	Five concepts in patients with persecutory delusions: 1) self-compassion, 2) schema, 3) self-stigma, 4) fears of madness and 5) self-esteem in association with suicidal ideation.	Psychotic Symptom Rating Scale – Delusions (PSYRATS), The Positive and Negative Syndrome Scales (PANSS), Persecution and Deservedness Scale (PaDS), The Self-Compassion Scale (SCS), The Brief Core Schema Scale (BCSS), Self-Stigma of Mental Illness Scale (SSMIS), Mental Health Worries	Participants over 18 years old, English being their mother language, with an experience of a current persecutory delusion as defined by Freeman and Garety (2000); a clinical diagnosis of non-affective psychosis (n = 21) and the Control group, same but without any reported mental health problem (n = 21) in England.	The persecutory delusion group had many more negative self-cognitions and fewer positive self-cognitions. Suicidal ideation was highly associated with low self-compassion, low self-esteem, negative self-schema, and negative self-comparisons to others. Fears of madness and depression were also significantly related to suicidal ideation. Patients with persecutory delusions experience severe feelings of being inferior to others, worry that

				Questionnaire (MHWC), Rosenberg Self-esteem Scale (RSES), Social Comparison Scale (SCS), Beck Depression Inventory (BDI), Beck Scale for Suicidal Ideation (BSS).		they are mad, and have lower self-compassion.
14.	de Bruin et al. (2016); Netherlands	RCT	Assess the effects of mindfulness meditation, heart rate variability biofeedback, and physical exercise on attention control, executive functioning, mindful awareness, self-compassion, and worrying.	Self-report questionnaires and behavioural measures.	N = 75 (25 per group)	All three interventions were effective in improving attention control, executive functioning, mindful awareness, self-compassion, and worrying. No significant differences were found between the three interventions.
15.	Diedrich et al. (2014); Germany	Experimental design	To compare the effectiveness of self-compassion with a waiting condition, reappraisal, and acceptance in a clinically depressed sample, and to test the hypothesis that the intensity of depressed mood would moderate	The Structured Clinical Interview for DSMeIV Axis I and II Disorders (SCID; German version). Experimental session. After the experiment, subjects	N = 48 clinically depressed participants. Inclusion criteria were a current clinical diagnosis of MDD, age 18 and above, and proficiency in the German language. The	The reduction of depressed mood was significantly greater in the self-compassion condition than in the waiting condition. No significant differences were observed between the self-compassion and the reappraisal condition, and

			the differential efficacy of these strategies.	completed a short post-survey.	majority of participants were female (62.5%). The average age of the participants was 35.7 years.	between the self-compassion and the acceptance condition in patients' mood ratings.
16.	Diedrich et al. (2016); Germany	RCT	To examine whether the efficacy of explicit cognitive reappraisal in major depressive disorder can be enhanced through the use of self-compassion and emotion-focused acceptance as preparatory strategies.	The experiment consisted of four negative mood induction phases and four respective ER phases. Negative mood was induced with low-mood inducing music (extract from "Adagio in G minor" by Tomaso Giovanni Albinoni) which was played in the background and a modified Velten mood induction procedure. ER strategies were introduced by the presentation of the following sentence on the computer screen:	N = 54 (64.8% female; age M = 35.59 individuals who met criteria for Major Depressive Disorder (MDD), fluent in German	Participants who had utilized self-compassion as a preparatory strategy experienced a significantly greater reduction of depressed mood during reappraisal than did those who had been instructed to wait prior to reappraisal. Participants who had used acceptance as a preparatory strategy did not experience a significantly greater reduction of depressed mood during subsequent reappraisal than those in the waiting condition.

				Through the speaker you will be taught a strategy to regulate your mood Explicit reappraisal, Self-compassion, Emotion-focused acceptance, Waiting condition. Assessment Diagnoses were derived using the Structured Clinical Interview for DSM-IV Axis I and II Disorders.		
17.	Døssing, et al. (2015); Denmark	Cross-sectional	To investigate if low self-compassion is linked to psychopathology and in particular in patients with bipolar disorder (BD).	Self-Compassion Scale (SCS), Altman Self-Rating Mania Scale (ASRM), Major Depression Inventory (MDI), Work and Social Adjustment Scale (WSAS), Satisfaction With Life Scale (SWLS), Internalized Stigma of Mental Illness Scale	Bipolar disorder patients (ICD-10) (n = 30) (mean age was 30.9 years) and a non-clinical group with same age (mean age was 30.8 years)/sex/gender (each group contained 9 males and 21 females) (n = 30). All were recruited from the Mood Disorders Clinic at Aarhus University	Patients with bipolar disorder had significantly lower self-compassion than controls. Self-compassion correlated positively and significantly with life-satisfaction but no significant correlations with functional impairment, internalized stigma or frequency of past affective episodes were found.

				(ISMI-10) and further reported their illness history on a survey sheet.	Hospital in Denmark	
18.	Dundas et al. (2017); Norway	RCT	To examine the effects of a two-week self-compassion course on healthy self-regulation (personal growth self-efficacy and healthy impulse control) and unhealthy self-regulation (self-judgment and habitual negative self-directed thinking) in university students.	Personal Growth Initiative Scale (PGIS), Self-control Scale, Five Facet Mindfulness Questionnaire, Habit Index of Negative Thinking (HINT), Short form of the Self-Compassion Scale (SCS-SF), Trait section of the State and Trait Anxiety Inventory (STAI), Major Depression Inventory (MDI).	Participants (N = 158, 85% women, mean age 25 years, standard deviation [SD] = 4.9) were recruited during spring 2016, with enrolment at one of two university colleges or at the university as the only inclusion criteria.	A 2 9 3 repeated measures analysis of variance (ANOVA)showed gains for the intervention-group in personal growth self-efficacy and healthy impulse-control and reductions in self-judgment and habitual negative self-directed thinking, as well as increases in self-compassion and reductions in anxiety and depression. After all participants had completed the course, the groups were combined and repeated measures ANOVAs showed that changes remained at six-month follow-up for personal growth self-efficacy, self-judgment and habitual negative self-directed thinking; as well

						as for self-compassion, anxiety and depression.
19.	Eicher et al. (2013); USA	Correlational Study	Explore the relationship between self-compassion, symptoms, and insight in individuals with schizophrenia	Self-report questionnaires (self-compassion, insight, symptoms)	N = 88 (51 schizophrenia, 37 schizoaffective disorder)	Higher self-compassion was associated with lower positive and negative symptoms and poorer insight in individuals with schizophrenia spectrum disorders.
20.	Eisendrath et al. (2016); USA	RCT	Evaluate the efficacy of MBCT as an adjunct to pharmacotherapy for treatment-resistant depression	Hamilton Depression Rating Scale (HAM-D17)	N = 173 (87 MBCT + TAU, 86 HEP + TAU)	MBCT was more effective than HEP in reducing depression severity and improving treatment response rates.
21.	Erogul et al. (2014); USA	RCT	To determine whether an abridged mindfulness-based stress reduction (MBSR) intervention can improve measures of wellness in a randomized sample of 1st-year medical students.	Perceived Stress Scale (PSS), the Resilience Scale (RS), and Self-Compassion Scale (SCS)	58 participants were randomized to control or 8-week MBSR intervention and then invited to participate in the study.	The intervention group achieved significant increase on SCS scores both at the conclusion of the study (0.58, p =.002), 95% confidence interval (CI) [0.23, 0.92], and at 6 months (0.56, p =.001), 95% CI [0.25, 0.87]. PSS scores achieved significant reduction at the conclusion of the study (3.63, p =.03), 95% CI [0.37, 6.89], but not at 6

						months poststudy (2.91, *p* =.08), 95% CI [–0.37, 6.19]. The study did not demonstrate a difference in RS after the intervention, though RS was significantly correlated with both SCS and PSS.
22.	Ewert, Buechner & Schröder-Abé (2024); Germany	Longitudinal study	Examine the mediating role of perceived stress and coping in the relationship between self-compassion and affective wellbeing	Self-report questionnaires (self-compassion, perceived stress, coping, affective wellbeing)	Study 1: N = 684; Study 2: N = 2934	Perceived stress mediated the link between self-compassion and affective wellbeing. Engagement coping further mediated this relationship.
23.	Ferrari et al. (2018); Australia	Cross-sectional Study	Investigate the moderating role of self-compassion on the relationship between maladaptive perfectionism and depression	Self-report questionnaires (maladaptive perfectionism, depression, self-compassion)	Study 1: N = 541 adolescents; Study 2: N = 515 adults	Self-compassion moderated the relationship between maladaptive perfectionism and depression in both adolescent and adult samples.

Appendix 1B: Data Extraction Table (II)

S/N	Authors/ Country	Research Design	Research Aim	Measures	Sample	Key Findings
1.	Fuertes et al. (2020); Portugal	Longitudinal Study	Examine the association between infant regulatory behaviour patterns and attachment organization in preterm infants	Behavioural observations (Face-to-Face-Still-Face paradigm, Strange Situation)	N = 202 (74 preterm, 128 full-term)	Infants with a Social-Positive-Oriented regulatory pattern were more likely to develop secure attachment,

						while those with Distressed-Inconsolable or Self-Comfort-Oriented patterns were more likely to develop insecure attachment.
2.	Galla (2016); USA	Longitudinal Study	Examine the relationship between changes in mindfulness and self-compassion and changes in emotional wellbeing in adolescents	Self-report questionnaires (mindfulness, self-compassion, emotional wellbeing)	N = 132 adolescents	Increases in self-compassion predicted reductions in stress, rumination, depressive symptoms, and negative affect, and increases in positive affect and life satisfaction.
3.	Ghorbani et al. (2012); Iran	Correlational Study	Explore the relationship between self-compassion, alexithymia, mindfulness, and psychological wellbeing in Iranian Muslims	Self-report questionnaires (self-compassion, alexithymia, mindfulness, depression, anxiety)	N = 185 (153 women, 32 men)	Self-compassion was positively correlated with integrative self-knowledge, self-esteem, and basic need satisfactions and negatively correlated with depression and anxiety.
4.	Gilbert et al. (2012); UK	Exploratory, correlational study	Explores the relationship between fears of compassion and happiness in general, with capacities for emotional processing (alexithymia), capacities for mindfulness, and empathic abilities. To advance this research,	Fears of Compassion Scales, The Toronto Alexithymia Scale (TAS-20), The Five Facets of Mindfulness Questionnaire (FFMQ), Davis	Students from the University of Derby participated in the study (N = 185). Participants were 153 women and 32 men with an age range	Fears of compassion for self, from others and in particular fear of happiness, were highly linked to different aspects of alexithymia, mindfulness, empathy, self-criticism and

			a new scale was developed to measure general fears of positive feelings—the Fear of Happiness Scale.	Interpersonal Reactivity Index, Types of Positive Affect Scale, Forms of Self-Criticism and Self-Reassurance Scale, The Depression, Anxiety, and Stress Scale (DASS-42), Fear of Happiness Scale.	of 18 - 57 years (M = 27.97)	depression, anxiety and stress
5.	Gill et al. (2018); UK	Cross-sectional	Investigate the relationship between self-compassion and social anxiety and its mediating factors	Self-report questionnaires (social anxiety, self-compassion, fear of negative evaluation, self-focused attention, cognitive avoidance)	316 adolescents	Self-compassion was inversely correlated with social anxiety, partially mediated by fear of negative evaluation and cognitive avoidance.
6.	Greeson et al. (2014); USA	RCT	To evaluate the effectiveness of Koru, a mindfulness training program for college students and other emerging adults.	Self-compassion: SCS Stress: PSS-10	90 undergraduate and postgraduate students (66% female, 62% white, 71% graduate students). Mean (SD) age = 25.4 (5.7) years. Sampling method not described.	ITT ANOVA. MBP > control on SCS. Significant pre-post increase on Common Humanity subscale for controls, MBP showed significant increase for all subscales. MBP < control on PSS-10. Significant negative correlation

						between change in SCS and PSS-10.
7.	Gu et al. (2018); UK	RCT		Self-compassion: SCS Stress: PS	214 university students and staff. Mean (SD) age = 24.2 (5.8) years. 73% female. Sampling method not described.	Per-protocol mediation analyses testing for SCS as a mediator of change in PSS. Change in SCS was found to be a significant mediator of changes in PSS compared to both control groups. Per-protocol ANCOVA covarying for baseline scores showed a sig. group × time interaction on PSS where MBP < both control groups. Sig negative correlation between change in SCS and PSS.
8.	Hall et al. (2013); USA	Cross-sectional	To investigate the relation of self-compassion to physical and psychological wellbeing.	Depression (BD-II)	182 university students	Findings support the association between self-compassion and psychological and physical wellbeing, but the composites demonstrate different influences. SJ–SK and I–CH were predictive of both depressive symptomatology and physical

						wellbeing, and SJ–SK and OI–M were predictive of managing life stressors. The results of this study support and expand prior research on self-compassion.
9.	Hoffart, Øktedalen & Langkaas (2015); Norway	RCT	The within-person relationship of self-compassion com ponents (self-kindness, common humanity, mindfulness, self-judgment, isolation, over-identification) and subsequent PTSD symptoms over the course of therapy.	PTSD Symptom Scale-Self-Report (PSS-SR), the Self-Compassion Scale (SCS) (translated to Norwegian), the MINI International Neuropsychia tric Interview (MINI), e Structured Clinical Interview for DSM-IV AxisII Personality Disorders (SCID-II), Imaginal exposure, The Treatment Integrity Checklist	Referrals (N = 65) to a PTSD treatment program at a national clinic. The mean age of 65 ITT patients—38 women and 27 men—was 45.2 years.	The self-compassion components self-kindness, self-judgment, isolation, and over-identification had a within-person effect on subsequent PTSD symptoms, independently of therapy form. The within-person relationship between self-judgment and subsequent PTSD symptoms was stronger in patients with higher initial self-judgment. Few indications that within-person variations in PTSD symptoms predict subsequent self-compassion components.

10.	Hoge et al. (2013); USA	Cross-sectional	Whether GAD (Generalised Anxiety Disorder) patients would report lower mindfulness and self-compassion levels than healthy stressed individuals, In order to advance treatment approaches.	Five Facet Mindfulness Questionnaire (FFMQ), the Self-Compassion Scale (SCS), The Structured Clinical Interview for DSM-IV (SCID), Anxiety Sensitivity Index (ASI), Penn State Worry Questionnaire (PSWQ), State Trait Anxiety Inventory Trait (STAI). Measures for GAD Individuals Only: Sheehan Disability Scale (SDS) and Beck Anxiety Scale (BAI). Measures for Healthy Controls Experiencing Stress Only: Perceived Stress Scale (PSS).	Individuals with current GAD as defined by the DSM-IV-TR criteria and healthy controls with high ratings of subjective stress were recruited to the Massachusetts General Hospital Department of Psychiatry to participate in a stress reduction course. GAD patients (n = 87) (51.22% females; mean age 39.4 years) and 49 healthy controls (n = 49) (65.31% females; mean age 38.7)	GAD patients had lower mindfulness and self-compassion than healthy stressed controls, and both were negatively correlated with levels of anxiety, worry, and anxiety sensitivity. Mindfulness was a better predictor of disability than actual anxiety symptom scores.
11.	Hou et al (2020); China	Cross-sectional	To examine the mediating role of negative automatic thoughts on the link between childhood maltreatment and	Depression (BDI-I)	578 university students, mean age 20.30, 48% female	Childhood maltreatment was positively associated with young adult depression via

			young adult depression, and the moderating role of self-compassion in this indirect link.			negative automatic thoughts. Moreover, self-compassion moderated this indirect link such that participants with low self-compassion demonstrated a stronger indirect link than those with high self-compassion.
12.	Huberty et al. (2019); USA	RCT	Test the efficacy of a mindfulness meditation app on stress, mindfulness, and self-compassion in college students.	Self-report questionnaires, HRV	88 college students	Mindfulness meditation app significantly reduced stress, increased mindfulness, and self-compassion compared to the control group.
13.	Huijbers et al. (2015); Netherlands	RCT	Compare the efficacy of MBCT + mADM to mADM alone in preventing relapse in recurrent depression	Clinical assessments, self-report questionnaires	68 patients with recurrent depression	No significant difference between the two groups in preventing relapse or reducing depressive symptoms.
14.	Hwang et al. (2019); Australia	RCT	To investigates the effectiveness of an 8-week mindfulness-based intervention designed to improve educator wellbeing and implemented concurrently in multiple school sites.	Self-compassion: SCS-SF Stress: PSS	185 educators. Age and gender not reported. Opportunity sample (clustered by school).	Regression (unclear if per-protocol or ITT) controlling for baseline variables. MBP > control on SCS-SF at post-programme. MBP < control on

						PSS at post-programme.
15.	Jazaieri et al. (2012); USA	RCT	Compare the efficacy of MBSR and aerobic exercise in reducing social anxiety and improving wellbeing.	Clinical and self-report measures (social anxiety, depression, self-esteem, satisfaction with life, self-compassion, loneliness)	56 adults with social anxiety disorder	Both MBSR and aerobic exercise were effective in reducing social anxiety, depression, and improving wellbeing.
16.	Joeng & Turner (2015); USA	Cross-sectional	Construction of a hypothesized model that models relationships between self-criticism, depression and the proposed mediators (relationships between self-criticism and depression, and the mediating roles of fear of compassion, self-compassion, and the perception that one is important to others as a dimension of mattering.)	The Levels of Self-Criticism Scale (LOSC), The Self-Rating Depression Scale (SDS), The 26-item Self-Compassion Scale (SCS) Importance Scale of the Mattering Index, The Fear of Compassion Instrument (FOCS)	N = 260 university students at a large public Midwestern university in the United States recruited through student e-mail lists, psychology classes, and flyers on campus.38 (18.4%) were men and 168 (81.6%) were women, with ages ranging from 17 to 52 years (Mean age: 21.42 years)	In the Self-Criticism/Compassio n Mediation Model, the fear of self-compassion, and the perception that one is important to others serially mediated the relationship between comparative self-criticism and depression. Additionally, self-compassion partially mediated both the relationship between internalized self-criticism and depression, and the relationship between comparative self-criticism and depression.
17.	Kelly et al. (2017); USA	RCT	To assess the acceptability and feasibility of a compassion-focused	Credibility and expectancy questionnaire	22 outpatients with various types of	The CFT group demonstrated strong acceptability;

			therapy (CFT) group as an adjunct to evidence-based outpatient treatment for eating disorders, and to examine its preliminary efficacy relative to treatment as usual (TAU).	(CEQ), CFT feedback questionnaire, Eating disorder examination questionnaire 4.0. (EDE-Q 4.0), Self-compassion scale (SCS), Fears of compassion scales (FCS), Experiences of shame scale (ESS),	eating disorders.	attendance was high and the group retained over 80% of participants. Intention-to-treat analyses revealed that compared to the TAU condition, the CFT + TAU condition yielded greater improvements in self-compassion, fears of self-compassion, fears of receiving compassion, shame and eating disorder pathology over the 12 weeks. Group-based CFT, offered in conjunction with evidence-based outpatient TAU for eating disorders, may be an acceptable, feasible and efficacious intervention. Eating disorder patients appear to see benefit in, and observe gains from, working on the CFT goals of overcoming fears of compassion, developing more self-compassion and accessing more

						compassion from others.
18.	Kemper et al. (2016); USA	Cross-sectional	To describe the relationship between risk factors, such as stress, depression, and anxiety, and potentially protective factors against paediatric headache-related disability, such as mindfulness, resilience, and self-compassion, and to determine teens' interest in mind-body skills training to help reduce headache-related disability.	Anxiety (PROMIS Short-Form Paediatric Anxiety Scale); depression (PROMIS Short-Form Paediatric Anxiety Scale)	29 hospital migraine outpatients, mean age 14-80, 69% female	Among the 29 participants, 31% were male, the average age was 14.8 years, average headache frequency was 11.6 per month, and the most commonly reported trigger was stress (86%). The only risk or protective factor significantly associated with headache-related disability was depression ($r = 0.52$, $P = 0.004$). Depression was negatively correlated with mindfulness, resilience, and self-compassion ($P < 0.01$ each) and positively correlated with stress, sleep disturbance, and anxiety ($P < 0.01$ each).
19.	Key et al. (2017); USA	RCT	Evaluate the feasibility and impact of MBCT as an augmentation to CBT for OCD	Self-report questionnaires (OCD symptoms, depression, anxiety, self-compassion, mindfulness	30 OCD patients	MBCT as an augmentation to CBT was feasible and effective in reducing OCD symptoms, depression, anxiety, and increasing self-

						compassion and mindfulness.
20.	Kingston et al. (2015); Ireland	RCT	Investigate the effectiveness of MBCT in reducing depressive, anxiety, and stress symptoms in cancer patients.	Self-report questionnaires (depression, anxiety, mindfulness, self-compassion)	16 cancer patients	MBCT led to significant improvements in mindfulness, anxiety, and depression, with self-compassion mediating the effect on anxiety and depression.
21.	Ko et al. (2018); USA	RCT	To explore the effects of an academic seminar on compassion on student psychological health.	41 university students, mean age 19.78, 66% female	Anxiety (STAI); depression (CES-D)	At baseline, self-compassion and mindfulness were negatively correlated with depression, anxiety, and perceived stress. There were significant changes between the intervention and control group from Time 1 to Time 2 in mindfulness, self-compassion, compassion, and salivary alpha-amylase (a marker of stress); however, there were no significant changes in depression, anxiety, and perceived stress.
22.	Koszycki et al. (2016); Canada	RCT	Evaluate the feasibility and efficacy of a mindfulness-based intervention for social	Clinical and self-report measures (social anxiety, depression,	39 participants (21 MBI-SAD, 18 waitlist)	MBI-SAD was feasible and effective in improving social anxiety, depression,

			anxiety disorder (MBI-SAD)	social adjustment, mindfulness, self-compassion		social adjustment, self-compassion, and mindfulness.
23.	Krieger et al. (2016); Germany	Longitudinal study	Whether (lack of) self-compassion is a cause or a consequence of depressive symptoms, or both.	Self-Compassion Scale (SCS) Beck Depression Inventory-II (BDI-II), the German Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; German version	N = 125 depressed outpatients after a time limited cognitive-behavioural psychotherapy (54% female)	Lack of self-compassion predicts depression, whereas depression does not predict self-compassion. This was also the case for the relationship between self-compassion and the presence of a major depressive episode. The same patterns also occurred when the reciprocal effects for two composite sub-measures of either positive or negative facets of self-compassion were separately tested.

Appendix 1C: Data Extraction Table (III)

S/N	Authors/ Country	Research Design	Research Aim	Measures	Sample	Key Findings
1.	Kuyken et al. (2010); UK	RCT	Determine the mechanisms of change in MBCT for recurrent depression	Self-report questionnaires, cognitive reactivity measures	123 patients with recurrent depression	MBCT's effects were mediated by enhanced mindfulness and self-compassion and by decoupling the relationship between

						cognitive reactivity and poor outcome.
2.	Lahtinen et al. (2019); Finland	Cross-sectional	To investigate the association between depression and two different kinds of life difficulties among adolescents after upper secondary school transition: adversity related to external factors (victimization by peers) vs. internal factors (struggling with schoolwork). The study also examined whether self-compassion and/or self-coldness could act as protective or exacerbating, respectively, moderators in the association.	Depression (BDI-II-R)	2383 high school students aged 16-18, 52% female	Self-compassion (inversely), self-coldness, ADs, and victimization were statistically significant predictors of depression. Self-compassion weakened the association between academic difficulties (Ads) and depression. The results suggest encountering difficulties in adolescence and depression are related and that self-compassion may moderate the association.
3.	Lathren, Bluth & Park (2019); USA	Cross-sectional	To examine whether self-compassion moderates the relationship between perceived stress and depressive symptomatology and/or anxiety in a large sample.	Anxiety (STAI), depression (SMFQ)	1057 high school students, mean age 14.70, 65% female	Regression analysis revealed self-compassion is inversely related to internalizing symptoms. Moreover, the relationship between stress and depression and anxiety symptoms differed by level of self-compassion. This moderation effect was

						similar between genders for depressive symptoms, but slightly greater in males compared to females for anxiety.
4.	Luo et al. (2019); China	Cross-sectional	To examine the effects of self-compassion on anxiety and depression through perceived stress and may thus provide an innovative starting point for developing effective interventions for affected nursing students.	Depression (GADS)	1453 university students, mean age 19.58, 99% female	Perceived stress was positively associated with anxiety and depression (0.64, $P < 0.001$) . Self-compassion was negatively associated with perceived stress (−0.65, $P < 0.00$ 1). Self-compassion had no significant correlation with anxiety and depression in the effect of perceived stress (−0.14, P = 0.127). Thus, self-compassion indirectly influences anxiety and depression through perceived stress.
5.	Maheux & Price (2015); USA	Cross-sectional	The relation between self-compassion and PTSD symptoms using DSM IV and DSM 5 criteria.	Life Events Checklist-5 (LEC-5), PTSD Checklist for	In Sample 1, participants (N 1/4 74) were recruited	Self-compassion was negatively correlated with aggregated PTSD symptoms

				DSM IV (PCL-C), PTSD Checklist-5 (PCL-5), Short Form of the Self-Compassion Scale (SCS-SF.	from the community through newspaper, online advertisement, local clinics, and the university in which the research was conducted. Students who completed the study were eligible to receive financial compensation as opposed to course credit. The sample was predominately female (n = 53; men = 21) with a mean age of M = 23.36. In Sample 2, participants were recruited through an online crowdsourcing platform (Amazon's Mechanical Turk). Approximately half women (n = 75) and men	for DSM IV and DSM 5. Self-compassion was correlated with avoidance symptoms for DSM IV but was correlated with all symptom clusters for the DSM 5.

					(n = 77) mean age of M = 35.02.	
6.	Maheux & Price (2016); USA	Cross-sectional	Tested the hypothesis that the association between social support and post-traumatic stress disorder (PTSD), generalised anxiety disorder (GAD), and depression symptoms had an indirect pathway via self-compassion.	Life Events Checklist-5 (LEC-5), PTSD Checklist-5 (PCL-5), Patient Health Questionnaire-8 (PHQ-8), Generalized Anxiety Disorder-7 (GAD-7), Short Form of the Self-Compassion Scale (SCS-SF), The Multidimensional Scale of Perceived Social Support (MSPSS).	Participants (N = 599) were recruited through an online crowdsourcing platform (Amazon's Mechanical Turk) and were required to have experienced a Criterion A traumatic event to be included in the study.	Social support was positively related to self-compassion. Self-compassion was negatively related to PTSD, GAD, and depression symptoms. Self-compassion mediated the relation between social support and PTSD, GAD, and depression symptoms.
7.	Mingkwan et al. (2018); Thailand	Cross-sectional Study	Examine the relationship between self-compassion and mental health in university students	Self-report questionnaires (self-compassion, mental health)	390 undergraduate students	Self-compassion was negatively correlated with mental health problems.
8.	Miron et al. (2016); USA	Cross-sectional	To see if survivors of childhood sexual abuse exhibit fear of self-compassion and whether it relates to psychological functioning. The model examined pathways from childhood physical and sexual abuse to symptoms of PTSD and depression	Traumatic Life Events Questionnaire (TLEQ), Post traumatic stress disorder screening and diagnostic scale (PSDS), Depression, Anxiety and	A college sample (N = 377). Inclusion criteria was fluency in English and age > 18. Mean age was 19.12 years old, 64% female.	Significant indirect effect of childhood sexual abuse on symptoms of depression and PTSD via fear of self-compassion but not self-compassion.

			through self-compassion and fear of self-compassion.	Stress Scale (DASS-21), Self-Compassion Scale (SCS), Fear of Self-compassion scales-Self-compassion (FCS-SC)		
9.	Mistretta et al. (2018); USA	RCT	Compare the efficacy of in-person MBRT and a smartphone-delivered resiliency-based intervention on stress, wellbeing, and burnout in healthcare workers	Self-report questionnaires	60 healthcare workers	Both interventions improved wellbeing, but only MBRT improved stress and burnout.
10.	Müller et al. (2016); Germany		To investigate the links between maternal bonding, maternal anxiety disorders, and infant self-comforting behaviours. The study also looked at the moderating roles of infant gender and age.	Structured Clinical Interview for DSM-IV Axis, German Version of Postpartum Bonding Questionnaire, Coding of Infant Behaviour during the FFSF.	28 mothers with an anxiety disorder (according to DSM-IV criteria) and 41 controls, each with their 2.5- to 8-month-old infant (41 females and 28 males).	Conditional process analyses revealed that lower maternal bonding partially mediated between maternal anxiety disorders and increased self-comforting behaviours but only in older female infants (over 5.5 months of age). However, considering maternal anxiety disorders without the influence of bonding, older female infants (over 5.5 months of age) showed decreased rates of self-comforting behaviours,

						while younger male infants (under 3 months of age) showed increased rates in the case of maternal anxiety disorder.
11.	Neff (2003); USA	Cross-sectional	To define and explore the concept of self-compassion, examining its components and how it relates to psychological wellbeing. The study also aimed to investigate how self-compassion differs from self-esteem and how it might protect against negative traits like narcissism and self-centeredness.	Anxiety (STAI)	Study 1 (S1): 391 Study 2 (S2): 232 All university students, mean age 20.91 (S1) and 21.31 (S2). S1 was 42% female, S2 was 62% female.	Self-compassion is associated with better psychological functioning and may reduce negative emotions such as depression, highlighting its potential as a beneficial psychological construct. Potential differences in self-compassion across various groups were also considered.
12.	Neff et al. (2008); USA	Cross-sectional	To compare levels of self-compassion across three different cultures: the United States, Thailand, and Taiwan. It sought to examine how self-compassion, a construct derived from Buddhist psychology, varies among these cultures and how cultural factors such as interdependence and independence relate to self-compassion. The study also aimed to explore whether self-	Depression, Zung Self-Rating Depression Scale	568 university students (American, Thai, and Taiwanese), mean age 24.1/19.8/20.5, 59% female.	Self-compassion is highest in Thailand and lowest in Taiwan, with the United States falling in between. Interdependence is linked to self-compassion in Thailand only, whereas independence is linked to self-compassion in Taiwan and the United States. Self-compassion

			compassion is universally associated with wellbeing across these societies.			levels in these societies are linked to specific cultural features rather than general East—West differences. However, self-compassion is significantly associated with wellbeing in all three cultures.
13.	Neff & Germer (2012); USA	RCT	The aim of the two studies was to evaluate the effectiveness of the Mindful Self-Compassion (MSC) program, an 8-week workshop designed to train people to be more self-compassionate.	Self-Compassion Scale, Freiburg Mindfulness Inventory, Social Connectedness Scale, Subjective Happiness Scale, Diener's Satisfaction with Life Scale, Beck Depression Inventory, Speilberger State-Trait Anxiety Inventory – Trait form	Study 1 was a pilot study that examined change scores in self-compassion, mindfulness, and various wellbeing outcomes among community adults (N = 21; mean [*M*] age = 51.26, 95% female). Study 2 was a randomized controlled trial that compared a treatment group (N = 25; *M* age = 51.21; 78% female) with a waitlist control	Study 1 found significant pre/post gains in self-compassion, mindfulness, and various wellbeing outcomes. Study 2 found that compared with the control group, intervention participants reported significantly larger increases in self-compassion, mindfulness, and wellbeing. Gains were maintained at 6-month and 1-year follow-ups.

					group (N = 27; *M* age = 49.11; 82% female).	
14.	Perry et al. (2018); USA	Longitudinal study	To assess how overcontrolling parenting behaviours during toddlerhood are associated with children's ER and IC at the end of early childhood, and, subsequently, with adjustment across multiple domains in preadolescence.	307 families who were at risk for developing future externalizing behaviour problems, and who were representative of the surrounding community in terms of race and socioeconomic status.	The Hollingshead, Child Behaviour Checklist (CBCL), Early Parenting Coding System, Teacher Rating Scale (TRS), Academic Performance Rating Scale, Social Skills Rating System (SSRS), Self-Report of Personality (SRP),	Results from path analysis indicated that overcontrolling parenting at age 2 was associated negatively with emotion regulation (ER) and inhibitory control (IC) at age 5, which, in turn, were associated with more child-reported emotional and school problems, fewer teacher-reported social skills, and less teacher-reported academic productivity at age 10. These effects held even when controlling for prior levels of adjustment at age 5, suggesting that ER and IC in early childhood may be associated with increases and decreases in social, emotional, and academic functioning from childhood to preadolescence. Finally, indirect effects from

						overcontrolling parenting at age 2 to preadolescent outcomes at age 10 were significant, both through IC and ER at age 5. These results support the notion that parenting during toddlerhood is associated with child adjustment into adolescence through its relationship with early developing self-regulatory skills.
15.	Podina, Jucan & David (2015); USA	Cross-sectional	1) To examine the relationships between irrational beliefs, self-compassion, and depression and test whether overall self-compassion moderates the irrational beliefs-depression relationship. 2) To test exploratory the moderating roles of individual self-compassion components (i.e., self-kindness, common humanity, and mindfulness) on the associations between irrational beliefs and depression.	Depression (BDI-II)	187 university students, mean age 23.62, 81% female	It is especially the self-kindness component of self-compassion that moderated the irrational belief-depression relationship ($B = -.012$, $SE = .004$, $\beta = -.185$, $p < .001$), whereas the common humanity and mindfulness components were not found to be significant moderators of this relationship. This differential buffering effect underscores the importance of discerning between the

						subtypes of self-compassion.
16.	Polizzi, Baltman, & Lynn (2022); USA	RCT	Study 1 evaluated whether a single-session mindfulness meditation with implementation intention (II) instructions would elicit gains in psychological functioning across 2 weeks that exceeded comparison conditions (meditation with no II, sitting quietly [SQ]). Study 2 evaluated whether a 2-session loving-kindness meditation (LKM), which directed compassion toward oneself, others, or both oneself and others, would produce greater positive outcomes than SQ.	Anxiety (STAI), depression (CES-D)	131 university students, mean age 18.96, 57% female	Brief mindfulness meditation is associated with enhanced positive affect. LKM was related to greater self-reported compassion for others compared with controls. However, more generalized effects, indexed by a variety of measures (e.g., acceptance, mindfulness, anxiety, emotion regulation, behavioural measure of volunteerism), did not emerge, thereby indicating a high degree of specificity for effects associated with very brief meditation.
17.	Potharst et al. (2019); Netherlands	RCT	To examine the effectiveness of an 8-session online mindful parenting training for mothers with elevated levels of parental stress.	Self-compassion: SCS-3 Depression: PHQ-4 Anxiety: PHQ-4 Stress: PSQ	67 mothers of toddlers scoring high on parental stress questionnaire. Mean (SD) age = 36.2 (3.9) years.	The online mindful parenting intervention was significantly more effective than a waitlist period in reducing over-reactive parenting discipline and

						symptoms of depression and anxiety, with small to medium effect sizes. It also showed significant improvements in self-compassion, mother-rated child aggressive behaviour, and child emotional reactivity, though with small effect sizes. Parental stress, specifically parental role restriction, showed significant improvement within the intervention group at follow-up. However, no significant improvements were observed in child outcomes for the non-participating parent.
18.	Potter et al. (2014); Australia	Cross-sectional	To test if social anxiety is associated with parental criticism and examine the possibility that different aspects of self-compassion (self-warmth and self-coldness) mediate the relationship between parental criticism and social anxiety.	Frost Multidimensional Perfectionism Scale (FMPS), The Self-Compassion Scale, The Liebowitz Social Anxiety Scale (LSAS).	The sample consisted of n = 140 females and n = 71 males ranging from 18 to 63 years of age (M = 30.23). They were recruited from the	Both self-warmth and self-coldness components of self-compassion mediated the relationship between parental criticism and social anxiety. Individuals who reported being frequently

					general population and were offered an entry into a lucky draw prize as incentive for participatin g.	criticized by parents were more likely to have low self-compassion, which in turn was associated with higher social anxiety.
19.	Psychogiou et al. (2016); UK	Study 1: a pilot trial of mindfulness-based cognitive therapy Study 2: a longitudinal study	To examine whether higher levels of self-compassion were associated with better parenting and fewer emotional and behavioural problems in children of parents with a history of depression	The Self-Compassion Scale (SCS), Structured Clinical Interview for DSM-IV, The Beck Depression Inventory Second Edition (BDI-II), Parents' Sensitive Responding Interactions were video-recorded and were coded later using he Coding of Attachment-Related Parenting (CARP, Parents' Attributions of Their Children's Behaviour using a measure of parental	Study 1: 38 parents with recurrent depression. (36 mothers and 2 fathers, mean age = 36.2 years) Study 2: 160 families, including 50 mothers and 40 fathers who had a history of depression.	Study 1: Parents reporting higher levels of self-compassion were more likely to attribute the cause of their children's behaviour to external factors, were less critical, and used fewer distressed reactions to cope with their children's emotions. Study 2: Greater self-compassion was associated with lower levels of mothers' child-directed criticism and fathers' distressed reac-tions.

				attributions, developed by Dadds, Scott, and Woolgar at the National Academy of Parenting Research (NAPR, UK).		
20.	Rabon, Sirois & Hirsch (2017); USA	Cross-sectional study	Examine the relationship between self-compassion, depressive symptoms, wellness behaviours, and suicidal behaviour in college students	Self-report questionnaires (self-compassion, depression, wellness behaviours, suicidal ideation)	365 undergraduate students	Self-compassion was inversely related to suicidal behaviour, mediated by depressive symptoms and wellness behaviours.
21.	Reid et al. (2014); USA		To examine factors that may attenuate the negative impact that shame and rumination may have on hypersexuality.	Hypersexual Behaviour Inventory (HBI), Shame Inventory (SI), Self-Rumination Scale (SRS), Self-Compassion Scale–Short Form (SCS).	N = 172 men who were recruited during a DSM-5 field trial investigating the proposed diagnosis of hypersexual disorder. The participants were consecutively selected at outpatient clinics based on 1) a primary complaint of hypersexual behaviour reported during	Self-compassion partially Mediated the relationship between shame and rumination and hypersexual behaviour.

					intake and 2) willingness to participate in and consent to the research protocol. All patients in this study met the DSM-5 proposed diagnostic criteria for HD.	
22.	Scoglio et al. (2015); USA	Cross-sectional Study	Explore the relationship between self-compassion, resilience, emotion dysregulation, and PTSD symptom severity in women with PTSD	Self-report questionnaires (self-compassion, resilience, emotion dysregulation, PTSD symptoms)	176 women with PTSD, aged 18-65	Self-compassion was negatively related to PTSD symptom severity and emotion dysregulation, and positively related to PTSD and self-compassion.

Appendix 1D: Data Extraction Table (IV)

S/N	Authors/ Country	Research Design	Research Aim	Measures	Sample	Key Findings
1.	Sevinc et al. (2018); USA	RCT	To investigate common and dissociable neural and psychological correlates of two widely used meditation-based stress reduction programs.	Self-compassion: SCS Stress: PSS-1	50 right-handed adults with < 4 h meditation experience. Mean (SD) age = 38.3 (10.9) years. 54% female.	ANOVA (ITT not reported). No sig. group × time interactions found for SCS or PSS-10. Sig negative correlation between change in SCS and PSS-10.
2.	Shapiro et al. (2011); USA	RCT	To explore whether individuals with higher levels of	32 undergraduate university	Self-compassion: SCS	ITT ANOVA. No sig. group × time

			pretreatment trait mindfulness would benefit more from MBSR intervention.	students. Mean (SD) age = 18.7 (1.3) years. 87% female.	(positive subscale composite only) Stress: PSS-10	interaction for SCS or PSS-10
3.	Smeets et al. (2014); Netherlands	RCT	Assess the effectiveness of a self-compassion intervention for enhancing resilience and wellbeing in female college students	Self-report questionnaires (self-compassion, mindfulness, optimism, self-efficacy, rumination, life satisfaction, connectedness, worry, mood)	52 female college students	The self-compassion intervention led to significant increases in self-compassion, mindfulness, optimism, and self-efficacy and decreases in rumination compared to the control group.
4.	Ștefan et al. (2018); Romania	RCT	(1) to investigate the effectiveness of a 6-week mindfulness-based stress reduction (MBSR) program in a sample of college students at risk for social anxiety. (2) to investigate whether emotion regulation strategies and self-compassion act as mechanisms of MBSR effectiveness.	Self-compassion: SCS-SF Anxiety (social): LSAS-SR Stress: PSS-10	71 university students scoring at "sub-threshold" levels on LSAS-SR. Mean (SD) age = 18.9 (1.0). 93% female.	ITT ANOVA. MBP > control on change on SCS-SF. MBP < control on LSAS-SR and PSS-10. Self-compassion found to mediate relationship between MBP and social anxiety as well as MBP and stress. Sig negative correlation between change in SCS and PSS-10
5.	Stephenson et al. (2018); USA	Cross-sectional	Evaluated self-compassion and self-esteem relative to the assumptions of Rational-Emotive Behaviour Therapy (REBT)	Anxiety and depression using Costello and Comrey Depression and Anxiety Scales	184 university students, mean age 19.20, 52% female	Self-compassion correlated negatively with irrationality, predicted better mental health, and explained inverse

						connections of self-esteem with irrational beliefs. In support of REBT, the irrationality of low frustration tolerance also partially mediated the inverse self-compassion relationship with anxiety. Other findings for self-esteem and for the irrational belief of self-worth, nevertheless, suggested complexities for the REBT conceptual framework. These data most importantly confirmed self-compassion as part of what REBT would describe as an effective personal philosophy.
6.	Stutts et al. (2018); USA	Longitudinal	Investigate the relationship between baseline self-compassion, perceived stress, and psychological outcomes in college students.	Anxiety and depression using SCL-90	462 university students aged 18-20, 72% female	Self-compassion moderated the effects of perceived stress such that stress was less strongly related to depression, anxiety, and negative affect among participants who scored high

						rather than low in self-compassion. Self-compassion also moderated the effects of perceived stress on depression and anxiety prospectively after six months. Self-compassion predicted positive affect but moderated the effects of perceived stress on positive affect in only one analysis. This study suggests that high self-compassion provides emotional benefits over time, partly by weakening the link between stress and negative outcomes.
7.	Svendsen et al. (2017); Norway	Cross-sectional	To understand why more mindful individuals tend to experience fewer depressive symptoms.	Depression (SCL-90R)	277 university students, mean age 22.9, 56% female	Mindfulness was associated with depressive symptoms both via the pathway of lower levels of rumination and via the pathway of higher levels of self-compassion. Both pathways were found to predict unique variance in depressive

						symptoms beyond that which could be explained by the other pathway. This suggests that one needs to consider the influence of mindfulness on both rumination and on self-compassion to fully understand why mindful individuals tend to be less depressed.
8.	Tanaka et al. (2011); USA	Cross-sectional	To examine the relationship between childhood maltreatment and self-compassion – a concept of positive acceptance of self.	Depression (CES-D)	117 adolescents involved with child welfare, mean age 18.10, 61% female	Higher levels of childhood emotional abuse, neglect, and physical abuse are linked to lower self-compassion. Even when accounting for age and gender, emotional abuse significantly reduces self-compassion. Youths with low self-compassion are more likely to experience psychological distress, problem alcohol use, and serious suicide attempts. Various impairments related to maltreatment are also significantly associated with

						lower self-compassion.
9.	Taylor et al. (2014); UK	RCT	To evaluate the effectiveness of Mindfulness-Based Cognitive Therapy Self-Help (MBCT-SH) for students. Given that traditional MBCT requires significant therapist contact time and is not universally accessible, this study investigates whether MBCT-SH can provide similar benefits in a more accessible and cost-effective manner.	Self-compassion: SCS-SF Depression: DASS-21 Anxiety: DASS-21 Stress: DASS-21	80 university students. Mean (SD) age = 28.6 (9.2) years. 64% female. Opportunity sample.	ITT ANOVA. MBP > control on SCS-SF. MBP < control on depression, anxiety and stress.
10.	Terry, Leary & Mehta (2012); USA	Longitudinal	Evaluate the role of the role of self-compassion in moderating students' reactions to social and academic difficulties in the transition to college.	Depression (CES-D)	119 university students, mean age NR, 47% female (5 NR)	Self-compassion correlated negatively with homesickness and depression and positively with satisfaction with the decision to attend the university and satisfaction with social life. Self-compassion was not correlated with satisfaction with academic life.
11.	Trompetter, de Kleine, & Bohlmeijer (2016); Netherlands	Cross-sectional	To examine if self-compassion functions as a resilience mechanism and adaptive emotion regulation strategy that protects against psychopathology for those with high levels	The Mental Health Continuum—Short Form (MHC-SF), The Self-Compassion Scale—Short Form (SCS-	Sample consisted of N = 349 participants who filled out an online survey. This	Self-compassion significantly mediated the negative relationship between positive mental health and psychopathology

			of positive mental health.	SF), The Hospital Anxiety Depression Scale (HADS), The modified Differential Emotions Scale (mDES)	was a convenienc e sample. Of the 349 participants, 64.5% was female. Mean age of the participants was 32.88.	. Higher levels of self-compassion attenuated the relationship between state negative affect and psychopathology .
12 .	Van der Gucht et al. (2018); Belgium	RCT	To examine the potential mediating effects of cognitive reactivity and self-compassion on symptoms of depression, anxiety and stress	Anxiety (DASS-21) and depression (DASS-21)	408 high school students, mean age 15.40, 58% female	Post-treatment changes in cognitive reactivity and self-coldness, an aspect of self-compassion, mediated subsequent changes in symptoms of depression, anxiety and stress. These results suggest that cognitive reactivity and self-coldness may be considered as transdiagnostic mechanisms of change of a mindfulness-based intervention programme for youth.
13 .	Waite et al. (2015); UK	Interpretative Phenomenolo gical Analysis Study (exploratory, qualitative analysis)	To increase understanding of the internal processes of recovery in psychosis, with particular consideration given to self-compassion and self-criticism. To	Semi-structured interviews	Mental health professional s from a community mental health team in the	Self-criticism maintained distressing experiences of psychosis and compassionate self-acceptance resulted in

			explore the internal process of recovery from the first-person perspective.		United Kingdom identified potential participants (N = 10), between 25 and 52 years (mean = 35.8 years) The age of onset of psychosis ranged from 16 to 43 years (mean = 22.8 years). Working diagnoses (noted from existing medical records) included paranoid schizophrenia, schizotypal disorder, and schizophrenia with secondary depression.	empowered action and promoted recovery and growth. The dual process of acceptance and change in relationship to self was central to recovery.
14.	Warschburger et al. (2023); Germany	Longitudinal study (prospective)	Examine the development of self-regulation (SR) and its influence on adolescent outcomes	Multi-method, multi-facet assessment (questionnaires, physiological assessments, performance-based tasks)	Large community sample of adolescents (1657)	Aims to investigate the development of various SR sub-facets and their contributions to future developmental outcomes.

15.	Werner et al. (2012); USA	Cross-Sectional (group comparison)	To examine self-compassion and its correlates in a treatment-seeking sample of persons with social anxiety disorder (SAD).	The Self-Compassion Scale (SCS), The Liebowitz Social Anxiety Scale (LSAS), The Social Interaction Anxiety Scale (SIAS), The Brief Fear of Negative Evaluation Scale (BFNE), The Fear of Positive Evaluation Scale (FPES), Beck Depression Inventory II (BDI-II), Spielberger State Trait Anxiety Inventory (STAI-T).	N = 72 (33 men, 39 women) with generalised SAD (mean age 33.8)	People with SAD reported less self-compassion, but it wasn't generally associated with severity of social anxiety. It was though associated with greater fear of evaluation (either positive or negative).
16.	Wetternec k et al. (2013); USA	Cross-sectional	To examine if people with OCD show deficits in the specific values of self-compassion and courage, and the extent to which they are living in accordance with their overall values. Also, to explore the relationship between OCD severity and one's	Obsessive-Compulsive Inventory-Revised (OCI-R), Yale-Brown Obsessive Compulsive Scale: Self-Report (Y-BOCSSR), Courage measure (CM), Self-Compassion Scale (SCS), Valued Living	Participants were recruited via advertiseme nts on various OCD related websites completed a number of screening questions designed to indicate an OCD diagnosis based on	nalyses yielded significant relationships between OCD severity and self-compassion, courage, and the VLQ. A multiple regression analysis revealed the VLQ and courage to be significant predictors of OCD severity.

			overall valued living as well as the personal values of self-compassion and courage.	Questionnaire (VLQ).	DSM-IV-R criteria. Participants (N = 115) were primarily female (71.3%) with a mean age of 36.34).	
17.	Willemsen et al (1986); USA	Correlational study	Examine the relationship between self-comforting, secure attachment, and self-awareness in toddlers	Observational measures, interviews	19 toddlers and their mothers	Found no significant correlation between self-comforting and secure attachment or self-awareness.
18.	Wilson et al. (2020); USA	Cross-sectional	To investigate the extent to which mindfulness, self-compassion, and savouring accounted for the relation between perceived social support and psychological wellbeing.	Depression (CES-D)	228 university students, mean age 19.84, 76% female	Perceived social support was significantly associated with greater mindfulness, self-compassion, savouring, and positive psychological wellbeing outcomes (i.e., psychological wellbeing, subjective happiness), as well as lower levels of negative psychological wellbeing outcomes (i.e., depression, perceived stress). Furthermore, mindfulness, self-compassion, and savouring each accounted for the

						association between perceived social support and these psychological wellbeing outcomes. These findings suggest three pathways through which perceived social support may improve psychological wellbeing.
19.	Woodruf et al. (2014); USA	Cross-sectional	To compare the relative predictive strength of self-compassion, mindfulness, and psychological inflexibility on psychological health. The researchers wanted to understand which of these constructs, often associated with mindfulness-based interventions, had a stronger impact on psychological wellbeing.	Anxiety (BAI), depression (BDI)	147 university students, aged 17-23, 71% female	The study found that self-compassion was a stronger predictor of psychological health than single-factor mindfulness. However, when mindfulness was assessed using multiple facets, the relationship between mindfulness and psychological health became more complex. While self-compassion still predicted psychological health better than a single mindfulness score, psychological inflexibility emerged as a stronger predictor of negative

						psychological health outcomes. This suggests that addressing psychological inflexibility may be crucial for improving mental health. The findings highlight the importance of considering the multifaceted nature of mindfulness and the potential limitations of relying on single-factor measures.
20.	Xavier, Gouveia & Cunha (2016); Portugal	Cross-sectional	To test whether specific internal traits characterized by shame, self-criticism and fear of self-compassion impact on non-suicidal self-injury (NSSI), through their effect in daily peer hassles and depression.	The Other as Shamer Scale (OAS2), The Fears of Compassion Scales, The Forms of Self-Criticism/Self-Reassuring Scale (FSCRS), The Daily Hassles Microsystem cale (DHMS), The Depression Anxiety and Stress Scales (DASS-21), The risk-taking and self-harm inventory for adolescents (RTSHIA) all	The sample was collected from middle and secondary schools in the district of Coimbra, Portugal. N = 782 adolescents, 369 boys (47.2%) and 413 girls (52.8%). Age ranged between 12 and 18 years old (M = 14.89).	External shame, hated self and fear of self-compassion indirectly predict NSSI, through their effect in daily peer hassles and depression. Strong link between hated self and NSSI.

				in Portuguese.		
21.	Yadavaia et al. (2014); USA	RCT	To test the efficacy of an ACT approach to self-compassion, test the mediational role of psychological flexibility, and explore the moderating role of trauma history on the efficacy of the intervention.	Self-Compassion Scale (SCS), General Health Questionnaire (GHQ), Depression Anxiety and Stress Scales-21 (DASS-21), Acceptance and Action Questionnaire-II (AAQ-II), Stressful Life Events Screening Questionnaire-Revised (SLESQ-R).	Undergraduates (*N*=73), 18 years of age and older enrolled in psychology classes at the University of Nevada, Reno.	From pretreatment to 2-month follow-up, ACT was significantly superior to the control condition in self-compassion, general psychological distress, and anxiety. Process analyses revealed psychological flexibility to be a significant mediator of changes in self-compassion, general psychological distress, depression, anxiety, and stress. Exploratory moderation analyses revealed the intervention to be of more benefit in terms of depression, anxiety, and stress to those with greater trauma history.
22.	Yamaguchi, Kim & Akutsu, (2014) S1 Japan; S2 USA	Cross-sectional study	To cross-culturally examine associations among self-construals, comparative vs. internalized self-criticisms, self-	Depression (CES-D)	S1: 1200 S2: 420 All university students (Japanese and	The study found that both independent and interdependent self-construals were linked to self-criticism.

			compassion, and depressive symptoms.		American), mean age for S1=19.6, S2=21	However, the type of self-criticism varied based on cultural context. In the U.S., independent self-construal was more strongly associated with both comparative and internalized self-criticism. In contrast, in Japan, interdependent self-construal had a stronger impact on both forms of self-criticism. While both types of self-criticism negatively affected self-compassion, internalized self-criticism had a less detrimental impact. Self-compassion, in turn, was associated with lower levels of depressive symptoms. The findings suggest that cultural differences in self-construal can influence the way individuals experience and express self-criticism, which in turn affects their self-

						compassion and mental health.
23.	Zeifman et al. (2019); Canada	Cross-sectional study	Examine the relationship between self-compassion and suicidal behaviour	Self-report questionnaires, implicit measure of suicidality	130 undergraduate students	Self-compassion was significantly associated with self-reported suicidal behaviours, even after controlling for other risk factors.
24.	Zhang and Wang (2019); China	Cross-sectional study	Examine the mediating role of gratitude and self-compassion in the relationship between bullying victimization and depression in college students with disabilities	Self-report questionnaires	112 college students with disabilities	Bullying victimization was positively associated with depression through decreased gratitude and self-compassion.
25.	Zhou et al. (2013); China	Cross-sectional study	Examine the relationship between self-compassion, hopelessness, and negative cognitive style in college students	Self-report questionnaires	418 college students	Self-compassion was negatively associated with hopelessness and depression, and negative cognitive style mediated this relationship.
26.	Zhou et al. (2017); China	Cross-sectional correlational study	Explore the ability of Confucian coping and self-compassion to predict anxiety and depression in impoverished Chinese undergraduates. The present study can provide some theoretical guidance for college mental health work.	Self-report questionnaires	330 impoverished undergraduates in the Hunan Institute of Technology, aged 16-24	Results showed that higher self-compassion predicted lower depression and anxiety in impoverished undergraduates. Higher pro-setback thinking and responsibility thinking of Confucian coping were related with

						lower depression and anxiety. Higher fate thinking of Confucian coping was related with higher depression and anxiety. The predictive ability for depression and anxiety of self-compassion combined with fate thinking was better than self-compassion alone. Intervention to enhance self-compassion and reduce fate thinking may be beneficial to mental health in impoverished undergraduates.

Abbreviations: * N: Sample size * NR: Not reported * NA: Not applicable * RCT: Randomised Control Trial * BAI: Beck Anxiety Inventory * BDI: Beck Depression Inventory-II * CDI: Children's Depression Inventory * DASS: Depression, Anxiety and Stress Scale * GAD: Generalized Anxiety Disorder * GADS: Goldberg Anxiety and Depression Scale * LSAS-SR: Liebowitz Social Anxiety Scale-Self-Report * PSS: Perceived Stress Scale * PROMIS: Patient-Reported Outcome Measurement Information System * SCL: Symptom Checklist * SIAS: Social Interaction Anxiety Scale * SMFQ: Short Mood and Feeling Questionnaire * SPS: Social Phobia Scale * STAI: Spielberger State-Trait Anxiety Inventory * CBT: Cognitive Behavioural Therapy * Compassionate Mind Training (CMT) * CM: Courage Measure * EPQR-S: Eysenck Personality Questionnaire–Short Form * FMPS: Frost Multidimensional Perfectionism Scale * LKM: Loving-Kindness Meditation * MBCT: Mindfulness-Based Cognitive Therapy * MBSR: Mindfulness-Based Stress Reduction * MDI: Major Depression Inventory * MSC: Mindful Self-Compassion * PHQ-9: Patient Health Questionnaire * PSQ: Parental Stress Questionnaire * SCS: Self-Compassion Scale * SCS-SF: Self-Compassion Scale-Short Form

Appendix 2A: Assessment of Study Quality Using JBI-CAT (I)

S/N	Authors/ Country	JBI Criteria	Overall Rating

1.	Arch et al. (2014); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
2.	Arimitsu (2016); Japan	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
3.	Arimitsu and Hofmann (2015); Japan	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: N/A 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: No 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Low
4.	Armstrong and Rimes (2016); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
5.	Arredondo et al. (2017); Spain	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes	Moderate

		9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
6.	Asselmann et al. (2024); Germany	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
7.	Bayot et al. (2020); Belgium	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
8.	Beaumont et al. (2016); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
9.	Beaumont, Galpin & Jenkins (2012); UK	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Low
10.	Braehler et al. (2013); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes	Moderate

		8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
11.	Brooks et al. (2012); Australia	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
12.	Castilho et al. (2017); Portugal	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
13.	Collett et al. (2016); UK	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
14.	de Bruin et al. (2016); Netherlands	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
15.	Diedrich et al. (2014); Germany	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A	Low

		7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
16.	Diedrich et al. (2016); Germany	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
17.	Døssing, et al. (2015); Denmark	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Low
18.	Dundas et al. (2017); Norway	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
19.	Eicher et al. (2013); USA	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
20.	Eisendrath et al. (2016); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No	High

		6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
21.	Erogul et al. (2014); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
22.	Ewert, Buechner & Schröder-Abé (2024); Germany	1. Randomization: No 2. Allocation Concealment: No 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Low
23.	Ferrari et al. (2018); Australia	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: N/A 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: N/A 10. Other Potential Biases: Yes	Moderate

Appendix 2B: Assessment of Study Quality Using JBI-CAT (II)

S/N	Authors/ Country	JBI Criteria	Overall Rating
1.	Fuertes et al. (2020); Portugal	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	High

2.	Galla (2016); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
3.	Ghorbani et al. (2012); Iran	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
4.	Gilbert et al. (2012); UK	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: No 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Low
5.	Gill et al. (2018); UK	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
6.	Greeson et al. (2014); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes	Moderate

		9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	
7.	Gu et al. (2018); UK	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	High
8.	Hall et al. (2013); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
9.	Hoffart, Øktedalen & Langkaas (2015); Norway	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
10.	Hoge et al. (2013); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
11.	Hou et al (2020); China	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes	Moderate

		8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	
12.	Huberty et al. (2019); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
13.	Huijbers et al. (2015); Netherlands	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: No 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
14.	Hwang et al. (2019); Australia	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
15.	Jazaieri et al. (2012); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
16.	Joeng & Turner (2015); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No	Moderate

		7. Statistical Analysis: Yes 8. Follow-up Completeness: No 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	
17.	Kelly et al. (2017); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: Yes	Moderate
18.	Kemper et al. (2016); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
19.	Key et al. (2017); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	High
20.	Kingston et al. (2015); Ireland	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
21.	Ko et al. (2018); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes	High

		6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
22.	Koszycki et al. (2016); Canada	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
23.	Krieger et al. (2016); Germany	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High

Appendix 2C: Assessment of Study Quality Using JBI-CAT (III)

S/N	Authors/ Country	JBI Criteria	Overall Rating
1.	Kuyken et al. (2010); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
2.	Lahtinen et al. (2019); Finland	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A	Moderate

		9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
3.	Lathren, Bluth & Park (2019); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
4.	Luo et al. (2019); China	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
5.	Maheux & Price (2015); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
6.	Maheux & Price (2016); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
7.	Mingkwan et al. (2018); Thailand	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes	Moderate

		8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
8.	Miron et al. (2016); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
9.	Mistretta et al. (2018); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
10.	Müller et al. (2016); Germany	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
11.	Neff (2003); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
12.	Neff et al. (2008); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No	Moderate

		7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
13.	Neff & Germer (2012); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
14.	Perry et al. (2018); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
15.	Podina, Jucan & David (2015); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
16.	Polizzi, Baltman, & Lynn (2022); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
17.	Potharst et al. (2019); Netherlands	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes	High

		6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	
18.	Potter et al. (2014); Australia	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
19.	Psychogiou et al. (2016); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	High
20.	Rabon, Sirois & Hirsch (2017); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
21.	Reid et al. (2014); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	Moderate
22.	Scoglio et al. (2015); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: N/A 4. Participant Blinding: No	Moderate

		5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: Yes 10. Other Potential Biases: No	

Appendix 2D: Assessment of Study Quality Using JBI-CAT (IV)

S/N	Authors/ Country	JBI Criteria	Overall Rating
1.	Sevinc et al. (2018); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: No 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
2.	Shapiro et al. (2011); USA	1. Randomization: Yes 2. Allocation Concealment: No 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: No 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
3.	Smeets et al. (2014); Netherlands	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	High
4.	Ștefan et al. (2018); Romania	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No	High

		6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	
5.	Stephenson et al. (2018); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
6.	Stutts et al. (2018); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
7.	Svendsen et al. (2017); Norway	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
8.	Tanaka et al. (2011); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
9.	Taylor et al. (2014); UK	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes	High

		5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	
10.	Terry, Leary & Mehta (2012); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
11.	Trompetter, de Kleine, & Bohlmeijer (2016); Netherlands	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
12.	Van der Gucht et al. (2018); Belgium	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	High
13.	Waite et al. (2015); UK	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
14.	Warschburger et al. (2023); Germany	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes	Moderate

		4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	
15.	Werner et al. (2012); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
16.	Wetterneck et al. (2013); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Low
17.	Willemsen et al (1986); USA	1. Randomization: N/A 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
18.	Wilson et al. (2020); USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
19.	Woodruf et al. (2014); USA	1. Randomization: No 2. Allocation Concealment: N/A	Low

		3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	
20.	Xavier, Gouveia & Cunha (2016); Portugal	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Moderate
21.	Yadavaia et al. (2014); USA	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: Yes 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	High
22.	Yamaguchi, Kim & Akutsu, (2014) S1 Japan; S2 USA	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Low
23.	Zeifman et al. (2019); Canada	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: No 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: N/A 9. Selective Outcome Reporting: No 10. Other Potential Biases: Yes	Low

24.	Zhang and Wang (2019); China	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: No 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	High
25.	Zhou et al. (2013); China	1. Randomization: No 2. Allocation Concealment: N/A 3. Baseline Comparability: Yes 4. Participant Blinding: N/A 5. Therapist Blinding: N/A 6. Outcome Assessor Blinding: No 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	Moderate
26.	Zhou et al. (2017); China	1. Randomization: Yes 2. Allocation Concealment: Yes 3. Baseline Comparability: Yes 4. Participant Blinding: Yes 5. Therapist Blinding: No 6. Outcome Assessor Blinding: Yes 7. Statistical Analysis: Yes 8. Follow-up Completeness: Yes 9. Selective Outcome Reporting: No 10. Other Potential Biases: No	High

Key: Each criterion has an assessment of either "Yes," "No," "Unclear," or "Not Applicable (N/A)" based on the study's design and provided information. The overall quality ratings are based on the number of "Yes" responses in the table. Studies with multiple "No" ratings in key criteria (e.g., Randomization, Blinding) are generally rated lower, reflecting a higher risk of bias. For RCTs, high ratings generally indicate full adherence to JBI-CAT criteria, while cross-sectional studies and other designs often reflect limitations in blinding and allocation concealment.