

Feasibility to Develop an Integrated Meta-Emotional and Meta-Cognitive Strategy in Regulation of Anxiety and Depression based on Systematic Review

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In spite of early history of metacognition and metaemotion and increase research interest among the concepts, there is still lack of unified definition for metacognition and metaemotion. The current study aims to delineate the concepts of metacognition and metaemotion along with the interrelationship between both the concepts and its role in development of various psychological disorders with special focus toward depressive disorder and anxiety disorders. To achieve this, the PRISMA model was utilized to review previous research papers. Following the final screening process, 40 articles were selected and thoroughly analyzed. As a result from the extended review of previous researches it is been found that when compared to metacognition there is only few research studies on metaemotion. It is been clearly evident that metacognition and metaemotion play a crucial role in regulation of anxiety and depression. And the study concludes that there is a high need to develop an integrated metacognition and metaemotion strategy in regulation of anxiety and depression.

Key words: metacognition, metaemotion, anxiety, depression.

The development of the concept of metacognition and metaemotion started as earlier when cognitive psychologists took interest in how people are possessing the ability to assess and monitor their own knowledge (Peirce, 1985). Recent research advancement has increased the interest in studying the role of meta component of cognition and emotion due to its contribution towards understanding, learning, self-regulation, emotional regulation and various other domains across the life span. The terms metaemotion and metacognition are still lacking a unified definition and the definition is varying according to the subfield of psychology (Azevedo, 2020). Both the emotional and cognitive meta components involves two aspects knowledge and regulation. The concepts are similar at the same time there is a clear cut differentiation

between the both and in the way they independently influence to the psychological disorders. Therefore, the paper delineates the concepts along with its contribution to various psychological disorders.

Aim

The study aimed to delineate the concepts of metacognition and metaemotion along with the interrelationship between both the concepts and its role in development of various psychological disorders with special focus toward depressive and anxiety disorders.

The systematic review was conducted following the PICO guidelines, ensuring a structured and comprehensive approach.

P – Population = Human subjects

I – Intervention = Metacognition and metaemotion based interventions

C – Comparator/control = NIL

O – Outcome = Efficiency of the intervention.

Database searched

Previous researches were identified using the PubMed, the Google Scholar, and the Research Gate search engines. Keywords such as metacognition, metaemotion, depression and metacognition, depression and metaemotion, anxiety and metacognition, anxiety and metaemotion were used to extract and analyze the previous research studies.

Inclusion criteria

The articles published right from 1975 till the present year (2024) were included for the study. Studies on metacognition and metaemotion and its impact on anxiety and depression were reviewed on articles that were published in English-language, peer-reviewed journals.

Exclusion criteria

Articles from predatory journals, dissertations, and those published in languages besides English were rejected for the review.

Data extraction

A total of 40 articles were extracted for the purpose of detailed review. Two step process was employed to identify the articles in which the first step involves the screening of the title and the abstract while the second step involves the full text screening.

Result and Discussion

The study included all papers examining metacognition and its impact on depression and anxiety disorders published between

1970 and 2024. Initially, 66 articles were identified, but this number was narrowed down to 40 after the final screening, during which the full texts were accessed and thoroughly reviewed. All forty articles comprised of the metacognition, metaemotion, and its impact on anxiety and depression.

The details obtained from the finally extracted articles (n = 40) has been categorised under the below mentioned sub-themes.

1. The concept of Metacognition
2. The concept of Metaemotion
3. Contractual relationship between metacognition and metaemotion
4. Role of metacognition in various psychological disorders
5. Metacognition and Generalized Anxiety Disorder
6. Metacognition and Obsessive Compulsive Disorder
7. Metacognition and Depressive Disorder
8. Role of metaemotion in various psychological disorders
9. Role of Metaemotion in Anxiety and Depression

The subthemes are elaborately discussed in detail below.

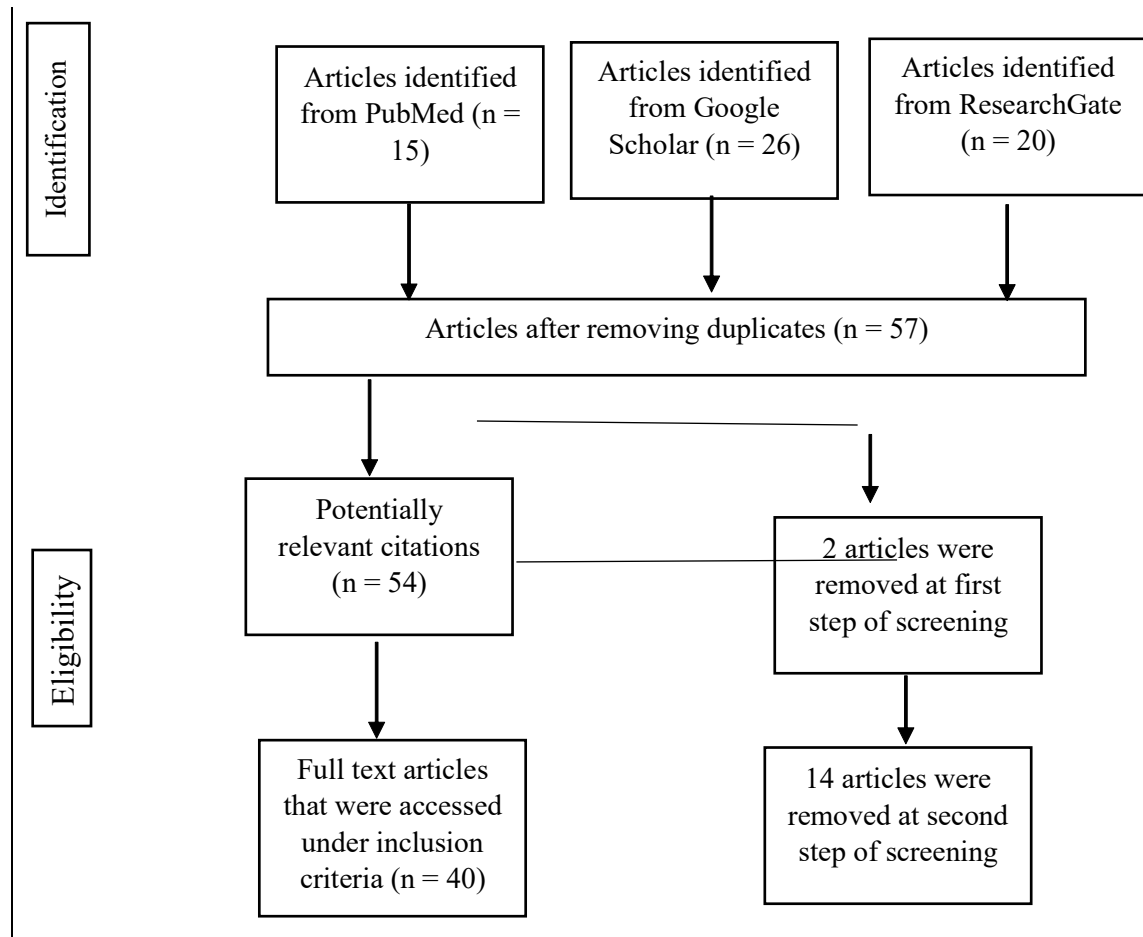


Figure 1. Flowchart for screening the articles

The concept of Metacognition

Metacognition is broadly involved in many of our daily day functioning. It could be put down into simple terms as “cognition about one’s own cognition”. The term “metacognition” was developed by John Flavell (1979), according to him metacognition involves metacognitive knowledge, metacognitive experiences or regulation and metacognitive strategies (Livingston, 2003). Where *metacognitive knowledge* is declarative belief on one’s own cognitive process and those that contribute to influence that particular cognitive process and its outcome (Norman, 2014), for instances, understanding of the impact of

practice on doing a particular task precisely. According to Flavell *metacognitive experiences* can be defined as “any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise” (Flavell, 1979). The component can be further sub divided into “information-based metacognitive judgements and experience-based metacognitive feelings” (Koriat, 2007). *Metacognitive strategies* are techniques individuals use to regulate and manage their cognitive processes with the goal of maintaining control over them, that is, the “Intentional application of strategies (i.e., procedural knowledge) to manage cognition” (Efklides, 2008). In accordance

with the concept put forward by Flavell the practical implementation of metacognition can be divided into four major categories as metamemory and metacomprehension, problem solving and critical thinking (Martinez, 2006). Metamemory is the capacity to apprise about one's own memory while metacomprehension is the ability to apprise about one's own comprehensive knowledge; Problem solving is the pursuit of the goal when the path to the goal is uncertain, it involves generating the alternatives and weighing each other with its pros and cons; Critical thinking involves inquiry on the quality of the cohort. From these three categories of metacognition, it is clear that the metacognition skills are remarkably used in the "real-world, everyday life" situations (Brown, 1978). The metacognitive ability varies from person to person (Livingston, 2003) it could be measured in terms of metacognitive sensitivity, although there are more chances for error in measuring the accuracy of the element – metacognitive biases (Fleming, 2014).

The concept of Metaemotion

Metaemotion is the way we think about and deal with our own emotions, which can impact our overall emotional well-being and how we interact with others. Essentially, it's the way we process and understand our emotions. Simply to put alike metacognition, metaemotion is "emotion about emotion". Metaemotion is how the emotions are appraised on the emotional context, i.e., "the emotional reaction about one's own emotional self" (Mitmansgruber, 2009). Therefore, metaemotions are the secondary emotions that stems from the primary emotions. Metaemotions "monitors and appraises emotions and recruits affective responses toward them, which results in a motivation to maintain and approach emotions, or to control and avoid them" (Bartsch, 2008). Metaemotion possess the reflexive quality, that is it can maximise, minimise or even

redirect the individuals ongoing emotional experience (Mendonca, 2013). Similar to metacognition, metaemotion is broadly classified as metaemotional experiences, metaemotional knowledge and metaemotional strategy. Another concept that parallels with metaemotion is the metamood, which relates to the mood, where the person "consistently reflect on their emotions, while monitoring, assessing, and regulating them." (Salovey, 1995). In order to regulate and modify emotions, the role of metaemotion is of dire importance (Bartsch, 2008). *Metaemotional experience* involves various feeling like joy, anger, fear, sadness and so on. "I feel anxious about this feeling", "I like this feeling" are some examples that reflect metaemotion. Metaemotional experiences encompass more than metacognitive experiences, as they include "physiological and behavioural response patterns alongside subjective feelings." (Norman, 2016). *Metaemotional knowledge* is the declarative knowledge about one's own emotion, other's emotion, various types of emotions and the emotions that accompany a specific situation or a behaviour. It is nothing but a broader general knowledge about the emotions. *Metaemotional strategies* involves the regulatory aspects of the metaemotions. Like identifying one's own emotional state, planning strategies to regulate or to cope with those emotions and evaluating the outcome of the applied strategy (Norman, 2016). The three facets of metaemotion don't functions independent of each other, they are mutually dependent on each other. To speak about whether the three facets metaemotional experience, knowledge, and strategies are "trait" or "state", where "trait" refers to the potentially available ability and "state" refers to if potentially able strategy, knowledge or experience is applied to a situation or not. For example, the metaemotion of dislike for one's own sadness, may be considered as a state variable if it is a short-lived psychological

state, anyhow, the way individuals react to their own sadness may be affected by relatively stable personality traits. Therefore, it is hard to classify metaemotion as “trait” or “state” variable, rather it is a combination of both the variable and it interplays between the “trait” and “state” component, which differentiates metaemotion from the overlapping trait or ability construct emotional intelligence (Norman, 2016).

Contractual relationship between metacognition and metaemotion

Both the concept “metacognition” and “metaemotion” parallels and compliments each other in the executive control of cognition and emotion respectively (Gottman, 1996). The construct metaemotion stems from metacognition, though metaemotional experience are emotional construct they are complemented by cognitive construct. For e, a boss who is frustrated upon his employee may meta-emotionally feel guilt the way he reacted to his employee. Moreover, he might also consider why he responded with frustration in this specific instance. This scenario is not solely an example of “emotion about emotion” but also involves “thinking about emotion.” therefore the differentiation between metaemotional and cognitive experience is not very distinct (Norman, 2016). Hence, to comprehend the individuals psychic process it is necessary to study the complementing metacognitive and metaemotional constructs, without neglecting the effect of each other. Let us discuss the role of metacognition and metaemotion in the various psychopathologies, below,

Role of metacognition in various psychological disorders

Metacognition comprises negative and positive belief about one’s own thinking, like, “These thoughts are harmful; paying attention to threat will keep me safe; Worrying helps me to cope” (Davey, 2006). Elevated dysfunction in metacognition has

been found to be more prevalent among the psychiatric population than the mentally healthy population, particularly negative metacognitive belief contributed to the development of the psychological disorders (Sun, 2017). Metacognition plays a crucial role in the onset and persistence of various psychological disorders. Metacognitive model of psychopathology suggests that various “metacognitive beliefs concerning the value of worry, and the uncontrollability and danger of cognition” leads to the development of psychopathologies and metacognitive strategies would successfully treat multiply problems of psychological origin (Nordahl, 2019). Apart from the development of psychological disorders, deficits in metacognitive functions also leads to psychosocial dysfunction along with deficit in symptom expression among adults with severe mental illness. Metacognitive beliefs influence the cognition and behaviour in a particular situation, for example, a person with PTSD believes that, ‘I must be very vigilant all the time, in order to protect myself’, a person with hypochondriasis believes that ‘I need to be highly aware of every blink of my eyes to ensure their safety’. These sorts of metacognitive belief monitor the threats that underlie. Similarly, some people possess positive metacognitive belief, for example, persons with PTSD believes that ‘I shall not obsessively stick to or ruminate the intrusive thoughts, I shall engage in my passion to cope with it’. Negative beliefs and the meanings attached to the thoughts plays a significant role (Davey, 2006). Among other psychological disorders, generalized anxiety disorder, obsessive-compulsive disorder depressive disorder and eating disorders depict more metacognitive dysfunction (Lysaker, 2011).

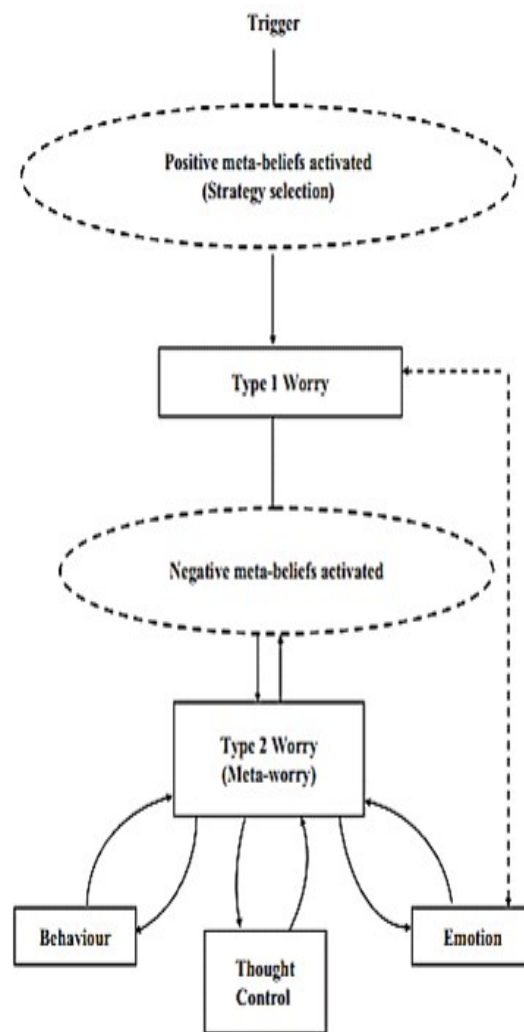
Metacognition and Generalized Anxiety Disorder

In order to relate the metacognition to anxiety it is essential to comprehend the

metacognitive model of pathological worry proposed by Wells in 1994. This model differentiates between two forms of worry: type 1 worry, which involves general concerns, and type 2 worry, which refers to negative evaluations of one's own worrying. Type 2 worry functions through metacognitive processes by critically appraising type 1 worry, thus termed as "metaworry." The activation of this metaworry concerning the negative metacognitive belief is the core for the development of GAD (Davey, 2006). Any sort of trigger may lead to worrying, but as soon as the trigger gets activated it leads through positive metacognitive belief to worrying (Type 1) as a method of coping to the trigger. Type 1 worry over here include the thought about the negative outcome, catastrophes and the methods to cope with those negative outcome. The individual experiences increased anxiety when focusing on negative outcomes and reduced anxiety when considering potential coping strategies. It involves a lot of changes in the emotions. This sort of worry will persist until achieving the goal of worry.

In pathological worrying as in GAD, during the primary worry (Type 1), negative belief (the secondary appraisal) about the primary worry (Type 2) gets activated. The activated negative belief consists of two important components namely, uncontrollability and danger. This is because they believe that worrying is uncontrollable and it is potentially dangerous to their mental and social health. For example, 'I am not able to control my worry and I am losing my mind eventually out of worry because of which I may get a heart attack very soon'. As such the negative interpretation of worry (meta worry) arises and it also attaches a negative belief to the emotional state. Which in turn results in increased sense of threat and anxiety and possess difficulty in controlling the psychological and physical activity. The

sense of ability to cope eventually decreases out of the activation of type 2 worry and the anxiety becomes more escalated. Thus type 2 worry leads presence of Generalised Anxiety Disorder. Therefore metacognition play an important role in GAD and when these type 2 worry – metaworry has been controlled through effective strategies there are probabilities to effectively control GAD.



“The Metacognitive Model of GAD Reproduced from Wells, A. (1997). Cognitive Therapy of Anxiety Disorders: A practice manual and conceptual guide. Chichester, UK: Wiley”

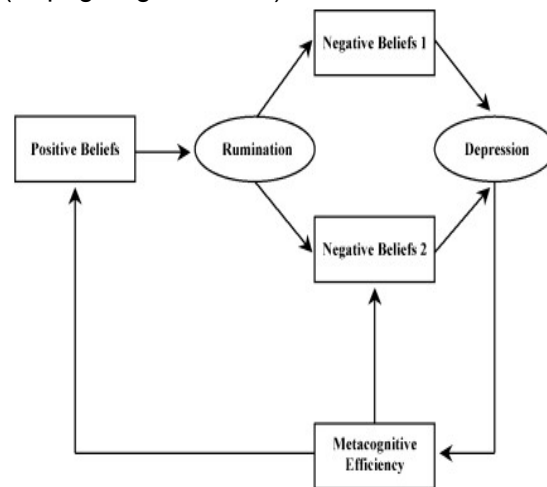
Metacognition and Obsessive-Compulsive Disorder

Individuals with Obsessive Compulsive Disorder has been found to have strong correlation with the metacognitive dysfunction and are found to possess negative belief about worry concerning uncontrollability and danger (Cucchi, 2012). Metacognitive beliefs particularly, Thought Action Fusion (TAF), Inverse Inference (II) and belief about the consequence of the thought has been found to be strongly related to the obsessive-compulsive behaviour (Paul, 1999). Thought Action Fusion is defined as the belief that a person's specific intrusive thoughts can directly affect external events, and the belief that these intrusive thoughts are morally equivalent to actually engaging in a prohibited activity. Inverse Inference is inferring the occurrence of an event by irrelevant association. Metacognitive beliefs regarding the danger and the power of intrusive thoughts held by the obsessionals are very important to understand the obsessive-compulsive disorder (Wells, 1997). These dysfunctional metacognitive function in OCD patients also leads to psychosocial impairment contributing to the difficulties in social functioning (Mavrogiorgou, 2016). Therefore, the role of metacognition in obsessive compulsive disorder from multidimensional aspect ranging from psychological aspect to social aspect is very evident.

Metacognition and Depressive Disorder

Metacognitive processing plays a vital role in the maintenance of depressed mood (Singer, 2007). It is been found that for patients with depression there is deficit in metacognitive awareness and metacognitive monitoring of their dysfunctional cognitive products (Sheppard, 2000). When compared to healthy controls partially remitted depressed found to possess lower levels of metacognitive awareness. Lower level of

metacognitive awareness is also related to increased rate of relapse among patients with depression (Teasdale, 2002). Rumination is one of the key features in depression. Individuals hold upon either negative or positive belief about rumination. A positive belief about rumination is seen as a coping strategy, while negative beliefs about rumination—such as concerns about its uncontrollability, potential harm, and the social and interpersonal consequences—are strongly linked to depression. Thus, the activation of negative metacognitive beliefs about rumination play a role in the development of depression. which in turn leads to decreased metacognitive confidence / efficiency. This decreased metacognitive efficiency serves as depressogenic byproduct which inturn contributes to negative beliefs about the interpersonal and social consequences of rumination (Papageorgiou, 2003).



“Papageorgiou, C., & Wells, A. (2003). An empirical test of a clinical metacognitive model of rumination and depression. *Cognitive therapy and research*, 27, 261-273.”

As such there is a pile of evidences to indicate that metacognitive beliefs are linked with symptoms of depression and anxiety. There is a need for research to determine if

the reduction in dysfunctional metacognition would lead to improvement in the symptoms across different disorders and the extent to which the metacognitive beliefs mediate the effectiveness of the treatment (Corcoran, 2008).

Role of metaemotion in various psychological disorders

A lot of research evidences exists as how emotions are related to the development of various psychopathology, at the recent times researchers are moving towards the role of metaemotion in the onset and progression of psychological disorders. The significance and consequences of experiencing and displaying positive emotions are influenced by how much attention they receive, how well they are comprehended, and how much they are valued both in terms of personal enjoyment and practical benefits. As a result, the connection between positive emotions and psychological issues is notably affected by the extent to which these emotions are given attention, comprehended, and regarded as valuable. Therefore metaemotion gains a greater importance in moderating the psychological disorders (Berenbaum, 2019). The components of metaemotion like emotional clarity, granularity and attention is found to be disrupted in bipolar spectrum psychopathology (Sperry, 2019). Apart from individual's metaemotional process, family's metaemotion also predict the development of psychological disorder especially the parent's meta-emotional philosophy of sadness prospectively predicts Major Depressive Disorder onset in adolescence (Schwartz, 2018). Both metacognition and metaemotion negatively correlates with depression and anxiety (Mayor, 2013). Here we detail the role of metaemotion in regard to anxiety and depression particularly,

Role of Metaemotion in Anxiety and Depression

Positive and negative metaemotions plays an important role in the predicting disease related anxiety – which was more evident in patients who developed corona anxiety (Vakili, 2020). The high level of parents' meta emotional awareness and meta emotional coaching is related to positive socio emotional outcome in their children. The way parents process their meta emotions influence how children socialise and express their emotion (Gottman, 1996). The discussion of parent – child emotion (Hudson, 2008), parents' reactions to children's negative emotions have predicted the development of anxiety disorder among the children (Hurrell, 2015). Metaemotion is also found to play a foremost most role in postpartum depression and anxiety, that is why, psychotherapies that combine metaemotion is found to better regulate emotion and reduce negative emotion and to effectively reduce anxiety sensitivity in women with postpartum depression (Daryadel, 2021).

Metaemotion is found to play an important role starting from the parent child interaction to the development of depressive symptom in during adolescents. Parents' metaemotional philosophies highly moderate the development of depression among adolescents (Hunter, 2011). Metaemotional coaching starting from the pre-school and middle school itself is shown to be associated with “fewer depressive symptoms, higher levels of adjustment and lower frequencies and less reciprocity of aversive and dysphoric affect” in parent child interaction and also during adolescence (Katz, 2007).

Conclusion

Though the role of metaemotion on development of depression and anxiety is very clear. In spite of huge research evidence for metacognition in its role in development

of psychological disorders, there are only few researches in concern to metaemotion. It could be concluded that there is a high need and feasibility to develop an integrated metacognition and metaemotion strategy in regulation of anxiety and depression from the above research evidences.

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