Proceedings of the 7th International Conference on Education Innovation and Philosophical Inquiries
DOI: 10.54254/2753-7048/2026.34101

A Psychological Pathway of Suicidality: Emotion Dysregulation, Cognitive Constriction, and Impulsive Self-Directed Aggression

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Abstract. Recently, there has been intense interest in the psychological processes underlying suicidality to understand possible causes. Emotion dysregulation, cognitive processing, impulsivity, and aggression play important roles in suicidality, yet few studies have combined these factors to understand this tendency. In this review, previous work will be summarised to propose an emotional-cognitive-behavioural pathway combining emotional dysregulation, constrained thinking, and impulsive behaviour with individual, developmental, and contextual factors. The results suggest that heightened emotional reactions may occur from situational stress, leading to limited cognition and poor behavioural regulation in impulsivity. Other influencing factors, such as individual variability, developmental stage and environmental context, support the idea that the framework behaves dynamically. In particular, adolescents are developing people with a high risk of suicidality, and traumatic experiences result in increased vulnerability at each stage. As a concluding comment, this article generates a comprehensive pathway to better understand the risk of suicide and suggests interventions for each stage.

Keywords: Emotional dysregulation, cognitive constriction, impulsivity, aggression, suicidality

1. Introduction

When considering suicidality, researchers' attention has been turned to the psychological factors contributing to psychological and emotional vulnerability. Emotional dysregulation (ED) has been recently shown to be important due to its high emotional responses and inadequate emotion regulation [1, 2]. Impulsivity and aggression play important roles in subsequent behavioural regulation, resulting in ultimate suicidal behaviour [3, 4]. Importantly, the above contributions only focus on emotional, cognitive and behavioural factors of suicidality separately, rather than considering the interaction of these factors to explain such maladaptive results in a more comprehensive way. This illustrates a gap involving theoretical insights and related clinical interventions.

There has been recent work suggesting that this tendency may be understood by linking different impact factors: ED may impair cognitive ability and impulsivity regulation, which can thereby

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DOI: 10.54254/2753-7048/2026.34101

translate distress into an unfavourable behaviour [3, 5]. However, there is no integrated theory of how to combine several elements and identify factors that could trigger suicidal behaviour.

This article will address this gap by presenting a joint model that incorporates emotion, cognitive and behavioural factors. Combining the recent empirical studies, ED, cognitive constriction and impulsivity will be considered as important components of the suicidality pathway, with influencing factors that may increase the likelihood of activation, including individual vulnerability, developmental stage, and context factors. Eventually, various interventions will be proposed according to the proposed framework.

2. Core concepts

2.1. Emotional dysregulation

Emotional dysregulation (ED) is a lack of emotion awareness, acceptance and control, which limits individuals from achieving their goals [6]. Since it has been found to be vulnerable in stressful events such as childhood abuse and serious consequences such as self-harm, it has become a transdiagnostic construct for many mental disorders [1, 2]. Among the negative consequences, suicidality is one of the most reported. Although ED has been found to have a consistent positive effect on suicidal thoughts, the evidence of suicidal attempts is less clear, perhaps due to differences in behavioural and contextual factors [1]. Thus, ED might be considered as a starting point for suicidal risk.

2.2. Aggression & impulsivity

Aggression can be considered as harm-related or dominance-displaying actions that can be expressed impulsively (reactive aggression) or intentionally to achieve a goal (proactive aggression) [3]. Both subtypes of aggressivity were positively correlated with suicidal ideation and attempts. Impulsivity is an impulse-driven behaviour that responds quickly and in a non-reflective manner, usually with weaker inhibitory control, less awareness of consequences, and greater reward sensitivity [5]. However, a discrepancy was found between self-reported and task-driven impulsivity: impulsivity was correlated with higher suicidality on self-report, and behavioural task observations were mixed. These two traits are associated with suicide risks at least to some extent, which seems quite relevant when considering the route to suicidality.

3. A psychological pathway from emotional dysregulation to impulsive self-directed aggression

In summary, it is observed that ED causes higher emotions, lower cognitive processing and increased impulsivity, all of them raising the risk for suicide. Importantly, these factors appear to occur in a cascade, where emotional stress affects cognition and behaviour in a connected way. This provides a framework of how temporary psychological states can result in immediate self-harm risks, in particular for the general population.

3.1. From emotional dysregulation to cognitive constriction

Emotional dysregulation (ED) is associated with increased and long negative emotions, which result in a higher likelihood of suicidal thoughts and behaviour [1, 2]. ED could lead to elevated emotions and less emotional regulation, which implies that such emotions will continue or even evolve with time due to a lack of affective control.

DOI: 10.54254/2753-7048/2026.34101

ED individuals tend to be more reactive to environmental stress, since such stressors are correlated with extreme emotional responses [1, 2]. A failure in regulating emotions always happens with intense emotions, thereby leaving the negative emotional responses for a long time. In such circumstances, minimal emotion regulation would result in the maintenance or the intensification of distress in further [2]. Besides, ED has been found to be correlated with suicidality between different groups of people, suggesting that ED may lead to maladaptive effects [1]. Based on all of these results, ED is likely to be more sensitive to daily stress, strong negative emotions, and impaired emotion control; they may together present a risk for suicidality.

With this highly maladaptive emotion level, cognitive processing can become more limited: for example, ED individuals may lack cognitive flexibility, attentional narrowing and problem-solving, which means they may not be able to offer coping alternatives [3]. This indicates cognitive constriction, describing how thinking patterns and coping strategies become constrained in psychological difficulties [7]. In other words, ED individuals are less able to formulate alternative responses; that is, fewer perceived coping strategies may exist.

Based on the above results, ED may act on increasing emotional reaction via external stressors into cognitive inhibition by suggesting it is a starting point for the suicidality pathway.

3.2. Impulsivity

Following an earlier discussion of emotional and cognitive processes, impulsivity could be responsible for whether internal stress can be turned into observable behaviour. This is defined by low inhibitory control and instant unplanned responses, especially when the emotional arousal is high [3, 5]. In this situation, impulsivity could be interpreted as a mediator that converts internal stress into observable behaviour.

Impulsivity has been associated with suicidal behaviour, particularly when individuals are highly affected by acute emotional distress [3, 4]. High impulsivity levels may significantly lower the inhibition of rash behaviour, making individuals with this trait more likely to act without much consideration. Notably, emotion-related impulsivity, which differs from trait-level impulsivity by being activated in specific contexts, is particularly relevant, as it reflects a specific susceptibility to engaging in maladaptive behaviours when emotional arousal is high—a situation most common in individuals with ED [5]. As a result, the combined ED and impulsivity can translate heightened emotions into behaviour more effectively without considering consequences.

In addition to the temporal features, experiments on suicidal crises suggest that the time lag between the beginning of a suicidal thought and an attempt is very short for high-impulsivity subjects, due to the limited time available for intervention [3]. Other studies also suggest that impulsivity and aggression can increase the risk of suicide within different populations, and both personal and environmental factors contribute to these effects [4]. Finally, these results suggest that impulsiveness may influence the behavioural responses in acute emotional and psychological challenges.

In this pathway, impulsivity plays an important role in connection with internal distress and observable behaviour because, after experiencing exaggerated emotions and limited cognitive capacity, weak behavioural inhibition makes the behavioural response more likely to occur. However, impulsivity does not contribute entirely to self-directed behaviour; rather, its effect on suicidal risk may be mediated by ED and cognitive constriction, suggesting that all of these aspects operate synergistically within a cascading pathway [3, 5].

All in all, impulsivity can be seen as an action that converts internal distress into external behaviour, explaining how the ED and the cognitive constriction together shape acute mental states

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that cause impulsive self-directed behaviours.

3.3. Aggression

Aggression appears to be highly associated with suicidal behaviour in the presence of emotional processes and impulsivity [3, 4]. Aggression can be viewed as a general behavioural response which may be influenced by psychological and situational factors, rather than being limited to external reactions. Under this condition, aggression and impulsivity are combined to give rise to less regulated, reactive responses in distress [3].

Note that aggression does not always target others and may be formed differently depending on the way individuals perceive and react to distress. Negative self-focused emotions, such as increased distress and self-criticism, are found to be associated with ED, therefore shaping behavioural responses [1]. Meanwhile, impulsivity may lead to a greater probability that these reactions occur quickly without careful evaluation or consideration [3, 5]. As a result, these findings suggest that distress responses can be influenced by interactions among emotional, cognitive and regulatory processes.

Furthermore, behaviour can be displayed outward to others or inward to oneself. Individuals who are emotionally stressed, holding limited capacity in cognition and behavioural control, are more likely to face problems in controlling their impulsive behaviours when they suffer from ED. Under this condition, negative self-directed emotions such as internalised anger, shame or self-blame tend to be triggered, making distress responses tend to turn inward. However, the exact mechanisms mediating this self-directed redirection need more empirical study, since existing theories are incomplete and depend on context.

Overall, the above discussion indicates that aggression and impulsivity may affect behaviour when regulation is not adequate, sometimes triggering self-oriented behaviours. This supports the idea that behaviours like self-harm or suicidality may result from ED, cognitive constriction, and limited behavioural control. Thus, the direction of behaviour is of importance to connect internal psychological states to observable outcomes.

4. Influencing factors in the general population

4.1. General population vulnerability and situational risk

This literature review attempts to generalise the pathway proposed in Section 3 to wider populations, helping to predict suicidality in both clinical and general populations. As ED can be seen as a psychological trait, non-clinical individuals could experience distinct degrees of difficulty in regulating their emotional reactions [1, 2]. This means that high ED individuals are more sensitive to suicidality since they exhibit higher emotional responses and worse regulatory abilities. Therefore, the degree of ED (individual element) is a major factor that contributes to this psychological process in general populations.

Besides, daily stressors such as academic pressure, workload, failure experiences, perceived rejection, and interpersonal problems can serve as situational triggers for later intense emotional responses, especially in subjects with the least skilled emotion control [1, 2]. This makes the emotional responses more difficult to control, and more likely to move from such negative affect to limited cognitive capacity and then suicide-related behaviours, implying another trigger on the situational side, namely, the stressor of daily life.

DOI: 10.54254/2753-7048/2026.34101

Aside from individual and situational vulnerability, these extreme behaviours may also be subject to contextual factors such as social conditions and accumulated life stress [3]. In this context, someone who had never been clinically stressed may also experience sudden short-term reductions in emotional control and cognitive ability, and then turn into impulsive aggression due to the overwhelming emotional responses. This suggests that short-term fluctuations of emotions can temporarily shut down behavioural control systems and lead to undesirable outcomes like suicidality.

Combined, the suicidal risk pathway is not only available to clinical populations; the general population is also affected by the dangerous psychological processes. ED corresponds to a relatively stable internal vulnerability to suicide, while everyday situation stress reflects a person's external temporal risk. In addition, the two activators and the context-dependent nature of the pathway together highlight the vulnerability of the general population to many daily events.

4.2. Developmental vulnerability: adolescents

Adolescents are in a period when all of the functions are still under development, and they are sensitive to the changes surrounding them and have underdeveloped emotional, cognitive and behavioural control mechanisms. These point out their higher risk of committing suicide under stress in the presence of stress.

Adolescents lack the ability to regulate emotions and generate coping responses. As described in Section 3, high levels of emotional responses and lower regulation can be observed in individuals with high degrees of ED [1, 2]. This means such individuals are particularly sensitive to daily emotional and interpersonal stresses, such as perceived rejection or peer conflict, resulting in high emotional arousal and low regulatory ability. Additionally, high emotional arousal may limit adolescents' current cognitive ability to think flexibly, suggesting that adolescents may engage in limited cognitive processes [3]. This indicates that adolescents are unable to make proper decisions in emotional situations and have limited adaptive coping strategies when they are affected by salient emotions. To conclude, this sensitive and developing population is more likely to enter the first stage of the suicidality pathway than other populations.

Moving on to behavioural consequences, impulsivity and aggression both play important roles in predicting suicidality among adolescents. Case studies have demonstrated that impulsivity and aggression serve as significant predictors of suicidal behaviour among adolescents [4], offering comprehensive clinical evidence that supports the broader quantitative research on this topic. Longitudinal studies have also shown impulsivity to be a strong predictor of adolescents' non-suicidal self-injury [8]. The above evidence supports the idea that individuals at a young age are likely to translate the stress they feel from external sources into real-life maladaptive actions, as they have a limited behavioural control system to inhibit impulsive behaviour. Therefore, adolescents are also vulnerable to later behavioural stages in the pathway.

Together, adolescents could be considered one of the most vulnerable populations, since they are still developing their systems for regulating emotion, cognition and behaviour. From initial external stressors to intensified and unmanageable emotional responses and, ultimately, impulsive self-directed aggressive behaviour, they are at high risk at each stage of this maladaptive pathway, underscoring the need for greater public attention to this group.

DOI: 10.54254/2753-7048/2026.34101

4.3. Contextual factor: the role of trauma

Beyond individual and developmental factors that affect the possibility of activation of the suicidality pathway, contextual factors should also be considered. Trauma functions as an amplifier of the entire pathway, affecting the severity of ED, cognitive constriction, and limited behavioural control.

At the emotional and cognitive regulation stage, experiences of trauma significantly reduce regulatory effectiveness. Valderrama et al. pointed out that individuals exposed to trauma who experience distress respond with intensified emotions and poor emotion regulation, referring to ED; and with lasting psychological distress due to repeating negative thinking patterns, referring to cognitive constriction [9]. Together, these indicate that trauma could lower individuals' tolerance of external stressors, heighten the degree of ED, and impair cognitive flexibility, suggesting that a history of trauma may amplify both emotional and cognitive vulnerability within this mechanism.

Regarding the maladaptive behavioural stage, increased impulsivity, caused by trauma, raises the likelihood of engaging in suicide-related behaviour. Individuals with a history of suicide attempts and early-life trauma tend to show increased impulsivity and reduced functioning across multiple domains, notably in cognitive flexibility and executive control, which are crucial for the behavioural regulation phase in the proposed pathway [10]. This evidence suggests that traumatic experiences can further impair the behavioural control system, which inhibits the translation of unfavourable thoughts into self-harm actions. In this case, the final and most harmful stage can also be amplified among trauma experiencers.

Overall, the discussion above indicates the amplifying role of contextual factors, specifically trauma, in the suicidality pathway. Starting from the weaker resistance of situational stressors to a more severe degree of ED, and then poorer control of cognition and behaviour, trauma activates and intensifies the mechanism at every stage. Thus, it suggests understanding the proposed pathway by examining the interaction among individual, situational, developmental, and contextual factors.

5. Discussion and suggestions

5.1. Integration of findings

The main goal of this literature review is to propose a unified pattern of suicidality for general populations, which combines emotional, cognitive and behavioural processes. These results show a flow starting with external stressors, triggering emotional dysregulation (ED) that evokes intense emotions and cognitive constriction, leaving the strength of negative affect [1-3]. The impulsive behaviour, like suicide, can then be triggered by impaired behavioural control affected by prolonged stress [5]. It is important to note that this process is dynamic, as it has several influencing factors that interact with different stages of the pathway. Individual vulnerability and developmental factors (internal) and contextual factors (external) could all contribute to the chances of activating this mechanism. Among these factors, trauma as a contextual factor drives the pathways in multiple stages, whose influence can be affected by individual vulnerability and development stage. Under such conditions, adolescents with trauma experiences may become more risky at each stage. Thus, this suicide-risk framework combined an emotion-cognition-behaviour pathway with multiple factors.

DOI: 10.54254/2753-7048/2026.34101

5.2. Implications

All stages of the pathway can be applied to suppress vulnerability amongst the general population. Emotional regulation shows its great importance in preventing the development of later stages, as ED is the first stage. Evidence shows that related strategies are effective in reducing suicidal risk among psychiatric inpatients in acute distress [11]. It suggests that these regulations might be applied to the general population, though additional experimental validation in the general sample is still required. Cognitive inflexibility and negative thinking can be reduced by challenging, via judging whether alternative options and fearful consequences truly exist, thereby resolving cognitive impairment. Regarding the behavioural stage, approaches from Dialectical Behaviour Therapy, such as behavioural pause strategies and distress tolerance methods, can be used to introduce a temporal delay between emotional responses and next actions. Such strategies could reduce impulsive responses and strengthen inhibitory control. All the suggestions above can help against maladaptive outcomes at each stage.

5.3. Future direction suggestions

This review identifies a combined pathway of suicidality involving emotional, cognitive and behavioural processes, with further research needed to prove its effectiveness. Longitudinal and moment-to-moment studies can be used to investigate the dynamical connections between these processes, rather than simply using cross-sectional designs. In particular, the whole pathway should be tested to clarify the roles of ED, cognitive constriction and impulsivity in this model. Affecting factors such as individual differences and trauma may have an influence on how strong vulnerability is for each individual. Populations that are vulnerable due to age, such as adolescents and older people, could be included to provide a lifespan model to identify risk severity for changes in development.

6. Conclusion

The literature review proposes an integrated model for suicidality by considering recent related work. Emotional, cognitive and behavioural processes are all taken into account to provide the pathway in which situational stressors trigger emotional dysregulation (ED), causing intense emotional responses and cognitive constriction, which then elevate the likelihood of turning psychological distress into suicidal behaviour through uncontrolled impulsivity. Importantly, individual vulnerability due to differing ED degrees, adolescence as a highly vulnerable stage, and contextual experience in the presence of trauma are key contributors to its emergence.

These results also suggest that treatments at each stage can impede the development along the pathway, with emphasis on emotion regulation. Overall, the present review incorporates emotional, cognitive, and behavioural mechanisms in a comprehensive manner to improve suicidal risk understanding and prevention strategies.

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DOI: 10.54254/2753-7048/2026.34101

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