

Prediction of suicidal thoughts based on early maladaptive schemas mediated by difficulty in emotion regulation in adolescents with working mothers

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ABSTRACT

The objective of the present study was to examine the prediction of suicidal ideation based on early maladaptive schemas, with emotion regulation difficulties serving as a mediating variable, among adolescents with working mothers. This study was applied in purpose and correlational in design. The statistical population comprised all adolescents aged 15 to 18 years with working mothers in Tehran during the fall of 2024, from which 248 participants were selected through convenience sampling. The measurement instruments included the Suicidal Ideation Questionnaire developed by Beck et al. (1979), the short form of Young's Schema Questionnaire (1998), and the Difficulties in Emotion Regulation Scale by Gratz and Roemer (2004). Data were analyzed using structural equation modeling. The results indicated that suicidal ideation in adolescents was significantly predicted by early maladaptive schemas ($P=0.001$, $\beta=0.400$). Emotion regulation difficulties also significantly predicted suicidal ideation ($P=0.001$, $\beta=0.449$). Moreover, early maladaptive schemas predicted suicidal ideation indirectly through emotion regulation difficulties ($P=0.001$, $\beta=0.152$). Overall, the findings suggest that early maladaptive schemas, both directly and indirectly via impaired emotion regulation, contribute to increased risk for suicidal ideation.

Introduction

Suicide is a serious public health concern, killing 703,000 people worldwide each year and is the leading cause of death among young people aged 15 to 34. Apart from causing death, suicide has severe consequences for families and society (Wang et al., 2024). Suicide is the leading cause of death in adolescents. Its prevention is a global priority and a key goal for promoting health and well-being. Over the past 20 years, the rate of suicide among adolescents has decreased very little, and in some countries, the rate has increased (Lim et al., 2022). From a public health and mental health perspective, suicide is one of the main issues that should be addressed through current preventive approaches in adolescents. Suicide is a complex behavior that is associated with multiple factors, including psychiatric illnesses and emotional problems, substance and alcohol abuse and disorders, and family-related events. Therefore, it is crucial to gain insight into the plausible risk factors that contribute to suicide in adolescents (Vargas Medrano et al., 2020). Suicidal ideation is one of the precursors to suicide, defined as cognitions that can range from brief thoughts about death and the worthlessness of life to detailed plans for suicide and



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intense delusional preoccupation with self-harm, and is highly prevalent among adolescents ([Klonsky et al., 2023](#)). A wide range of individual, social, and environmental factors have been investigated as potential determinants of suicide risk in clinical and nonclinical samples ([DiNicola et al., 2024](#)), and numerous predictors of suicide risk have been identified in the literature, suggesting that suicidal behaviors are multifactorial. However, there is a need to identify clinical factors associated with suicide risk that can be targeted in prevention and early intervention efforts (e.g., [Kennedy & Brach, 2024](#); [Bauer et al., 2022](#)).

Early maladaptive schemas lead to the formation of negative beliefs about oneself and the world, which can lead to increased negative emotions and ultimately suicidal thoughts. Cognitive models state that cognitions are organized hierarchically, such that underlying schemas influence thoughts and behavior through more automatic and superficial cognitive processes ([Calvete et al., 2013](#)). In the cognitive domain, one of the deep cognitive processes that plays a fundamental and fundamental role in the development of social anxiety disorder is early maladaptive schemas, which are mainly formed as a result of adverse childhood experiences ([Smith et al., 2021](#)). Early maladaptive schemas are formed based on unmet emotional needs in childhood in five general areas, which are: 1- Cutoff and rejection; 2- Impaired autonomy and functioning; 3- Impaired constraints; 4- Other-directedness and 5- Hypervigilance and inhibition ([Young et al., 2006](#)).

There is growing evidence that emotion regulation problems have been identified as a transdiagnostic risk factor for various forms of psychopathology and suicidal ideation and behavior (e.g., [Kennedy & Brach, 2024](#); [Bauer et al., 2022](#)). Long-term interpersonal trauma in childhood in turn increases the risk of emotional dysregulation ([Hopfinger et al., 2016](#); [Windel et al., 2018](#)). Previous research has shown that the ability to regulate emotion early in life develops within the context of interpersonal emotional exchanges between caregivers and the child. The quality of the caregiver's emotional exchanges is an important factor in the capacity for adult emotion regulation ([Huh et al., 2017](#)). Emotion regulation is also considered a critical element for successful interpersonal relationships. Emotion regulation is typically viewed as having access to a set of emotion regulation strategies as well as the flexibility to use these strategies when necessary. Emotion regulation facilitates adaptive functioning by activating goal-directed behavior and helps individuals manage their relationships and cope adaptively with interpersonal problems ([Nicol et al., 2022](#)). Emotion regulation includes a wide range of cognitive, behavioral, emotional, and physiological responses and is essential for understanding the emotional and behavioral correlates of stress and negative emotional states ([Hasani et al., 2024](#)). According to [Gratz and Roemer \(2004\)](#), emotion regulation is a multidimensional concept that includes 1) awareness and understanding of emotions, 2) acceptance of emotions, 3) the ability to control impulsive behaviors and behave in accordance with desired goals when experiencing negative emotions, and 4) the ability to use appropriate emotion regulation strategies in situations flexibly to regulate emotional responses in order to address goals and environmental demands. The relative absence of any or all of these abilities leads to difficulties in emotion regulation or emotional dysregulation. It has been suggested that various aspects of emotion dysregulation contribute to suicidal thoughts and behavior ([Hatkewich et al., 2019](#)). Escape theory posits suicide as a means of escaping from deficits in self-awareness and in acknowledging and validating negative emotions. The cry of pain model proposes that suicidal behavior is a reactive function in stressful situations in which the individual both perceives defeat and has no hope of resolution. In this model, individuals attempt suicide when they experience unbearable negative affect (non-acceptance) and when they lack appropriate strategies for regulating emotions and resolving the distressing situation (strategies, goals) ([O'Connor & Kirtley, 2018](#)). Theories derived from Linehan's biosocial model, like the emotional waterfall model, also implicate the lack of acceptance of emotions and limited access to effective emotion regulation strategies in suicide-related behaviors. The emotional cascade model suggests that individuals engage in suicidal behavior when intense negative affect and rumination become intolerable due to the lack of effective emotion regulation strategies ([Selby & Joiner, 2023](#)). Overall, suicide-focused theories and models implicate emotional-affective non-acceptance, limited access to effective emotion regulation strategies, and lack of goal-directed behavior in influencing the occurrence of suicide ([Hatkewich et al., 2019](#)).

Suicidal ideation in adolescence is a serious mental health challenge that can be influenced by a complex interaction of cognitive, emotional, and family factors. In this regard, early maladaptive schemas, as deep and stable cognitive-emotional patterns, play an important role in interpreting experiences, regulating emotions, and responding to stressful situations in adolescents, and can contribute to psychological vulnerability and the emergence of suicidal thoughts. On the other hand, difficulty in regulating emotions, as a key construct in developmental psychology, is associated with the inability to identify, accept, and manage negative emotions, and research evidence suggests that it is one of the important predictors of self-harming thoughts and behaviors. In adolescents with working mothers, emotional growth processes and schema formation may be affected due to changes in parent-child interaction patterns, the level of emotional availability of the parent, and the challenges of the mother's simultaneous role-playing. However, domestic research has only limitedly examined these variables simultaneously, and the mediating role of emotion regulation difficulty in the relationship between early maladaptive schemas and suicidal ideation in this group of adolescents has received less attention; therefore, conducting research in this field can help to gain a deeper understanding of the underlying mechanisms of suicidal ideation and design targeted preventive interventions. Therefore, the aim of the present study was to predict suicidal ideation based on early maladaptive schemas mediated by emotion regulation difficulty in adolescents with working mothers.

Method

Sample and Sampling Method

This research was applied in terms of purpose and correlational in terms of method, and was conducted using structural equation modeling. The statistical population of this research consisted of all adolescents with working mothers aged 15 to 18 in Tehran in the fall of 2024, from which 248 people were selected using the available sampling method.

The inclusion criteria were age between 15 and 18 years, informed consent to participate in the study, and no current use of psychotropic substances or medications (self-reported). The exclusion criteria included lack of consent to participate, incomplete questionnaire responses, and use of psychiatric medication or current psychotherapy treatment.

Tools Used

Beck Suicidality Questionnaire

[Beck et al.'s \(1979\)](#) Suicidality Questionnaire was developed to measure a person's susceptibility to suicide and consists of 19 items that are scored on a three-point Likert scale from 0 to 2. [Beck et al. \(1988\)](#) reported a Cronbach's alpha coefficient of 0.96 for this instrument and a correlation of this instrument with the Beck Depression Scale in outpatients and inpatients of 0.62 and 0.53, respectively, and a correlation of this instrument with the Beck Hopelessness Scale in outpatients and inpatients of 0.75 and 0.64, respectively. In Iran, [Anisi et al. \(2009\)](#) reported a Cronbach's alpha coefficient of 0.95 for this instrument and a correlation of this instrument with the General Health Questionnaire of 0.76 as an indicator of appropriate validity.

Young's Schema Questionnaire Short Version

The Young Schema Questionnaire Short Version ([1998](#)) consists of 75 items that assess 5 schema domains: cut-off and exclusion; impaired autonomy and functioning; extraversion; hypervigilance and inhibition; impaired limitations and 15 schemas on a 6-point Likert scale from completely true about me = 6 to completely false about me = 1. In Iran, [Sedoughi et al. \(2008\)](#) reported that the Cronbach's alpha coefficient for this instrument was 0.94 for the entire instrument and for the subscales in a range from 0.62 to 0.90. Explanatory factor analysis with Varimax rotation yielded interpretable scales for all fifteen schema subscales proposed by Young.

Difficulty in Emotion Regulation Questionnaire

The Difficulty in Emotion Regulation Questionnaire by [Gratz and Roemer \(2004\)](#) consists of 36 items that assess 6 subscales: denial of emotional responses, difficulty in performing goal-directed behavior, difficulty in impulse control, lack of emotional awareness, limited access to emotional regulation strategies, and lack of emotional clarity on a 5-point Likert scale. In the study by [Khanzadeh et al. \(2012\)](#), the results of exploratory factor analysis revealed eight factors for this scale, six of which were consistent with the previous subscales, and the other two factors were removed because only one item loaded. [Khanzadeh et al. \(2012\)](#) reported Cronbach's alpha coefficient for this instrument to be between 0.86 and 0.88.

Procedure

To collect data, all individuals willing to participate in the study were asked to visit psychotherapy and counseling centers, explain the research objectives, and obtain informed consent from their parents. After the number of participants reached the quorum, the data were extracted and prepared for analysis. Descriptive and inferential methods were used to analyze the data. The descriptive section presents demographic information and indicators such as mean and standard deviation. In the inferential statistics section, after calculating the Pearson correlation coefficient and examining the assumptions of structural equations, including the normality of the data distribution, which was tested with the skewness, kurtosis, and Mahalanobis Distance statistics, and the existence of a linear relationship, which was tested using the scatterplot of the standardized variances of errors, and the absence of a collinear relationship, which was tested with the tolerance coefficient and variance inflation factor statistics, the structural model fit was examined using fit indices, maximum likelihood estimation, and beta regression coefficients, and SPSS and AMOS software.

Results

In the present study, 127 (51.21%) of the participants were girls and 121 (48.79%) of them were boys. In the present study, 125 (50.40%) of the participants were 15 years old, 31 (12.5%) were 16 years old, 45 (18.5%) were 17 years old, and 47 (18.95%) were 18 years old. It should be noted that the mean and standard deviation of the age of the participants were 15.45 and 2.02, respectively.

Table 1: Correlation matrix of research variables

Variables	1	2	3	4	5	6
1. Disconnection & Rejection	-					
2. Impaired Autonomy & Performance	0.451**	-				
3. Impaired Limits	0.671**	0.340**	-			
4. Other-Directedness	0.342**	0.463**	0.629**	-		
5. Overvigilance & Inhibition	0.578**	0.531**	0.522**	0.405**	-	
6. Difficulty regulating emotions	0.577**	0.417**	0.403**	0.529**	0.575**	-
7. Suicidal thoughts	0.613**	0.349**	0.526**	0.558**	0.511**	0.339**

P<0.05, *P<0.01

Table 1 shows that there is a positive and significant relationship between early maladaptive schemas, difficulty in emotion regulation, and suicidal thoughts. There is a positive and significant relationship between difficulty in emotion regulation and suicidal thoughts.

Table 2: Direct and indirect path coefficients

Path	Predictor variable - Mediator variable/criterion	Unstandardized regression coefficient	Standard error	Standard regression coefficient	Sig
Direct	Maladaptive schemas - suicidal thoughts	0.469	0.077	0.400	0.001
	Difficulty regulating emotions - suicidal thoughts	0.451	0.078	0.378	0.001

	Maladaptive schemas - difficulty regulating emotion	0.432	0.067	0.401	0.001
Indirect	Schemas - Suicidal thoughts	0.389	0.045	0.152	0.001

Table 2 shows that suicidal ideation in adolescents is predicted by early maladaptive schemas ($P=0.001$, $\beta=0.400$). Suicidal ideation in adolescents is predicted by interpersonal difficulties ($P=0.001$, $\beta=0.449$). Suicidal ideation in adolescents is predicted by early maladaptive schemas with the mediation of interpersonal difficulties ($P=0.001$, $\beta=0.152$).

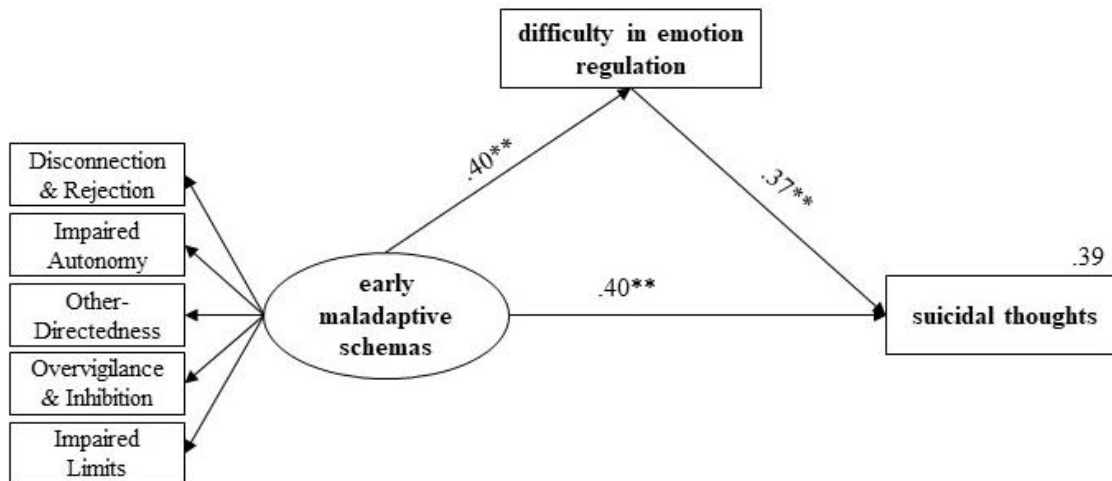


Figure 1. The structural model of the study based on standardized coefficients

Figure 1 presents the structural model of the study based on standardized estimates. As can be observed, 39% of the variance in suicidal ideation is explained by early maladaptive schemas and difficulties in emotion regulation.

Discussion

The aim of the present study was to predict suicidal ideation based on early maladaptive schemas mediated by difficulty in emotion regulation in adolescents with working mothers. The results showed that maladaptive schemas directly and indirectly increase the risk of suicidal ideation through impaired emotion regulation. These results were consistent with the results of studies by [Kennedy and Brach \(2024\)](#); [Bauer et al. \(2022\)](#); [Windel et al. \(2018\)](#) and [Hopfinger et al. \(2016\)](#). In explaining the present findings, it can be said that people with schemas in the area of cut-off and rejection see themselves as inferior and defective, which causes them to need social approval and lack of sociability. People who are high in interpersonal sensitivity and lack of sociability show intense emotional reactivity towards others. Therefore, they struggle with emotional instability in their relationships and tend to blame themselves for disagreements and other interpersonal problems. Interpersonal sensitivity may arise due to fear of rejection and criticism. Primary maladaptive schemas are characterized by a desire to have intimate social relationships, but at the same time fear of rejection and distrust of others, resulting in dissatisfaction and anger in relationships. Insecure individuals who have primary maladaptive schemas have an initial feeling of non-acceptance and distrust and are therefore more prone to experiencing rejection and self-conscious emotions of shame and guilt ([Wojcik et al., 2019](#)).

Interpersonally, people with early maladaptive schemas of hypervigilance are distrustful and pessimistic of others and receive less support from others, which in turn leads to ambivalence and withdrawal from society and relationships, interpersonal sensitivity, and aggression when they perceive danger ([Young et al., 2006](#)). Schemas in the area of hypervigilance or extreme inhibition, which are accompanied by hypersensitivity to dangers and avoidance of expressing emotions and perfectionism, can reinforce lack of self-acceptance, because the individual may feel that his or her body must be completely

controlled and flawless due to fear of negative judgment and criticism from others. This emotional sensitivity and inhibition can increase depression and suicidal thoughts.

Self-loathing and shame in people with schemas in the self-regulation domain and impaired functioning cause self-blame and lack of self-acceptance, which is probably formed due to the negative beliefs these people have about themselves ([Bach & Fjeldstad, 2017](#)). People with schemas in the self-regulation domain are afraid of failure. For this reason, they avoid the risk of making mistakes and engage less in relationships, which in turn weakens them further and causes them to fail, which in turn causes them to lack self-acceptance and fragility ([Aftab et al., 2020](#)).

Schemas in the impaired constraint domain refer to a mental pattern in which a person has difficulty regulating emotions, controlling impulses, and pursuing long-term goals. People with this schema usually seek immediate gratification and have little resistance to hardship or delayed rewards ([Young et al., 2006](#)). People with impaired constraint schemas, due to their lack of self-acceptance and lack of impulse control, self-restraint, and adaptation to others, show a lot of aggression in interpersonal situations and experience negative emotions such as shame and guilt ([Zandi et al., 2017](#)).

Other-oriented schemas, as a mental model, cause the individual to be highly dependent on the attention and approval of others for a sense of worth and social acceptance. Other-oriented schemas, which include excessive self-expectations, the need for approval from others, and sensitivity to criticism, can lead to an increase in feelings of self-inadequacy, as the individual seeks to meet strict and unrealistic standards of his or her physical appearance and performance ([Young et al., 2006](#)).

This study used a self-report instrument, and individuals may have consciously or unconsciously tried to present themselves in a favorable light. In the present study, a non-random sampling method was used to select the sample, which limits the generalizability of the findings. It is suggested that future researchers conduct qualitative research using in-depth interviews to identify other influential factors. It is suggested that random sampling methods be used in future studies to select the sample. Due to the cross-sectional design, this study has limitations in explaining causality and cannot definitively determine cause-and-effect relationships. In general, the results showed that maladaptive schemas directly and indirectly increase the risk of suicidal thoughts through impaired emotion regulation. Emotion regulation plays a mediating role, and if an individual can acquire better skills in managing their emotions, the negative impact of schemas on suicidal thoughts will be reduced. This explanation highlights the importance of psychological interventions focused on improving emotion regulation in the prevention and treatment of suicidal thoughts.

Conclusion

In general, it can be said that schemas, which are defined as stable cognitive and emotional patterns formed from early life experiences, can affect the way an individual processes information and emotional reactions. In particular, early maladaptive schemas such as inadequacy, rejection, or worthlessness can cause intense and persistent negative emotions in an individual that are the basis for suicidal thoughts. Emotion regulation refers to the skills and strategies that an individual use to manage and control their emotions. People with maladaptive schemas usually have difficulty regulating emotions; that is, they cannot effectively reduce or control their negative emotions. This weakness in emotion regulation causes negative emotions such as hopelessness, anxiety, and depression to intensify and fuel suicidal thoughts.

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