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Comparison of Cognitive Fusion, Risk-taking, and Fathers' Communication Style between Adolescents with and without Self-harm

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Qualitative Study

Abstract

Background: Self-harm is a conscious behavior in which a person damages his/her body tissues, but this behavior is not done with the intention of suicide. The present study compared cognitive fusion, risk-taking, and fathers' communication style between adolescents with and without self-harm.

Methods: The population of this study included all adolescents with a history of self-harm who were referred to treatment centers in Shiraz, Iran, from April to September 2023. The research sample included 200 subjects (100 healthy people and 100 adolescents with a history of self-harm) who were selected using the convenience and purposeful sampling method. The participants completed the Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014), Iranian Adolescents Risk-taking Scale (IARS; Zadeh Mohammadi, Ahmadabadi, & Heidari, 2011), and Parent-Child Relationship Scale (PCRS; Fine, Moreland, & Schwebel, 1983). The collected data were analyzed using SPSS software with a two-tailed 5% level of significance.

Results: The results showed a significant difference between adolescents with and without self-harm in terms of cognitive fusion ($F = 41.38$; $P < 0.050$), cognitive defusion ($F = 45.09$; $P < 0.050$), cognitive fusion ($F = 29.37$; $P < 0.050$), risk-taking ($F = 47.72$; $P < 0.050$), and communication style with their father ($F = 31.86$; $P < 0.001$). Moreover, the group of adolescents with self-harm scored higher in cognitive fusion, risk-taking, and communication style with the father.

Conclusion: According to the results, adolescents with self-harm have higher cognitive fusion and risk-taking and an unfavorable communication style with their father compared to adolescents without self-harm, so these variables are crucial in clinical interventions for treatment.

Keywords: Cognitive; Risk-taking; Communication; Self-harm; Adolescents

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Introduction

Adolescence is a complex period in life, which is a time of questioning, curiosity, and risk-taking (Sourani Yancheshmeh, 2018). In every society, children and adolescents' health has been of great importance, and providing them with mental health services helps them to be mentally and physically healthy and play their social roles better (Karimi, Farahbakhsh, Salimi Bajestani, & Moatamedi, 2020). This phenomenon of risk-taking behaviors and self-harm behaviors are closely related to the level of impulsivity in adolescents(Jia Yun L, Motevalli S, Abu Talib M, Gholampour Garmjani M, 2023). The findings show that the prevalence of self-harm without suicide has increased in the last decade (Jantzer, Haffner, Parzer, Resch, & Kaess, 2015). Self-harm refers to a group of intentional behaviors by a person without the intention of suicide to cause direct damage to body tissues, which can be in different forms, such as burning, cutting, and scratching (Doyle, Sheridan, & Treacy, 2017). The frequency of self-harm behaviors in the period of adolescence is more than in other periods of life. In previous studies, it was found that self-harming behaviors without suicide increased from 4% in 2002 to about 16% in 2017 (Doyle et al., 2017; Tørmoen, Myhre, Walby, Grøholt, & Rossow, 2020). According to reports, over the past few years, self-harm and stabbing hands, feet, thighs, and even the head have become routine among girls aged 11 to 13 years. Such behavior can be seen in most schools in Iran. Demographic findings about various types of self-harming behaviors indicate an increase in the incidence of these behaviors in recent years, which has caused concern for the public health of adolescents (Taheri, Taremian, Dolatshahee, & Sepehrnia, 2021). Meta-analysis studies have reported a 2.9–69.6% lifetime prevalence of self-harm in children and adolescents, varying with samples and methods of evaluation. They have estimated the overall lifetime prevalence at 22.1%. Self-harm behavior is highly correlated with various psychiatric symptoms. For example, symptoms of depression and anxiety disorders were more associated with self-harm (Lim et al., 2019).

In pathological psychology, self-harm behaviors have been used since ancient times as a symptom of some mental disorders such as borderline personality disorder (Soltani, Izadi, Sharifi, & Poursadeghfard, 2022), impulse control, and behavior disorders (Roghani, Jadidi & Peymani, 2022). People with high cognitive fusion are more prone to mental disorders (Mozafari, Bagherian, Zadeh Mohammadi, & Heidari, 2021). Cognitive fusion is a verbal process by which people get caught up in their thinking, evaluation, judgments, and memories, and behave based on functions derived from these private experiences. Individual experiences govern behavior and prevent the influence of diverse control sources (Xu et al., 2021). Cognitive fusion pertains to thoughts that affect how a person behaves and perceives things, making them more important than other types of behavioral control and is considered internal (Xu et al., 2021). Lockwood, Daley, Townsend, and Sayal suggested that while 10 impulsive behaviors can predict harmful behaviors, numerous cognitive and emotional factors influence and sustain such behaviors. The cause of most human psychological problems is psychological inflexibility, which is caused by cognitive fusion and experiential avoidance (Lockwood et al., 2017).

Risky behaviors increase harmful and destructive physical, psychological, and social results for the individual, result in great financial and time costs for the family and society, and are considered a social problem (Guo et al., 2023). Passing from childhood to adolescence has been associated with environmental pressures and psychological changes. Most adolescents navigate this phase with no issues; however, certain individuals may resort to self-injurious actions to cope with situational and psychological stressors. The onset of self-injurious behaviors in adolescence accompanied by puberty is because of the interaction of genetics, psychiatry, social psychology, and culture (Karimi et al., 2020).

The family serves as the cornerstone of society and a crucial exemplar of societal conduct. The quality of relationships within a family, particularly between parents and children, undoubtedly plays a crucial role in shaping a child's development and personality across various domains, including social, emotional, and intellectual dimensions. According to Doran and Waldron, there is an increasing tendency for children's behavioral issues in families with problematic familial relationships (Doran & Waldron, 2017). Peng, Hu, Yu, Xiao, and Luo (2021) showed that self-esteem and mental inflexibility play a chain intervening role in the relationship between child-rearing fashion and adolescent mental well-being. Particularly, enthusiastic parental warmth emphatically influenced adolescent mental well-being through the chain-interceding impacts of self-esteem and mental resoluteness. Parental rejection and over-protection adversely affected adolescent mental well-being by weakening self-esteem and expanding psychological inflexibility (Peng et al., 2021). The authors indicated that 21% of young people were neglected by parents who exhibited self-harming behaviors during their own childhood. (Baharlou F, Mahdian H, Bakhshipour A. (2023). Although research on fathers has experienced significant growth over the past 20 years (Ahnert & Schoppe-Sullivan, 2020) and there are now a variety of studies examining the role of fathers in different contexts (Ahnert & Schoppe-Sullivan, 2020; Cowan, Cowan, Pruett, & Pruett, 2019), it is still important to note that fathers are underrepresented in longitudinal psychological research compared to mothers (Ahnert & Schoppe-Sullivan, 2020). There has been little research on the difference between cognitive fusion and risk-taking and the style of interaction with the father in adolescents with and without self-harm, to find a solution to these problems in adolescents with self-harm. Thus, this research sought to answer whether there is a difference between adolescents with and without self-harm regarding cognitive fusion and risk-taking and the style of interaction with their fathers.

Methods

The present study was a causal-comparative, descriptive research. The population of this study included all adolescents with a history of self-harm who were referred to treatment centers in Shiraz, Iran, from April to September 2023. The research sample included 200 subjects (100 healthy people and 100 adolescents with a history of self-harm) who were selected using the convenience and purposeful sampling methods, respectively. Considering the G-power tool, alpha = 0.05, and power = 80%, the sample size of 186 subjects was determined for the study (93 subjects in each group). Yet, considering the probability of loss, the sample size was increased to 200. Subjects were enrolled into the study if they passed the following inclusion criteria: verified age of less than 18 years; a history of self-harm; no history of neurological disorders or psychiatric disorders with psychotic features; passing common exclusion criteria; committed to meeting the requirement of refraining from using illicit drugs throughout the study; and providing written informed consent to participate in this study. The mean and standard deviation of the age of the group without self-harm behaviors was 18.10 ± 2.12 years, the group with self-harm behaviors was 17.45 ± 1.84 years and for the whole sample was 17.75 ± 2.01 years.

All procedures performed in studies involving human participants followed the ethical standards of the institutional and/or national Research Committee with the code 199814. The researchers adhered to ethical principles and ensured that participants' rights were not compromised. Participants were informed that any personal information collected would be kept confidential. After obtaining oral consent and consent, the relevant questionnaires were distributed and collected after completion.

The tools used in the present study included the Cognitive Fusion Questionnaire (CFQ), Iranian Adolescents Risk-taking Scale (IARS), and Parent-Child Relationship Scale (PCRS).

Cognitive Fusion Questionnaire: The CFQ was developed in 2014 by Gillanders et al. (2014), and has 12 questions with 2 factors of fusion (questions 3, 4, 5, 6, 7, 8, 10, 11, and 12) and fault (questions 1, 2, and 9). The questions are scored on a 7-point Likert scale ranging from 7 (always) to 1 (never). The total scores on the CFQ range between 7 and 49, and higher scores indicate more cognitive fusion. The validity of this questionnaire has been confirmed by its creators in research and clinical work. They also reported the Cronbach's alpha coefficient of the questionnaire as 0.93 and its test-retest reliability coefficient as 0.80 with a 4-week interval (Gillanders et al., 2014). Moreover, in the study by Soltani et al. (2022), Cronbach's alpha coefficient of the questionnaire was calculated as 0.80. In the present study, the Cronbach's alpha coefficient of the whole instrument was 0.79.

Iranian Adolescents Risk-taking Scale: The IARS was designed and validated by Zadeh Mohammadi, Ahmadabadi, and Heidari (2011). This scale comprised 38 questions, which assesses 7 subscales of high risk behaviors, including dangerous driving, violence, cigarette smoking, substance abuse, alcohol consumption, sexual behavior, and relationship with the opposite sex. The result of the Kaiser-Meyer-Olkin (KMO) test was acceptable (0.952) and Bartlett's test of sphericity was statistically significant (χ^2 = 21.26191; df = 703; P = 0.001). In addition, the IARS and its subscales have acceptable reliability. The Cronbach's α of the subscales of substance abuse 8 questions), alcohol consumption (6 questions), and cigarette use (5 questions) were 0.90, 0.90, and 0.93, respectively.

Parent-Child Relationship Scale: The PCRS was developed by Fine, Moreland, and Schwebel (1983) to assess the quality of the parent-child relationship. The scale contains 24 items that are scored on scale ranging from 1 to 7. This 24-item tool measures young people's perceptions of their relationship with their parents. It measures positive affection, irritation/role confusion, identification, and communication. The survey is divided into 2 subscales, one assessing the"relationship with mother" and the other measuring the "relationship with father". Both scales are the same, except that the words "mother" and "father" are exchanged. However, different factor loads have been reported for the 2 scales. The subscales of the Father-Child Relationship Scale had an α coefficient value of 0.89-0.94, and the subscales of the Mother-Child Relationship Scale had an α coefficient value of 0.61-0.94. The coefficient for the whole instrument was equal to 0.96, showing its excellent internal consistency. The items in the PCRS can be easily scored. Negatively worded items (9, 13, and 14) are scored reversely. Then, the sum of the scores of individual items is calculated and divided by the number of items for each factor to obtain the mean score of the subscale. The total score of the survey is the sum of the mean scores of the subscales (Fine et al., 1983). The content validity of the Persian version of the scale was assessed and confirmed for use in Iran, and its reliability was assessed using the Cronbach's α coefficient (α = 0.91) (Ghanizadeh & Shams, 2007).

The statistical tests used to check the hypotheses of this research are parametric tests. Considering that one of the presuppositions of this category of statistical tests is the normality of the data distribution, the normality of the distribution of the data obtained from the measurement of the research variables was investigated using the Kolmogorov-Smirnov statistical test. One of the assumptions for this type of statistical test is that the data distribution is normal. To determine if the data collected from measuring the research variables follows a normal distribution, the Kolmogorov-Smirnov statistical test was used and the results were reported. A multivariate analysis of variance test (MANOVA) and an ANOVA test were performed to analyze the data using SPSS software (version 25; IBM Corp., Armonk, NY, USA) with a two-tailed 5% level of significance.

Table 1. Distribution of the frequency and percentage of the sample group according to the state of self-harm and demographic characteristics

	Self-harming (n = 100)			No self-harm (n = 100)			Total (n = 200)	
	F	Percentage of the group	Percentage of total	F	Percentage of the group	Percentage of total	F	Percentage
Gender								
Girl	63	63	32	57	57	29	120	60
Boy	37	37	18	43	43	21	80	40
Age (year)								
12-14	48	48	24	44	44	22	92	46
15-17	52	52	26	56	56	28	108	54
Grade								
First year of high school	45	45	23	47	47	24	92	46
Second year of high school	55	55	27	53	53	26	108	54

Table 2 shows that there is a significant difference in the values of cognitive defusion, cognitive fusion, risk-taking, and communication style with father, all of which have a score of 0.5. The analysis was done using MANOVA. Box's M test showed that the assumption of the equality of the matrix is not established ($P > 0.001$; $F = 53.394$; Wilks' Lambda = 0.201).

As you can see in table 3, to test the research hypotheses, first MANOVA was performed, then, the research hypotheses were tested. The results of MANOVA of the significance levels of all tests allow the use of MANOVA. This indicates that there is a significant difference between the groups of adolescents with and without self-harm at least in terms of one of the dependent variables**.**

As can be seen in table 4, there is a significant difference between adolescents with and without self-harm in terms of cognitive fusion ($F = 41.38$; $P < 0.050$), cognitive defusion ($F = 45.09$; $P < 0.050$), cognitive fusion ($F = 29.37$; $P < 0.050$), risk-taking ($F = 47.72$; $P < 0.050$), and communication style with their father ($F = 31.86$; $P < 0.001$). There is a significant difference between adolescents with and without self-harm in terms of the mentioned variables, in other words, self-injuring adolescents have less fusion, more cognitive impairment, higher risk-taking, and a less favorable communication style with their father than adolescents without self-harm.

Discussion

This research compared cognitive fusion, risk-taking, and communication style with fathers between adolescents with and without self-harm.

Table 2. Descriptive variables

Groups	Variables	Mean ± SD	Min	Max
Adolescents with self-harm	Cognitive fusion	24.44 ± 2.86	12	59
	Cognitive defusion	23.47 ± 1.79	6	30
	Cognitive fusion	14.30 ± 1.08	6	30
	Risk taking	139.54 ± 11.33	38	190
	Communication style with father	61.28 ± 6.71	24	168
Adolescents without self-harm	Cognitive fusion	48.52 ± 6.29	12	58
	Cognitive defusion	14.51 ± 2.19	6	30
	Cognitive fusion	24.83 ± 2.89	6	29
	Risk taking	89.32 ± 7.46	38	184
	Communication style with father	126.56 ± 9.90	24	168

SD: Standard deviation

Table 3. The results of multivariate analysis of variance on the scores of variables in both groups

Test Statistic	Value	F	P-value
Pillai's Trace	799.0	394.313	0.001
Wilks' Lambda	201.0	394.313	0.001
Hotelling's test	984.3	394.313	0.001
Roy's Largest Root	984.3	394.313	0.001

The results showed that there was a significant difference between the 2 groups regarding cognitive fusion and risk-taking and interaction style with the father and the score of the self-harm group was high compared to the non-harm group. These results are in line with the findings of Lappalainen et al. (2021), Lim et al. (2019), and Tsitsimpikou et al. (2018).

In explaining the difference in cognitive fusion between adolescents with and without self-harm, it can be said that cognitive fusion can lead to the inability of a person to distinguish between his/her thoughts and real-life experiences. This result is in line with that of previous studies (Koolaee, Lor, Soleimani, & Rahmatizadeh, 2014). Accordingly, the more cognitive fusion in people, the more likely they are to be infected. The higher the level of fusion in people, the more control and mastery they have over their living environment, and the automatic feeling of self-confidence and psychological well-being are lower. Cognitive fusion makes a person unable to strategize. He uses appropriate coping methods, and as a result, all the events that can have a normal aspect for him turn into stressful events (Koolaee et al., 2014)

In explaining the difference in risk-taking between adolescents with and without self-harm, it can be said that adolescents with risky behaviors, such as alcohol use and/or sexual activities, were more likely adolescents who engage in risky behaviors like alcohol use and sexual activities are more likely to transition to higher risk levels compared to those who do not engage in such behaviors when it comes to self-harm. . These results are in line with the findings of Ruiz, Suárez-Falcón, Riano-Hernández, and Gillanders (2017), Lim et al. (2019), and Tsitsimpikou et al. (2018).

Such findings are consistent with the theory of "adolescence-limited" antisocial behavior, which suggests that many adolescents may experiment with risky behaviors and eventually stop engaging in these behaviors as they age (Guo et al., 2023). One type of self-harm is impulsive self-harm, in which a person injures himself at a high speed and without prior preparation, which is more common in boys (Victor, Muehlenkamp, Hayes, Lengel, Styer, & Washburn, 2018). Therefore, it can be said that self-injurious adolescents perform self-harm behaviors without fear of self-harm because they have a high-risk tolerance and adolescents without self-harm behaviors have a lower risk tolerance for impulsive and self-injurious behaviors, and thus, they avoid them.

In explaining the difference in the communication style with the father between adolescents with and without self-harm, it can be stated that the experience of childhood abuse is difficult in creating a stable and secure sense of self and distinguishing oneself from the interpersonal environment.

Table 4. The results of the one-variable analysis of variance in the text of multivariate analysis of variance on the scores of the variables in two groups

Dependent variables	SS	MS	F	P-value
Cognitive fusion	654.6208	654.6208	41.38	0.001
Cognitive Defusion	267.7888	267.7888	45.09	0.001
Cognitive fusion	604.3431	604.3431	29.37	0.001
Risk-taking	438.8964	438.8964	47.72	0.001
Communication style with father	296.3708	296.3708	31.86	0.001

SS: Sum of squres; MS: Mean square

These results are in line with the findings of Victor et al. (2018) and Karimi et al. (2020). According to Crouch and Wright's interpersonal and systematic theories, self-injury might be rooted in a destructive family dynamic where some individuals are inadvertently encouraged or supported for their self-harmful actions within their family (Bleiberg, 2013). Bleiberg (2013) believes that the family of the self-harming adolescent is stuck in a conversation as though occurring among deaf people. In anyone who feels unheard or misunderstood and has no hope that anyone else can appreciate his/her point of view, adaptation is much less and it does not take his/her needs and feelings into account (Bleiberg, 2013). It can be said that the way of communicating with the father is often lacking in families with children who engage in self-harming behavior due to difficulties in mentalizing (Bleiberg, 2013). Additionally, research indicates that there are distinct roles that fathers and mothers play in communicating with their children. Fathers typically spend less time engaging with their children, preferring to participate in physical and outdoor activities. On the other hand, mothers dedicate their time to more nurturing and domestic interactions (Hardcastle, Maxwell-Smith, Kamarova, Lamb, Millar, & Cohen, 2018). Hence, there is a likelihood that the connection between parents and their children, both father-child and mother-child, could influence self-harm actions in adolescents attending middle school, albeit through distinct factors. According to Hardcastle et al. (2018), a positive relationship between fathers and their children is associated with a decrease in behavioral problems in children (Oliveri, Ortiz, & Levin, 2018; Heydari, Yousefi & Mahdad, 2023).

One limitation of this study is the lack of information about the mental health status and history of mental disorders of the participants who had self-injurious behaviors, which can affect the amount and intensity of self-injurious behaviors of adolescents, and must be taken into account in future researches. It is suggested that random sampling methods be used to control intervening variables and other methods such as structured interviews be used to collect data in future studies. The inception of this research originated when one of the authors of this paper conversed with adolescent girls who resorted to self-injury because of the lack of a healthy bond with their fathers; nevertheless, this examination did not segregate females and males. In Iran, economic pressures are a major concern for parents who must strive to provide for their families, thereby compromising the level of attention they can devote to parenting. Future investigations should consider evaluating the psychological resilience of both groups alongside the factors examined in this study. It is recommended that cross-cultural research be carried out regarding the factors examined in this study. According to this research, it appears that parents, specifically fathers, have a closer bond with their kids, resulting in greater mental adaptability and a tendency to utilize more effective coping mechanisms when faced with difficult circumstances.

Conclusion

The results of this research support the comparison of symptoms between individuals who self-harm and those who do not. Additionally, the study indicated that adolescents who engaged in self-harm exhibited higher levels of cognitive fusion, risk-taking behavior, and a specific communication style with their fathers .

Conflict of Interests

Authors have no conflict of interests.

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