

Research Paper



Physical Health, Childhood Trauma and Suicide Risk: Psychosocial Stress and Interpersonal Conflicts as Mediators

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Citation Farnia, F., & Rahimian-Boogar, I. (2026). Physical Health, Childhood Trauma and Suicide Risk: Psychosocial Stress and Interpersonal Conflicts as Mediators. *Journal of Practice in Clinical Psychology*, 14(4), 315-326. <https://doi.org/10.32598/jpcp.14.4.84.4>

doi <https://doi.org/10.32598/jpcp.14.4.84.4>

Article info:**Received:** 15 May 2026**Revised:** 13 Aug 2026**Accepted:** 02 Sep 2026**ABSTRACT**

Objective: Suicide risk represents a critical form of self-harm with significant implications for both general and clinical populations. The present study aimed to investigate the structural relationships between physical health, childhood trauma, and suicide risk, with a particular focus on the mediating roles of psychosocial stress and interpersonal conflicts.

Methods: This cross-sectional descriptive study utilized structural equation modeling (SEM) to analyze the proposed relationships. We recruited 400 participants aged 18 to 50 years from Tehran and Alborz provinces, Iran, using convenience sampling. Participants completed the childhood trauma questionnaire (CTQ), psychosocial stress questionnaire, interpersonal conflict questionnaire, physical health questionnaire, and suicide probability scale (SPS). Data were analyzed using multiple regression and SEM via SPSS software, version 26 and AMOS software, version 24.

Results: The measurement model demonstrated an acceptable fit to the data (the chi-square to degrees of freedom [CMIN/df]=3.159, the comparative fit index [CFI]=0.920, the root mean square error of approximation [RMSEA]=0.079). The fit indices for the structural model were also satisfactory (CMIN/df=3.51, CFI=0.918, RMSEA=0.079). Physical health exhibited a significant negative association with suicide risk ($\beta=-0.217$, $P=0.003$), while childhood trauma showed a significant positive association ($\beta=0.385$, $P<0.001$). Bootstrap analyses confirmed that psychosocial stress and interpersonal conflicts significantly mediated the relationships between both physical health and childhood trauma and suicide risk (-0.067, 0.165, -0.032, 0.057; $P<0.05$).

Conclusion: These findings underscore the crucial roles of poor physical health and early-life adversity in conferring risk for suicide; effects that are significantly mediated by psychosocial stress and interpersonal difficulties. The results carry important implications for the development and implementation of targeted, multi-component interventions aimed at mitigating suicide risk.

Keywords:

Health status, Adverse childhood experiences, Suicide, Stress, Conflicts

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Highlights

- Poor physical health and a history of early-life trauma are significantly associated with elevated suicide risk.
- Psychosocial stress and interpersonal conflicts serve as key mediating mechanisms in these associations.
- Interventions targeting physical health improvement alongside stress and conflict reduction may contribute to suicide risk mitigation.
- These findings underscore the need for tailored, multi-component prevention programs for at-risk populations.

Plain Language Summary

Suicide risk is shaped by a multitude of life domains, including physical health, adverse childhood experiences, perceived stress, and interpersonal relationship quality. In this cross-sectional study, 400 adults residing in Tehran and Alborz provinces completed validated self-report measures assessing these constructs. Results indicate that poorer physical health and greater exposure to childhood trauma are significantly associated with higher levels of suicide risk. Elevated psychosocial stress and increased interpersonal conflict partially explain these associations. Given the study's cross-sectional design, these findings reflect correlational patterns rather than causal relationships. Nevertheless, the results offer valuable insights for researchers and clinicians seeking to understand the multifactorial nature of suicide risk better and to inform the development of evidence-based preventive strategies.

Introduction

According to the most recent estimates from the World Health Organization, approximately one million deaths occur annually due to suicide, rendering it one of the leading causes of mortality worldwide (King et al., 2025). Suicide is a pervasive public health concern that transcends societal, national, cultural, religious, gender, and age boundaries. Its profound and multifaceted impact on families, communities, and healthcare systems underscores the urgent need for comprehensive risk prediction and targeted prevention strategies (Wallace et al., 2025). Therefore, identifying and understanding the multifactorial determinants of suicide risk is an essential prerequisite for reducing its global burden. A substantial body of literature has established childhood adversity as a robust distal risk factor for suicidal behavior. Various forms of early-life maltreatment, including physical, sexual, and emotional abuse, have been consistently linked to both suicidal ideation and completed suicides (Angelakis et al., 2020; Chalker et al., 2022; Rogerson et al., 2023). For instance, Park et al. (2021) demonstrated that specific subtypes of childhood adversity, particularly sexual and physical abuse, were significantly associated with increased suicide risk in a population-based study of South Korean adults. Similarly, Wong et al. (2024) verified that emotional trauma independently contributes to the likelihood of

suicidal outcomes. In a comprehensive meta-analytic synthesis, Angelakis et al. (2020) further confirmed that childhood maltreatment and sexual abuse were significantly associated with suicide plans among young populations, reinforcing the enduring psychological sequelae of early adversities.

In addition to developmental vulnerabilities, physical health status has emerged as a critical contemporaneous risk factor for suicide (Jin et al., 2019; Rahimian Boogar & Talepasand, 2015; Smith et al., 2023). Employing a structural modeling approach, Black et al. (2019) identified that among 15 physical illnesses, five diseases (specifically kidney disease, HIV, cancer, liver disease, and heart disease) exhibited significant independent associations with suicide mortality. Moreover, chronic conditions, such as diabetes (Silke et al., 2024), acute infectious diseases like COVID-19 (Gunnell et al., 2020), and even dermatological disorders (Rogers et al., 2024) are associated with elevated suicide rates, suggesting that physical illnesses may confer risk through mechanisms of psychological distress and diminished quality of life.

Beyond individual-level factors, interpersonal dynamics constitute another salient domain influencing suicide risk across diverse cultural contexts (Ferro et al., 2024; Lee et al., 2026; Wang et al., 2025). In particular, interpersonal conflicts have been identified as potent proximal precipitants of suicidal behavior. Groh et al. (2024)

reported that interpersonal conflicts and perceived aloneness were among the most probable factors associated with multiple suicide attempts in a clinical sample of 228 patients presenting to emergency services. Similarly, research focused on younger populations has consistently highlighted the role of relational discord in precipitating suicidal crises (Hébert et al., 2025; Su et al., 2023; Virk et al., 2024). In a study of 127 cases of self-poisoning among individuals aged 22 to 24 years, Su et al. (2023) found that interpersonal conflict was the most frequently cited precipitating factor, surpassing other psychosocial stressors.

Psychosocial stress, often conceptualized as the subjective experience of overwhelming environmental demands, also represents a central pathway linking early adversity and health status to suicide risk (Brown et al., 2024; Wu et al., 2022). Flores et al. (2022) demonstrated that psychosocial stressors were strongly associated with suicide risk, with participants reporting prior suicide attempts. More recently, Li et al. (2024) extended these findings to college student populations, revealing significant associations between cumulative stress exposure and elevated suicide risk. While childhood trauma, physical health, psychosocial stress, and interpersonal conflict each independently contribute to suicide vulnerability, their overlapping and synergistic effects are substantial (Berardelli et al., 2022; Flores et al., 2022; Jones et al., 2024; Oh et al., 2025). This convergence suggests that a more integrative, theory-driven approach is necessary to elucidate the complex mechanisms through which these variables jointly influence suicide risk.

The theoretical underpinning of the present study draws upon the Interpersonal Theory of Suicide (Chu et al., 2017), which posits that suicidal desire emerges from the concurrent experience of thwarted belongingness and perceived burdensomeness, while the capability for suicide develops through habituation to pain and fear. Within this framework, childhood trauma and poor physical health may serve as distal contributors that heighten perceived burdensomeness and reduce belongingness. At the same time, psychosocial stress and interpersonal conflicts act as proximal mechanisms that activate these interpersonal states, thereby increasing acute suicide risk. Although prior research has independently documented associations between childhood trauma, physical health, psychosocial stress, interpersonal relationships, and suicide, the integrative pathways linking these constructs have remained inadequately explicated, particularly within non-clinical populations from developing nations. Furthermore, few studies have examined these variables simultaneously within a comprehensive structural equation model grounded in a robust theoretical framework.

To address this critical gap, the present study investigates the direct and indirect associations between childhood trauma, physical health, and suicide risk, with psycho-social stress and interpersonal conflicts serving as parallel mediating mechanisms in an Iranian adult sample. Grounded in the Interpersonal Theory of Suicide and informed by cumulative empirical evidence, we hypothesized that (1) childhood trauma and poorer physical health would be directly and positively associated with higher suicide risk, and (2) these associations would be significantly mediated by elevated psychosocial stress and increased interpersonal conflicts.

Materials and Methods

Design and participants

This investigation employed a cross-sectional descriptive design utilizing structural equation modeling (SEM) to examine the proposed relationships among study variables. We determined the sample size using the participant-to-parameters ratio approach. Because the hypothesized model included 39 free parameters, a minimum sample of 351 participants was deemed necessary to ensure adequate statistical power and model stability (Mertler et al., 2021). To exceed this threshold and account for potential attrition or incomplete data, we recruited 400 participants using a convenience sampling strategy. The final sample comprised 400 adults residing in Tehran and Alborz provinces, Iran, and data were collected between 2022 and 2023. Participants ranged in age from 18 to 50 years ($\text{Mean} \pm \text{SD}$, $=36.08 \pm 9.24$). The sample was predominantly female, consisting of 282 women (70.5%) and 118 men (29.5%). All participants were community-dwelling adults without acute psychiatric diagnoses, recruited through online platforms and community announcements.

The inclusion criteria were defined as follows: (a) aged between 18 and 50 years, (b) ability to read and write in Persian, and (c) access to online platforms for completing the self-report questionnaires. The exclusion criteria comprised (a) unwillingness to participate, (b) provision of incomplete or invalid responses, and (c) presence of acute psychiatric disorders (e.g. current psychotic episode, severe mania, or acute suicidal crisis requiring immediate intervention). Regarding chronic medical conditions, only those in acute or extremely severe phases that prevented effective participation were excluded. We retained participants with stable, well-managed, or non-acute chronic conditions. This decision was made to preserve the full spectrum of physical health variability, consistent with the study's primary objective of exam-

ining the role of physical health status in suicide risk. All exclusion determinations were based on participant self-report and, when available, corroborated by medical records.

Study measures

Childhood trauma

The childhood trauma questionnaire (CTQ) was originally developed by Bernstein et al. (1994) to assess early experiences of injury and maltreatment. Subsequent revisions established the final 28-item short-form version (Bernstein et al., 2003). This instrument evaluates 5 distinct dimensions of childhood adversity: physical neglect, physical abuse, emotional neglect, emotional abuse, and sexual abuse. Items are rated on a 5-point Likert scale ranging from 1 (never) to 5 (always). Seven items (2, 5, 7, 13, 19, 26, and 28) are reverse-scored to minimize response bias. Each subscale yields a total score between 5 and 25, with higher scores indicating greater trauma exposure. In the present study, the CTQ demonstrated excellent internal consistency, with a Cronbach α coefficient of 0.854.

Psychosocial Stress

The Holmes-Rahe Stress Scale (Holmes & Rahe, 1967) was employed to assess psychosocial stress exposure. We selected this instrument for its ability to capture objective life-event experiences-including bereavement, marital changes, and financial difficulties-which represent universal stressors with documented relevance to the Iranian context. Furthermore, its use facilitates direct comparison with prior international studies. The scale comprises 43 life events, each assigned a weighted value reflecting its relative stress impact. Total scores between 150 and 300 indicate a 50% probability of major health deterioration, while higher scores increase the likelihood of illness onset to 80% within the subsequent two years. The original scale demonstrated satisfactory reliability (The Cronbach α =0.79) and validity (The Pearson correlation=0.36) (Holmes & Rahe, 1967). In the current sample, the scale exhibited high internal consistency, with a Cronbach α coefficient of 0.91.

Interpersonal Conflicts

The quality of relationships inventory (QRI) (Pierce et al., 1991) was utilized to assess interpersonal conflict. This instrument evaluates the quality of relationships with significant others, including parents, spouses, and friends. The final version of the QRI consists of 25 items

distributed across 3 subscales: Interpersonal conflicts (12 items), perceived social support (7 items), and relationship depth (6 items). Items are rated on a 4-point Likert scale ranging from 1 (none) to 4 (high). Items within the conflict subscale are reverse-scored. A total score of 13 or higher on the conflict subscale corresponds to the top 25th percentile, indicative of high conflict levels. The validity of the QRI has been confirmed by several psychology experts, and its reliability, as measured by the Cronbach α , was reported as 0.78 in the original validation study (Pierce et al., 1991).

Physical health

The 36-item short form health survey (SF-36) was administered to evaluate physical health status (Ware & Sherbourne, 1992). This widely used instrument comprises 36 items assessing 8 health domains, which are aggregated into 2 summary components: Physical health and mental health. For this study, we used only the physical health component, which includes 4 domains: Physical functioning, role limitations due to physical health, bodily pain, and general health perceptions. Total scores range from 0 to 100, with higher scores indicating better physical health. The SF-36 has demonstrated acceptable reliability, with a Cronbach α coefficient of 0.73 in the original validation (Ware & Sherbourne, 1992). In the present study, the physical health component exhibited good internal consistency, with a Cronbach α coefficient of 0.81 in the Iranian population.

Suicide risk

The suicide probability scale (SPS) was employed to assess suicide risk (Cull & Gill, 1988). This 36-item self-report instrument comprises four subscales: hopelessness, suicidal ideation, hostility, and negative self-evaluation. Total scores are interpreted as follows: 75–100 indicates high risk, 50–74 indicates moderate risk, and 25–49 indicates low risk for suicide. The SPS has demonstrated adequate reliability, with a Cronbach α coefficient of 0.82 in the original validation study (Cull & Gill, 1988).

Study procedure

Data collection was conducted on an individual basis over 9 months. To control for potential order effects (ceiling and floor effects), the questionnaires were administered using a counterbalancing procedure, wherein the presentation order of instruments was systematically varied across participants. The study was conducted in full compliance with established ethical guidelines for

research involving human participants. All participants provided written informed consent before enrollment and were explicitly informed of their right to withdraw at any time without consequences. We ensured and maintained the confidentiality of responses throughout the research process. The participants were also informed that a list of mental health helplines and psychological support resources would be provided upon completion of the questionnaires.

Data analysis

All statistical analyses were performed using SPSS software, version 26 and AMOS software, version 24. Descriptive statistics, including means, standard deviations, and bivariate Pearson correlations, summarized sample characteristics and examined preliminary associations among study variables. SEM was employed to test the hypothesized direct and indirect relationships among childhood trauma, physical health, psychosocial stress, interpersonal conflicts, and suicide risk. Model fit was evaluated using multiple indices, including the chi-square to degrees of freedom ratio (CMIN/df), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). We assessed mediation effects using bootstrap resampling with 95% confidence intervals, consistent with contemporary recommendations for testing indirect effects. Statistical significance was set at $P < 0.05$.

Results

Demographic characteristics

Demographic data encompassing gender, educational attainment, occupational status, marital status, monthly income, medical and psychiatric history, and prior suicide risk were systematically collected from all participants. Regarding medical and psychiatric history, 8.8% of participants reported having a physical illness, while 1.3% reported a psychological illness. Notably, a total of 36 participants (9%) reported a history of prior suicide risk. In terms of occupational status, the sample comprised: 8.0% unemployed individuals, 13.8% students, 61.2% employed individuals (including full-time, part-time, and self-employed), 3.8% retirees, and 13.3% homemakers. Concerning monthly income, 21.0% of participants reported no monthly income, 48.0% reported a monthly income below 8.5 million rials, and 31.0% reported a monthly income exceeding 8.5 million rials. Educational attainment was distributed as follows: diploma (10.5%; $n=42$), associate degree (34.7%; $n=139$), bachelor's degree (40.5%; $n=162$), master's degree

(11.2%; $n=45$), and doctoral degree (1.0%; $n=4$). Only 2.0% of participants had not completed high school. Regarding marital status, 51.5% of participants were single, 44.3% were married, and the remaining participants were divorced, widowed, or widowers.

Descriptive statistics

Before testing the hypothesized structural model, we computed descriptive statistics for all study variables. Table 1 presents the means, standard deviations, observed ranges, and indices of skewness and kurtosis for childhood trauma, physical health, psychosocial stress, interpersonal conflicts, and suicide risk.

Statistical assumptions

Before conducting SEM, we rigorously examined the underlying statistical assumptions to ensure the analytic approach was appropriate. The dataset contained no missing responses. Multivariate outliers were assessed using Mahalanobis distance (d^2), which revealed no extreme cases. Univariate normality was confirmed, as all variables exhibited skewness values below 3 and kurtosis values below 10, consistent with established thresholds (Mertler et al., 2021). Multivariate normality was further supported by Mardia's coefficient (4.298) and its associated critical ratio (2.320), both of which fell below the recommended cutoff point of 5 (Mertler et al., 2021). Collectively, these findings indicate that the data did not violate normality assumptions. We evaluated multicollinearity among the study variables using variance inflation factor (VIF) and tolerance values. For the childhood trauma subscales, VIF values ranged from 2.411 to 4.049 (tolerance: 0.247–0.415). For the physical health subscales, VIF values ranged from 1.114 to 1.316 (tolerance: 0.760–0.898). For the interpersonal conflict subscales, VIF values ranged from 1.815 to 2.172 (tolerance: 0.460–0.551). For the suicide risk subscales, VIF values ranged from 1.114 to 1.571 (tolerance: 0.636–0.898). All VIF values were well below the conservative threshold of 10, and all tolerance values exceeded 0.1, indicating no multicollinearity (Mertler et al., 2021).

After confirming these assumptions, we used SEM with maximum likelihood (ML) estimation to test the research hypotheses. Consistent with the two-step approach recommended by Stein et al. (2017), the analysis proceeded in two phases: First, confirmatory factor analysis (CFA) evaluated the measurement model; second, SEM tested the proposed structural relationships among the latent constructs.

Table 1. Descriptive statistics (Mean±SD) of research variables

Variables	Mean±SD	Range	Skewness	Kurtosis
Childhood trauma	48.01±15.29	25-98	0.572	0.124
Emotional abuse	7.79±2.90	5-16	0.816	-0.341
Aluate physical abuse	11.48±3.82	5-22	0.193	-0.484
Sexual abuse	8.54±3.45	5-23	1.253	2.089
Emotional neglect	11.27±4.31	5-24	0.489	0.050
Physical neglect	8.92±2.98	5-19	0.714	0.138
Physical health	53.98±5.69	38-64	-0.802	0.292
Physical pain	7.81±1.67	4-10	-0.363	-0.643
General health	16.41±1.97	11-22	0.088	0.298
Physical performance	26.82±3.13	18-30	-1.065	0.492
Playing a physical role	2.93±1.28	0-4	-0.896	-0.395
Interpersonal conflicts	92.77±9.55	71-114	0.028	-0.599
Conflicts with parents	33.36±3.01	28-40	0.481	-0.259
Conflicts with spouse	34.41±2.91	28-40	0.108	-0.606
Conflicts with friends	25.01±5.05	14-35	-0.088	-0.819
Psychosocial stress	237.25±12.36	205-268	1.376	2.418
Suicide	67.74±9.04	49-97	0.764	0.744
Hostility	14.43±2.78	9-24	0.929	1.686
Hopelessness	34.78±4.99	25-53	0.876	1.502
Negative self-evaluation	14.77±2.86	9-25	1.060	1.517
Suicidal thoughts and ideas	3.75±1.12	3-8	1.726	2.660

Testing the measurement model

After selecting indicator variables aligned with the hypothesized research model, CFA was conducted for all latent constructs to assess the measurement model's adequacy (Figure 1). The initial measurement model demonstrated acceptable fit to the data: CMIN/df=3.863, CFI=0.904, RMSEA=0.085, GFI=0.897, IFI=0.905, PCFI=0.738, and PNFI=0.715. After examining modification indices and implementing theoretically justified adjustments (i.e. correlating error terms within the same latent construct), model fit improved substantially: CMIN/df=3.159, CFI=0.920, RMSEA=0.079, GFI=0.910, IFI=0.920, PCFI=0.713, and PNFI=0.691.

All standardized factor loadings exceeded 0.3 and were statistically significant at $P < 0.001$, confirming that each indicator adequately represented its respective latent construct.

Testing the structural model

After establishing an adequate measurement model, the structural model was tested to examine the hypothesized direct and indirect relationships among the study constructs. The structural model demonstrated good fit to the data: $\chi^2(106)=371.729$, CMIN/df=3.51, RMSEA=0.079, CFI=0.908, GFI=0.908, IFI=0.918, PCFI=0.705, and PNFI=0.683. These fit indices collectively indicate that

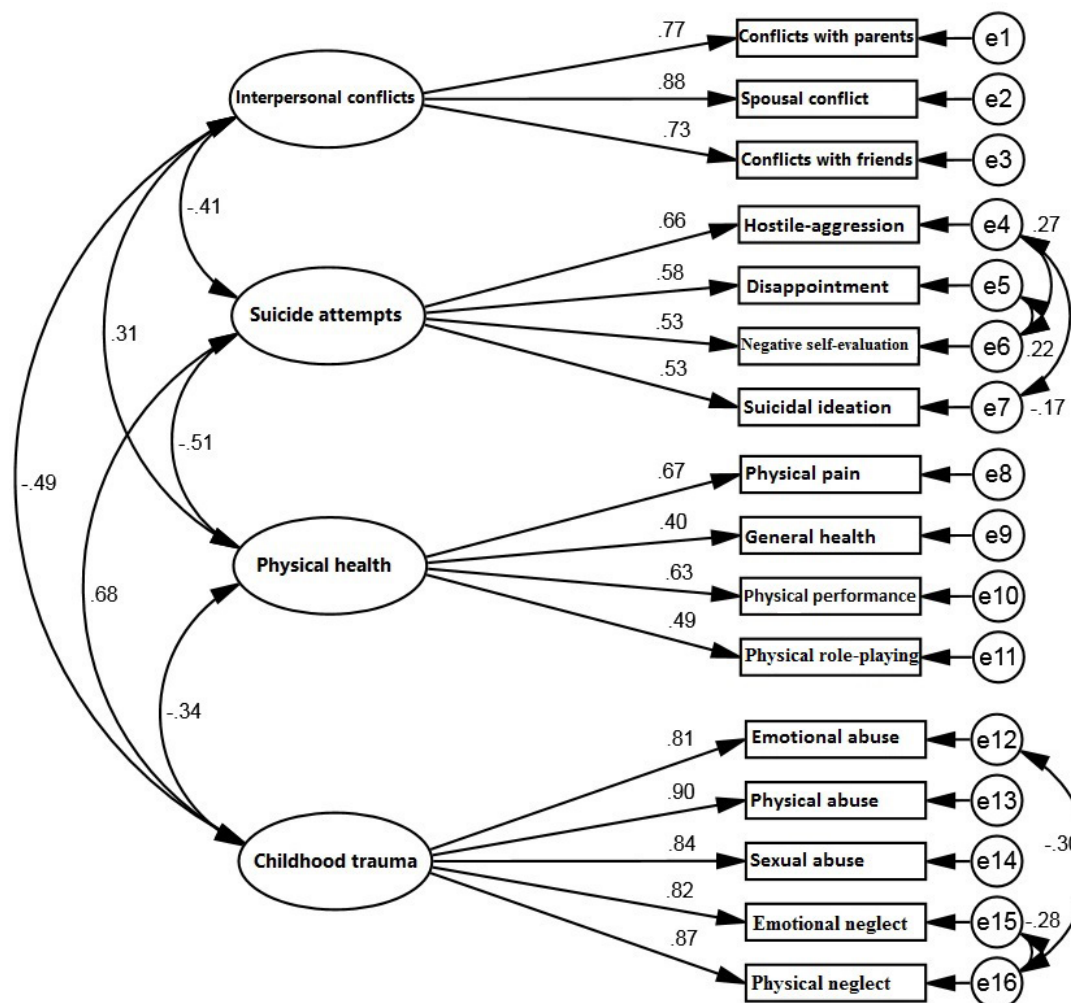


Figure 1. The modified CFA measurement model

the hypothesized model adequately represented the underlying covariance structure among the variables. The coefficient of determination (R^2) for the endogenous latent variable, suicide risk, was 0.680, accounting for 68.0% of the variance in suicide risk. Furthermore, the proportions of variance explained for the mediating variables were 28.0% for interpersonal conflicts and 30.0% for psychosocial stress. Table 2 presents the standard-ized regression coefficients (β) for all direct paths in the proposed structural model, and Figure 2 provides a visual depiction of these relationships. We also examined the significance of the indirect (mediating) effects using bootstrap resampling with 95% confidence intervals. Table 3 summarizes the results of these mediation analyses.

Discussion

The present study investigated the direct and indirect associations between physical health, childhood trauma, and suicide risk, with emphasis on the mediating roles of

psychosocial stress and interpersonal conflicts in an Iranian adult sample. Grounded in the Interpersonal Theory of Suicide (Chu et al., 2017), the structural model demonstrated good fit, accounting for 68.0% of the variance in suicide risk. Notably, the model included relationships that appear counterintuitive because of scoring directions: higher physical health scores indicate better health (lower risk), higher childhood trauma scores indicate greater adversity, and lower interpersonal conflict scores may paradoxically reflect social isolation rather than healthy functioning. With this interpretive framework, findings confirmed that physical health and childhood trauma exert significant direct and indirect effects on suicide risk through psychosocial stress and interpersonal conflicts.

Consistent with the first hypothesis, poorer physical health was significantly and directly associated with elevated suicide risk, aligning with prior research documenting heightened vulnerability among individuals with chronic conditions, including kidney disease, HIV,

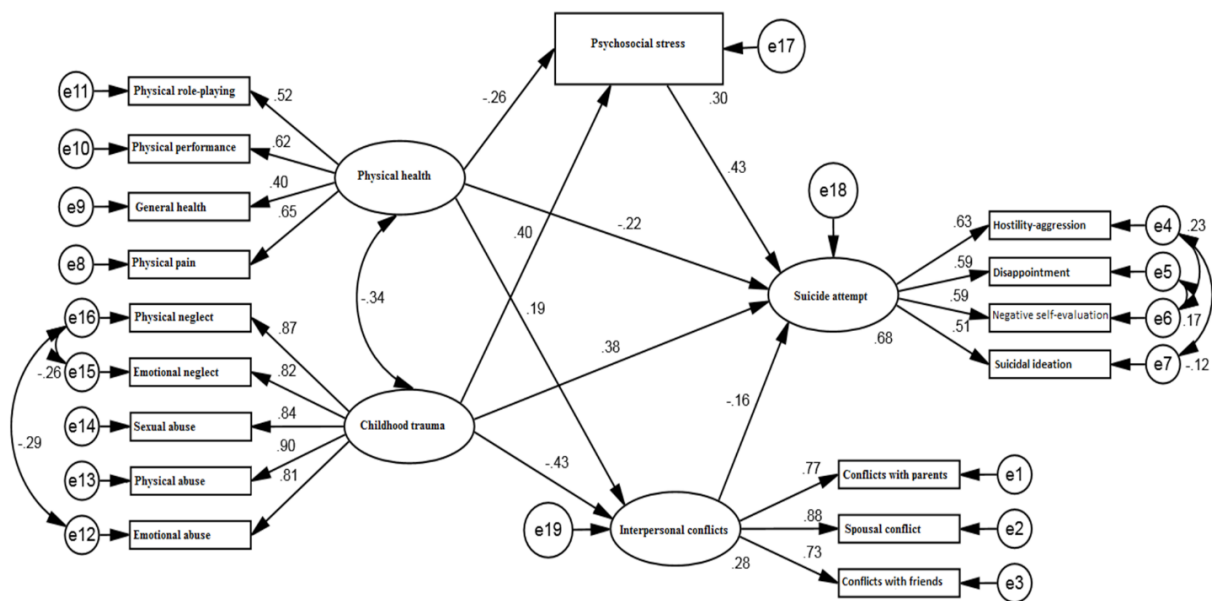


Figure 2. The standard direct and indirect coefficients of structural model for variable relationships

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cancer, liver disease, heart disease (Black et al., 2019), diabetes (Silke et al., 2024), and dermatological disorders (Rogers et al., 2024). Multiple mechanisms underpin this association. Chronic physical illness imposes a biopsychosocial burden—prolonged treatment, persistent pain, functional limitations, and fear of non-recovery (Habibi & Rahimian Boogar, 2023)—contributing to diminished quality of life and psychological distress (depression and anxiety), proximal risk factors for suicide. Additionally, as Black et al. (2019) noted, poor physical health is often accompanied by socioeconomic adversities (unemployment, financial strain) that compound hopelessness and perceived burdensomeness—core components of the In-

terpersonal Theory of Suicide (Chu et al., 2017). Thus, poor physical health functions as a distal vulnerability factor that, through cascading effects on psychological and social functioning, increases suicide risk.

Similarly, childhood trauma exhibited a significant direct positive association with suicide risk, corroborating extensive evidence (Angelakis et al., 2020; Chalker et al., 2022; Park et al., 2021; Rogerson et al., 2023; Wong et al., 2024). Theoretically, early-life maltreatment facilitates the capability for suicide through habituation to pain and reduced death anxiety (Chu et al., 2017). Beyond habituation, childhood trauma impairs self-esteem,

Table 2. Standard coefficients of direct paths in structural model

Path	β	σ	CR	P
Physical health->suicide risk	-0.217	0.117	-2.992	0.003
Childhood trauma->Suicide risk	0.385	0.052	5.567	<0.001
Physical health->Psychosocial stress	-0.264	0.134	-4.282	<0.001
Childhood trauma->Psychosocial stress	0.399	0.051	7.810	<0.001
Physical health->Interpersonal conflicts	0.188	0.140	2.847	0.004
Childhood trauma->Interpersonal conflicts	-0.431	0.059	-7.211	<0.001
Psychosocial stress->Suicide risk	0.429	0.047	6.766	<0.001
Interpersonal conflicts->Suicide risk	-0.161	0.020	-2.106	0.033

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Table 3. Bootstrap analysis for indirect paths in structural model

Path	Indicator						P
	Value	Boot	Bias	Error	Boot LLCI	Boot ULCI	
Physical health to suicide risk through psychosocial stress	-0.1133	-0.0679	0.0454	0.0204	-0.1097	-0.0294	<0.001
Childhood trauma to suicide risk through psychosocial stress	0.1712	0.1652	-0.0060	0.0270	0.1211	0.2142	<0.001
Physical health to suicide risk through interpersonal conflicts	-0.0303	-0.0329	-0.0026	0.0076	-0.0589	-0.0110	0.012
Childhood trauma to suicide risk through interpersonal conflicts	0.0694	0.0570	-0.0124	0.0156	0.0311	0.1054	<0.001

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attachment security, and emotion regulation (Angelakis et al., 2020), manifesting as perceptual biases in relationships, rejection of social support, and heightened negative emotionality-self-blame, shame, and hopelessness (Park et al., 2021). These maladaptive patterns crystallize into enduring vulnerabilities that predispose individuals to suicidal ideation and behavior. Childhood trauma, by compromising interpersonal functioning and emotional stability, constitutes a critical developmental antecedent to suicide risk across the lifespan.

Psychosocial stress significantly mediated the physical health–suicide relationship, consistent with Black et al. (2019) and Saharia & Ghosh (2024). Chronic medical conditions impose multifaceted stressors—treatment burdens, financial difficulties, social stigma, and existential concerns (Habibi & Rahimian Boogar, 2023)—which overwhelm coping resources, leading to helplessness, hopelessness, and depressive symptomatology. In the context of the Interpersonal Theory of Suicide, such stressors amplify perceptions of burdensomeness and thwarted belongingness, increasing suicidal desire (Chu et al., 2017). Psychosocial stress also mediated the childhood trauma–suicide link, aligning with Jones et al. (2024) and Black et al. (2019). Early maltreatment induces neurobiological alterations, including inflammatory responses and HPA axis sensitization, increasing reactivity to adult stressors (Jones et al., 2024). Cognitively, childhood trauma fosters dysfunctional beliefs and maladaptive attributional styles—perceiving the world as threatening and oneself as powerless—predisposing individuals to experience challenges as overwhelming (Wu et al., 2022). This finding suggests that heightened stress vulnerability, compounded by emotional dysregulation and interpersonal difficulties, creates fertile ground for depressive disorders and suicidal ideation.

Interpersonal conflicts significantly mediated the physical health–suicide pathway, corroborating Flores et al. (2022) and Su et al. (2023). Serious physical illness generates distress within family systems, disrupting roles, increasing caregiving burdens, straining resources, escalating conflicts and eroding social support (Flores et al., 2022). Hébert et al. (2025) emphasized that isolation, loneliness, and lack of support drive suicide risk. Persistent physical pain may diminish tolerance for interpersonal frustration and impair emotion regulation, increasing conflictual interactions and withdrawal (Su et al., 2023). The cycle of conflict and isolation intensifies perceived burdensomeness and thwarted belongingness (Chu et al., 2017). Interpersonal conflicts also mediated the childhood trauma–suicide relationship, corroborating Berardelli et al. (2022), Black et al. (2019), and Groh et al. (2024). Exposure to violence in childhood predicts violent relationships in adulthood (Berardelli et al., 2022), through internalization of aggressive conflict models, impaired social information processing, and emotion regulation deficits. Childhood trauma triples the risk of mental disorders, which compromises problem-solving, increases irritability and hostility, and impairs interpersonal functioning, all contributing to heightened conflict (Berardelli et al., 2022). These conflictual relationships serve as proximal triggers for suicidal crises, coupled with underlying vulnerabilities from early adversity.

The findings carry important implications for the Interpersonal Theory of Suicide (Chu et al., 2017), supporting the conceptualization of childhood trauma and poor physical health as distal risk factors operating through proximal mechanisms (psychosocial stress and interpersonal conflicts) to influence suicide risk. By integrating these pathways within a unified model, the study extends the theoretical framework to encompass developmental and health-related precursors. Clinically, the findings underscore the importance of comprehensive, multi-

component interventions that address individual risk factors and broader psychosocial contexts. Clinicians should routinely assess psychosocial stress and interpersonal difficulties as modifiable targets. Cognitive-behavioral approaches targeting stress management, emotion regulation, and interpersonal skills may reduce suicide risk (Wallace et al., 2025). Family-based interventions reduce conflict and enhance social support that may mitigate relational disruptions. Early identification and intervention for childhood maltreatment, alongside integrated care models addressing physical and mental health needs, may serve as primary prevention strategies.

Conclusion

The present study provides compelling evidence that poor physical health and childhood trauma are significantly associated with elevated suicide risk, both directly and indirectly through the mediating roles of psychosocial stress and interpersonal conflicts. These findings highlight the interconnected nature of developmental, health-related, psychosocial, and relational risk factors in shaping suicide vulnerability, and offer new insights into the pathways through which distal adversities translate into proximal risk. The indirect relationship of physical health with suicide via stress and interpersonal conflict has received limited attention in the literature; thus, this research opens new avenues for investigation and encourages researchers and clinicians to consider physical health status, stress management, and conflict resolution skills in suicide prevention programs and protocols. By situating our results within the framework of the Interpersonal Theory of Suicide (Chu et al., 2017), we offer theoretical clarity regarding the mechanisms through which these risk factors operate. The implications for clinical practice are substantial, suggesting that tailored, multifactorial risk reduction programs addressing childhood trauma, physical health, stress, and interpersonal conflicts are warranted in both clinical and non-clinical settings. However, these findings should be interpreted with caution because the study is cross-sectional. So, future longitudinal research is essential to explore causal pathways and develop evidence-based interventions that can effectively reduce the global burden of suicide.

Study limitations

Several methodological limitations warrant consideration when interpreting the present findings. The cross-sectional design precludes causal inferences, and mediation findings are correlational associations that require longitudinal replication through future longitudinal designs or randomized controlled trials. Self-report

questionnaires, especially suicide assessment, introduce potential response biases (social desirability, recall bias, common method variance), suggesting that future investigations incorporating multi-method assessments (clinical interviews, behavioral observations, and physiological markers) would enhance validity. Generalizability is constrained by convenience sampling from two Iranian provinces, a predominantly female sample (70.5%), and overrepresentation of educated individuals (85% with an associate degree or higher), restricting applicability to males, less educated populations, and other geographic regions. Several critical variables were not measured, including socioeconomic status, clinical comorbidities (depression, anxiety, psychiatric diagnoses, substance use), and concurrent stressors; the modest magnitude of indirect effects further suggests unmeasured variables may play important roles. The exclusion of acute or severely exacerbated chronic conditions, while methodologically justified, may have attenuated observed associations and limited representation of individuals with the most severe impairments. Finally, physical health relied on self-reported status rather than objective medical diagnoses, indicating that future research incorporating objective health indicators would provide a more comprehensive understanding of these relationships.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Research Ethics Committee of Semnan University of Medical Sciences and Health Services, Semnan, Iran. (Code: IR.SEMUMS.REC.1400.308). All procedures performed were in accordance with the ethical standards of the Institutional Research Committee and the 1964 Helsinki Declaration and its later amendments. We obtained written informed consent from all participants before enrollment. Participants were assured that their responses would be kept confidential and were informed of their right to withdraw from the study at any stage without consequence.

Funding

This research was extracted from a Master's dissertation of Fatemeh Farnia, approved by the Vice-Chancellor of Education and Graduate Studies at Semnan University, Semnan, Iran.

Authors' contributions

Conceptualization, methodology, formal analysis and supervision: Isaac Rahimian-Boogar; Software, resources, validation, review, editing, and visualization: Fate-

meh Farnia and Isaac Rahimian-Boogar; Investigation, data collection, Writing the original draft, and Project administration: Fatemeh Farnia.

Conflict of interest

The authors declared no conflict of interest.

Acknowledgments

The authors express their sincere gratitude to the Vice-Chancellor of Graduate Studies at the university and to all participants who generously contributed their time to this study.

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