

The Association Between Psycho-Social Factors and Social Health Among Child Laborers: A Path Analysis

Çocuk İşçiler Arasında Psikososyal Faktörler ve Sosyal Sağlık Arasındaki İlişki: Bir Yol Analizi

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ABSTRACT

Objectives: Child labor is a significant public health issue in low- and middle-income countries. Studies identifying social health dimensions and related factors are limited. Therefore, this study investigated the association of psychosocial factors with social health among child laborers.

Materials and Methods: This cross-sectional study examined 200 child laborers in Alborz province, Iran, from June to September 2023, and used convenience sampling. We used path analysis to assess the relationships between the research variables and social health.

Results: The path analysis indicated that, in the direct path, sleep duration showed the strongest positive association ($B=0.13$), whereas self-reported depressive symptoms showed the strongest negative association with social health ($B=-0.52$). The child's age was positively related to social health ($B=0.11$) via the indirect path, whereas stress ($B=-0.31$), anxiety ($B=-0.11$), and working hours ($B=-0.10$) were negatively related via the indirect path. Socioeconomic status was the only variable exhibiting a positive relationship with social health through both direct and indirect paths ($B=0.237$).

Conclusion: We provided an empirical model demonstrating the relationships between social health and psychosocial factors. Our results showed that some factors, including age, sleep duration, risk of depression, anxiety, and stress, working hours, and socioeconomic status, were associated with social health.

Keywords: Social health, child labor, mental health, depression, socioeconomic status

ÖZ

Amaç: Çocuk işçiliği, düşük ve orta gelirli ülkelerde önemli bir halk sağlığı sorunudur. Sosyal sağlık boyutlarını ve ilgili faktörleri belirleyen çalışmalar sınırlıdır. Bu nedenle, bu çalışma çocuk işçiler arasında psikososyal faktörler ile sosyal sağlık arasındaki ilişkiyi araştırmaktadır.

Gereç ve Yöntem: Bu kesitsel çalışma, Haziran-Eylül 2023 tarihleri arasında İran'ın Alborz eyaletinde 200 çocuk işçiyi kolay örnekleme yöntemiyle incelemiştir. Araştırma değişkenleri ile sosyal sağlık arasındaki ilişkileri değerlendirmek için yol analizi kullanılmıştır.

Bulgular: Yol analizi, uyku süresinin doğrudan yoldan en güçlü pozitif ilişkiye ($B=0.13$) ve öz bildirimli depresif semptomların en negatif ilişkiye ($B=-0.52$) sahip olduğunu göstermiştir. Çocuğun yaşı pozitif bir ilişkiye ($B=0.11$) sahipken, stres ($B=-0.31$), kaygı ($B=-0.11$) ve çalışma saatleri ($B=-0.10$) dolaylı yoldan sosyal sağlıkla negatif bir ilişkiye sahipti. Sosyoekonomik durum, doğrudan ve dolaylı yollarla sosyal sağlıkla pozitif bir ilişkiye sahip olan tek değişkendi ($B=0.237$).

Sonuç: Sosyal sağlık ve psikososyal faktörler arasındaki ilişkileri gösteren ampirik bir model sunduk. Sonuçlarımız, yaş, uyku süresi, depresyon riski, kaygı, stres, çalışma saatleri ve sosyoekonomik durum dahil olmak üzere bazı faktörlerin sosyal sağlıkla ilişkili olduğunu gösterdi.

Anahtar Kelimeler: Sosyal sağlık, çocuk işçiliği, ruh sağlığı, depresyon, sosyoekonomik durum

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Introduction

Child labor is a significant public health issue in low- and middle-income countries. Contributing factors include the breakdown of social institutions, such as families and schools; economic hardship faced by families of children; difficulties adapting to urban lifestyles; pollution in the outskirts of cities; inadequate oversight by responsible organizations; and harmful interactions between citizens and street children. These issues have led to a rise in the number of street children, a prevalent problem in many large cities.^{1,2}

Global trends show that nearly 138 million children (8 percent) are engaged in child labor, with nearly half facing hazardous conditions and serious health risks. Furthermore, about one-third of these children were unable to attend school.^{3,4} In Iran, this phenomenon has spread to most large cities in recent decades and is regarded as a social harm. This problem has caused significant harm to children, teenagers, families, and communities, all of which are vital to our society.⁵

Street children typically come from families who have low levels of education and income and who work on the streets to support their households. Many of them lost the chance to attend school at an early age because of their family's poor socioeconomic status and because they worked long hours on the street. Street children suffer from deteriorating physical and mental health due to a lack of play and rest, inadequate nutrition, and exposure to verbal and physical violence from individuals and government agents.^{6,7} Child labor is linked to numerous adverse health effects, such as stunted growth, malnutrition, increased disease prevalence, behavioral and emotional issues, and reduced coping skills.¹ Children are more vulnerable than adults to occupational health hazards due to their specific physical and developmental characteristics and lack of experience.⁸ A review found that child labor is strongly associated with mental health outcomes. Risk factors for mental health problems include younger age and greater work intensity, which can lead to isolation and low self-esteem.⁹

Studies have indicated that child laborers have poorer physical, mental, emotional, behavioral, and social health than other children.^{10,11} Social health refers to an individual's assessment of the quality of their relationships with others, including family and social groups. The social health scale evaluates a person's overall health, capturing internal responses—such as emotions, thoughts, and behaviors—that reflect their satisfaction or dissatisfaction with life and their social environment.¹² Social health is crucial for children's development. Injuries and social problems can put them at risk and damage their growth and social health.^{10,11}

Considering the adverse consequences of child labor and the importance of this issue, studies identifying dimensions of social health and related factors are limited. Therefore, this study aimed to investigate the association between psychosocial factors and social health among child laborers so that, by identifying the risk factors and related problems, we could

propose solutions for policymakers to improve the health of child laborers.

Materials and Methods

Design and Participants

This cross-sectional study examined 200 child laborers in Alborz province, Iran, from June to September 2023, using convenience sampling. Inclusion criteria were: aged 7-18, at least one year of work experience in Alborz, and absence of severe mental illness (under the supervision of a psychiatrist and taking medication). Exclusion criteria included unwillingness to participate and the use of psychiatric or psychoactive drugs. Data were collected from a non-governmental support institution in Alborz province that provided services to working children. After selecting the subjects, trained experts collected data through interviews and questionnaires. We trained the interviewers and emphasized maintaining confidentiality to protect the privacy of minors. This research was conducted in accordance with the latest version of the Declaration of Helsinki and received approval from the Ethics Committee of Alborz University of Medical Sciences Research Technology (approval no: IR.ABZUMS.REC.1401.234, date: 29.11.2022). Informed consent was obtained from a legal guardian for study participation.

Data Collection

Data were collected using a questionnaire that included:

1. Socio-demographic checklist including age, gender, income, education level, number of family members, socioeconomic status, the history of underlying chronic disease, daily sleep hours, body mass index, nationality, parents' status, parents' addiction, insurance, and daily working hours.
2. Socioeconomic Status Scale (SES): SES includes 6 questions rated on a Likert scale from 1 to 5, resulting in a total score of 6 to 30. These questions cover education, income, economic class, and housing status. Eslami et al.¹³ evaluated the validity and reliability of this scale in Iran.
3. Depression, Anxiety, and Stress Scale-21 Items (DASS-21):¹⁴ The reliable and valid Persian version of the DASS-21 was used to assess depression, anxiety, and stress in Iran.¹⁵ This self-report questionnaire consists of 21 items, with seven items for each category: depression, anxiety, and stress. Patients rated each item from 0 (not applicable) to 3 (very applicable), with total scores ranging from 0 to 63. Cronbach's alpha for the DASS questionnaire was 0.863 in our study.
4. Social Health Questionnaire (SHQ): The key SHQ16 consists of 15 items and examines five dimensions of social health: social cohesion, social acceptance, social participation, social flourishing, and social adaptation. The questionnaire includes 15 self-report items rated on a 7-point Likert scale, with response options ranging from 1 (completely disagree) to 7 (completely agree). Sum scores for the total SHQ scale ranged from 15 to 105. Validity and reliability have been assessed in Iran.¹⁷ Cronbach's alpha was 0.842 in our study.

5. Life Satisfaction:¹⁸ Life satisfaction was measured by a single question, “In general, how much do you feel satisfaction with life right now?” rated on a 0-10 numerical scale.

Research Variables

The path analysis included the following variables: age, working hours, sleep duration, socioeconomic status, life satisfaction, social health, depression, anxiety, and stress.

Statistical Analysis

We analyzed the data using SPSS version 22.0. Descriptive statistics were used to summarize the demographic characteristics of the study population, including means and standard deviations (SDs) for continuous variables and frequencies (%) for categorical variables. The relationships among the research variables were evaluated using the Pearson correlation coefficient, followed by path analysis. Path analysis extends regression models by assessing the impact of multiple variables on a dependent variable through various causal pathways.¹⁹ Path analysis is considered a causal modeling technique that depicts theorized, directional relationships among a set of variables.²⁰ Acceptable model fit is indicated by comparative fit index, goodness of fit index, and Bentler-Bonett normed fit index values of 0.90 or higher, and by a root mean square error of approximation less than 0.05.²¹ The normality of the data was confirmed using the Kolmogorov-Smirnov test.

Based on prior studies^{9-11,22} and the World Health Organization’s social determinants of health framework,²³ we developed a hypothetical conceptual framework using path analysis (Figure 1). This hypothetical framework suggests that sociodemographic factors, working hours, sleep duration, socioeconomic status, and mental health are associated with social health through direct or indirect pathways. Life satisfaction can act as a mediator.

Results

The study included 200 participants, 52.5% of whom were girls. The mean±SD age of the children was 13.32±3.62

years, and 61.0% had primary education. 52% of the children belonged to families with four or five members. Among them, 36% were firstborn, and 32.5% were second-born. 55% of the children resided in urban areas, 26.5% in rural areas, and 18.5% in suburban areas. Regarding parental status, 45.5% of the participants lived with both parents, 26.5% experienced their parents’ divorce, and 28% lost a parent. 47% of participants lived with both parents, 38.5% with their mothers, 6% with their fathers, 7% with their relatives, and 1.5% alone. The participants reported drug use by fathers (32.5%), mothers (6.0%), both parents (3.5%), and siblings (12.0%). The demographic characteristics of patients are shown in Table 1.

The normality of the data was confirmed using the Kolmogorov-Smirnov test ($p>0.05$). Bivariate analysis was conducted to assess the correlations between variables before path analysis. Social health was directly correlated with sleep duration, SES, and life satisfaction, and inversely correlated with working hours, self-reported depressive, anxiety, and stress symptoms (Table 2).

The relationship between social health and psychosocial factors was analyzed using a path analysis model. Figure 2 presents the full empirical path model, according to standard B.

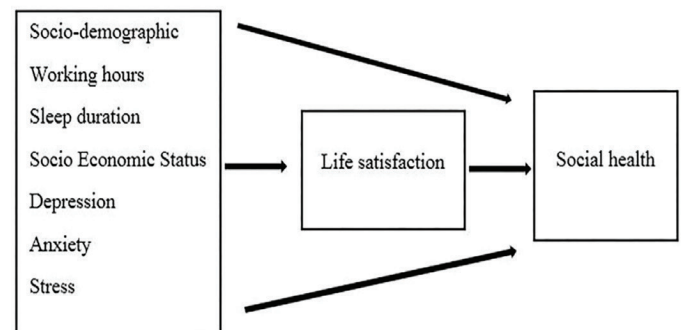


Figure 1. Hypothesized conceptual framework of the relationships among the study variables

Table 1. The socio-demographic characteristics of the participants

Variables	Mean±SD	Variables	No (%)
Child’s age (year)	13.32±3.62	Sex	Male 95 (47.5%)
Working hours	7.67±2.88		Female 105 (52.5%)
Socioeconomic status	8.9±2.93	Educational level	Illiterate 23 (11.5%)
Social health	58.69±14.74		Elementary school 122 (61.0%)
Life satisfaction	4.53±2.20		Middle school 44 (22.0%)
Number of family members	4.69±2.01		High school 11 (5.5%)
Income (million rials)	5.09±3.78	Nationality	Iranian 118 (59.3%)
Duration of night sleep	7.93±1.74		Afghan 81 (40.7%)
Depression	8.59±4.78	Underlying disease	Yes 60 (20.0%)
Anxiety	5.95±4.49		
Stress	8.57±4.39		

The path analysis revealed that sleep duration had the strongest positive relationship with social health ($B=0.13$), while self-reported depressive symptoms had the strongest negative relationship ($B=-0.52$) in the direct path. This indicates that longer sleep duration increases the social health score, while higher levels of depressive symptoms reduce it.

The child's age had a positive relationship with social health ($B=0.11$), whereas self-reported stress ($B=-0.31$), self-reported anxiety ($B=-0.11$), and working hours ($B=-0.10$) had negative indirect relationships with social health. As the child's age increased, their social health score also increased, whereas higher levels of stress, anxiety, and longer work hours were associated with a lower social health score. Socioeconomic status was the sole variable with a positive relationship with social health through both direct and indirect paths ($B=0.237$), indicating that an increase in socioeconomic status leads to a higher social health score (Figure 2, Table 3). Table 3 shows the relationships between variables and social health, based on standardized beta coefficients.

The model fit indices indicate that the model is desirable and highly suitable, and that relationships among the variables are reasonably well adjusted (Table 4).

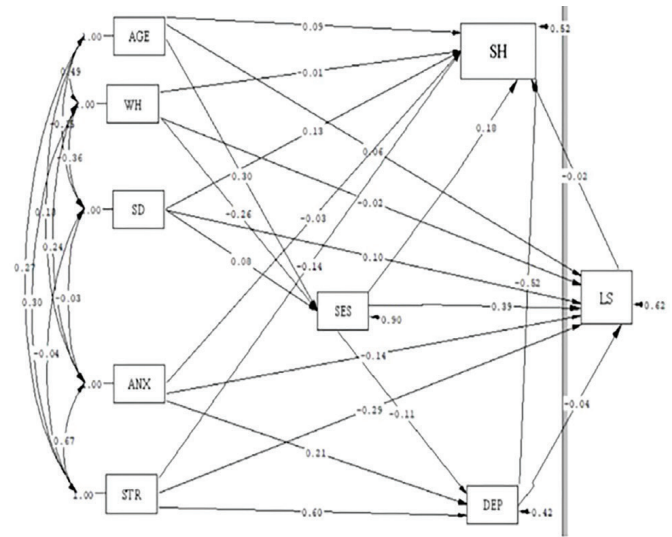


Figure 2. The path analysis model test of socio-demographic factors, mental disorders, life satisfaction, and social health by standardized beta

WH: Working hours, SD: Sleep duration, DEP: Depression, ANX: Anxiety, STR: Stress, SES: Socioeconomic status, LS: Life satisfaction, SH: Social health

Table 2. Correlations between structural parameters

Variables	Social health	Age	Working hours	Sleep duration	SES	Life satisfaction	Depression	Anxiety	Stress
Social health	1								
Age	-0.117	1							
Working hours	-0.247**	0.488**	1						
Sleep duration	0.211**	-0.146*	-0.364**	1					
SES	0.350**	0.161*	-0.147*	0.133	1				
Life satisfaction	0.382**	-0.20	-0.217	0.173*	0.487**	1			
Depression	-0.659**	0.329**	0.314**	-0.132	-0.239**	-0.431**	1		
Anxiety	-0.447**	0.176*	0.236**	-0.035	-0.145*	-0.407**	0.620**	1	
Stress	-0.545**	0.273**	0.304**	-0.042	-0.170*	-0.466**	0.748**	0.670**	1

*, $p < 0.05$, **, $p < 0.01$, SES: Socioeconomic status

Table 3. Total effect of variables on social health

Variables	Standardized beta (β)			Estimated beta (β)			SE	Direct t-value
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect		
Age	0.09	0.11*	0.11*	0.4	0.39*	0.39*	0.27	1.5
Working hours	-0.01	-0.10*	-0.10*	-0.07	-0.4*	-0.4*	0.33	-0.22
Sleep duration	0.13*	0.012	0.13*	1.05	-	1.05*	0.47	2.26*
Socioeconomic status	0.18*	0.057*	0.237*	0.89*	0.057*	0.947*	0.30	2.98*
Life satisfaction	-0.02	-	-0.02	-0.17	-	-0.17	0.44	-0.38
Depression	-0.52*	-	-0.52*	-1.59*	-	-1.59*	0.25	-6.48*
Stress	-0.14	-0.31*	-0.31*	-0.45	-1.017*	-1.017*	0.29	-1.56
Anxiety	-0.03	-0.11*	-0.11*	-0.09	-0.35*	-0.35*	0.23	-0.40

*, Statistically significant ($t\text{-value} \geq 1.96$), SE: Standard error

Table 4. The fit indices of the Path model between demographic factors, mental disorder, life satisfaction and social health

	X²	df	X²/df	NFI	NNFI	CFI	GFI	AGFI	RMSEA
Fit index	10.55	5	2.11	0.99	0.99	0.98	0.99	0.96	0.01
Standard			<5	>0.90	>0.90	>0.90	>0.90	>0.90	<0.05

df: Degrees of freedom, NFI: Bentler-Bonett normed fit index, NNFI: Non-NFI, CFI: Comparative fit index, GFI: Goodness of fit index, AGFI: Adjusted GFI, RMSEA: Root mean squared error of approximation

Discussion

This study assessed, using path analysis, the relationship between social health and psychosocial factors, including sociodemographic factors, SES, mental health, and life satisfaction, among child laborers. In the direct path, we observed that sleep duration had the strongest positive relationship with social health, while self-reported depressive symptoms had the strongest negative relationship with social health. The child's age had a positive relationship with social health, while self-reported stress, anxiety, and working hours had a negative relationship with social health through an indirect path. Socioeconomic status was the sole variable with a positive relationship with social health through direct and indirect paths.

We observed that sleep duration had the strongest positive association with working children's social health. Therefore, increased sleep duration enhances social health scores. This finding aligns with a study showing sleep deprivation was associated with decreased motivation to engage in social and physical activities.²⁴ Krause and Rainville²⁵ found that people with a strong social support system sleep longer than those with weaker social relationships. Sleep is a biological necessity for human life that affects many physiological systems and outcomes, including general, cardiovascular, metabolic, mental, and immune health; human performance; cancer; pain; and mortality, all of which are influenced by interpersonal and social factors.²⁶ Researchers have found that sleep may be affected by several factors, including chronic pain, economic problems, and stressful life events.²⁵

In our study, we found a positive relationship between a child's age and social health: as a child's age increased, so did their social health score. This finding contrasts with the research conducted by Bayat et al.¹⁰ who did not identify a significant relationship between social health and age. This discrepancy may be due to differences in the age groups of the children studied in the two research projects.

We observed a negative relationship between working hours and social health. As the child's working hours increased, the social health score decreased. Many child laborers start working at a very young age, endure long hours in dangerous jobs, and often miss out on education. This leads to lower awareness and fewer social connections. Long working hours can lead to fatigue and negatively impact a child's health and psychosocial wellbeing.²⁷ Taib et al.²⁸ examined the perceptions of men who had worked on the streets in Iraq during childhood and found that child labor had consequences for their social lives and physical and mental health. They believed financial support is crucial to

prevent child labor and enable families to send their children to school for social and vocational skills training.²⁸

In our study, socioeconomic status was positively associated with social health through both direct and indirect pathways, indicating that higher socioeconomic status was associated with higher social health scores. Studies have shown that street children in Iran are from large, low-income families, and most of their parents have low levels of education, are unemployed, or hold low-income jobs. Street children often come from low socioeconomic status, which can be one of the causes of their situation.²⁹ Financial support is essential for helping street children acquire social and professional skills.²⁸

We observed that self-reported depressive symptoms, stress, and anxiety were negatively associated with the social health of child laborers. As depression, stress, and anxiety scores increased, the social health score decreased. In line with us, a study found that all aspects of psychosocial well-being are significantly linked to children's working conditions, with workrelated factors, such as stress, self-esteem, and supervision, closely associated with family environment characteristics.³⁰ Studies have shown that working children have poorer mental health than their peers, which may be attributable to social isolation and low self-esteem. Street life, inadequate access to health care, poverty, abuse, and lack of family and community support endanger the health of these children; mortality among these children has been estimated to be several times higher than expected for their age and sex.^{9,31}

Study Limitations

The limitations of this research were as follows: first, all questionnaires used were self-assessments. Second, our study was conducted in a limited population using convenience sampling, which may limit generalizability. Future research should target a larger and more geographically diverse population.

Conclusion

We provided an empirical model, using path analysis, demonstrating the relationships between social health and psychosocial factors, including socio-demographic factors, SES, mental health, and life satisfaction, among child laborers. Our findings revealed that sleep duration had the strongest positive direct relationship with social health, whereas self-reported depressive symptoms had the strongest negative direct relationship. In the indirect path, the child's age was positively related to social health, while self-reported stress, anxiety, and working hours were negatively related to social health.

Additionally, socioeconomic status was positively associated with social health through both direct and indirect pathways. Given the relationship between the aforementioned factors and the social health of child laborers, and the importance of this issue, health policymakers should prioritize addressing problems, improving child laborers' social health, and integrating psychosocial screening into non-governmental organization child labor support programs.

Ethics

Ethics Committee Approval: This research was conducted in accordance with the latest version of the Declaration of Helsinki and received approval from the Ethics Committee of Alborz University of Medical Sciences Research Technology (approval no: IR.ABZUMS.REC.1401.234, date: 29.11.2022).

Informed Consent: Informed consent was obtained from a legal guardian for study participation.

Footnotes

Authorship Contributions

Concept: F.F., Z.M., A.A.E., T.S., N.G., Design: F.F., Z.M., A.A.E., T.S., N.G., Data Collection or Processing: F.F., A.A.E., Analysis or Interpretation: Z.M., T.S., Literature Search: F.F., Z.M., A.A.E., T.S., N.G., Writing: F.F., Z.M., A.A.E., T.S., N.G.

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