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Investigation of Social Factors Affecting the Health of Hospitalized Children in Pediatric Hospitals

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Abstract:

Aims: This study was conducted to determine the social factors affecting the health of hospitalized pediatric patients.

Background: Social factors are one of the most influential components affecting community health. Among them, children, as one of the vulnerable groups in society, are heavily influenced by these social factors.

Methods: This cross-sectional study was conducted in 2022 on 357 hospitalized children in Akbar and Dr. Sheikh Mashhad hospitals using random sampling. The data were collected through face-to-face interviews with the parents of the children using the Questionnaire for Social Determinants of Children's Health. Data were analyzed using SPSS-25 statistical software and descriptive and inferential statistical tests at a significance level of 0.05.

Results: The mean age of the children was 5.40±4.72 years, and the mean age of the mothers was 33.32±19.56 years. The mean score of social health of the participants in the study was 56.19±12.18. A total of 244 children (68.3%) had good social health, 85 children (23.8%) had average social health, and 28 children (7.8%) had poor social health. The results showed that the mother's occupation (p=0.047) and the parental family ratio (p=0.029) had a significant relationship with the level of children's social health, however, no significant relationship was observed in other cases (p>0.05).

Conclusion: Understanding and paying attention to threatening, preventive, and enhancing factors of children's social health and addressing them through social interventions and actions can lead to the promotion of social health and reduction of vulnerability in the face of threatening social factors affecting children's health.

Keywords: Health, Social factors, Hospital, Children, Community, Pediatric, Patients.

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1. INTRODUCTION

Health is one of the concepts that, for a long time, was defined based on the opposite point, which is illness. Nowadays, with the change in the approach to illness and the emergence of health-oriented perspectives, the concept of health includes continuity [1]. Firstly, it does not have a passive state and requires nurturing. Secondly, individuals, groups, communities, the environment, and the whole of society should be involved in maintaining and creating an active and participatory role. Thirdly, with a macro perspective, attention should be paid to the role of protective health factors [2, 3].

Health is considered one of the fundamental rights and needs of all human beings. Currently, the development of any society is judged based on the quality of the health of its people, the fair distribution of health among different social classes, and the level of protection of disadvantaged individuals against factors that harm their health [4, 5]. The definite role of social and environmental factors that affect people's health has been identified for a long time. The constitution of the World Health Organization acknowledges the fact that the founders of this organization intended to address the social roots of health problems in addition to dealing with immediate medical care and effective treatments. In this constitution, health is defined as a state of complete physical, mental, and social well-being, not just the absence of disease [6, 7].

The results of studies indicate that the role of the healthcare system in promoting health is at most 25%, while social factors influence the remaining 75%. This means that social determinants of health, such as income level, education level, occupation, nutrition, and social class, have a much greater impact on the occurrence of diseases than biological factors and play a significant role in human health [8, 9]. Likewise, the results of the studies show that certain groups of society are more sensitive to social factors affecting health and are more affected by health-threatening factors that are related to social factors. These sensitive groups include children, women, and young people whose health can be severely affected by social factors. In the meantime, children are strongly affected by social factors affecting health due to their sensitive personal, individual, and social conditions [10-15].

The global strategy and sustainable development goals emphasize the importance of children's health, and every child must survive, grow, and reach their developmental potential [16, 17]. In a country's healthcare system, the health of children is of utmost importance as it forms the basis for the health of adolescents and future generations, who will be the parents and workforce of the country. Therefore, paying attention to children's health has beneficial effects on the future of a country's healthcare system and the performance of its citizens [18, 19].

Social factors that affect health can threaten children's health and send them to the hospital. The adverse result of social factors affecting children's health can end up in children being hospitalized and causing physical, mental, and psychological problems [20, 21]. The hospitalization of a child is a complex and stressful experience for both the young patient and their family. Various social factors, such as socioeconomic status, family dynamics, and community support, can significantly influence the well-being of hospitalized children [22, 23].

The social determinants of health encompass many factors that can impact an individual's health outcomes and well-being. For hospitalized children, these factors can profoundly influence their physical, emotional, and psychological recovery. Socioeconomic status, including access to resources, housing stability, and financial security, plays a crucial role in determining the quality of care and support available to hospitalized children and their families. For instance, children from low-income families may face challenges in accessing nutritious food, transportation to medical appointments, and adequate support for their ongoing medical needs [24-27].

Family dynamics and support systems are also vital in the recovery process of hospitalized children [28]. The emotional and psychological well-being of children is closely linked to the presence of nurturing and supportive family environments. However, family dynamics, including parental stress, caregiver availability, and the presence of social support networks, can significantly impact the overall experience of hospitalized children and their ability to cope with illness and treatment [26, 29]. Furthermore, community resources and support services play a crucial role in providing holistic care for hospitalized children. Access to community-based programs, educational support, and mental health services can contribute to the overall well-being and recovery of children during and after their hospitalization. Understanding the influence of these social factors is essential for creating inclusive and effective healthcare practices that address the comprehensive needs of hospitalized children and their families [30-32].

Jay Moore and colleagues demonstrated in their study in 2015 that the health and growth outcomes of children follow a social gradient, meaning that children from higher socioeconomic backgrounds will have better patterns of health and growth [29]. Additionally, Shahraki and colleagues (2017) demonstrated in their study titled “Investigating the Socioeconomic Factors of Parents on Children's Health” that maternal employment hurts children's health, as it increases the likelihood of malnutrition and low birth weight. Additionally, the education level of both parents, household size, and being a twin have positive and negative effects on children's health, respectively [33].

By comprehensively examining these factors, this study seeks to provide valuable insights that can inform evidence-based practices and policies, ultimately leading to improved care and outcomes for hospitalized children. Despite limited studies on the social factors affecting children's health in Iran, it seems that more studies need to be conducted to obtain reliable information. Therefore, considering the aforementioned, this study was conducted to determine the social factors affecting the health of hospitalized children.

2. MATERIALS AND METHODS

This is a cross-sectional descriptive-analytical study conducted over a 6-month period on 357 hospitalized children in Akbar and Dr. Sheikh Mashhad hospitals using simple random sampling and proportional sampling methods in 2022. Patients from both surgical and non-surgical departments (surgery, cardiology, gastroenterology, rheumatology, neonatology, infectious diseases, general, immunology) in Akbar and Dr. Sheikh Mashhad hospitals who met the study criteria were randomly selected based on their file numbers within the six-month period and included in the study. Hospitalized children who were accompanied by one of their parents (preferably the mother) and had permission to participate in the study were included as inclusion criteria and the presence of a companion for the child other than the parents was considered as an exclusion criterion.

The average number of hospitalized children in the two hospitals during the six-month period was 5000 children, and according to Morgan's table, 357 hospitalized files were selected for the study. In cases where the selected files' parents were not willing to cooperate or did not consent to participate in the study, another file was randomly selected as a replacement.

The data collection tool was a two-part questionnaire: the first part included demographic information about the child's companion (age, gender, weight, name, and type of disease) and the parent (occupation, marital status, education level, underlying disease, family relationship), and the second part included a questionnaire to investigate social factors affecting the health of hospitalized children.

Considering that there was no available questionnaire in the Persian language for assessing the social determinants of children's health, the English questionnaire “Questionnaire for social determinant of children's health” was used. This questionnaire was translated into Persian. The English questionnaire has been used in various studies to examine the social determinants of children's health and has acceptable validity and reliability [17, 20, 21, 34].

After the translation of the questionnaire into Persian, its validity and reliability were assessed using the test-retest method. The content and face validity of the tool were determined by obtaining the opinions of experts and specialists. To confirm the validity, this questionnaire was provided to 6 experts who were members of the relevant scientific committee, and the necessary modifications were made based on their opinions. To determine the reliability of the tool, a pilot study was conducted on 20 parents of hospitalized children in Akbar Hospital. Initially, the questionnaire was given to the parents and completed. Moreover, after 10 days, the same individuals completed the questionnaire again. The reliability of the tool was calculated using the test-retest reliability and Cronbach's alpha, resulting in a reliability coefficient of 0.82.

This questionnaire consists of 15 questions and six items (social isolation, child maltreatment, low educational achievement of the child, substance abuse in parents, housing instability, low maternal education). The scoring details of this questionnaire are as follows:

Minimum score of 15 and maximum score of 75.

A score of 15 to 34 is considered as a poor level of social health.

A score of 35 to 54 is considered as an average level of social health.

A score of 55 to 75 is considered as a good level of social health.

This questionnaire was completed in person by a trained researcher in the field of questionnaires, after explaining the purpose of the research and obtaining written consent from the parents of the child to participate in the study.

The data were analyzed using SPSS statistical software version 25. Initially, descriptive statistics, including mean and standard deviation, were used for normally distributed quantitative variables, and median and range were used for non-normally distributed quantitative variables. Frequency and percentage were used to describe demographic characteristics and other variables under investigation. Independent t-test, multiple linear regression, Mann-Whitney U test, Kruskal-Wallis test, and Chi-square test were used for comparing quantitative variables between two or more groups, and the significance level was set at less than 0.05 for all tests.

3. RESULTS

A total of 357 patients were enrolled in the study, with a mean age of 5.40±4.72 years for children and a mean age of 33.32±19.56 years for mothers. Table **1** shows the demographic characteristics of the study participants. As observed, the majority of mothers were housewives (308 cases, 86.5%).

Table 1. Demographic characteristics of study participants.

Variable	-	Frequency (percentage) or Mean ± SD
Child's gender	Female	149 (41.9)
	Male	206 (57.9)
Child's age	-	5.40±4.72
Child's weight	-	19.04±13.61
Mother's age	-	33.32±19.56

(Table 1) contd.....

Variable	-	Frequency (percentage) or Mean ± SD
Mother's occupation	housekeeper	308 (86.5)
	Employee	39 (11)
	Self-employed	8 (2.2)
Income level	≤ 5	183 (51.5)
	5-10	136 (38.3)
	> 10	35 (9.9)
Place of residence	City	254 (71.1)
	Village	99 (27.7)
Mother's education	university	88 (25.2)
	Non-academic	261 (74.8)
Marital status	with wife	340 (96)
	separated	13 (3.7)
	Widow	1 (0.3)
Housing status	Personal	172 (48.6)
	tenant	182 (51.4)
Mother's underlying disease	-	50 (14.2)
Family relationship between father and mother	-	132 (37.3)
History of hospitalization in the past	-	180 (51)
Suffering from chronic or specific diseases	-	121 (34.4)

The average score of the social health of hospitalized children participating in the study is presented in Table **2**. As shown in Table **2** the average score of the participants was 56.19±12.18.

In Table **3**, the level of social health of children is presented based on the questionnaire scores. Two hundred forty-four children (68.3 percent) had good social health, 85 children (23.8 percent) had an average level of social health, and 28 children (7.8 percent) had a weak level of social health.

Table **4** compares the demographic characteristics of children with different levels of social health. As observed, the mother's occupation (p=0.045) and the parental family ratio (p=0.002) had a significant relationship with the level of social health in children.

Table 2. Participants' scores in the questionnaire on social factors affecting the health of hospitalized children.

-	Mean ± SD	The Lowest	The Most
Score	56.19±12.18	15	75

Table 3. Children's social health level based on questionnaire scores.

Children's Social Health Level	Frequency	Percentage
Weak	28	7.8
Average	85	23.8
Good	244	68.3

Table 4. Comparison of demographic characteristics of children with different levels of social health.

Variable	-	Social Health Level, Frequency (percentage) or Mean ± SD			P-value
		Weak	Average	Good	
Child's gender	Female	13 (46.4)	38 (45.2)	98 (40.3)	0.649*
	Male	15 (53.6)	46 (54.8)	145 (59.7)	
Child's age	-	5.96±3.99	5.98±4.54	5.14±4.86	0.312**
Child's weight	-	20.07±10.68	19.62±13.16	18.73±14.10	0.807**
Mother's age	-	32.91±8.27	31.94±7.35	33.84±22.99	0.745**
Mother's occupation	Housekeeper	21 (75)	75 (89.3)	212 (87.2)	0.045*
	Employee	7 (25)	9 (10.7)	23 (9.5)	-
	Self-employed	0 (0)	0 (0)	8 (2.3)	-

(Table 4) contd.....

Variable	-	Social Health Level, Frequency (percentage) or Mean ± SD			P-value
		Weak	Average	Good	
Income level	≤ 5	10 (35.7)	41 (49.4)	132 (54.3)	0.081*
	5-10	13 (46.4)	38 (45.8)	85 (35)	-
	> 10	5 (17.9)	4 (4.8)	26 (10.7)	-
Place of residence	City	19 (67.9)	61 (72.6)	174 (72.2)	0.879*
	Village	9 (32.1)	23 (27.4)	67 (27.8)	-
Mother's education	University	11 (39.3)	19 (23.5)	58 (24.2)	0.201*
	Non-academic	17 (60.7)	62 (76.5)	182 (75.8)	-
Marital status	With wife	28 (100)	83 (98.8)	229 (94.6)	0.386*
	Separated	0 (0)	1 (1.2)	12 (5)	-
	Widow	0 (0)	0 (0)	1 (0.4)	-
Housing status	Personal	12 (42.9)	47 (56)	113 (46.7)	0.281*
	Tenant	16 (57.1)	37 (44)	129 (53.3)	-
Mother's underlying disease	-	3 (11.5)	9 (10.8)	38 (15.7)	0.506*
Family relationship between father and mother	-	19 (67.9)	30 (35.7)	83 (34.3)	0.002*
History of hospitalization	-	20 (71.4)	41 (49.4)	119 (49.6)	0.084*
Suffering from chronic or specific diseases	-	12 (42.9)	26 (31.7)	83 (34.6)	0.563*

Note: * Chi-square test was used to compare between groups. ** One way ANOVA test was used to compare between groups.

Table 5. Regression coefficients related to the effect of the variables of child's gender, child's age, child's weight, mother's age, mother's occupation, income level, place of residence, mother's education, marital status, housing status, mother's underlying disease, family relationship between father and mother, history of hospitalization, and suffering from chronic or specific diseases on the child's social health score.

Variable	Variable Coefficient	Standard Error	T value	p-value
Constant	50.099	8.860	5.654	0.000
Child's gender	0.573	1.367	0.420	0.675
Child's age	-0.126	0.315	-0.400	0.689
Child's weight	0.019	0.108	0.171	0.864
Mother's age	0.009	0.035	0.246	0.806
Mother's occupation	1.438	1.776	0.810	0.419
Income level	-1.758	1.150	-1.529	0.127
Place of residence	-2.591	1.638	-1.582	0.115
Mother's education	1.836	1.753	1.047	0.296
Marital status	5.369	3.459	1.552	0.122
Housing status	0.443	1.386	0.320	0.749
Mother's underlying disease	-2.212	2.020	-1.095	0.274
Family relationship between father and mother	2.955	1.403	2.106	0.036
History of hospitalization	3.343	1.659	2.014	0.045
Suffering from chronic or specific diseases	-2.979	1.758	-1.695	0.091

To investigate the effect of independent variables (child's gender, child's age, child's weight, mother's age, mother's occupation, income level, place of residence, mother's education, marital status, housing status, mother's underlying disease, family relationship between father and mother, history of hospitalization, and suffering from chronic or specific diseases), multiple linear regression was used on the child's social health score. Using multiple linear regression analysis, the simultaneous effect of all independent variables on the child's social health score variable (dependent variable) was investigated. The results of multiple linear regression analysis in the presence of all variables showed that the two variables of the family relationship between father and mother (p=0.036) and history of hospitalization (p=0.045) affect the child's social health score (Table **5**).

4. DISCUSSION

Understanding and recognizing the social factors that affect children's health can help improve the health of children, especially those who are hospitalized. This study was conducted with the aim of determining the social factors that affect the health of hospitalized children in the pediatric hospital. The findings showed that the average score for the social health of participating children in this research was 56. Overall, more than two-thirds of hospitalized children had a good level of social health, 24% had an average level of social health, and unfortunately, 8% had a poor level of social health.

Next, the relationship between the demographic characteristics of the participants and their level of social health was examined. The results showed that the gender of the children did not have a significant relationship with their level of social health. Similarly, the age of the child, the child's weight, and the mother's age did not have any relationship with the child's level of social health. In examining the relationship between the mother's occupation and the child's level of social health, it was shown that 87% of children who had a good level of social health had stay-at-home mothers, while in children who had a poor level of social health, 75% of mothers were stay-at-home. The relationship between the mother's occupation and the child's level of social health was significant. This means that in children whose mothers were employed, the level of social health was lower than in children whose mothers were stay-at-home.

In a study conducted in 2017 by Shahraki *et al*. [33], the authors examined the relationship between socio-economic factors and parental health on children's health. In this study, 400 children were randomly selected from 10 healthcare centers in Tehran, and the necessary information was obtained from the children's health records. The results showed that an increase in the educational level of both parents increases the likelihood of normal child health by 2.6% and 3.5%, respectively. Maternal employment reduces the children's health status by 6.7%, and the likelihood of good health in twins is also 8.97% lower than other children. The authors concluded that maternal employment has a negative impact on children's health. Considering that different tools were used to assess children's health in our study and Shahraki's study (Shahraki *et al*. measured the level of children's health, while our study examined the level of children's social health), it is not possible to make a direct comparison between the results of the two studies. However, an interesting point is that Shahraki's study also found a similar negative impact of maternal employment on children's health.

The investigation of the relationship between family income and children's social health showed no significant correlation between these two factors. Similarly, the examination of the relationship between family residence and children's social health showed that nearly 70% of children in each level of social health (including weak, moderate, and good) lived in urban areas, and no significant difference was observed between the groups. Furthermore, the relationship between maternal education level and children's social health was examined, which showed that in children with poor social health, nearly 40% of mothers had a university education. In contrast, in children with good social health, less than 25% of mothers had a university education. However, the observed difference was not statistically significant.

The investigation of the relationship between the marital status of mothers and the level of social health of children also indicated the absence of a significant relationship between these two factors. Similarly, the housing status of the family (whether it was personal or rented), the presence of a mental illness in the mother, the history of hospitalization in the child, and the child's exposure to chronic or specific diseases had no relationship with the level of social health of children. An interesting point to note was the existence of a familial relationship between the father and mother and the level of social health of the child. This relationship was such that among children who had poor social health, 67% of cases had a familial relationship between the father and mother, while among children who had good social health, only 34% of parents had a familial relationship with each other. This means that in children whose parents had a familial relationship, the level of social health was weaker.

In a systematic review conducted in 2022 by Bahrami *et al*. [35], the authors focused on identifying the social factors affecting the mental health of children and adolescents during the COVID-19 pandemic. After reviewing the available research, a total of 9 studies were selected for final analysis. The results of the studies showed that factors such as more adaptive conflict resolution styles between mother-child and father-child, older age, increased parental presence at home, and higher maternal education were identified as protective and positive determinants of the mental health of children residing in Iran.

An interesting point in the study by Bahrami and colleagues is that the presence of parents at home has been introduced as a factor that increases the mental health of children. In our study, it was also shown that in children whose mothers were homemakers, the level of social health was significantly higher than in children whose mothers were working. From the overall findings, it can be inferred that working mothers may have a negative impact on various aspects of a child's health (such as mental health and social health). Another finding of the study by Bahrami and colleagues was that higher education of the mother was associated with better mental health of the child, while in our study, no significant relationship was observed between the mother's education and the social health of the children.

In another study conducted in 2016 by Vameghi and colleagues [36], the authors examined the role of parental education and mediators of child health in Iran. In this ecological study, national data related to parental education as a predictor variable, child health as a response variable, and place of residence, child's access to health services, and maternal health as mediator variables were collected in 31 provinces of the country. The results showed that low parental education and poor living conditions had negative effects on child health.

The results obtained in our study were not consistent with the results of Vameghi and colleagues' study, as in our study, housing status (rental or personal) and maternal education were not related to the level of children's social health. However, it should be noted that in Vameghi and colleagues' study, the housing situation was assessed in terms of the availability of facilities such as sanitary facilities, which is different from the evaluation in our study. Another possible reason for the difference in

results between the two studies is that we examined children's social health, while Vameghi and colleagues used a different questionnaire to assess the level of child health.

CONCLUSION

The findings showed that most of the children admitted to the hospital had a good level of social health. In terms of the relationship between the child's social health and the mother's job status, the findings showed that the level of social health in children whose mothers were employed was lower than in children whose mothers were housewives. Also, in terms of the relationship between the child's social health and the family relationship of parents, the findings showed that children whose parents had a family relationship with each other had a weaker level of social health.

In conclusion, the research findings highlight the significance of social health among children admitted to the hospital. It is evident that the majority of these children demonstrate a good level of social well-being. However, the study reveals an interesting correlation between the mother's job status and the child's social health. Specifically, children with employed mothers tend to have a lower level of social health compared to those with housewives as mothers. This suggests that the mother's employment may potentially impact the child's social development.

Furthermore, the findings shed light on the importance of the family relationship of parents in relation to the child's social health. Surprisingly, the research indicates that children whose parents have a family relationship with each other exhibit a weaker level of social health. This implies that the dynamics within the parents' relationship may influence the child's social well-being. It is crucial for parents to recognize the impact of their relationship on their child's social development and take necessary steps to foster a positive and supportive family environment.

These findings emphasize the interrelation of various factors influencing a child's social health, including the mother's job status and the family relationship of parents. It is imperative for policymakers, healthcare professionals, and parents to consider these factors when designing interventions and support systems for children's social well-being. Additionally, further research is needed to delve deeper into the underlying mechanisms behind these relationships and to explore potential strategies for promoting optimal social health in children. By addressing these findings, we can strive to ensure the holistic development and well-being of our future generations.

LIMITATIONS OF THE STUDY

One of the weaknesses of the present study was that the participants were only selected from hospitalized children in Akbar and Dr. Sheikh hospitals, which may not be a good representation of the entire population of children in the city of Mashhad. It would be better to conduct future studies by sampling from different areas of this city or by conducting more extensive studies at the national level. On the other hand, our study also had a strength, which included the use of a questionnaire on social factors affecting children's health, which was translated into Persian for the first time, and its validity and reliability were confirmed. In this regard, this study is considered as an innovation.

ETHICAL STATEMENT

This article is the result of a research project approved by Mashhad University of Medical Sciences with ethics code IR.MUMS.MEDICAL.REC.1400.810.

In terms of ethical considerations, the present study was ethical in two respects: first, all the participants volunteered to participate in the study, and secondly, keeping in mind the principles of confidentiality and secrecy, participants were assured that all information would remain confidential and that the results would be reported in a general manner. All procedures performed in the study involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

CONSENT FOR PUBLICATION

In order to comply with ethical considerations in this research, the information of the participants was kept confidential, and other people were not able to access this information. The names and surnames of the participants were not used for data collection, and data collection was done after obtaining the code of ethics from Mashhad University of Medical Sciences.

STANDARDS OF REPORTING

STROBE guidelines have been followed.

AVAILABILITY OF DATA AND MATERIALS

The data and supportive information are available within the article.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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