# Health Literacy among Parents of Preschool Children with ADHD: A Cross-Sectional Study in Sanandaj, Iran

## ABSTRACT

Background and Objectives: ADHD is a chronic neurodevelopmental disorder affecting attention, activity levels, and impulse control, with a global prevalence of about 5% in children. In Iran, rates are similar, with the combined subtype being most common. ADHD impacts children's emotional and social development and places strain on families. Parental health literacy is essential for managing symptoms and improving outcomes; however, research on this topic especially among parents of preschool-aged children in Iran is limited. This study assessed the health literacy of parents whose preschool-aged children were diagnosed with attention-deficit/hyperactivity disorder (ADHD) and examined its association with ADHD in their children during 2022 in Sanandaj.

Materials and Methods: This descriptive-analytical study assessed parental health literacy using the "Health Literacy of Parents of Preschool Children" questionnaire, a researcher-developed instrument. Demographic information (including age, gender, education level, and employment status) was collected using a demographic questionnaire reviewed and approved by subject-matter experts. All parents of children diagnosed with ADHD were included through census sampling. Data were analyzed in Stata v.14 using independent t-tests and one-way ANOVA; non-parametric equivalents (Mann–Whitney U and Kruskal–Wallis tests) were applied when normality assumptions were unmet. A significance level of $p < 0.05$ was considered.

Results: Among participants, 67.3% were female and 32.7% male, with a mean age of 34.94 ± 5.07 years. The overall mean parental health literacy score was 19.53 ± 4.07. Nutrition subscale scores were significantly higher among parents of boys ($p < 0.05$). Having a childcare book at home was significantly associated with both the developmental subscale and total literacy score ($p < 0.05$). Parental education level showed significant relationships with nutrition, development, and numeracy subscales, as well as total literacy score ($p < 0.05$). All subscales except development, along with total literacy score, were significantly associated with parental occupation ($p < 0.05$).

Conclusion: Higher socioeconomic status and parental education were linked to increased health literacy. Owning childcare books and seeking accurate health information reflected greater parental responsibility and literacy.

**Paper Type:** Research Article

Keywords: ADHD, Health Literacy, Parents, Attention Deficit Disorder with Hyperactivity, Children.

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## Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a chronic brain disorder that manifests through ongoing issues with focus, excessive activity, and impulsiveness (1). ADHD impacts nearly 5% of children and about 2.5% of adults across the globe (2). Evidence from Iranian studies indicates that ADHD affects approximately 5 to 7 percent of children (3).

Three types of ADHD exist: inattentive, hyperactive-impulsive, and combined presentations. The last one is the most common subtype and it can disturb children's academic, social, and emotional development, often persisting into adulthood if left untreated (4).

The consequences of ADHD can deeply affect multiple aspects of life for both children and their parents. Its impact goes beyond the individual, placing emotional, relational, and financial pressure on families (1, 5).

Enhancing parental health literacy is a key determinant in preventing the exacerbation of symptoms and improving treatment outcomes in children with attention-deficit/hyperactivity disorder (ADHD). Parents with higher levels of health literacy are better able to understand basic information about the nature of ADHD, its natural course, and available treatment options (5). Moreover, interactive and critical health literacy aligned with Nutbeam's model empowers parents to communicate more effectively with healthcare providers, critically appraise health information, and engage more actively in shared decision-making regarding their child's care. Such informed engagement not only facilitates more effective healthcare utilization but also supports the implementation of parenting strategies such as Behavioral Parent Training (BPT) that align with therapeutic programs. This synergy, in turn, contributes to the reduction of ADHD symptoms and the enhancement of the child's overall functionig (6, 7).

Furthermore, parents with higher health literacy are better equipped to identify and mitigate environmental stressors such as irregular sleep patterns, poor nutrition, and family conflict thereby preventing the exacerbation of ADHD clinical presentations (8). In summary, empowering parents through health literacy interventions enhances their knowledge base, psychological attitudes, and self-efficacy in symptom management. This, in turn, optimizes the ADHD therapeutic process and mitigates the long-term sequelae of the disorder.

According to the World Health Organization, health literacy reflects the personal knowledge and skills that are developed through daily activities, social interactions, and intergenerational transmission (9). Health literacy levels in Iran are low among the general population, similar to other developing countries (10). Recent research indicates that health literacy studies in early childhood tend to focus not on children themselves, but on the parents and educators who raise them highlighting that enhancing parental health literacy has a direct and positive impact on children's health status and behaviors (11). Nutbeam's Health Literacy Model is one of the most widely recognized and validated frameworks for understanding and promoting health

literacy. This hierarchical model has been extensively utilized in school health education programs and public health interventions across diverse populations worldwide. It encompasses three progressive dimensions: functional, interactive, and critical health literacy. At the functional level, individuals develop essential reading, writing, and numeracy skills necessary to access and comprehend basic health information. The interactive level emphasizes effective communication, engagement with others, and the application of health information to modify behavior. At the critical level, individuals possess the ability to evaluate and reflect on health information, enabling them to make informed decisions regarding their own health and that of their communities. By highlighting individual empowerment and acknowledging environmental complexities, Nutbeam's model serves as a valuable tool for the design and evaluation of health promotion interventions (12). Parenting practices and the family environment play a significant role in shaping the emotional coping mechanisms of children with ADHD. Interventions that focus on parents have demonstrated greater effectiveness in reducing behavioral symptoms in affected children (13).

Available evidence suggests that parental health literacy in preschool-aged children has received limited research attention in Iran. This gap is evident both in terms of the domains required for comprehensive health literacy assessment and in the actual literacy levels among parents (14). Therefore, the present study aims to evaluate the health literacy of parents whose children have been diagnosed with attention-deficit/hyperactivity disorder (ADHD) and to examine its association with the presence of ADHD in their children in Sanandaj.

## Materials and Methods

This cross-sectional descriptive-analytical study was conducted to evaluate the health literacy levels of parents with children diagnosed with attention-deficit/hyperactivity disorder (ADHD).

## Participants

The participants in this study included all parents of preschool children diagnosed with attention-deficit/hyperactivity disorder (ADHD), whose diagnosis had been confirmed through medical records. The contact information of parents was obtained by visiting pediatric psychiatric clinics, and they were subsequently contacted. The final sample size was 104 individuals.

## Procedures

Following the approval of the Ethics Committee and written authorization from Kurdistan University of Medical Sciences, the study was conducted in coordination with academic supervisors. Contact information of parents of children diagnosed with attention-deficit/hyperactivity disorder (ADHD) was obtained by visiting pediatric psychiatric clinics. Parents were then contacted, informed about the study objectives, and invited to participate. Upon obtaining informed consent, data collection was carried out either through in-person visits coordinated with the treating physician or by sending the questionnaire via social media or email. Parental health literacy was assessed using the "Health Literacy of Parents of Preschool Children" questionnaire. Data were subsequently analyzed with the assistance of

a statistical consultant, and the results were presented in the form of a thesis.

## Inclusion and Exclusion Criteria Inclusion Criteria

According to the inclusion criteria, participants (either father or mother) had to be parents of preschool children diagnosed with ADHD, with the diagnosis confirmed by a psychiatrist and documented in the child's medical records. In addition, voluntary willingness to participate in the study was required.

In accordance with the exclusion criteria, participants who were unwilling to participate or chose to withdraw from the study at any stage were excluded.

## Data Collection

Demographic information was completed by the parents using a researcher-designed questionnaire.

Demographic questions included parent gender (male/female), education level (less than high school diploma, diploma, bachelor's degree, master's degree or higher), and occupation (employed, unemployed, housewife), as well as the child's gender (male/female) and birth order (first, second, third or more) of the child diagnosed with ADHD. The questionnaire was developed based on expert input and underwent both face and content validation using qualitative methods. Face validity was assessed through feedback from 10 parents of preschool children, while content validity was confirmed by 12 experts in community health nursing and related fields.

Data were collected using the Health Literacy of Parents of Preschool Children questionnaire, which was distributed to parents either in person or via email.

Parental health literacy was assessed using the Health Literacy of Parents of Preschool Children questionnaire, which was researcher-developed and validated in the present study. The instrument consists of 40 items rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The items are distributed across five domains: growth and development (15 items, score range 15–75), nutrition (9 items, score range 9–45), medical and health information (8 items, score range 8–40), numerical literacy (5 items, score range 5–25), and injury prevention (3 items, score range 3–15). Reliability of the instrument was confirmed through internal consistency (Kuder–Richardson coefficient = 0.78) and test–retest analysis (ICC = 0.81) (15).

## Data Analysis

Data analysis in this study was performed using Stata software, version 14. Initially, descriptive statistics, including mean, standard deviation, frequency, percentage, and relevant charts, were used to summarize the data. To examine relationships between the study variables, appropriate statistical tests were applied based on the type of variable. The independent t-test was used to compare the mean health literacy scores across dichotomous variables, while one-way analysis of variance (ANOVA) was employed for variables with more than two categories. In cases where the distribution of the health literacy variable was not normal, equivalent non-parametric tests, namely the Mann–Whitney U test and the Kruskal-Wallis test, were used.

## Ethical Considerations

Prior to enrollment, participants were fully informed about the purpose and procedures

of the study. Written informed consent was obtained from all individuals before data collection. To ensure anonymity, no personal identifiers such as names or surnames were recorded on the questionnaires, which were coded numerically. All participant data were treated as confidential and securely maintained by the researcher.

## Results

### Sociodemographic Characteristics of Parents

Among the 104 participating parents, the majority were female (67.3%) and housewives (59.6%). The mean age was 34.94 years (SD = 5.07), ranging from 24 to 47 years. Most had one child (55.8%), and in 75% of cases, the child with ADHD was the first-born. More than half of the parents (54.8%) had less than a high school diploma, while only 6.7% held a master's degree or higher. Most had not attended any educational classes related to child health (88.5%), although 91.3% reported access to pediatric care books. Regarding sources of childcare information, the most common were consulting physicians or health centers (47.1%) and using the internet (32.7%). Broadcast media exposure was limited, with 71.2% reporting no use of such resources. In terms of household income, 35.6% of families earned more than 600,000 Tomans per month, while 19.2% earned less than 250,000 Tomans (Table 1).

### Descriptive Analysis Parental Health Literacy and its Dimensions

The mean total health literacy score among participating parents was 19.53 (SD = 4.84), with scores ranging from 8 to 31. Among the dimensions, the highest mean score was observed in the growth and development domain (6.26 ± 2.23), followed by nutrition (4.84 ± 1.84) and medical and health information (4.50 ± 1.28). Lower scores were reported in numeracy (2.16 ± 1.46) and safety and injury prevention (1.77 ± 0.84). These findings suggest that while parents demonstrated moderate literacy in developmental and nutritional aspects, their numeracy and safety-related literacy were relatively limited (Table 2).

**Table 1. Sociodemographic Characteristics of Parents**

| Variables | | Values |
|---|---|---|
| Gender | Male | 34 (32.7) |
| | Female | 70 (67.3) |
| | Total | 104 (100.0) |
| Age | Minimum | 24 |
| | Maximum | 47 |
| | Mean ± SD | 34.94 ± 5.07 |
| Number of Children | 1 | 58 (55.8) |
| | 2 | 34 (32.7) |
| | 3 | 10 (9.6) |
| | 5 | 2 (1.9) |
| ADHD Child's Birth Order | 1 | 78 (75.0) |
| | 2 | 20 (19.2) |
| | 3 | 5 (4.8) |
| | 4 | 1 (1.0) |

| Variables | | Values |
|---|---|---|
| Job | Housewife | 62 (59.6) |
| | Employee | 29 (27.9) |
| | Other | 13 (12.5) |
| Participation in Educational Classes | No participation | 92 (88.5) |
| | Less than one week | 9 (8.7) |
| | More than one week | 3 (2.9) |
| Education | Less than high school diploma | 57 (54.8) |
| | Associate degree | 19 (18.3) |
| | Bachelor's degree | 21 (20.2) |
| | Master's degree or higher | 7 (6.7) |
| Access to Pediatric Care Books | Yes | 95 (91.3) |
| | No | 9 (8.7) |
| Reasons for Unavailability of Childcare Books | Negligence | 45 (47.4) |
| | Lack of time | 29 (30.5) |
| | No perceived need | 15 (15.8) |
| | cost of books | 3 (3.2) |
| | Lack of awareness | 3 (3.2) |
| Exposure to Health Education via Broadcast Media | Not used | 74 (71.2) |
| | Television | 15 (14.4) |
| | Radio | 3 (2.9) |
| | Social media | 12 (11.5) |
| Sources of Childcare Information Used by Parents | Consulting elders and relatives | 10 (9.6) |
| | Using books | 11 (10.6) |
| | Using the internet | 34 (32.7) |
| | Consulting physicians or health centers | 49 (47.1) |
| Monthly Household Income (×1,000 Toman) | Less than 250 | 20 (19.2) |
| | 250 to 400 | 30 (28.8) |
| | 400 to 600 | 17 (16.3) |
| | More than 600 | 37 (35.6) |

a Variables are expressed as No. (%) or mean ± SD (Min - Max)

**Table 2. Descriptive Analysis Parental Health Literacy and its Dimensions (n = 104)**

| Subscale | Minimum | Maximum | Mean ± SD |
|---|---|---|---|
| Nutrition | 0.00 | 9.00 | 4.84 ± 1.84 |
| Growth and Development | 0.00 | 11.00 | 6.26 ± 2.23 |
| Safety and Injury Prevention | 0.00 | 3.00 | 1.77 ± 0.84 |
| Numeracy | 0.00 | 5.00 | 2.16 ± 1.46 |
| Medical and Health Information | 1.00 | 7.00 | 4.50 ± 1.28 |
| Total Health Literacy Score | 8.00 | 31.00 | 19.53 ± 4.84 |

## Association between Sociodemographic Variables and Health Literacy Dimensions

Based on Table 3, the association between sociodemographic variables and dimensions of health literacy is presented.

Female parents scored significantly higher in the nutrition domain compared to males (5.56 ± 1.71 vs. 4.49 ± 1.80, $p = 0.005$). No significant differences were observed in other dimensions ($p > 0.05$). No statistically significant differences were found across any health literacy domains ($p > 0.05$), although numeracy scores were notably lower among parents with five children (0.00 ± 0.00). Birth order was not significantly associated with any health literacy dimensions ($p > 0.05$). Significant differences were observed in all domains except growth and development. Employed parents had higher scores in nutrition ($p = 0.007$), safety ($p = 0.009$), numeracy ($p = 0.005$), medical information ($p = 0.010$), and total health literacy ($p = 0.0001$).

No significant associations were found ($p > 0.05$), although parents who attended classes for more than one week had the highest scores in growth and development (9.00 ± 1.73, $p = 0.076$). Statistically significant differences were found in nutrition ($p = 0.001$), growth and development ($p = 0.005$), numeracy ($p = 0.033$), and total health literacy ($p = 0.001$). Parents with a master's degree or higher consistently scored highest across these domains. Parents with access to pediatric books had significantly higher scores in growth and development ($p = 0.014$) and total health literacy ($p = 0.042$). Significant differences were found in medical information ($p = 0.049$) and total health literacy ($p = 0.003$). Parents who used social media had the highest scores across most domains. Significant associations were observed in nutrition ($p = 0.029$), growth and development ($p = 0.020$), numeracy ($p = 0.035$), and total health literacy ($p = 0.001$). Parents who relied on the internet or books scored higher than those who consulted elders or health centers.

**Table 3. Association between Demographic Variables and Dimensions of Health Literacy**

| Demographic Variable | Nutrition | Growth & Development | Safety | Numeracy | Medical Info | Total Score |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 4.49 ± 1.80 | 6.21 ± 2.48 | 1.74 ± 0.85 | 2.13 ± 1.36 | 4.40 ± 1.15 | 18.97 ± 4.77 |
| Female | 5.56 ± 1.71 | 6.35 ± 1.63 | 1.82 ± 0.83 | 2.24 ± 1.65 | 4.71 ± 1.51 | 20.68 ± 4.85 |
| p-value | 0.005 | 0.768 | 0.648 | 0.728 | 0.254 | 0.096 |
| Number of Children | | | | | | |
| 1 child | 5.05 ± 1.67 | 6.52 ± 2.04 | 1.81 ± 0.83 | 2.17 ± 1.48 | 4.41 ± 1.35 | 19.96 ± 4.09 |
| 2 children | 4.65 ± 2.09 | 5.68 ± 2.50 | 1.76 ± 0.89 | 2.44 ± 1.37 | 4.53 ± 1.28 | 19.06 ± 5.73 |
| 3 children | 4.60 ± 1.96 | 6.80 ± 2.44 | 1.70 ± 0.82 | 1.60 ± 1.35 | 5.00 ± 0.82 | 19.70 ± 5.77 |
| 5 children | 3.50 ± 0.71 | 6.00 ± 0.00 | 1.00 ± 0.00 | 0.00 ± 0.00 | 4.00 ± 0.00 | 14.50 ± 0.71 |
| p-value | 0.504 | 0.299 | 0.602 | 0.065 | 0.554 | 0.403 |
| ADHD Child's Birth Order | | | | | | |
| First-born | 5.01 ± 1.87 | 6.21 ± 2.32 | 1.73 ± 0.86 | 2.18 ± 1.47 | 4.42 ± 1.31 | 19.55 ± 4.98 |
| Second-born | 4.40 ± 1.82 | 6.45 ± 1.70 | 1.95 ± 0.69 | 2.50 ± 1.32 | 4.80 ± 1.28 | 20.10 ± 4.04 |
| Third-born | 4.20 ± 1.30 | 6.40 ± 3.36 | 1.80 ± 1.10 | 1.00 ± 1.22 | 4.60 ± 0.55 | 18.00 ± 6.20 |

| Demographic Variable | Nutrition | Growth & Development | Safety | Numeracy | Medical Info | Total Score |
|---|---|---|---|---|---|---|
| Fourth-born | 4.00 ± – | 6.00 ± – | 1.00 ± – | 0.00 ± – | 4.00 ± – | 15.00 ± – |
| p-value | 0.454 | 0.974 | 0.591 | 0.088 | 0.672 | 0.653 |
| Job | | | | | | |
| Housewife | 4.44 ± 1.88 | 6.02 ± 2.41 | 1.74 ± 0.79 | 2.05 ± 1.32 | 4.39 ± 1.15 | 18.62 ± 4.74 |
| Employee | 5.72 ± 1.69 | 6.83 ± 1.98 | 2.07 ± 0.88 | 2.79 ± 1.50 | 5.03 ± 1.24 | 22.45 ± 3.97 |
| Other | 4.77 ± 1.30 | 6.15 ± 1.77 | 1.23 ± 0.73 | 1.31 ± 1.49 | 3.85 ± 1.57 | 17.31 ± 4.46 |
| p-value | 0.007* | 0.269 | 0.009* | 0.005* | 0.010* | 0.0001* |
| Participation in Educational Classes | | | | | | |
| None | 4.76 ± 1.91 | 6.13 ± 2.19 | 1.76 ± 0.84 | 2.09 ± 1.48 | 4.52 ± 1.30 | 19.25 ± 4.91 |
| < 1 week | 5.78 ± 0.67 | 6.67 ± 2.40 | 1.89 ± 0.78 | 2.67 ± 0.87 | 4.44 ± 1.01 | 21.44 ± 3.91 |
| > 1 week | 4.67 ± 1.15 | 9.00 ± 1.73 | 1.67 ± 1.15 | 3.00 ± 2.00 | 4.00 ± 1.73 | 22.33 ± 4.04 |
| p-value | 0.281 | 0.076 | 0.890 | 0.316 | 0.781 | 0.260 |
| Education | | | | | | |
| Less than diploma | 4.30 ± 1.94 | 5.86 ± 2.20 | 1.67 ± 0.83 | 1.79 ± 1.45 | 4.32 ± 1.24 | 17.91 ± 5.00 |
| Associate degree | 6.11 ± 1.15 | 6.00 ± 2.05 | 1.68 ± 0.82 | 2.53 ± 1.26 | 4.37 ± 1.50 | 20.68 ± 3.84 |
| Bachelor's degree | 5.24 ± 1.61 | 6.71 ± 2.19 | 1.90 ± 0.83 | 2.62 ± 1.32 | 5.00 ± 1.05 | 21.48 ± 4.24 |
| Master's and above | 4.57 ± 1.27 | 8.86 ± 1.21 | 2.43 ± 0.79 | 2.86 ± 1.77 | 4.86 ± 1.35 | 23.57 ± 2.07 |
| p-value | 0.001* | 0.005* | 0.114 | 0.033* | 0.161 | 0.001* |
| Access to Pediatric Care Books | | | | | | |
| Yes | 4.67 ± 1.00 | 8.00 ± 1.58 | 2.22 ± 0.83 | 3.00 ± 1.50 | 4.78 ± 0.67 | 22.67 ± 2.92 |
| No | 4.86 ± 1.90 | 6.09 ± 2.22 | 1.73 ± 0.83 | 2.08 ± 1.43 | 4.47 ± 1.32 | 19.23 ± 4.89 |
| p-value | 0.762 | 0.014* | 0.090 | 0.071 | 0.497 | 0.042* |
| Exposure to Health Education via Broadcast Media | | | | | | |
| No use | 4.62 ± 1.93 | 6.07 ± 2.31 | 1.80 ± 0.84 | 2.01 ± 1.34 | 4.61 ± 1.20 | 19.10 ± 4.79 |
| Television | 5.47 ± 0.83 | 6.93 ± 1.75 | 1.73 ± 0.59 | 2.60 ± 1.59 | 4.20 ± 1.61 | 20.93 ± 3.77 |
| Radio | 3.67 ± 2.31 | 4.00 ± 2.65 | 0.67 ± 0.58 | 1.00 ± 1.73 | 2.67 ± 0.58 | 12.00 ± 2.65 |
| Social media | 5.75 ± 1.66 | 7.17 ± 1.70 | 1.92 ± 1.00 | 2.83 ± 1.70 | 4.67 ± 1.07 | 22.33 ± 4.42 |
| p-value | 0.069 | 0.071 | 0.128 | 0.084 | 0.049* | 0.003* |
| Sources of Childcare Information Used by Parents | | | | | | |
| Elders and relatives | 5.30 ± 1.57 | 6.60 ± 1.84 | 1.80 ± 0.63 | 1.80 ± 1.14 | 4.50 ± 1.08 | 5.30 ± 1.57 |
| Books | 5.27 ± 1.95 | 6.27 ± 2.15 | 1.91 ± 0.70 | 2.91 ± 1.14 | 4.45 ± 1.37 | 5.27 ± 1.95 |
| Internet | 5.38 ± 1.35 | 7.12 ± 1.93 | 1.88 ± 0.81 | 2.53 ± 1.46 | 4.82 ± 1.36 | 5.38 ± 1.35 |
| Physicians / Health centers | 4.27 ± 2.03 | 5.59 ± 2.35 | 1.65 ± 0.93 | 1.82 ± 1.48 | 4.29 ± 1.22 | 4.27 ± 2.03 |
| p-value | 0.029* | 0.020* | 0.604 | 0.035* | 0.314 | 0.001* |

## Discussion

The findings of this descriptive analytical study expand the current understanding of factors associated with parental health literacy in families of preschool children with ADHD. These results can be interpreted in the context of previous studies, while taking into account the specific cultural background and study population.

Overall, the findings of this study showing a positive association between parental education level, occupational status, and access to structured information resources (such as educational books) with health literacy scores are consistent with a broad body of similar research. For example, in line with the study by Olsbø et al. (2024) on parents of children with Hirschsprung disease, higher educational attainment was identified as a strong determinant of health literacy. Likewise, although the study by Valaei Sharif et al. (2025) focused on the effectiveness of an educational intervention, it implicitly confirmed the importance of parents' baseline knowledge. In addition, Dekkers et al. (2020) demonstrated that parental knowledge mediated the relationship between ADHD symptoms and behavioral outcomes in adolescents, highlighting the broader implications of parental literacy for child development. Similarly, the findings of Csima (2024) and Uner Asil (2025) indicated that parental health literacy was associated with healthier habits and better overall health status in children. Taken together, these studies align with the present findings. The distinctive contribution of the current study lies in its focus on parents of preschool children with ADHD in Sanandaj, a population facing unique caregiving challenges and potential limitations in social and educational infrastructures (10, 16-19).

The primary aim of this study was to assess parental health literacy and identify associated factors. In this regard, the strong association observed between parental education level, socioeconomic status, and health literacy should not be interpreted as causal, yet it remains noteworthy. Higher educational attainment likely strengthens basic functional literacy skills (such as reading and comprehension) as well as critical literacy skills (such as evaluating information sources). Moreover, better occupational and economic status often translates into greater access to high quality educational resources and the time and psychological capacity to actively seek information. Taken together, these factors may create a cycle in which social inequalities contribute to disparities in health literacy and, consequently, in the quality of child care.

Another noteworthy finding of our study was the stronger association of digital and printed resources, compared to consulting family elders, with higher parental health literacy. This result is consistent with the study conducted in Saku, Japan (2022), which showed that access to structured content through a mobile application enhanced parents' child care knowledge and health literacy (20). This similarity suggests that the quality and structured nature of information, regardless of whether it is delivered digitally or in print, is a key factor. However, differences may lie in the level of access to and trust in these resources across different populations.

Access to child care books, as a tangible indicator of an information enriched environment, was associated with higher parental health literacy. This finding suggests that merely emphasizing individual knowledge acquisition is insufficient; rather, ensuring equitable and easy access to reliable, clear, and culturally appropriate information resources is essential particularly for parents who may face linguistic or educational barriers in searching for or evaluating information. This underscores the importance of policy initiatives at the macro level (such as the production and distribution of standardized resources) alongside the design of targeted interventions at the micro level

The study by Goodwin et al. (2023) on children with medical complexity did not find a significant association between low parental health literacy and the frequency of emergency visits, but reported substantially higher care costs. This suggests that the consequences of inadequate health literacy may not always manifest as increased service utilization, but rather as poorer quality of disease management and, ultimately, greater financial burden (21). Despite differences in the study population, this finding indirectly underscores the importance of parental health literacy for the efficient and cost effective management of chronic conditions such as ADHD.

Parental socioeconomic status was found to be associated with health literacy. This result is consistent with the studies of Csima (2024) and Uner Asil (2025), which demonstrated that parental health literacy was linked to healthier habits and better overall health outcomes in children. The differences observed across studies may be explained by variations in access to educational resources, differences in social support systems, and the level of cultural capital within families. Taken together, these findings highlight the importance of supportive policies aimed at reducing social inequalities and improving access to educational resources so that parents from diverse socioeconomic backgrounds have equal opportunities to enhance their health literacy (18).

**Study Limitations and Strengths:** The interpretation of this study's findings should take into account several limitations. First, the cross-sectional design precludes causal inference; that is, it cannot be determined whether higher education directly leads to better health literacy or whether other variables play a role. Second, the sampling method, restricted to a single city (Sanandaj) with a relatively small sample size, may limit the generalizability of the results to other regions of Iran with different cultural and socioeconomic contexts. Third, reliance on parents' self-reported data for assessing health literacy and behaviors may have been influenced by social desirability bias. Fourth, although some sociodemographic factors were controlled, important variables such as parental stress level, social support, and the severity of the child's symptoms were not measured or adjusted for, which could have affected the observed associations. Finally, although the questionnaire used demonstrated acceptable validity and reliability, it was a general tool for parental health literacy and may not have captured specific dimensions relevant to ADHD

management, such as mental health literacy or medication literacy.

## Conclusion

This study indicates that among parents of preschool children with ADHD in Sanandaj, factors such as educational level, occupational status, and access to structured information resources are associated with higher levels of health literacy. Although these associations are not causal in nature, they highlight critical points for future interventions. Effective educational programs for these parents should be tailored to their baseline literacy level, cultural context, and available resources, with a focus on facilitating access to reliable and practical information. Future research employing longitudinal designs and ADHD-specific assessment tools could provide a deeper understanding of the dynamic relationship between parental health literacy and children's long-term outcomes.

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