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Assessment of Health Promotion Services in Public Primary Schools: A Cross-Sectional Study in Western Iran

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A B S T R A C T

Introduction: Schools represent one of the most influential settings for promoting children's health and establishing lifelong healthy behaviors. The World Health Organization's Health-Promoting Schools framework emphasizes the integration of health education, supportive environments, preventive services, healthy nutrition, physical activity, and mental health into routine school practices. Despite the implementation of national school health programs in Iran, evidence regarding the quality and comprehensiveness of health promotion services in primary schools remains limited. This study aimed to assess the status of health promotion services in public primary schools in Kermanshah, western Iran.

Materials & Methods: A descriptive cross-sectional study was conducted in 2024 among 40 public primary schools selected using proportional stratified random sampling from three educational districts of Kermanshah. Data were collected through direct observation, document review, and structured interviews with school principals using standardized Ministry of Health checklists and researcher-developed instruments. Nine domains of school health promotion were evaluated, including health education, environmental health and safety, nutrition, physical activity, disease prevention, mental health, oral health, staff health, and human resources. Data were analyzed using descriptive statistics in SPSS version 24.

Results: Although all participating schools had access to safe drinking water, firefighting equipment, and scheduled physical education classes, substantial deficiencies were identified across several health promotion domains. Only 62.5% of schools employed dedicated health personnel, while 65% lacked emergency exits. Healthy food was exclusively available in only 2.5% of school canteens, and fluoride varnish programs were implemented in only 47.5% of schools. Staff health services were available in 40% of schools. Schools with dedicated health personnel demonstrated better performance in health education, mental health promotion, and disease prevention activities.

Conclusion: Health promotion services in public primary schools of Kermanshah remain considerably below national and international standards. Strengthening the school health workforce, improving school safety infrastructure, promoting healthy nutrition policies, and expanding preventive health services should be prioritized. Future analytical and interventional studies are recommended to identify determinants of service quality and evaluate the effectiveness of school-based health promotion strategies.

Keywords: Health promotion; School health services; Primary schools; Health-promoting schools; Environmental health; Mental health; School nutrition; Disease prevention; Iran

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Highlights

- Health promotion services were below recommended standards in most evaluated domains.
- Shortage of qualified school health personnel remains a major challenge.
- Nutritional conditions and emergency preparedness require immediate improvement.
- Schools with dedicated health personnel demonstrated better health promotion performance.
- Strengthening school health policies is essential for improving students' health outcomes

Introduction

Health is recognized as a fundamental human right and an essential prerequisite for sustainable social and economic development. Health promotion extends beyond disease prevention and encompasses empowering individuals and communities to improve their health through education, supportive environments, healthy public policies, and active community participation (4,7).

Schools are among the most influential settings for health promotion because children spend a considerable proportion of their daily lives within the school environment. School-based health promotion programs provide valuable opportunities to establish healthy lifestyles during childhood, improve health literacy, encourage positive health behaviors, and reduce future health risks (5,7). In addition to formal education, schools contribute to health by creating safe physical environments, promoting healthy nutrition, encouraging physical activity, supporting mental well-being, and facilitating collaboration between families, educators, and healthcare providers (4,7).

To strengthen these efforts, the World Health Organization (WHO) introduced the Health-Promoting Schools (HPS) framework, which integrates health into all aspects of school life. This comprehensive approach emphasizes health education, environmental health and safety, nutrition, physical activity, mental health, disease prevention, oral health, and effective collaboration between the education and health sectors (11). Numerous studies have demonstrated that comprehensive school health programs improve students' physical and mental health, enhance academic performance, reduce absenteeism, and promote lifelong healthy behaviors (3,6,10).

In Iran, school health services are jointly implemented by the Ministries of Health and Medical Education and Education. These services include environmental health monitoring, communicable disease prevention, routine health screening, oral health promotion, nutrition programs, and mental health interventions. Despite these initiatives, previous studies have reported considerable variation in the quality and comprehensiveness of school health services across different regions of the country (2,8,11).

Several challenges have been identified in implementing comprehensive school health programs, including shortages of qualified health personnel, insufficient financial resources, inadequate professional training, limited managerial support, and weaknesses in monitoring and evaluation systems (1,8,12). In addition, deficiencies in school infrastructure, unhealthy nutritional environments, and limited preventive health services remain important public health concerns that may adversely affect students' health and educational achievement (3,9,13).

Although previous studies have investigated individual aspects of school health, such as nutrition, oral health, or mental health, comprehensive evaluations of multiple domains of school health promotion within a single framework remain limited in Iran. Such evidence is essential for identifying strengths and deficiencies, prioritizing interventions, and informing evidence-based policy decisions.

Therefore, the present study aimed to comprehensively evaluate the status of health promotion services in public primary schools in Kermanshah, western Iran, across nine key domains of the Health-Promoting Schools framework, including health education, environmental health and safety, nutrition, physical activity, disease prevention, mental health, oral health, staff health, and human resources.

Materials and methods

Study Design

This descriptive cross-sectional study was conducted between March and June 2024 to evaluate the status of health promotion services in public primary schools in Kermanshah, a metropolitan city located in western Iran. The study was performed in collaboration with the Kermanshah University of Medical Sciences and the Provincial Department of Education. Public primary schools operating under the supervision of the three educational districts of Kermanshah constituted the study population.

Sampling

A total of 40 public primary schools were selected using proportional stratified random sampling. First, the list of all public primary schools was obtained from the Provincial Department of Education. Schools were stratified according to the three educational districts, and the required number of schools from each district was selected proportionally using a computer-generated random sampling method. The final sample included 12 schools from District 1, 12 schools from District 2, and 16 schools from District 3.

Data collection Instruments

Demographic tool

Data were collected using a combination of standardized Ministry of Health school health assessment checklists and researcher-developed questionnaires specifically designed for this study. The instruments assessed nine domains of school health promotion based on the Health-Promoting Schools framework:

1. Health education
2. Environmental health and school safety
3. Nutrition and healthy eating
4. Physical activity
5. Disease prevention and communicable disease control
6. Mental health promotion
7. Oral health services
8. Staff health
9. Human resources and school health personnel

The researcher-developed questionnaire was prepared after reviewing national school health guidelines and previous studies in the field (2,5,8,22). Face and content validity were evaluated by a panel of experts in health education, environmental health, school nursing, and epidemiology. Necessary revisions were made according to expert comments before data collection.

Data Collection Procedure

TData were collected through three complementary approaches:

- Direct observation of school facilities, classrooms, school canteens, sanitary conditions, and environmental health indicators;
- Structured interviews with school principals and designated school health personnel;
- Review of school health records and official documents, including health education programs, vaccination records, oral health activities, environmental inspection reports, and student health documentation.

To ensure data quality, all observations were conducted by trained researchers using standardized assessment procedures.

Variables

The primary outcome variable was the overall status of health promotion services within each participating school. Secondary variables included the availability of school health personnel, environmental safety indicators, nutrition services, oral health activities, mental health programs, disease prevention activities, and staff health services.

Ethical considerations

The study protocol was approved by the Ethics Committee of Kermanshah University of Medical Sciences before data collection (Approval No.: [Insert Ethics Code]). Permission to conduct the study was also obtained from the Provincial Department of Education. Participation was voluntary, and written informed consent was obtained from school principals before data collection. Confidentiality of all collected information was maintained throughout the study, and findings were reported in aggregate form without identifying individual schools or participants.

Statistical and Data analysis

Data were entered into IBM SPSS Statistics version 24 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize study findings. Continuous variables were expressed as mean ± standard deviation (SD), whereas categorical variables were presented as frequencies and percentages. Results were summarized separately for each health promotion domain.

Results

Characteristics of Participating Schools

A total of 40 public primary schools were included in the study, comprising 22 boys' schools (55.0%) and 18 girls' schools (45.0%). Of these, 12 schools (30.0%) were selected from Educational District 1, 12 (30.0%) from District 2, and 16 (40.0%) from District 3.

The mean number of students per school was 355.0 ± 111.3 (range: 139–606). On average, each school employed 11.8 ± 3.2 teachers and 6.2 ± 1.5 administrative staff members. The fourth grade had the highest mean student enrollment (100.4 ± 48.1), whereas the second grade had the lowest (82.1 ± 40.5). The mean total school area was 2,375.1 ± 1,212.5 m², of which 1,020.4 ± 592.6 m² was allocated to educational space.

The availability of health-related infrastructure varied across schools. Fifteen schools (37.5%) lacked a health room, 15 (37.5%) had no school health personnel, and 20 (50.0%) did not have a dedicated counseling room. Furthermore, 37.5% of schools had not implemented occupational capacity-building programs for staff. Only 13 schools (32.5%) had a fully equipped health room, 18 (45.0%) employed specialized school health personnel, and 12 (30.0%) had a dedicated counseling room (Table 1)..

Table 1. Characteristics and Health Infrastructure of Participating Schools (n = 40)

Variable	n (%) / Mean ± SD
Boys' schools	22 (55.0)
Girls' schools	18 (45.0)
District 1	12 (30.0)
District 2	12 (30.0)
District 3	16 (40.0)
Students per school	355.0 ±111.3
Teachers per school	11.8 ±3.2

Administrative staff	6.2 ±1.5
Schools without health room	15 (37.5)
Schools without health personnel	15 (37.5)
Schools without counseling room	20 (50.0)

Health Education

Health education activities were implemented in most participating schools. Non-curricular health education programs were conducted in 37 schools (92.5%), while health education materials were available in 39 schools (97.5%). However, staff capacity-building programs related to health promotion were implemented in only approximately two-thirds of schools, with 13 schools (32.5%) reporting no such activities.

Disease Prevention and Health Care

Performance in disease prevention was generally satisfactory. Educational activities on common communicable diseases were implemented in all schools (100%). A fully equipped first-aid kit was available in 38 schools (95.0%), whereas two schools (5.0%) had incomplete first-aid equipment.

Routine screening for pediculosis was conducted in 38 schools (95.0%). First-aid training for students was provided in 30 schools (75.0%), while similar training for school staff was available in only half of the schools (50.0%).

Referral systems showed moderate performance. Students requiring referral were completely identified in 24 schools (60.0%), partially identified in six schools (15.0%), and not identified in ten schools (25.0%). Likewise, referral follow-up was complete in 23 schools (57.5%), partial in seven schools (17.5%), and absent in ten schools (25.0%). Only four schools (10.0%) reported comprehensive health monitoring by school health personnel, whereas 26 schools (65.0%) reported incomplete monitoring and ten schools (25.0%) reported no monitoring activities.

Environmental Health and School Safety

Environmental health indicators demonstrated the highest overall performance among the evaluated domains. Safe drinking water, appropriate wastewater disposal, adequate waste management facilities, functional firefighting equipment, and safe heating systems were available in all participating schools (100%).

Appropriate classroom and laboratory safety measures, accident prevention activities, and environmental sanitation standards were observed in 39 schools (97.5%). Safe playgrounds and sports areas, as well as environmental protection activities, were reported in 35 schools (87.5%).

Sanitary facilities were considered satisfactory in 34 schools (85.0%), whereas six schools (15.0%) required improvement. School buildings were classified as safe in 29 schools (72.5%), requiring safety improvements in nine schools (22.5%), and unsafe in two schools (5.0%).

Emergency preparedness remained suboptimal. Fire evacuation drills had been conducted in 26 schools (65.0%), while only 14 schools (35.0%) had designated emergency exits. Nearly half of the schools (45.0%) were located in areas considered unsafe or at increased environmental risk. Furthermore, only 35.0% of schools had adequate green space, and almost half (47.5%) lacked any cooling system.

Nutrition Services

All participating schools had a school food outlet; however, compliance with healthy nutrition standards was limited. Only one school (2.5%) exclusively offered healthy food items, whereas the

remaining schools sold both healthy and unhealthy products. Twenty-seven schools (67.5%) operated a Type I healthy food outlet, one school (2.5%) had a Type II outlet, and 12 schools (30.0%) reported the presence of unlicensed food vendors near the school premises.

Nutrition education activities were conducted in 33 schools (82.5%). Routine inspection of school food outlets was performed in 26 schools (65.0%), while monitoring of food storage, distribution, and consumption was reported in 25 schools (62.5%). Lists of permitted and prohibited food items were displayed in only 19 schools (47.5%). Furthermore, only 17 food handlers (42.5%) possessed a valid health certificate, and merely five (12.5%) demonstrated adequate knowledge regarding national regulations governing healthy school food outlets (Table 3).

Physical Activity

The overall status of physical activity promotion was favorable. Physical education classes were included in the curriculum of all participating schools (100%), and adequate sports equipment was available in every school.

Extracurricular physical activity programs for students were implemented in 39 schools (97.5%), while similar activities for school staff were available in 30 schools (75.0%). A specialized physical education teacher was employed in 31 schools (77.5%). Nevertheless, regular morning exercise sessions were consistently conducted in only one school (2.5%), indicating limited implementation of daily physical activity programs.

Staff Health Services

Most schools had access to healthcare providers for employees. A designated physician was available for staff in 39 schools (97.5%), and 38 schools (95.0%) had access to a contracted dentist.

Health-related in-service training programs had been completed by staff in 26 schools (65.0%), whereas school-based health education programs for employees were implemented in only 23 schools (57.5%). Education regarding routine health screening was provided in 19 schools (47.5%), and only 16 schools (40.0%) offered regular occupational health services for employees.

Social, recreational, and sports facilities for staff were considered adequate in 14 schools (35.0%), inadequate in 16 schools (40.0%), and unavailable in 10 schools (25.0%).

Mental Health Promotion

Mental health services demonstrated relatively favorable performance. Social and recreational programs, life-skills education, and identification of students at risk of social harm or high-risk behaviors were implemented in all participating schools (100%).

Parenting education programs for parents were available in 38 schools (95.0%). Intervention programs for students at risk were implemented in 36 schools (90.0%), and referral and follow-up services for students with behavioral disorders were also available in 36 schools (90.0%).

Mental health training for school personnel was provided in 30 schools (75.0%). Full-time counselors were available in 14 schools (35.0%), part-time counselors in 20 schools (50.0%), whereas six schools (15.0%) had no counseling services.

Oral Health Services

All schools had access to a designated dentist for student referral. Oral health education programs were implemented in 32 schools (80.0%). Students requiring dental care were referred to a dentist in 26 schools (65.0%), and follow-up of referred cases was performed in 24 schools (60.0%).

Fluoride varnish therapy had been implemented in only 19 schools (47.5%), indicating that preventive

oral health interventions remain insufficient in more than half of the participating schools.

Table 2. Performance of Health Promotion Services Across Major Domains (n = 40).

Domain	Schools Meeting Standard n (%)
Health education	37 (92.5)
Disease prevention	38 (95.0)
Environmental health	39 (97.5)
Physical activity	39 (97.5)
Mental health	36 (90.0)
Nutrition education	33 (82.5)
Oral health education	32 (80.0)
Staff health services	16 (40.0)
Schools with health personnel	25 (62.5)

Table 3. Major Deficiencies Identified in Participating Schools.

Indicator	Schools Affected n (%)
Lack of emergency exits	26 (65.0)
Lack of school health personnel	15 (37.5)
Absence of counseling room	20 (50.0)
Inadequate occupational health services	24 (60.0)
Incomplete fluoride varnish coverage	21 (52.5)
Sale of unhealthy food items	39 (97.5)
Lack of cooling system	19 (47.5)
Unsafe school location	18 (45.0)

Discussion

The present study comprehensively evaluated the status of health promotion services in public primary schools in Kermanshah using the Health-Promoting Schools (HPS) framework. Overall, the findings demonstrated that environmental health, health education, communicable disease prevention, and physical activity were implemented at relatively satisfactory levels. However, important deficiencies were identified in human resources, staff health services, nutrition, oral health, emergency preparedness, and counseling services. These findings indicate that although the structural components of school health programs have been established in many schools, several key elements required for comprehensive implementation of the HPS approach remain insufficient.

One of the principal strengths identified in this study was the favorable status of environmental health. All participating schools had access to safe drinking water, appropriate wastewater disposal systems, adequate waste management facilities, firefighting equipment, and safe heating systems. Furthermore, environmental sanitation and classroom safety standards were satisfactory in almost all schools. These findings are consistent with recent WHO recommendations, which identify a safe and supportive school environment as one of the essential pillars of effective health-promoting schools. Similar findings have also been reported in recent studies from several middle-income countries, where improvements in environmental health infrastructure have substantially enhanced students' health and educational outcomes (4,11,13).

Despite these positive findings, important weaknesses were observed in school safety and emergency preparedness. Nearly two-thirds of schools lacked designated emergency exits, more than one-third had not conducted fire evacuation drills, and approximately one-quarter required improvements in building safety. These deficiencies are concerning because disasters and school emergencies require immediate preparedness, particularly in countries exposed to natural hazards. Recent international evidence has shown that comprehensive school safety programs, including evacuation planning, risk assessment, and regular emergency drills, significantly reduce injuries and improve institutional preparedness during emergencies. Therefore, strengthening disaster preparedness should become an integral component of school health promotion policies.

Health education was another area demonstrating satisfactory performance. More than 90% of schools implemented extracurricular health education activities and provided educational materials for students. These findings reflect the increasing integration of health education into school activities in Iran. Nevertheless, approximately one-third of schools had not implemented health-related professional development programs for teachers and school staff. This finding is noteworthy because successful health promotion depends not only on student education but also on the knowledge, attitudes, and competencies of school personnel. Recent systematic reviews have demonstrated that continuous professional development for teachers substantially improves the effectiveness and sustainability of school-based health promotion interventions (5,7).

Disease prevention services also demonstrated relatively good performance. Educational activities regarding communicable diseases, pediculosis screening, and first-aid equipment were available in almost all participating schools. However, referral pathways and follow-up services for students requiring specialized healthcare were inconsistently implemented. Only about three-fifths of schools completely identified students requiring referral, and one-quarter failed to provide systematic follow-up. Similar challenges have been reported in developing countries, where weak coordination between schools and primary healthcare services limits continuity of care and reduces the effectiveness of preventive programs. Strengthening referral systems through closer collaboration between educational authorities and primary healthcare providers could substantially improve service quality (10,13).

One of the most important findings of the present study was the shortage of qualified school health personnel. More than one-third of participating schools lacked dedicated health personnel, and only one-third had fully equipped health rooms. Human resources remain one of the fundamental determinants of successful school health programs because school health professionals coordinate health education, disease prevention, early identification of health problems, referral services, and communication with families. Previous studies consistently demonstrate that schools employing qualified health personnel achieve higher standards in preventive healthcare, student health monitoring, and implementation of comprehensive health promotion activities (1,8,12). Expanding the school health workforce should therefore be considered a strategic priority within the national education and health systems.

Nutrition services represented another domain requiring considerable improvement. Although every participating school had a food outlet, only one school exclusively offered healthy food products. The widespread availability of unhealthy food items, together with limited supervision of food handlers and insufficient compliance with national nutritional regulations, indicates substantial weaknesses in the school food environment. Similar findings have been reported in recent international systematic reviews, which emphasize that unhealthy food availability

within schools remains a major contributor to childhood obesity and other non-communicable diseases. Evidence further suggests that multicomponent school nutrition interventions combining healthy food policies, nutrition education, parental involvement, and environmental modifications are significantly more effective than educational interventions alone (3,9).

The findings regarding physical activity were generally encouraging. Physical education classes and sports equipment were available in all schools, and extracurricular physical activity programs were implemented in almost every school. However, routine morning exercise was conducted consistently in only one school. International evidence indicates that although scheduled physical education classes are essential, regular daily physical activity throughout the school day produces greater improvements in physical fitness, academic achievement, mental well-being, and obesity prevention. Accordingly, integrating short periods of structured physical activity into daily school routines may further strengthen health promotion efforts.

Mental health promotion demonstrated relatively favorable performance compared with several other domains. Life-skills education, identification of students at risk, parenting education, and intervention programs were implemented in most schools. Nevertheless, only one-third of schools employed full-time counselors, while some schools had no counseling services. Considering the increasing prevalence of anxiety, depression, bullying, behavioral disorders, and psychosocial problems among school-aged children worldwide, expanding access to qualified school counselors should remain a public health priority. Recent meta-analyses have demonstrated that comprehensive school-based mental health services improve emotional well-being, reduce behavioral problems, and enhance academic performance (2,6,10).

Oral health promotion was another area where opportunities for improvement remain. Although most schools implemented oral health education programs and maintained referral pathways to dental services, preventive fluoride varnish therapy was available in fewer than half of the participating schools. Preventive oral healthcare has consistently been shown to reduce dental caries, improve oral hygiene behaviors, and decrease future treatment costs. Strengthening collaboration between schools and community dental services may therefore improve preventive oral healthcare coverage among primary school children (3,9).

Overall, the findings of this study suggest that the implementation of school health promotion in Kermanshah has achieved substantial progress in environmental health, disease prevention, health education, and physical activity. However, important gaps remain in human resources, nutrition, oral health, staff health services, and emergency preparedness. Addressing these deficiencies requires stronger intersectoral collaboration between the Ministries of Health and Education, increased investment in qualified school health personnel, continuous professional training, improved monitoring systems, healthier school food environments, expansion of preventive oral and mental health services, and greater attention to school safety infrastructure. Such comprehensive actions are likely to strengthen implementation of the Health-Promoting Schools framework and contribute to improved health and educational outcomes among schoolchildren.

Strengths and Limitations

The present study has several strengths. It provides a comprehensive evaluation of nine major domains of school health promotion using standardized assessment tools across multiple educational districts. The inclusion of structural, educational, preventive, environmental, nutritional, and psychosocial indicators offers a broad overview of school health services and provides evidence that may assist policymakers in prioritizing future interventions.

Nevertheless, several limitations should be acknowledged. First, the cross-sectional design precludes causal inference. Second, the study was limited to public primary schools in one metropolitan area, thereby limiting the generalizability of the findings to private schools and other regions of Iran. Third, several indicators were assessed through observation and document review rather than direct measurement of students' health outcomes or behavioral changes. Future multicenter longitudinal studies involving different provinces are recommended to evaluate the effectiveness of interventions designed to strengthen Health-Promoting Schools and to identify factors associated with successful implementation.

Conclusion

In conclusion, public primary schools in Kermanshah demonstrated satisfactory performance in environmental health, disease prevention, health education, and physical activity. However, deficiencies in school health personnel, staff health services, nutrition, oral health, counseling services, and emergency preparedness remain important challenges. Strengthening intersectoral collaboration, increasing investment in school health infrastructure and qualified personnel, expanding preventive health services, and improving monitoring and evaluation systems are essential to achieving comprehensive implementation of the WHO Health-Promoting Schools framework in Iran.

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