Evaluating the health promoting schools in Iran: across-sectional study

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Abstract

Purpose – Health-promoting schools have been associated with improvements in the health status of students globally. This study is a secondary analysis study assessing Iranian HPSs.

Design/methodology/approach – This was a cross-sectional study on routinely collected data using an external audit 63-item checklist, which was utilized to evaluate 440 HPSs between 2014 and 2017. The mean score for each of the checklists' components was calculated. Nonparametric tests were conducted to investigate the association between the presence of a school caregiver, students' educational level and the school's score.

Findings – While the number of five- and four-star schools increased significantly, one- to three-star schools declined. Providing clinical and counseling services had negative growth. Despite the steady growth of the staff's health, this category still had the lowest score among; on the contrary, physical activity had the highest score in 2017. The presence of a full-time school caregiver and middle schools were both significantly correlated with achieving higher scores ($p < 0.005$).

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Originality/value – It seems that in addition to developing school facilities to promote physical activities, measures should be taken to promote access to counseling services, considering health issues of students and staff and finally increasing the number of full-time school caregiver

Keywords Evaluation, Health promoting schools, Iran

Paper type Research paper

Introduction

Childhood and adolescence are essential periods to adopt health-promoting behaviors (van Dongen *et al.*, 2019). Examples of such healthy behaviors are lower alcohol consumption and substance use, higher physical activity and better nutrition, which are all associated with improved well-being, lower mortality due to chronic conditions and delayed onset of many life-threatening chronic/acute illnesses (Akel *et al.*, 2019).

The school setting could influence students' health by increasing their health knowledge and adoption of healthy behaviors (Catalano *et al.*, 2004; Bartelink *et al.*, 2019). A range of international initiatives such as health promoting schools, child friendly schools, comprehensive school health and the FRESH initiative has been introduced globally in the last years (Promotion and Education, 2009). European Network of Health Promoting Schools (ENHPSs) formed in 1980 with members from 43 countries. Australian school health association began to work from 1994 (Dadaiyn *et al.*, 2016). All of these approaches have similar underlying concepts, based on the Ottawa Charter (1986) (Veugelers and Schwartz, 2010), which integrated ideas about health promotion from Canada and WHOs European office. (Vince Whitnam and Aldinger, 2009).

In 1995, the World Health Organization (WHO) HPS, a whole-school approach, aiming to enhance students' and staff's health (Liu *et al.*, 2019) by facilitating health-focused educational environments (Lee *et al.*, 2003; World Health Organization, 1995; Lee *et al.*, 2007). HPS approach indicates a shift from traditional classroom teachings to a more integrated approach that focuses on students', teachers' and parents' attitudes, behaviors and the overall school environment (Deschesnes *et al.*, 2003). This concept has focused on organisational and structural changes, including improving the physical and social environment of the school and its curricula (Lee *et al.*, 2019). Based on WHO's guideline, HPS could integrate health promotion within their policies, physical environments, social environments, group activities, personal health skills and schools' health services (Aldinger *et al.*, 2008). Therefore, adequate implementation of such guidelines requires restructuring the physical and social characteristics of schools (Shahraki-Sanavi *et al.*, 2018).

Approaches to health-promoting school concept varied based on educational and cultural contexts. Various political, social and economic aspects influence setting priorities, aims and components of HPS (Bruun Jensen *et al.*, 2002). HPS has been established widely across many countries, including China, Hong-Kong, England, Canada and countries in EMRO (Lee *et al.*, 2003; Lee *et al.*, 2007; Gleddie, 2011; Pearson *et al.*, 2015; WHO/EMRO, 2006). HPS approach is characterised under six components, including the formal curriculum, school ethos, physical environment, policies and practices of the school, school health services and the school-home-community interaction (Booth and Samdal, 1997).

Taking the "settings approach" developed by the WHO in the 1980s, the ENHPS considered these aspects in developing a health-promoting school: the taught curriculum, the school ethos, the values and norms of the school, relationships, management structures, the physical environment, staff health and well-being, student health and well-being, teachers' educational competencies and cooperation with the community (Gray *et al.*, 2006). Components of the national framework for HPS in Australia were curriculum, teaching and learning practices; school organisation, ethos and environment and partnerships and services (Association, Australian Health Promoting Schools, 2001). Another comprehensive approach to school health

promotion is the Comprehensive School Health Program concept, which is used more frequently is the US and Canada. This program consists of eight components: (1) planned, sequential health education across the whole curriculum, (2) school-based health services, (3) school environment, (4) physical education, (5) food services, (6) counseling services, (7) staff health promotion and (8) school/community integration of health promotion efforts. Both the HPS and CSHP approaches rely mainly on a "school-based" approach; however, some of the CSHP literature suggests the implementation of community-based initiatives that apply to the environment beyond the school setting (Deschesnes *et al.*, 2003).

The designs and methods used for assessing HPSs varied across the investigations. Randomized control trials are ideal, but as their underpinning statistical assumptions are not valid to reflect the organisational or structural changes, concluding could be limited (Lee *et al.*, 2019). Other approaches consider stakeholders' concerns and interests and evaluate their capacity to develop, implement and assess HPSs (Pommier *et al.*, 2010). Some studies have undertaken formative, process or outcome evaluation (Stubbs *et al.*, 2014). The English Wessex Healthy School Award Scheme and the Hong Kong Healthy School Awards Scheme adopted the process evaluation approach, to analyze the process of attaining standards for a model HPS (Lee *et al.*, 2019).

Studies that have mainly focused on students' physical activity levels, nutrition, reproductive health, mental health and substance use have (Medeiros *et al.*, 2018) mostly prioritized the development of indices that facilitate formative assessments and the quality measurement of schools' performance (Hoyle *et al.*, 2008). In fact, setting such standards could assist other schools to adopt health promoting schools' principles (Inchley *et al.*, 2006).

In Iran, there is a paucity of information based on the concept of HPSs, their assessment and criteria for their implementations. To our knowledge, the majority of current studies have only focused on a single dimension of health promotion outcomes, such as nutrition (Yazdi-Feyzabadi *et al.*, 2018; Feyzabadi *et al.*, 2017), while not much has been done to evaluate the overall performance of HPSs and effective factors explaining their continuity and success in Iran. Thus, the focus of this paper is two-fold; the first objective is to evaluate implementation of HPSs. The first objective contains the main research aim to investigate how their components have fluctuated throughout the past years in Iran. The second objective is to analyze differences in school's score between the presence of a part-time and full-time school caregiver on the one hand and compares school's score with schools educational stage on the other.

Health-promoting schools in Iran

In a regional consultation meeting on HPS in the Eastern Mediterranean Region (EMRO) in 2005, school health experts shared their experiences to identify the best mechanisms for creating networks of HPSs (WHO/EMRO, 2006). As a consequence, HPSs initiative in Iran started by integration of "School Health Management System" and "Schools' Ranking Plan", following an agreement between of the Ministry of Education (MoE) and Ministry of Health and Medical Education (MOHME) in 2010 (Motlagh *et al.*, 2009). After implementing a pilot phase in five Iranian provinces in 2010, it is planned that the number of these schools would be increased nationwide. Iranian health promoting schools (IHPSs) program based on the recommended WHO framework for HPS in the EMRO, focus highly on self-care, health promotion and collaborative initiatives to enhance individual and the population's health (Yazdi-Feyzabadi *et al.*, 2018).

IHPS program mainly was developed in three levels of public schools: primary school, junior high school also known as middle school and senior high school or high school. The strategic committees of HPSs were formed according to the predetermined criteria aiming to implement an organized program on the national, provincial, regional and school level. One of the committee's tasks has been selecting schools and setting an external audit team to

monitor and evaluate the selected schools. At the beginning of the year, a coordination team including the school principal and staff conduct an internal audit based on an internal audit checklist. School caregiver is a member of school health committee. A full-time school caregiver is a certified BS in health, whereas a part-time school caregiver is a trained school staff who completes some health assistant training programs. They advocate for and liaise between schools and district health center. The results will be transferred to the County Committee for an external audit, using a checklist. This "External Audit Checklist" is prepared by the MOHME. A team of health experts from a district health center of the primary health care (PHC) system run external audit by visiting schools, observation and interviewing with students, staff and teachers. This checklist consisted of eight components: 1. comprehensive health education, 2. clinical services, 3. healthy physical environment, 4. nutrition improvement in school, 5. physical activity, 6. promoting staff's health, 7. mental health services and counseling and 8. parents, students and community participation in health promotion programs. After the initial audit, schools are given an opportunity to address the areas of weakness, followed by a final external audit. Eventually, if the school receives a score of minimum 55 out of 100 score, they would be recognized and rated as health promoting schools.

Methods

Study design and participating schools

This study was a cross-sectional study, which analyzed the secondary data collected from 419 schools in 2014, 416 schools in 2015, 411 schools in 2016 and 440 schools in 2017. All schools were located in the West and the North West regions of Tehran supported by the Iran University of Medical Sciences, one of the largest medical universities across Iran, marking a diverse range of geographical and socioeconomical locations of Tehran province.

Measurement

Routinely collected data using an external audit checklist, recommended and prepared by the MOHME was used. This checklist consisted of eight components: (1) comprehensive health education (with eight sub-components), (2) clinical services (with 11 sub-components), (3) healthy physical environment (with 12 sub-components), (4) nutrition improvement in school (with six sub-components), (5) physical activity (with five sub-components), (6) promoting health staff's health (with eight sub-components), (7) mental health services and counseling (with eight sub-components) and (8) parents, students and community participation in health promotion programs (with eight sub-components).

After selecting schools by the Ministry of Education, the provincial / regional committee conducts an external audit using aforementioned checklist. The overall score is out of 95 with an additional five scores for completion of the school's documents, reports and demonstration of problem-solving capacity (Motlagh *et al.*, 2009). The minimum required score to qualify as a HPSis 55, with receiving at least the score of three in school management, six in comprehensive health education, nine in clinical services, 12 in healthy physical environment, six in nutrition improvement, four in physical activity, four in promoting staff's health, six in mental health services and counseling and nine in parents, students and community participation in health promotion programs.

Further, schools were categorized based on their score: Five stars for those that received an overall score of 91–100, four stars for 82–90, three stars for 73–81, two stars for 64–72 two stars and only one star for schools receiving 55–63. This scoring system was conducted annually from 2014 to 2017 (see Table 1).

	Components	Checkpoints	Score
1.	Comprehensive health education	Existence of a board, in which the education topics is specified	1
		HPS medal	1
		Existence of a Coordinator of educational programs	1
		Holding explanation sessions for the students, teachers, parents and staff	2
		Existence of health educational resources and contents for students, teachers, parents and the staff	2
		Distribution of health educational content between students, teachers, staff and parents	2
		Executing the health activities program according to the health occasions calendar	1
		Providing health educations specified for the students, parents, teachers and the staff	2
2.	Providing clinical services	Existence of fully equipped health room	2
		Existence of one school care giver regularly or with a scheduled plan	2
		Following-up and completing the vaccination of the school students	1
		Existence of a health identification card for each student	2
		Conducting the students' screening tests	2
		Identifying the referral required cases	1
		Implementing referral system	1
		Following-up the referral cases	1
		Completing the school health file	2
		Existence of first aids box with full equipment at school	1
		Existence of at least one nurse to carry out the first aids and educating students and the staff	1
3.	Healthy physical environment	School convenient space and location	2
		Convenient space of the classrooms, laboratory, etc.	2
		Access to healthy drinking water	3
		Hygienic lavatories and toilets	1.75
		Hygienic disposal of sewage and garbage	0.75
		Good and appropriate light, heat, sound, humidity and air conditioning in classes	2
		Safe environment in classes	2
		Separating garbage and existence of enough trash cans	0.5
		Observing safety and effective preventive measures against the accidents	3
		Cleanliness of the school environment (the school has a person responsible for cleaning)	2
		Efforts in creating green area at school	1
		Environmental-biological activities	1

(*continued*)

Table 1.
Components, subcomponents and their points in the external audit checklist of health-promoting schools

	Components	Checkpoints	Score
4.	Nutrition improvement in school	Existence and observing the physical space and the equipment of healthy nutrition base	4
		Installing allowed and disallowed foot stuff instructions exposed to the students' sight	2
		Supervising on the way of preserving, distributing and consuming the food stuff at school	1
		Having the health authenticity certificate and work permission of the base person in charge and the food stuff salesperson	2
		Displaying the culture-building programs and teaching the healthy nutrition at school	1
		Supervising on the way of preserving, distributing and consuming of food stuff at school	2
5.	Physical activity	Existing of sport and physical education hour	1
		Existence of incentive training programs for doing extracurricular activities, advantages and disadvantages of inactivity	1
		Performing cultural and educational programs	1
		Providing suitable opportunity for the participation of all students in the morning physical exercise	1
		Providing minimum required facilities for physical activities of the students at school	1
6.	Promoting health of school staff	Existence of a health identification card for each of the teachers and staff	2
		Coordination in order to do the annual screening test of the teachers and staff	1
		Identifying the referral required cases	1
		Following-up the cases referred	1
		Social, recreational and sport facilities for the school teachers and staff	2
		Attending in-service training courses related to health	1
7.	Mental health services and counseling	Existence of full time or part time consultant	2
		Existence of social and recreational programs at school	1
		Teaching life skills to the students at school	1
		Training the parents of the students in the field of child-rearing (parenting) skills	1
		Identifying the students exposed to the risk of social injuries and risky behaviors	2
		Providing special services to the students exposed to the risk of social injuries and risky behaviors and families	1
		Identifying the mental and behavioral disorders in the students and providing services to the students including referral, follow-up and care	2
		Not enforcing physical and mental punishments on students	1

Table 1. (*continued*)

	Components	Checkpoints	Score
8.	Parents, students and community participation in health promotion programs	Following-up the school health issues in the parents and teachers association	2
		Participating in health programs and supporting them financially by parents and teachers association	1
		Implementing health training programs for the parents of students	1
		Trained health aiders (Behdashtyar) in four groups at school	2
		Effective measures to promote activities of peers' health trainers	1
		Activate student health network volunteers	1
		Training peers by health trainers	1
		Active participation of student health network volunteers in school health problems	1

Table 1.

Data analysis

We utilized descriptive statistics to present the distribution of HPSs across various categories. Additionally, the mean score for each of the checklists' eight components was calculated to identify the areas that require further investigation. Nonparametric tests were conducted to investigate the association between the presence of a part- time and full-time school caregiver, school educational level and the school's score. To analyze the association between the school caregiver and the overall score, Kolmogrov–Smirnov test was conducted, which eventually indicated a lack of normality of data; therefore, the Mann Whitney test was utilised to assess this association. Meanwhile, to test the association between school educational level and the overall score, the Kruskal Wallis test was conducted.

Findings

Overall, 440 schools participated between 2014 and 2017. Table 2 summarises the general characteristics of these schools (see Figure 1).

		Frequency							
Variable		Shahriar	Robat Karim	Baharestan	Malard	West	North-West	Ghods	Total
Stages of school	Elementary school	28	32	43	34	66	63	23	289
	Middle school	19	13	15	7	16	28	8	106
	High school	2	5	5	3	10	18	2	45
Total		49	50	63	44	92	109	33	440
School caregiver	Full-time school caregiver	11	8	15	34	74	54	12	208
	Part-time school caregiver	38	42	48	10	18	55	21	232
Total		49	50	63	44	92	109	33	440

Table 2.
Frequency of schools regarding school caregiver type and stages of school-2017

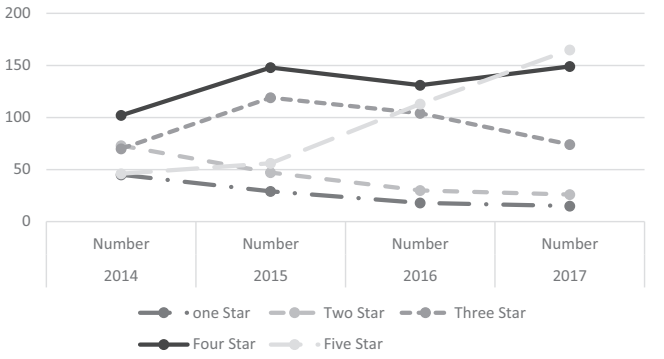


Figure 1.
The trend of school star changes 2014–2017

Out of the 440 schools in 2017, 97.5% ($N = 429$) received at least one star from which 38.44% ($N = 165$) qualified for five stars, marking a 24.77% increase since 2014. Within the same period, the prevalence of one- to three-star schools reduced by 9.90%, 15.67% and 3.58%, respectively.

Figure 2 highlights the overall score of health-promoting schools in 2017. Accordingly, the lowest score corresponded to the staff's health status with an overall mean of 71.59 (±32.05).

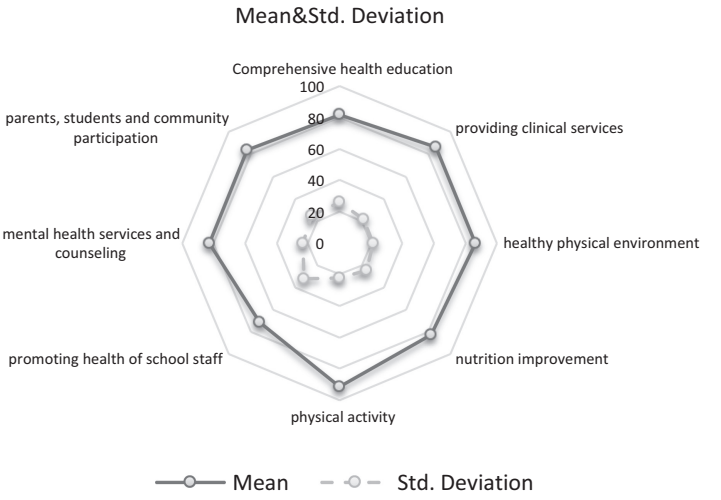
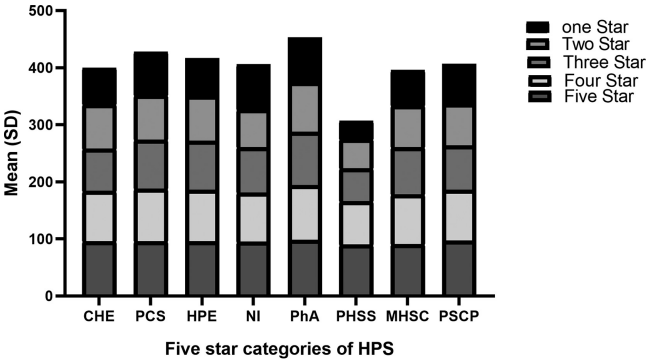


Figure 2.
Mean and std. deviation of components of health promoting schools in 2017

Figure 3 represents the mean of health-promoting schools' performance in each of the five-star categories. Among one-star schools, staff's health had the lowest score of 32.00 (± 34.00), while nutrition scored the highest (79.00 ± 20.00). Similarly, other categories scored the lowest in staff's health. Meanwhile, physical activity had the highest score in two- to five-star health-promoting schools. Following staff's health, mental health and counseling services, a comprehensive health curriculum and the school's environment received low scores, respectively. Among two-star health-promoting schools, in addition to mental health and counseling services, nutrition and parents' engagement in health promotion received low scores. Last, three- and four-star schools scored low in formulating a comprehensive health curriculum and engaging parents in health promotion.



Abbreviations mean as CHE: Comprehensive Health Education, PCS: Providing Clinical Services, HPE: Healthy Physical Environment, NI: nutrition improvement, PhA: Physical Activity, PHSS: Promoting Health of School Staff, MHSC: mental health services and counselling, and PSCP: Parents, Students and Community Participation.

Figure 3.
Mean and standard deviation of different components of Health Promoting Schools (HPSs)

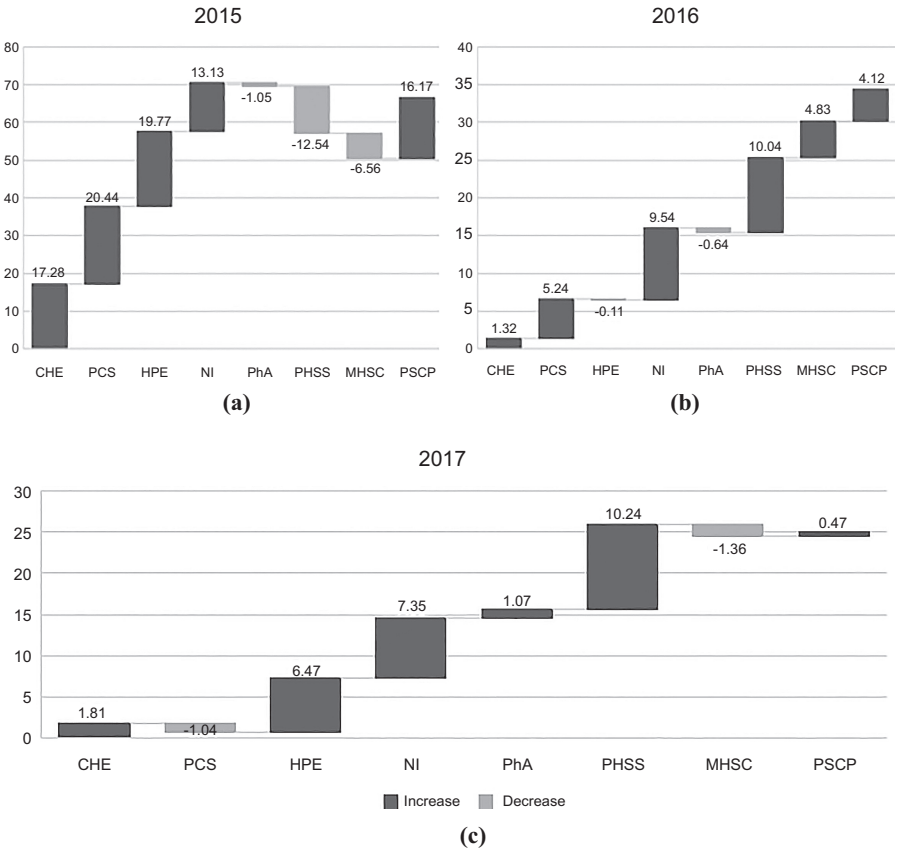
Figure 4 is indicative of the changes in each of the checklist's items from 2014 to 2017. While clinical care-provision, mental health and counseling services and physical activity declined within this period, staff's health grew considerably.

We hypothesized that schools with a full-time school caregiver who is a qualified health worker will score significantly higher than schools with a part-time school caregiver. The Mann–Whitney test results indicated that schools with a full-time school caregiver scored significantly higher than schools with a part-time school caregiver ($p < 0.000$). Due to the lack of normality of the scores, the Kruskal–Wallis test was conducted. This test highlighted that there is a significant difference between the school's score based on the level of education. Paired tests indicated that high school students scored significantly higher than middle school and elementary schools.

Discussion

The research on HPSs has been growing to identify effective methods of improving students' health in recent years (Darlington *et al.*, 2018). To our knowledge, this article is the first investigation that evaluated the implementation of HPSs in Iran quantitatively, based on observation and interview. Through this evaluation, we utilized a standardized checklist to investigate the characteristics of HPS's components and their fluctuations, to determine progress and success in implementing the program in Iran. We also compared the schools' success based on their education level and the presence of a full-time vs part-time school caregiver.

Our findings indicate that while the number of one- and two-star schools have declined in the past four years, higher-level schools (four- and five-stars) have grown rapidly. The findings showed that the school's staff health is one of the key areas that should be taken in to account, as it was scored the lowest consistently. Presence of a school caregiver and implementing the program in high school were both significantly associated with higher scores. Overall, growth in most areas of the checklist indicate the enhancements in establishing these schools. Future research could focus on how these enhancements could affect the health status of Iranian HPS students. Schools' adaptation of HPS principles, with a focus on infra-structural and organizational modifications, is the first step to evaluate HPS (Inchley *et al.*, 2006). Utilising a checklist with six standards and three categories (bronze, silver and gold), Chen *et al.* indicated that such schools were most successful in enhancing students community participation, while skill-based health curriculum was scored the lowest



X-axis shows Relative growth rate (RGR) the average changes in the total scores of eight components of Health Promoting Schools (HPS) in comparing the previous year. Where A) shows RGR of eight component of five-star HPS in 2015 in comparing 2014, B) shows RGR of eight component of five-star HPS in 2016 in comparing 2015, and C) shows RGR of eight component of five-star HPS in 2017 in comparing 2016. Y-axis shows CHE: Comprehensive Health Education, PCS: Providing Clinical Services, HPE: Healthy Physical Environment, NI: nutrition improvement, PhA: Physical Activity, PHSS: Promoting Health of School Staff, MHSC: mental health services and counselling, and PSCP: Parents, Student and Community Participation.

Figure 4.
The average changes in the total scores of eight components 2014–2017

(Chen and Lee, 2016). In India, using a similar checklist, healthy physical environment, awareness of the HPSsProgram, school health services, school nutrition services, sports training, counseling, psychology and social services, community participation and schools' participation in the establishment and adherence of more schools to the program were assessed. Based on this checklist, schools were categorised in one of the four groups of bronze, silver, gold and platinum. In 2011, more than 52.9 and 23.5% of schools were evaluated in the bronze and gold level, respectively. After two years, re-evaluation indicated

that 76.4 and 1.8% of schools were in the gold and in the bronze categories, respectively. Similarly, this study indicated significant growth in the number of schools that qualified as gold (Thakur *et al.*, 2014). In Hong Kong, after the establishment of first health-promoting schools in 1998 and "Healthy School Competitions", similar methods of assessment to our study's checklist were developed. These assessments were based on long-term and short-term frameworks; for instance, health promotion in the school was evaluated based on determinants of a school's success, such as the school's environment and health services, students' capacity for self-care, schools' policies and organisational interventions. Through these assessments, it was evident that mental health issues, unhealthy nutritional habits, sedentary lifestyle, risky behaviors, lack of accessibility to health services and lack of staff's training were the most common issues in Hong Kong (Lee *et al.*, 2005). A 1999 study also evaluated Wessex health-promoting schools in educational curriculum, social communications, healthy food choices, physical activity and health-promoting work conditions. It was indicated that ranking schools and overall competition helped schools enhance in all of the aforementioned domains. (Moon *et al.*, 1999). Nutritional evaluation is another component of this program. A study on unhealthy snacking behavior among Iranian adolescents reported that limited empowerment of the students; poor parental control practices toward the limitation of unhealthy snack intake, and accessibility of unhealthy snacks were the most important facilitators (Feyzabadi *et al.*, 2017).

School staff' awareness of the health-promoting schools' concept and their practices is a crucial issue. A randomised control trial in Australia showed an increased level of awareness of the HPS concept among intervention schools. However, there were no significant changes in health-related practices at the school level, among both intervention and control schools (Mitchell *et al.*, 2000).

School staff are role models for students and all should adhere to the principles of health promotion. Considering the key role of school staff in implementing the health-promoting program, ensuring their health is a priority. Despite holding sessions and providing health educations for the staff, their health was one of the lowest scored categories. A possible explanation is a shortage of indoor social, recreational and sports facilities for the school staff. According to article three and eleven of general health policies and article four of general of general population policies, the Ministry of Health is required to formulate and implement a basic health package for government employees. The aim of this program is to promote occupational health, identify risk factors, manage these risk factors through collaboration with the Ministry of Education and prevent disease progression.

As school settings are different in terms of staff and environment at different stages, we examined if these differences affect school scores and its performance in 8 components. A key finding from the research emphasizes the importance of school caregivers who develop school health programs. There are constraints to the use of health professionals to deliver school health promotion interventions. The distribution of school caregiver is uneven across regions. In some schools, health programmes are delivered by trained part-time counselors so one of the challenges in schools is non-continuous health education due to lack of full-time caregiver. Interaction between the Ministry of Education and the MoHME will be necessary to recruit additional staff to support the implementation of program

It is important to note that practising a healthier lifestyle in such early stages is considered as one of the determinants of consistent healthy behaviors later in life (Moon *et al.*, 1999). Contrary to our findings, Lee *et al.*, highlighted that elementary students are more likely to reduce fast-food consumption and report better health following the implementation of health-promoting school programs (Lee *et al.*, 2006). In addition, HPSs were associated with improved outcomes among elementary students in Taiwan (Chen and Lee, 2016). Meanwhile, some studies are similar results to our study, highlighted female high school students to be

more likely to adopt healthy behaviors and better physical activity behavior following the implementation of the program (WR, 2012; Moon *et al.*, 1999).

It is crucial that HPSs maintain and grow their performance over time. To do so, alongside the current support of the Ministry of Education, strong management and appreciation of the schools' cultural characteristics are essential. Strong localized management is significantly associated with more effective implementation of health-promoting programs and even the overall performance of schools (Darlington *et al.*, 2018). Further, policies that promote such schools were associated with higher average scores. These policies include unifying health-promoting schools' activities and promoting collaboration between local communities to pursue the schools' goals, such as better care-provision to students, first aid courses for students and educators, promoting on-campus tree-planting and regular health monitoring among the staff through collaboration with primary care providers (Babazadeh *et al.*, 2017).

Due to the interdisciplinary nature of health-promoting schools, implementation and subsequent evaluation of these schools are challenging (Chen and Lee, 2016). Yung and colleagues recommended utilizing indices that focus on social networking and policy-making procedures in the community to facilitate a more practical development. However, such evaluation is limited by the lack of causal evidence that highlights the effectiveness of health-promoting programs (Joyce *et al.*, 2017). Therefore, current schools must ensure the provision of comprehensive data on the program's success, growth and effectiveness in addition to the influence of schools on its participants' outlook on health and healthy lifestyle. Moreover, employing quantitative methodologies to assess such data are a key (Veugelers and Schwartz, 2010). Alongside the contextual complications, the length of the program, choosing between top-down vs bottom-up implementations, community support and adopting local cultural values are other challenges in establishing high performing schools (Darlington *et al.*, 2018).

There are some limitations regarding the checklist that was used in this study. The development of the checklist involved the cooperation of the Ministry of Health and the Ministry of Education. In the pilot phase, despite the ongoing assessments and corrections, no investigations were conducted to evaluate the checklist's validity and reliability. On the other hand, as the checklist focused on process indicators to a limited extent, it cannot correctly measure the school's fidelity to process, so more studies on deployment and implementation processes and the degree of their compliance with instructions is recommended. In addition, the relationship between the components of the checklist seem to be minimal, particularly with regards to the selection of material and changes in the syllabi. Committees set up by the Ministry of Education to prepare educational policies. Textbook development teams are the approving authority for the syllabus, and content of schools textbooks are produced at the macro level. Although the need for further observations of the curricular reform is acknowledged, it seems un-affordable. Countries may differ in their approach to perception and understanding of health promotion schools. Based on this approach, the content of HPSs in Iran may be defined in parallel to other school health programs. This has made it more complex to implement integrated interventions in school policy alongside organizational and environmental modifications in the school system. Therefore, the checklist cannot measure these fundamental interventions. Evaluators may bring biases to the observation/evaluation, which can affect the scores. To minimize such biases, clear guidelines in addition to the use of practical checklists and protocols are required.

Conclusion

This article has had a two-fold aim: (1) to evaluate implementation of HPSs and (2) to analyze association between schools' score and the type of school caregiver and schools educational level.

Based on the results, more than a third of schools were five stars marking a steady growth in high-performing schools since 2014. Overall, schools performed well in the areas of physical activity, nutrition and health environment. However, their status was marked as "inappropriate" in the areas of staff's health, mental health and counseling services. It can therefore be argued that in addition to developing school facilities to promote physical activities, measures should be taken to promote schools' mental health, by discussing mental health issues, increasing counseling services accessibility, minimizing unnecessary mental stress and expanding the number of active health workers on-site.

Health-promoting schools' programs could be a cost-effective solution to promote health among students and potentially enhance a community's health and well-being. Overall, this study highlighted strengths and weaknesses of such programs in Iran, informing policy-makers and investigators regarding the future direction. It seems that a long time-frame and more structured support are required to maintain and develop qualitatively health-promoting schools' implementation; therefore, a sustainable strategy and funding to promote and enhance health-promoting schools isone of the most important priorities. The research reported here adds depth to our understanding about the importance of human resources such as health workers regarding their benefits to HPS.

Future research could focus on identifying factors that could facilitate a more successful implementation of health-promoting schools in Iran. Further work to develop indicators for a health-promoting school to measure school-healthy behaviors and revision of the national administrative guideline and the validity and reliability of the audit checklists is also essential.

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