



Assessment of school-based health care facilities amongst female schools in Hail, Saudi Arabia

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General Note

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ABSTRACT

Background: The school-based health services are an effective initiative ensuring better health in the society commencing it right from the students. **Objective:** The aim of the study was to report the quality and adequacy of available health services and resources for female students at schools. **Methods:** A descriptive study was conducted among female schools of Hail, Saudi Arabia and health advisors (n=101) were approached based on snowball sampling technique. The data record form was used to collect the study data about the availability of healthcare facilities and services. **Results:** Among 101 schools, 85.1% have established clinics. Between these schools 48.8% had the availability of first aid kits, 92.1 % clinics were giving pharmacy services, 69.3 % had a protocol for hospital referral, and 72.3% have ambulance call protocols. A regular health education program was offered in 76.2%, a regular physical examination was conducted by 74.3 % and 91.1% had a registry for chronic diseases or disabilities. **Conclusion:** The school-based health care services are a part of the Saudi healthcare system. The study demonstrated that most of the schools were well equipped with healthcare facilities.

Keywords: Adolescent Health, Saudi Arabia, School-based health centers, School health

1. INTRODUCTION

Besides educational outcomes, schools are an essential place for maintaining, monitoring, and promoting children's health, it is also essential for student's physical, mental, and social well-being. The research on the related possibility of the school's role in promoting health is less studied, in Saudi Arabia, compared to other developed countries (West* et al., 2004). Regarding the development of a healthy lifestyle among school going kids, the role of schools is inevitable. As children spent most of their active time in schools, therefore availability of health care facility in schools are of vital importance (Aljanakh et al., 2016). Alongside having a healthy and supportive environment at schools, they should have the facility to measure the physical activity of children. For example, 2, 3, or 7-day physical activity recall, this is used in schools funded by National Institute of health in the United States (US) (Cluss et al., 2016). For school-age children, mental health plays an equally important role along with physical health for the development of a sound mind as teenage is the most crucial age in one's life (Sørliie and Ogden, 2015). Such problems can easily be prevented if school's health units play their part in its prevention. But the question arises here are schools equipped? Do they have essential medical health facilities? For example, the availability of emergency tool kit, ambulance, pharmacy, etc. Schools are an ideal location where students from all socioeconomic backgrounds come, so they provide an opportunity to target the community as a whole.

The health care facility is also important at schools because children are at the developing stage of social and emotional skills in their life. Many countries of Europe and in Australia have implemented a "Whole-school approach" which was influenced by the World Health Organization (WHO). This strategy suggested that a multi-disciplinary approach should be taken for creating a healthy environment; it should not just involve the education of teachers but parents as well. It also promotes the involvement of the community and coordinated work with external agencies (Conley and Durlak, 2017).

According to a review by Al Malki M in 2011. The Saudi Arabian government has given extreme precedence to the enhancement of health care services at all levels that are primary, secondary and tertiary. It has resulted in significant improvement in terms of overall population health. Health is provided freely by the government sector, whereas fees in the private sector. Ministry of Health (MOH) is responsible for providing all the health care facilities in the government sector along with other agencies, which also includes school health units (Almalki et al., 2011). It is note worthy to appraise government efforts in considering schools as a valuable platform for enhancing health. The present study was planned to measure the various health care facilities available at females' schools of Hail, Saudi Arabia, and to provide insight for further improvement.

2. MATERIAL AND METHODS

An observational, descriptive study was conducted amongst female schools in the Hail region, Saudi Arabia. Health advisors of the female schools in Hail (including Primary, intermediate and secondary schools) were approached based on snowball sampling technique and data was obtained from 101 respondents after taking informed consent. The data on the availability of health care facilities in schools was collected using data record form. It consisted of four parts: The first part collected data about the characteristics of the participants. The second part, included items describe the healthcare facilities and services provided to the students in the participant schools. The items covered the availability of clinics for students' healthcare management; availability of first aid kits; availability of a school pharmacy and sources of medication supply; availability for manuals and guidelines for school

health counseling and protocols for hospital referral and ambulance call. The third part comprised of health promotion and education programs available at the school level including periodic physical examination and screening. The fourth part included questions about the administrative support of the school to carry out the health services. In this section items included were also the presence of a registry for medical management, to record the disabilities /chronic problems, regular surveying of school environment and safety.

The data was entered into excel files and further data analysis was done through SPSS version 20. Descriptive statistics of the participants were presented as frequencies/percentages for qualitative variables. The ethical approval for conducting this study was taken from the Institutional Ethical Review Board (IBR), Hail. (IBR registration number with KACST, KSA: H-08-L-074)

3. RESULTS

In this study 150 health advisors were approached and 101 health advisors responded to the questionnaire giving a response rate of 67.3 %. The primary schools accounted for 52 (51.5 %) of the sample, middle and secondary schools accounted for 29 (28.7 %) and, 20 (19.8 %) respectively. Around 30 (29.7%) schools have students more than 300 whereas 28 (27.7 %) schools have students in the range of 200-299. Additionally, 29(28.7 %) schools have an average number of students around 100-199. Only 14 (13.9 %) schools have an average of fewer than 100 students. The characteristics of study participants are demonstrated in Table 1.

Table 1 Characteristic of Participants

Characteristic (n=101)	n (%)
School Teaching Level	
Primary	52 (51.5)
Middle	29 (28.7)
Secondary	20 (19.8)
Average students per School	
<100	14 (13.9)
100-199	29 (28.7)
200-299	28 (27.7)
≥300	30 (29.7)
Average Teachers per School	
<20	26 (25.7)
20-29	34 (33.7)
≥ 30	41 (40.6)

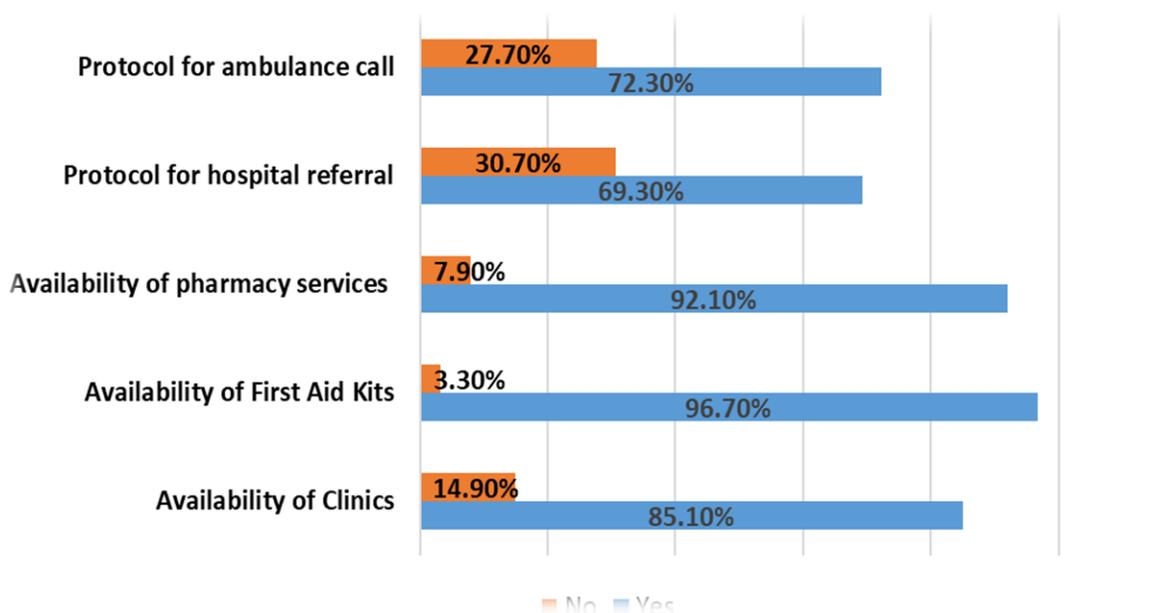


Figure 1 Availability of Basic health care facilities (n=101)

Of 101 schools, 86 (85.1%) have established clinics whereas 15 (14.9 %) of them lack clinics. Additionally, it was also found that maximum number of schools 92 (97.6%) were equipped with first aid kits, from 92 schools 49 (48.8 %) had the availability of sufficient first aid kits whereas another 49 (48.8 %) clinics had an insufficient number of first aid kits but 3 (3.3 %) clinics lacked first aid kit. Around 93 (92.1 %) clinics have pharmacies whereas 8 (7.9 %) do not offer any pharmaceutical aid. The sources of medication of 49 (48.8 %) clinics were from health affairs, whereas the primary sources of medication for 8 (7.9 %) clinics were from education affairs. Around 40 (39.6 %) schools have self-arrangements and 4 (4.0 %) clinics have no medical sources. Around 70 (69.3 %) schools have a protocol for hospital referral whereas 31(30.7 %) schools do not have any protocol. Additionally, 73 (72.3 %) schools have ambulance call protocols and 28(27.7 %) schools do not. The availability of basic health care facilities in schools is depicted in Table 2 & Figure 1.

Table 2 Availability of Basic health care facilities (n=101)

Availability of Clinics	
n (%)	
Yes	86 (85.1)
No	15 (14.9)
Availability of First Aid Kits	
Sufficient	49 (48.8)
Insufficient	49 (48.8)
Not available	3 (3.3)
Availability of pharmacy services	
Yes	93 (92.1)
No	8 (7.9)
Source of medications	
Health Affairs	49 (48.8)
Education Affairs	8 (7.9)
School self-arrangement	40 (39.6)
Do not have	4 (4.0)
Is there a protocol for hospital referral?	
Yes	70 (69.3)
No	31 (30.7)
Is there a protocol for ambulance call?	
Yes	73 (72.3)
No	28 (27.7)

Regular health education is provided in around 68 (76.2 %) schools whereas other schools 32 (31.7 %) providing health education sometimes. Only one school is not involved in providing the students any health education and thus it can be stated that this school does not focus on student health conditions. A regular follow up counseling processes are done in 49 (48.5 %) schools whereas 43 (42.6 %) schools engage in this process sometimes whereas 9 (8.9 %) schools do not do any follow-up. In response to administrative support, 28 (27.7 %) schools have excellent support whereas 63 (62.4 %) schools have good support and only 10 (62.4 %) schools were found to have weak support which needs to be mitigated in order to ensure the students are able to study and conduct their daily activities with a sound mind and body. Physical examination and screening processes for students are conducted by 75 (74.3 %) schools on a yearly basis whereas 21(20.7 %) schools conduct this examination at the time of registration. Around 5 (5.0 %) schools were not involved in this practice. The health promotion, education, and examination services are represented in Table 3.

In response to administrative support, 28 (27.7 %) schools have excellent support whereas the majority of schools 63 (62.4 %) have good support and only 10 (62.4 %) schools were found to have weak support towards health-related activities. Most of the school-based clinics 94 (93.1 %) have a system to register the children attending the school clinics; merely 7(6.9 %) schools have not shown this practice. Around 92 (91.1 %) schools have a registry for any chronic diseases or disabilities among students while 9 (8.9 %) schools do not have one. In the majority of the schools, 81 (80.2 %) safety surveys was conducted in schools whereas only 20 (19.8%) schools were not conducting any safety survey at all. The administrative support for health services is depicted in Table 4.

Table 3 Health promotion, education and examination (n=101)

Health education is provided		n (%)
Regular		68 (76.2)
Sometimes		32 (31.7)
Never		1 (1.1)
A follow-up of health counseling from health and education administrations		
Regular		49 (48.5)
Sometimes		43(42.6)
Never		9 (8.9)
A. Manual for health counseling in schools is available		
From Ministry of Health		18 (17.8)
From Ministry of Education		32 (31.7)
School self-guidelines		23 (22.8)
Unavailable		28 (22.7)
Periodic Physical Examination and Screening		
Regular every year		75 (74.3)
At the time of school registration only		21 (20.7)
Not at all		5 (5.0)

Table 4 Administrative support of schools for healthcare services (n=101)

Administration Support		n (%)
Excellent		28 (27.7)
Good		63 (62.4)
Weak		10 (9.9)
A Registry for patient student to the clinic		
Yes		94 (93.1)
No		7 (6.9)
A Registry for chronic Diseases/disabilities		
Yes		92 (91.1)
No		9 (8.9)
Does school safety survey regularly conducted?		
Yes		81 (80.2)
No		20 (19.8)

4. DISCUSSION

The purpose of this study was to report the quality and adequacy of available health services and resources for female students at schools. The establishment of school-based health clinics has been proliferated in many advance countries and it can be observed in the Saudi education system as well. The school-based health clinics support the model of a blended program of teenage schooling and health services. These clinics might hold promise to prevent and deal with teenage health problems more efficiently than other health centers. In this study, the operating clinics have been observed with varied services, administrative support, health protocols, and facilities. Most of the findings from the present study support the preparedness of the schools to manage the medical conditions inside the school premises and refer or transfer to the advanced health care settings. However, the study results also showed some unmet level of needs regarding insufficient availability of first aid kits, and limited health promotion and education in schools that could be improved.

The notable findings of the present was that majority of the schools 86 (85.1%) have school-based health clinics indicating a positive trend towards the blended program of adolescent schooling and health services in Saudi Arabia. These clinics have been reported a profound and positive impact on the mental and physical health of the students (Kitzrow, 2003). Several previous studies on school-based health facilities conducted in New York, and Washington, USA in 2014 and 2017 have also shown the improved academic outcomes in terms of grade promotion, school attachment and commitment to future higher education (Strolin-Goltzman et al., 2014; Price, 2017; Siddiqui et al., 2017). Contrary to other studies in the literature reported that with the lack of school-based health services the poor academic performance of the students has been reported (Geierstanger et al., 2004).

Moreover, the school-based health care services are encouraging when we consider female student's health that are more likely to lack health care visits for gender-specific and sensitive issues. Taras in the year 2008 analyzed the nature of school physician's support in the development of the students. He observed that the student was comfortable communicating with their physicians. About 70% of the students recommended having a feasible conversation with their school physician when compared to that of their outside physician. 38% of the students supported individualized school health plans while a considerable 42% recommended that the appropriate level school health service was a controversy (Taras and Brennan, 2008).

The current study showed that majority of the clinics 92 (97.6%) found with the availability of first aid kits whereas only 4 (3.3%) clinics entirely lack this facility. Amongst the school clinics equipped with first aid kits half of those clinics were described insufficient first aid kits to manage any medical problem. These findings are in line with a study conducted by Qureshi in Pakistan to assess first aid facilities in the school settings found the majority of the schools were equipped with first aid kits but some items were missing from the first aid box (Qureshi et al., 2018). Contrary different studies conducted in India reported the availability of first aid kits in different schools was from 25% to 62 % only (Joseph et al., 2015a).

In this study, the majority of the schools 93 (92.1%) were providing pharmacy services in addition to first aid kits. The availabilities of pharmacies can help to gain access to prescribed drugs that can help to deal with a variety of additional problems that cannot be accomplished by the use of first aid provisions alone. This finding is in agreement with the previous studies conducted in different countries (Qureshi et al., 2018; Joseph et al., 2015b). Moreover, about two-thirds of the schools 70(69.3 %) have a protocol for hospital referral, this indicates that the maximum of schools have an orderly policy towards hospital referrals for more complicated or emergency cases. Additionally, more than two-thirds majority 73(72.3 %) schools have ambulance call protocols. Therefore, most schools have a proper ordered structure for the provision of referral and transfer services to hospitals in severe or emergency situations.

In this study, the more than half of the schools, 68(76.2%) are providing regular health education to the students. The established evidence from the literature showed that school-based health education is an effective approach to reduce unhealthy behavior and enhances the academic output among students (Spiegel and Foulk, 2006). The school-based health education programs is especially helpful to reduce the prevalence of non-communicable diseases e.g. obesity in Saudi Arabia, where childhood obesity has peaked to almost double during the last decade. In a survey conducted among school children of Riyadh reported an overall prevalence of obesity as 13.4% (18% for females and 18.4% for males) (Al-Hussaini et al., 2019). These statistics significantly reveal to introduce health education and promotion programs in schools to reduce the incidence of obesity in Saudi Arabia. Many previous school-based studies have supported that school-based health education and promotion programs have significantly aided to reduce obesity among students (Gonzalez-Suarez et al., 2009; Mei et al., 2016; Guerra et al., 2013).

Moreover, the current study also revealed that greater number of the schools 75 (74.3%) reported to have periodic physical examination and screening. Therefore, most schools are involved in ensuring the health and welfare of students. The previous studies have revealed that school based examination has detected scoliosis (Ugras et al., 2010), oral diseases (Siddiqui et al., 2018), stress (Augustine et al., 2011) and vision problems (Azizoğlu et al., 2017) among asymptomatic school children. Likewise, a study among female students in Turkey reported insufficient knowledge about the breast self-examination for early stage diagnosis of the cancer (Karayurt et al., 2008). The above studies signifying the need of school based regular physical examination and screening programs among school children. Most of schools 92(91.1%) have a registry for any chronic diseases or disabilities among students. This indicates that the information is stored in regards to issues faced by students and the school can implement strategies to deal with these problems in an effective way.

Limitation of the study

Data was collected from female schools only and due to lack of logistics and support sample was taken using non probability snowball sampling technique that may not accurately generalized to whole Hail region.

5. CONCLUSION

The school based health care services are a part of Saudi healthcare system. The study demonstrated that most of the schools were well equipped with healthcare facilities. However, further improvement could be possible by furnishing the school clinics with sufficient number of first aid kits, enhancing administrative support, and offering more health promotion and education programs.

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Conflicts of Interest: The authors declare no conflict of interest.

REFERENCE

- Al-Hussaini A, Bashir MS, Khormi M, AlTuraiki M, Alkhamis W, Alrajhi M, et al. Overweight and obesity among Saudi children and adolescents: Where do we stand today? *Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association*. 2019;25(4):229.
- Aljanakh M, Siddiqui AA, Mirza AJ. Teachers' knowledge about oral health and their interest in oral health education in Hail, Saudi Arabia. *International journal of health sciences*. 2016;10(1):87.
- Almalki M, FitzGerald G, Clark M. Health care system in Saudi Arabia: an overview. 2011.
- Augustine LF, Vazir S, Rao SF, Rao MVV, Laxmaiah A, Nair KM. Perceived stress, life events & coping among higher secondary students of Hyderabad, India: A pilot study. *The Indian journal of medical research*. 2011;134(1):61.
- Azizoğlu S, Crewther SG, Şerefhan F, Barutçu A, Göker S, Junghans BM. Evidence for the need for vision screening of school children in Turkey. *BMC ophthalmology*. 2017;17(1):230.
- Cluss P, Lorigan D, Kinsky S, Nikolajski C, McDermott A, Bhat KB. School-Based Health Promotion Initiative Increases Children's Physical Activity. *American Journal of Health Education*. 2016;47(6):343–354.
- Conley CS, Durlak JA. Universal mental health promotion and prevention programs for students. In: *Global Mental Health*. Springer; 2017. p. 127–139.
- Geierstanger SP, Amaral G, Mansour M, Walters SR. School-based health centers and academic performance: research, challenges, and recommendations. *Journal of School Health*. 2004;74(9):347–352.
- Gonzalez-Suarez C, Worley A, Grimmer-Somers K, Dones V. School-based interventions on childhood obesity: a meta-analysis. *American journal of preventive medicine*. 2009;37(5):418–427.
- Guerra PH, Nobre MRC, Silveira JAC da, Taddei JA de AC. The effect of school-based physical activity interventions on body mass index: a meta-analysis of randomized trials. *Clinics*. 2013;68(9):1263–1273.
- Joseph N, Narayanan T, bin Zakaria S, Nair AV, Belayutham L, Subramanian AM, et al. Awareness, attitudes and practices of first aid among school teachers in Mangalore, south India. *Journal of primary health care*. 2015;7(4):274–281.
- Karayurt Ö, Özmen D, Çetinkaya AÇ. Awareness of breast cancer risk factors and practice of breast self examination among high school students in Turkey. *BMC public health*. 2008;8(1):359.
- Kitzrow MA. The mental health needs of today's college students: Challenges and recommendations. *NASPA journal*. 2003;41(1):167–181.
- Mei H, Xiong Y, Xie S, Guo S, Li Y, Guo B, et al. The impact of long-term school-based physical activity interventions on body mass index of primary school children—a meta-analysis of randomized controlled trials. *BMC Public Health*. 2016;16(1):205.
- Price OA. Strategies to encourage long-term sustainability of school-based health centers. *American Journal of Medical Research*. 2017;4(1):61–83.
- Qureshi FM, Khalid N, Nigah-e-Mumtaz S, Assad T, Noreen K. First aid facilities in the school settings: Are schools able to manage adequately? *Pakistan journal of medical sciences*. 2018;34(2):272.
- Siddiqui AA, Shaikh S, Alam MK, Aljanakh M, Al Shammari T, Ali Jarallah F. Assessment of Attitude and Practices towards oral health in a population of Saudi Arabian undergraduate students in the Ha'il region. *Int Med J*. 2017;24(6):478–81.
- Siddiqui AA, Shaikh S, Aljanakh M, Alam MK. Oral Health Related Knowledge among the Undergraduate Students of Ha'il, Saudi Arabia, Based on the Recommendations of American Dental Association. *International Medical Journal*. 2018;25(1).
- Sørli M-A, Ogden T. School-wide positive behavior support—Norway: Impacts on problem behavior and

- classroom climate. *International Journal of School & Educational Psychology*. 2015;3(3):202–17.
20. Spiegel SA, Foulk D. Reducing overweight through a multidisciplinary school-based intervention. *Obesity*. 2006;14(1):88–96.
 21. Strolin-Goltzman J, Sisselman A, Melekis K, Auerbach C. Understanding the relationship between school-based health center use, school connection, and academic performance. *Health & social work*. 2014;39(2):83–91.
 22. Taras H, Brennan JJ. Students with chronic diseases: nature of school physician support. *Journal of School Health*. 2008;78(7):389–396.
 23. Ugras AA, Yilmaz M, Sungur I, Kaya I, Koyuncu Y, Cetinus ME. Prevalence of scoliosis and cost-effectiveness of screening in schools in Turkey. *Journal of back and musculoskeletal rehabilitation*. 2010;23(1):45–48.
 24. West* P, Sweeting H, Leyland A. School effects on pupils' health behaviours: evidence in support of the health promoting school. *Research papers in Education*. 2004;19(3):261–291.