

Exploring the Need and Potential Role for School Nurses in Saudi Arabian Schools

by

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Bachelor of Science Nursing , King Saud University, 2009

A Thesis Submitted in Partial Fulfillment
of the Requirements for the degree of

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in the School of Exercise Science, Physical and Health Education

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Abstract

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The purpose of this study was to explore the need for school nurses in the Saudi school system and to explore the current role of nurses in school health education and health promotion in Saudi Arabia. The study used a qualitative approach that was guided by implementation literature. Fifteen participants (8 nursing students; 4 nursing faculty members; 3 nurses) answered open-ended questions and participated in semi-structured interviews. From the findings, three themes emerged to identify the current role of nurses in Saudi Arabian school: “Health educator”, “Health promoter”, and “Liaison with community”. Four themes were identified based on the potential role of nurses in Saudi Arabian schools: “Leadership role”, “Care provider role”, “Educator role”, and “Liaison with community”. Five themes were identified based on facilitators and barriers to providing health and physical education in Saudi schools: “University and college level support”, “School health services”, “Governmental support”, “Lack of cultural approval”, and “Demand for nurses exceeds supply”. This study contributes to our understanding of what are the current and potential roles of nurses in Saudi Arabian schools, are nursing students currently prepared to provide health education and promotion to school staff and students, and what facilitators and barriers exist for nursing to provide health education and promotion in Saudi schools. This information can contribute to decision-making processes, formulation of necessary legislation, and government measures towards the implementation of school nursing and physical education, particularly in girls’ schools in Saudi Arabia, so as to maximize health and wellness in the Saudi community.

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Dedication

This thesis is dedicated to my father, who taught me persistence on my life. I also dedicate this to my mother, who taught me to be patience in difficult situations and perseverance when facing problems.

Chapter 1: Introduction

The health of children and adolescents is of profound importance to the future of the public health system (Langford et al., 2015). Childhood obesity is growing very fast and over the past few years it has grown to such proportions that it is considered an equally serious health dilemma in developed and developing countries (Karnik & Kanekar, 2012). Childhood obesity and overweight issues are an escalating problem in Saudi Arabia. The World Health Organization (WHO, 2006-2011) documented that between 1988 and 2005 obesity among adolescents in Saudi Arabia had increased significantly. In the 6-13 age group in Saudi primary schools, a study found that the prevalence of overweight and obesity among boys was 7.3% and 17.4%, respectively, and among girls at factors of 12.4% and 20.9%, respectively (Alenazy et al., 2014).

Contributing factors to these troubling statistics appear to be found in Saudi culture and personal daily routines with various determinants including gender and lifestyle appearing to form the root cause (Al Dhaifallah et al., 2015). These factors contribute to physical inactivity and poor dietary patterns and include: eating habits where meals are comprised primarily of fatty fast foods, sedentary lifestyles, and poor quality physical activities, as well as a lack of organized sports. All of these have been documented as playing major roles in increasing the obesity rate among all children, especially with the girls in Saudi Arabia (Al Dhaifallah et al., 2015; Mobaraki & Söderfeldt, 2010). According to a study undertaken into the physical activity among Saudi pre-school and school-age children, over 70% of Saudi pre-school children, 60% of elementary school children, and 71% of youth, failed to participate in sufficient physical activities to meet what is considered the minimal weekly requirement of moderate-to-

vigorous health-enhancing physical activity (Al- Hazzaa, 2004). These learned negative behaviours and related attitudes about sedentary lifestyles and healthy dietary patterns carry over into adulthood, with disastrous results (Veugeliers & Schwartz, 2010).

Metabolic health risks, chronic diseases, psychosocial problems, and an increased risk of cardiovascular diseases in adulthood are well documented and have been directly linked to complications of youth overweight and obesity (Ludwing, 2007; Ebbeling et al., 2002; Baker et al., 2007; Bibbins et al., 2007). Studies have determined that the Western lifestyle, characterized by decreased physical activity and high caloric intake, is contributing to a disturbing global epidemiological transition which is shifting the leading causes of death from communicable diseases to non-communicable diseases (Boutayeb & Boutayeb, 2005; Amuna & Zotor, 2008). The World Health Organization (WHO, 2013) has estimated that by 2020 three-quarters of all deaths in developing countries will be attributed to non-communicable diseases, with obesity the major risk factor. The World Health Organization has also demonstrated that 78% of all deaths in Saudi Arabia are directly attributed to non-communicable diseases with cardiovascular disease accounting for the highest number of deaths at 46% (WHO, 2014). Thus addressing health behaviours during childhood where attitude and habit formation is occurring is imperative to having a public health impact.

School environments have been shown to influence health behaviours and thus they have been identified as an important medium to deliver health promotion, social development, promotion of physical education, and promotion of healthy behaviours to children (Van Sluijs et al., 2008; Stewart, 2006; Rowling et al., 2006). According to Van Sluijs (2008) a focus on physical activity only from a multi-component approach that

includes environmental approaches, instead of aiming at changing health behaviours, proved more effective. For example physical activity has been proven to have increased in adolescents when promoted by and applied through school-based interventions, in conjunction with family, community and multicomponent interventions (Esther et al., 2007; 2008).

To influence behaviour change and promote a lasting and effective changes in, or establishment of, healthy habits in children of this age, a comprehensive school health approach which involves any group directly involved with the education of children has been recommended (Veugelers & Schwartz, 2010). These groups would include parents, teachers, and other school faculty, as well as other members of community stakeholder groups (Veugelers & Schwartz, 2010). Further, this would also mean establishing supportive policies and programs, as well as making necessary changes to the educational environment such as outlined in the Comprehensive School Health (CSH) model in Canada, Coordinated School Health in United States, or Health Promoting Schools framework in Europe and Australia. All of these represent comprehensive whole setting approaches to health promotion in the schools (Veugelers & Schwartz, 2010).

Comprehensive School Health (CSH) is a specific school-based health promotion framework that does more than classroom-based health education models by integrating education with strategies that address the whole school environment (Lewallen et al., 2015). In other words, CSH components which serve as the primary framework through which school health educators, physical education teachers, school nurses, and other staff would work in supporting the health of students within the context of the school. This

particular framework is a system which the Saudi education system should look to adopting based on the following evidence.

A number of studies and several systematic reviews have evaluated the effectiveness of comprehensive school-based interventions to promote health in children and youth (Fairclough & Stratton, 2005; Kriemier et al., 2011; Pardo et al., 2013) and found supportive evidence for this approach. For instance, the Alberta Project Promoting Active Living and healthy Eating (APPLE) which was established in schools in Alberta, Canada to facilitate changes in diet, physical activity, and weight status in elementary students, showed that after a two-year period attending an APPLE school, students were eating more fruits and vegetables, consuming fewer calories, and were more physically active compared with their peers in the non-APPLE schools who also took part in the study (Fung et al., 2012).

Initiatives implemented by The Action Schools! (AS!) BC was also based on a comprehensive school health approach and showed that teachers in AS! BC school provided more minutes of Physical Activity (PA) and Healthy Education (HE) opportunities for students and that this in turn resulted in significant increases in PA in boys as measured by pedometers (Naylor et al., 2008), positive changes in cardiovascular fitness (Reed et al., 2008), and positive changes in willingness to try vegetables and fruit in intervention school students compared to usual practice comparison school students (McKay et al., 2015). Through such approaches the schools and communities would be encouraged to address student health needs, supporting their physical, cognitive, and emotional development (Lewallen et al., 2015).

Clearly, the Comprehensive School Health approach has shown notable positive results in different parts of the world. Unfortunately, to date, the Saudi education system has not fully embraced all aspects of the Comprehensive School Health approach. According to Al Dhaifallah (2015) while there are numerous health education campaigns operating under the umbrella of school health services, so far there have been no comprehensive programs implemented to overcome health issues.

Across the United States and Canada, as well as other countries overseas, school health coordinators and school health teams that include school health educators, physical education teachers, and school nurses have been CSH facilitators in many schools and districts (Lewallen et al., 2015). Their work has proven most successful when viewed as an integral mission within the school. When combined, both sectors' goals, those of the district and school-based wellness teams, prove to be most effective (Lewallen et al., 2015). According to the National Association of School Nurses (NASN) (2011) it has been argued that school nurses are important leaders and powerful advocates for children's health and wellness in schools. School nurses bring a public health point of view to the school and work with teachers and school leaders to make changes that affect all students' health (NASN, 2011).

Ideally, increasing the adaptability of students and their families to health and social stressors, such as chronic health conditions, or social and economic barriers, is imperative. Management of these stressors is co-related with advocating their personal health and learning needs (Lewallen et al., 2015). Qualified professionals, such as school nurses, possess both knowledge and expertise required to promote the prevention of overweight and obesity. Furthermore, they are ideally situated to address the needs of

school youth who are overweight and/or obese (Lewallen et al., 2015; NASN, 2014). One study demonstrated that professional school nurses are uniquely positioned to deliver necessary weight management intervention (Pbert et al., 2013). Another study demonstrated that the school nurse's role was the delivery of evidence-based obesity prevention to students (Tucker & Lanningham, 2015). The findings of the study showed statistically significant increases in PA levels and reported improvements in child health habits following nurse prevention efforts. The findings also indicated that school nurses have a positive impact in helping to prevent obesity in schoolchildren (Tucker & Lanningham, 2015).

Unfortunately, exploration of the school nurses' role as a viable means for school-based child obesity prevention has been hindered, for the most part, by descriptive designs concerning the extent of school nurses' knowledge, their attitudes, and practices (Bunting, 2011). Their knowledge and training make school nurses the ideal contact and educational source between school personnel, family, the community, and healthcare providers by being able to advocate health care and a healthy school environment (NASN, 2011). By restricting what the school nurses are permitted wastes the resource they represent (Bunting, 2011).

As demonstrated above, the importance of a school nurse and their relation to the health of students cannot be understated. However, in Saudi Arabia, there are no nurses assigned to the public schools. In 2006, the Ministry of Education established a policy that each girl's school should employ one nurse to promote health for children and school staff (Alkenani, 2006). However, this policy has yet to be fully implemented in the public school system, and while some private schools do employ nurses they utilize them on an

extremely limited basis. In a recent study in Jeddah, only 6% of parents reported that their children's school had a nurse, while 83% said their school did not. Additionally, this study also found that all parents expressed a preference that their children's schools employed a nurse for safety reasons (Helal & AlHudaifi, 2015).

At present, the healthcare system in Saudi Arabia included a "primary healthcare center" in each district, where the local medical office employs one doctor and a number of nurses from these centres to visit schools three times annually, providing immunization and basic health education for the students. However, public health education is under-represented in the primary health care centers in Saudi metropolises (Midhet & Sharaf, 2011). A recent study recommended that there should be a legal requirement for a full-time qualified school nurse in each school whether government-run or private, along with a comprehensive school health program (Helal & AlHudaifi, 2015). Also, a system for continuing education for school nurses is vital, as is the establishment of fully equipped school health clinics in every school that includes regular visits by a school physician (Helal & AlHudaifi, 2015). Added to that is the need for the Ministry of Education to recruit nurses for each school. Helal & AlHudaifi (2015) suggested that the nurses should hold a degree in nursing, and be provided with sufficient equipment and facilities to carry out their duties.

Early educational exposure to the importance and variety of school nurse roles could help create a supportive environment in Saudi Arabia which, in turn could have a positive impact on the country's overall health and wellbeing. A study that investigated the role of school nurses as perceived by school children's parents in Jeddah, Saudi Arabia focused on Saudi parents' knowledge concerning school health nurses (Helal &

AlHudaifi, 2015). The study determined that Saudi parents were unaware of the scope of the school nurses' role and responsibilities, and of what school health nurses can achieve. In addition, the study recommended that there is a requirement for awareness of programs aimed not only at the parents, but the school children, the teachers, and the school administration (Helal & AlHudaifi, 2015). In addition to research identifying social, genetic, and economic factors as primary determinants, there exists a proven correlation between physical and health education and rates of preventable illness, such as childhood obesity, overweight, and type-2 diabetes (Douglas et al., 2014; Gupta et al., 2012; Raychaudhari & Sanya, 2012; Werner et al., 2012). This model has been extended to include school nursing as a viable medium of delivery in promoting physical activity (Robbins, 2001).

Through their presence in the school system, school nurses not only provide for the safety and care of students and staff but are also the ideal teaching source for integrating comprehensive health solutions into the education setting (NASN, 2011). There is potential for the function of school nurses in Saudi Arabia's schools to be expanded beyond their present contribution so that it includes proper health and physical education within the education system. Because the school system in Saudi Arabia divides the genders into separate schools, boys receive a certain degree of sports training, but there is no such similar physical activity for girls. Instead, the curriculum has substituted art, sewing, and other similar electives (UNESCO, 2010, 2011). This is due to the fact that in Saudi Arabia, Physical Education in girls' schools is prohibited by social norms that prevent females from participating in physical activities in public because it is considered inappropriate and immodest (Mobaraki, 2010). Furthermore, there are

restrictions on what post-graduate courses are available to girls. Girls are not permitted to take courses that deal with teaching physical education or sports.

However, in recent years, there has been an increase in studies related to the health and physical well-being of Saudi girls. A study has shown that the prevalence of obesity among Saudi females was higher than males because of social restrictions that prevent women participating in any exercise in schools or in public (Mobaraki, 2010). A more recent study showed that the prevalence of overweight or obesity was significantly higher in girls than in boys (34.3% vs. 17.3% respectively) (Al-Mohaimed et al., 2015).

In conclusion, it is evident from the role and approach to school health nursing programs in North America, Great Britain, and other countries around the world that Saudi Arabia could implement similar approaches. Less research has been conducted in Saudi Arabia discussing the need and usefulness for school nursing, and what potential role should be given to nurses in promoting children's health. Within a broader comprehensive school health framework the importance of the school nurse as a key actor cannot be understated, especially because of their potential impact on the overall health and wellbeing of the country's population as a whole. Through a potential role in the provision of physical and health education at all levels of education and for both genders, school health nurses would bring positive influences to school children and the school staff, and benefit the entire Saudi community. This is something that should be especially considered for the Saudi girls' schools which have less consideration and attention to physical health than is found in the boys' schools where at least there is some physical activity programs. The lack of adequate health programs or physical activity

opportunities is a contributing factor in the obesity and overweight issues, and related health problems in both genders, but particularly with the girls.

Purpose of this study

The purpose of this study was to explore the current and potential role of nurses in school health education and health promotion in Saudi Arabia. Primarily, the research was to explore the attitudes and beliefs of nursing students and nursing faculty at a Saudi university (University of Dammam) and of nurses working in health units and serving the schools about a potential role in school health promotion. The research was also to explore whether there is a potential role for nurses to provide physical education for girl students.

Research Questions

1. What is the current role of nurses in Saudi Arabian schools?
2. What is a potential role of nurses in Saudi Arabian schools?
3. How are nursing students currently prepared to provide physical and health education and promotion to school staff and students?
4. What are facilitators and barriers for nurses to provide health and physical education in schools?

Operational Definitions

- Health is not only the absence of diseases or disabilities; it is a state of complete physical, mental and social well-being (Grad, 2002).
- Health education (HE) is defined any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes (WHO, 2016).

- Comprehensive School Health (CSH) is a system that integrates school-based health promotion framework that does more than classroom-based health education models and integrates the education and the whole school environment (Lewallen et al., 2015).
- School Health Promotion is a health promoting school concept that is constantly strengthening its capacity as a healthy setting for living, learning, and working (WHO, 2009).
- Faculty nurse is defined as an individual who holds either a master's degree or a doctoral degree in nursing and who is a faculty member in a registered nurse (RN) or practical nurse (PN) program. A faculty nurse has graduate preparation in: the science of nursing; clinical nursing practice; and, teaching and learning, including curriculum development and implementation. (Jackson et al., 2008).
- A nursing student is a person who is studying to be a nurse at a nursing school or hospital (Dictionary.com, 2016).
- School health team works with students, teachers, parents, and the community to promote healthy youth and healthy school environments. The team includes nurses, dental hygienists, nutritionists, and health educators to provide education and services on many topics (Colchester East Hants Health Authority, 2016).
- Physical Education (PE) is part of school curriculum which is dedicated to large – muscle activities that encourage and develop students to move and stimulate learning through movement (Gallahue & Donnelly, 2003).

- Physical Activity (PA) is defined as any movement of the body using skeletal muscles that result in the expense of energy (Caspersen, Powell & Christenson, 1985).
- School nurse is an individual whose specialized practice of professional nursing advances the well-being, academic success, and lifelong achievement of elementary and secondary students (*NASN, 2011*).
- Primary Health Care Center is the place where the local medical office employs one doctor and a number of nurses. The primary goal of the Primary Health Care Center is to deliver integrated health services (curative and preventive) and to improve the health status of the community (Ai-Osimy, 1994).
- Nurses are registered nurses whose practice to promote and support the health of individuals, families, communities and populations, and an environment. They practice in diverse settings such as homes, schools, and community health centers (Community Health Nurses Association of Canada, 2003).
- Health promoting nursing practice is promoting health using health promotion, prevention and health protection, and health maintenance, restoration and palliation strategies (Community Health Nurses Association of Canada, 2003).

Chapter 2: Literature Review

For the purposes of this research the literature review has been organized into 10 sections. The first section, Children's health, explores the current, global status of childhood diseases, especially chronic diseases such as overweight and obesity, focusing on the state of children within the Middle East countries, especially Saudi Arabia. Within this section behavioural factors, which can lead to and compound health problems among Saudi children are discussed. Specifically the implications of early negative behavioural patterns of lack of exercise and poor diets in the Middle East, especially Saudi Arabia, that carry through to adulthood, and how these negative habits promote chronic non-communicable diseases such as obesity, overweight, diabetes, and cardiovascular disease within the population at all age levels.

In section two this study focuses on public health, which follows on from the studies into chronic health issues in the Arab world, specifically in the Saudi Arabia. In Section three, the role of schools as an important agency for the promotion and delivery of health and safe physical activities for children is examined. Specific to this the present situation regarding physical education programs within the school system in Saudi Arabia is scrutinized. Section four provides details about the context of the Education system in Saudi Arabia, in terms of different stages of the education system how it is divided between genders, and what is offered throughout the academic curriculum for boys and girls. Section five, provides an overview of the Comprehensive School Health model as an approach to health promotion in schools and explains the eight components and the four overlapping action stages that involve the school, health promotion staff, psychological and social services, and the families and community. In addition, in

Section six the current research on the effectiveness of the Comprehensive School Health (CSH) approach is examined. In Section seven a more in-depth discussion about school services as a key component within CSH models, the value and impact of school integrated health services, and the current Saudi Arabian approach to school health services, which are part of the Primary Health Care system.

As an extension of the discussion of school health services Section eight discusses the school nurse as stakeholder in providing those services. An existing framework that guides nursing practice in schools (NASN) is discussed and in Section nine an overview of the nursing profession in Saudi Arabia (its history, educational developments, workforce, and scope of professional practice) is provided to place the discussion of nurses in schools in context. The final section, ten, provides examples of research that has been carried out exploring the benefits of school nurses and the duties that they perform in countries outside of the Middle East and Saudi Arabia.

Children's Health

Historically there are recorded instances of chronic diseases dating back to Neolithic times (Albert, 2012). However, in the past 20 years the rate of chronic health issues has escalated at an alarming rate globally (Albert, 2012). Over the past 30 years, the prevalence of chronic conditions in children and adolescents has increased (Perrin et al., 2007). For example, chronic health conditions among children in the United States have risen from 12.8% in 1994 to an alarming 26.6% in 2006. Foremost among the issues are asthma, obesity, and behavioural and learning problems (Van Cleave et al., 2010).

The WHO (2014) states that in 2012-2013 approximately 170 million children worldwide met the standard clinical criteria for overweight or obesity. This same research

found the majority of overweight and obese children to be residents of developing countries with those in Eastern Europe and the Middle East reporting the highest prevalence of childhood overweight and obesity (Kelishadi, 2007).

In Canada, the 2009-2011 Canadian Health Measures Survey (CHMS) found that 31.5% of Canadian children aged 5-17 years were overweight or obese (Roberts et al., 2012). While the United States has long been held as a leading example of the exponential growth of obesity in the adult, adolescent, and child populations, developing countries are seeing similar exponential rises in the prevalence of childhood overweight and obesity (Gupta et al., 2012; Karnik & Kanekar, 2012; WHO, 2014).

All countries in the Middle East are suffering from this rising epidemic. As an example, in Kuwait, Qatar, and the UAE a rapid upward trajectory in the trends in childhood overweight and obesity is especially evident among preschoolers and adolescent girls (Ng et al., 2011). Among Kuwaiti and Saudi pre-schools the prevalence of obesity is high (8-9%), with adolescent overweight and obesity among the highest in the world. Kuwait's has, by estimates, the worst at 40-46% (Ng et al., 2011).

Recent research shows that Saudi Arabia is not exempt from the worldwide and Middle Eastern epidemic of childhood overweight and obesity (Al Dhaifallah, Mwanri & Aljouidi, 2015). The Teen Lifestyle Study published in 2014 lists obesity in Saudi males and females aged 14-19 years as being 14% and 24% respectively (Al-Hazzaa et al., 2014; Albahrain et al., 2015). Another study showed that in the 6-13 age group the prevalence of overweight and obesity among boys in Saudi primary schools was 7.3% and 17.4%, respectively, and among girls it was 12.4% and 20.9%, respectively (Alenazy et al., 2014). From all accounts, findings demonstrate that girls are being more adversely

impacted than their male peers. Significantly, the prevalence of overweight and obesity factors were reportedly higher among the girls than boys in the same age groups in data reported by Al-Mohaimed and colleagues (2015).

AlBuhairan (2015) undertook a study into the health status among Saudi Arabian adolescents of both genders. In their study, 28% of adolescents reported having a chronic health condition. The prevalence of chronic health conditions was reported at 28.6%. Bronchial asthmas ranked highest. Among the participants, mental health symptoms suggestive of depression were higher among females (19%) than males (10.1%). Between both genders, only 54.8% were of a healthy weight, 30.0% were overweight/obese with 14.5% of females overweight and 13.9% of the males. Of the participants 95.6% suffered from Vitamin D deficiency (AlBuhairan et al., 2015).

Interactions of a multitude of influences that reflect complex processes determine children's health. Behavioural and environmental influences, along with the effects of biological processes, influence change as children grow (Institute Of Medicine Staff, & National Research Council U.S. 2004). For instance, high prevalence of childhood obesity is a rising concern in Western countries. This high prevalence is primarily attributed to the ongoing decrease in physical activity and increase in energy intake among children. This is coupled with genes and environmental factors (Biro & Wien, 2010). In recent years a wide range of issues associated with obesity is being reported by a number of academics researching school-age children in Saudi Arabia (Al Dhaifallah et al., 2015).

Social determinants such as gender and lifestyle, and related physical inactivity and poor dietary patterns related to eating habits, have been noted as playing a significant

part in influencing and exacerbating the health problems among Saudi children (Khalid et al., 2008; Alrukban et al., 2003). According to Al-Hazza (2011) research findings provided evidence of a high prevalence of sedentary behaviour and extremely low levels of physical activity between both genders, but especially among females between the ages of 14 and 19. This indicates that males were more active than females, and physical activity levels appeared to decline with age, particularly among the females (Al-Nuaim et al., 2012).

Most recently a comprehensive in-depth study on the health of adolescents in Saudi Arabia was carried out and it covered a number of sensitive topics (AlBuhairan et al., 2015). This study was the first of its kind in the country. Table 1 shows the health risk behaviours among adolescents in Saudi Arabia; “dietary behaviour, activities (including daily physical activity), bullying and violence, and tobacco and substance use and traffic safety” were issues that arose (AlBuhairan et al., 2015).

Health risk behaviors	Prevalence		Prevalence by gender								
	n = 12,575 (%)	95% CI		Male n = 6,444 (%)		95% CI		Female n = 6,131 (%)		95% CI	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper		
Dietary behaviors (daily)											
Breakfast intake (sometimes/daily) ^a	54.8	50.8	58.7	62.3	60.7	64.0	46.3	44.6	48.0		
Fruit intake (≥ 1 servings)	38.1	34.0	42.1	43.6	41.5	45.7	31.8	29.7	33.9		
Vegetable intake (≥ 1 servings)	54.3	50.7	58.0	55.7	53.8	57.7	52.8	50.8	54.8		
Carbonated beverage consumption (≥ 2 drinks)	37.5	34.0	41.1	43.9	41.9	45.9	30.4	28.3	32.5		
Energy drinks consumption (≥ 1 drinks)	21.8	19.7	23.9	25.5	23.8	27.2	17.7	16.1	19.3		
Activity											
Physical exercise (daily)	13.7	10.4	16.9	19.0	17.4	20.6	7.7	6.9	8.5		
Television viewing (≥ 2 hours/day)	42.4	41.0	43.9	40.4	38.8	42.1	44.7	42.8	46.6		
Video game playing (yes)	55.6	47.7	63.4	68.0	66.4	69.6	41.6	39.3	43.9		
Internet use (≥ 2 hours/day)	30.1	26.8	33.4	26.0	24.3	27.8	34.6	32.5	36.8		
Cellular phone (>1 hour/day)	14.8	13.2	16.3	13.2	12.0	14.4	16.6	14.8	18.3		
Traffic safety											
Seat belt using (sometimes/always)	13.8	11.4	16.3	17.0	15.3	18.7	10.2	9.0	11.4		
Car taking without permission (yes)	17.9	11.7	24.2	28.6	26.8	30.4	5.9	5.1	6.7		
Bullying and violence											
Exposure to bullying ^a	25.0	23.0	27.0	27.1	25.1	29.0	22.7	21.3	24.2		
Exposure to violence at school ^b	20.8	15.8	25.7	28.9	26.3	31.5	11.7	10.4	12.9		
Exposure to violence in community ^b	19.7	17.6	21.8	22.9	21.3	24.5	16.1	14.6	17.6		
Tobacco and substance (ever use)											
Cigarette smoking	16.2	12.5	19.9	22.1	20.0	24.2	9.6	8.2	10.9		
Sheesha smoking	10.5	8.4	12.5	13.5	11.8	15.3	7.1	5.7	8.4		
Solvents sniffing	16.2	12.7	19.6	11.5	10.3	12.6	21.4	19.7	23.0		
Prescription medication use for nonmedical purpose	7.2	5.7	8.7	6.0	5.3	6.8	8.5	7.4	9.6		
Alcohol consumption	1.4	1.1	1.8	2.1	1.7	2.5	.7	.5	1.0		
Stimulants use	1.5	1.1	1.9	1.6	1.3	1.9	1.4	1.0	1.8		
Marijuana use	1.0	.6	1.5	1.6	1.2	2.0	.4	.2	.6		

Table 1. Health risk behaviours among adolescents in Saudi Arabia and gender differences (AlBuhairan et al., 2015)

Results of this study provided many interesting insights. For example, the results indicated that only 54.8% of respondents ate breakfast daily most of the time. Thirty-eight percent of respondents stated they drank at least two carbonated beverages a day, and 21.8% said they daily drank one energy drink (AlBuhairan et al., 2015). AlBuhairan (2015) found that 13.7% of the adolescents polled stated they did not participate in any form of physical activity. Of the respondents to the study, 25% stated they had encountered some form of bullying during the 30 days immediately prior to commencing the study, and 25% said they had been involved in some form of physical violence, either at school or in their community. Sixteen percent of the adolescents admitted to smoking cigarettes, and 10.5% had used sheesha (water pipe) (AlBuhairan et al., 2015). The study also determined that only 13.8% of the participants reported using a seatbelt at least part of the time. Conversely, 35.4% reported they had been in a car accident of one form or another. These behaviours, which contribute to morbidity and premature mortality among Saudi adolescents between both genders, continue to rise and persist into adulthood (AlBuhairan et al., 2015).

Public Health

Sedentary lifestyles, negative behaviours, and healthy dietary patterns formed in childhood carry over into adulthood, often with disastrous results (Veugelers & Schwartz, 2010). Thus, it is imperative that these attitudes and related habit formation are dealt with during the earliest informative years of childhood so as to mitigate the impact on public health as the child matures to adulthood.

In second and third world countries it was recorded in 2010 that nearly 80% of deaths occurred in the low and middle income brackets due to diet and a marked

reduction in physical activities, in conjunction an increase in smoking (WHO, 2011). Studies have determined that the Western lifestyle, characterized by decreased physical activity and high caloric intake, is contributing to a disturbing global epidemiological transition which is shifting the leading causes of death from communicable diseases to non-communicable diseases (Boutayeb & Boutayeb, 2005; Amuna & Zotor, 2008). A shortened lifespan in more recent times has shown a direct correlation to non – communicable diseases such as cardiovascular disease, diabetes, and digestive, neurologic, mental and behavioural conditions, cancer, musculoskeletal issues, and other disorders (WHO, 2011).

Organized health care is facing serious challenges due to non-communicable diseases (NCDs). These diseases share features that have important implications because they are linked to shared risk factors (e.g., obesity is a risk for diabetes and stroke) and additional disorders such as diabetes, which frequently occur in combination with cardiovascular disease (Alwan, 2011). North America is experiencing NCDs at an epidemic level. While obesity in the U.S.A. demonstrated little change over a 12-year study period, the data compiled is consistent with a slight increase (Flegal et al., 2010). Among adult men the prevalence of obesity was 35% in the research period 2009-2010, while that among adult women was 35.8% (Flegal et al., 2010). Similarly health studies examining adult obesity in Canada between 1985 and 2011 demonstrated an overall increase from 6.1% to 18.3% (Twells et al., 2014).

Results of the Global Burden of Disease Study undertaken in 2010 reported that the burden on non-communicable diseases has increased at a disturbing rate, with variations between countries of different income levels such as the Arab world (Rahim et

al., 2014). In the Arab world a major detrimental transition is occurring. From 1990 to 2010 a noticeable, rapid increase in NCDs was recorded i.e. ischaemic heart disease, mental disorders such as depression and anxiety, musculoskeletal disorders including low back pain and neck pain, diabetes, and chronic kidney disease (Mokadad et al., 2014). Differences have been noted between men and women with regards to NCDs where the rates have been noted as being higher in one gender versus the other. In several studies carried out in 1990, 2005, and 2010, the decrease in years lived with disabilities ranked depression as the highest cause factor, with women rating higher than men (Mokadad et al., 2014).

In a focus on the nations of the Middle East the levels of deaths linked to heart disease and co-related adverse health factors is alarming (Mokadad et al., 2014). In Saudi Arabia and Kuwait, ischaemic heart disease and cardiovascular disease ranked as the top two causes (Mokadad et al., 2014). Chronic kidney failure placed sixth in Oman, Saudi Arabia, and Bahrain. It placed eighth as a cause of death in Kuwait, and ninth in Qatar (Mokadad et al., 2014). The WHO (2014) demonstrated that 78% of all deaths between ages 30 and 70 years in Saudi Arabia were directly attributed to non-communicable diseases. As demonstrated in Figure1, cardiovascular disease accounts for the highest prevalence at 46%. Second highest are other NCDs, which make up 14% of causalities. The third highest cause of death at 13% is communicable, maternal, perinatal, and nutritional causes. Death from cancer ranks at 10%, while diabetes is at 5%. Chronic respiratory diseases at this time contribute to 3% of the deaths (WHO, 2014).

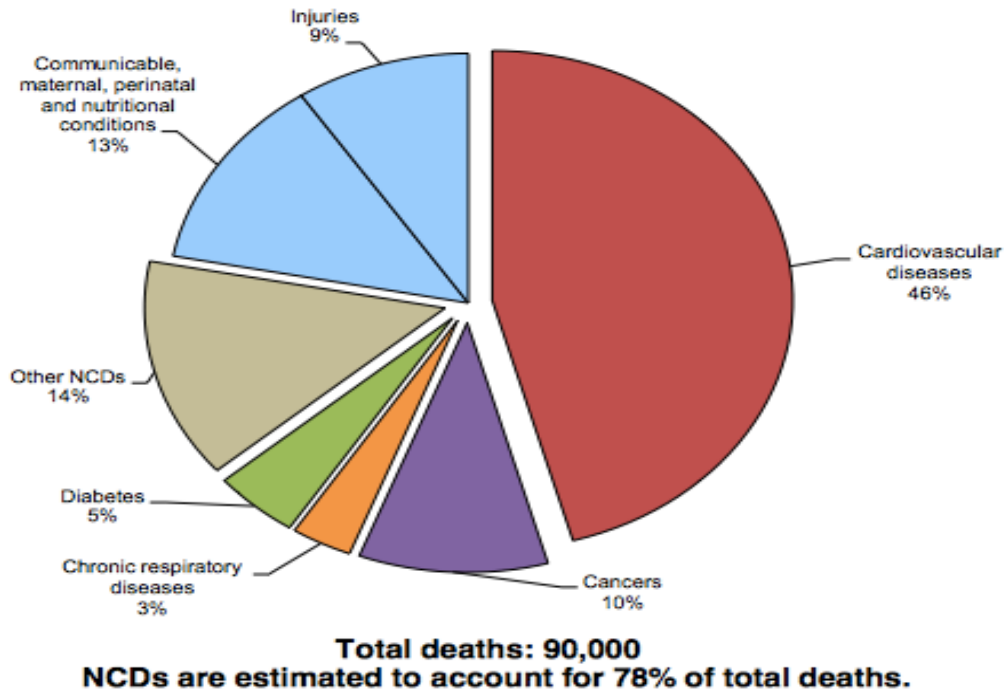


Figure 1. Proportional mortality in Saudi Arabia (% of total deaths, all ages, both sexes) (WHO, 2014)

Over the past few decades the population of Saudi Arabia has grown increasingly Westernized in its approach to lifestyle and diet. Consequently, it now has one of the highest rates of overweight and obesity prevalence within the whole population, including the children, placing the entire nation at an elevated risk for increased rates of NCD mortality (DeNicola et al., 2015). This condition of overweight and obesity is far more widespread among Saudi women than it is in the men (DeNicola et al., 2015). A study conducted over ten years into the prevalence of obesity in Saudi women demonstrated that it had increased from 23.6% to 44.0%, while in men it had risen from 14.2% to 26.2% (Alquaiz et al., 2014).

A study carried out in Saudi Arabia using self-reported questionnaires determined that obesity in the adult population was higher among women (33.5%) compared to their male counterparts (24.1%), with male obesity associated with marital status, diet,

physical activity, diabetes, and hypercholesterolemia and hypertension (Memish et al., 2014). Studies strongly link obesity and diabetes, hypercholesterolemia and hypertension. It was recorded that both genders' diets were extremely low in fruits and vegetables (more than 81.0%), and most were physically inactive (46.0% men vs. 75.1% women). Women in particular practiced very little physical activity at all (Memish et al., 2014). Additionally, there is a recorded strong association between obesity and increased rates of breast cancer in the Arab world, particularly among Saudi females (Elkum et al., 2014).

Physical inactivity remains an ongoing major challenge to public health in Saudi Arabia (Khalaf et al., 2013). According to the WHO, physical inactivity is one of the leading causes of death and disability, linking it to being a leading cause of non-communicable chronic diseases such as hypertension, diabetes, and obesity (WHO, 2001; Mokdad et al., 2000). Co-related to physical inactivity, cardiovascular disease (CVD) is also on the rise.

Connected risk factors for CVD were reported as extremely high among women who were middle-aged or seniors, with CVD-related deaths accounting for 31.5% due to CHD in post-menopausal women. This compared to 26.8% CVD-related deaths in men (Alquaiz et al., 2014). In addition, the review also indicated congenital heart disease was accounting for 31.5% of deaths amongst women after menopause, compared to 26.8% in men (Alquaiz et al., 2014). These authors also determined that physical inactivity had worsened in both genders: from 84.7% to 98.1% in women, and from 43.3% to 93.9% in men. Smoking among women had risen from .09% to 7.6%, but had actually declined in men from 21.0% to 18.7%. In the same report it was discovered that the metabolic syndrome was ominously greater in women than it was in men (42.0% versus 37.2%)

(Alquaiz et al., 2014). Statistically, according to the Saudi Health Information Survey Handbook 2013 results indicated that the prevalence of diabetes is estimated at 13.4% overall: 14.8% among men, and 11.7% among women. And the rates are increasing as people age (WHO, 2014).

Low physical activity has also been directly connected to higher risks of depression and anxiety among obese and overweight individuals (Al-Eisa et al., 2014). Study results made clear gender-specific links to depression and anxiety symptoms. In a recent study that examined depression among men (10481 participants) and women (9158), the rate of depression was 22% in males compared to 31.2% in females (Abate, 2013).

Schools: An Important Setting for Children's Health

Because children spend the majority of their time in the school, the importance of the role schools play in a child's life is second only to the influence on their environment in their home life (American Academy of Pediatrics, 2008). Stephen and Bender (1997) saw schools as the single most important agency in society outside of children's families in affecting adolescents' growth. These institutes are ideally situated to assist children through their formative years, teaching them how to live longer, healthier, more satisfying and productive lives. Schools provide an excellent opportunity to enable students to acquire knowledge and skills and increase activity levels among young people. As children and adolescents ideally spend a significant time of their young lives there, educational efforts can be put into action on a regular and continuous basis (WHO, 1996).

Most schools have a mandate, and thus a responsibility to offer developmentally appropriate, adequate, motivating, sufficiently supervised, and safe physical activity

programmes (Shephard & Trudeau, 2000; Cardon & De Bourdeaudhuij, 2002). These programmes should allow participation by all students and should work towards enhancing their physical, social, and psychosocial wellbeing (Shephard & Trudeau, 2000; Cardon & De Bourdeaudhuij, 2002). The Ontario Curriculum, for example, has issued an edict regarding student health and physical education in Grades One through Eight, stating that the implementation of health and physical education are an important component of a healthy school environment (The Ontario Curriculum, 2010). Through these programmes that produce a healthy population of adolescents, the nation benefits by having a healthy population (Shephard & Trudeau, 2000; Cale & Harris, 2005; Stratton et al., 2008).

Studies have indicated that perhaps the best means for promoting health, active lifestyles among young people is a cohesive physical education program (Shephard & Trudeau, 2000; Cardon & De Bourdeaudhuij, 2002). School health education, coupled with an enhanced physical education curricula that includes time spent on moderate to vigorous exercise for children and adolescents, has been demonstrated as contributing to improved health awareness and physical fitness (Halen et al., 2010).

However, in Saudi Arabia there are no sports education programs in the girls' public schools, and while in 2013 private girls' schools received approval to institute a physical education curriculum, resistance remains (Laboy, 2015). Existing social norms for Saudi females means that any physical activity practice in public is frowned upon (Mobaraki, 2010). The absence of, or inadequate degree of physical education in girls' schools, along with cultural attitudes restricts females from physical activities in any outdoor setting. Furthermore, there is a decided lack of indoor facilities designated for

female fitness (Samara et al., 2015). Study findings provided evidence of a high prevalence of sedentary behaviour and extremely low levels of physical activity among both genders, but especially among females between the ages of 14 and 19 (Al-Hazza, et al., 2011).

Study findings indicate that 25.7% of boys and 42.9% of girls did not practice any form of physical exercise of 30 minutes or more during the week prior to the study (Mahfouz et al., 2011). On the research into school-based physical exercise 31.1% of boys and 100% of the girls did not participate in any form of exercise during the previous week, even though the Ministry of Education has mandated a minimum of one session/week for the boys. No such mandate exists for the girls due, in part, to cultural reasons (Mahfouz et al., 2011).

Part of the issue for females lies in the fact that girls, as a rule, have far fewer opportunities than their male peers to engage in any form of serious physical activity, either in school or outside (Loucaides et al., 2011; Gordon et al., 2000). Few schools for girls in Saudi Arabia actually offer physical education classes and, for cultural reasons, many families do not encourage their daughters to take part in physical activities. Lack of parental support is a major reason for disinterest in physical activities among girls (Khalaf, et al., 2013). Furthermore, males are far more likely than girls to participate in sports (Loucaides et al., 2011; Gordon et al., 2000).

Cale and Harris (2013) and Storey (2009) both recognized that schools were a critical setting in which to address health promotion. Health Promotion, as described by the WHO (2006) is a means by which to enable adolescents to understand and achieve control over their personal health by providing an environment that encourages healthy

behaviour and healthy choices. These choices include the benefits of a proper diet, coupled with elevated physical activities.

Several studies and reviews have evaluated the effectiveness of intervention programs focusing on promoting health in children and youth in school settings (Fairclough & Stratton, 2005; Kriemer et al., 2011; Pardo et al., 2013; Van Sluijs et al., 2008). To achieve a successful change in student behaviour, however, involvement of the parents, the community, and stakeholders is required. Supportive policies, programs, and specific environments must be included (Lewallen et al., 2015). An essential part of public health initiatives is the Comprehensive School Health approach. Their presence provides great potential in both the short-term effects on the health of children, and on prevention of chronic diseases in the long term (Lewallen et al., 2015).

As of this date in Saudi Arabia the government has failed to utilize the schools as a health promotion resource centre. The Ministry of Health and Ministry of Education continue to strive to pull the concept together into a cohesive working model (Khan, 2011). Meanwhile, according to the Saudi government's mandate, the Ministry of Education shall continue to provide health and physical education, fitness testing, as well as health promotion, ensuring environmental sanitation and occupational health of school workers, along with providing nutrition education and first aid services, as well as mental health and counselling (Arab News, 2012).

Education System in Saudi Arabia

To understand the implementation of the comprehensive school health context it is important to first examine the broader education system. In Saudi Arabia all of the population receives solid basic education. In a study carried out by UNESCO (2010;

2011) it was determined that education for children is free at all stages, with free textbooks included for students throughout their schooling. Due to cultural customs the Saudi educational program follows a gender segregation system at all levels of education, with only female faculty members teaching female students in female-only education institutes, while male students receive instruction only from male teachers (Alarfaj et al., 2015). Elementary school commences for children at age six and lasts six years, followed by three years of intermediate schooling. Elementary and intermediate levels schools apply the same educational curricula for both genders with minor modifications. Differences in curriculum exist and physical education for boys is replaced with art education for girls (UNESCO, 2010, 2011).

In Secondary school (grades 10 through 12) both genders are taught an identical general curriculum for the first year, after which boys can elect administration and natural sciences, while girls are offered sciences and literary instruction (UNESCO, 2010, 2011). Secondary school curriculum affords the boys additional courses in psychology, sociology management, economics, accounting, civic sciences, and technical and earth sciences. The girls do not receive the same opportunities at this level of education. (UNESCO, 2010, 2011). Furthermore, physical education in the school curriculum for the boys is not offered to the girls. It is replaced with sewing, tailoring, and home economics (UNESCO, 2010, 2011).

For students to access higher education following graduation from secondary school they must score high on the General Secondary Education Certificate Examination, and high marks do not mean an automatic acceptance. Individual faculties administer entrance exams as well (Sedgwick, 2001). Successful applicants, however, are

afforded free higher education and can select from one of the following: a diploma (two-year program), or a B.Sc. (three-year program). Undergraduate programs leading to a bachelor's degree normally take four years (five years in the case of architecture, agriculture, nursing, pharmacy, and veterinary; five to six years in the case of dentistry; six years in the case of medicine and law) (UNESCO, 2010, 2011).

In post-secondary education in Saudi Arabia the division of courses for boys and girls at the college and university levels remains. At the university level, as with primary school, women attend classes at segregated campuses, with limitations on the subjects they are permitted to study in comparison to their male counterparts (Hamden, 2005). As curriculums currently stand in Saudi Arabia women cannot study a variety of subjects which are open to men: engineering, law, journalism, or architecture. These professions are considered traditional male-only activities (Cordesman, 2003).

There are also gender differences within various disciplines. For example, in the field of the Humanities boys are given the choice of pursuing: art, education, law, and political science, tourism, archaeology, languages, and physical education and sports. Conversely, girls are offered just art, education, and languages. In the sciences boys receive instruction in engineering, science, computer and information sciences, architecture and planning, and business administration, while their female peers learn only computer and information sciences, and business administration. In health professional colleges both genders receive the same field of studies in medication, dentistry, pharmacy, nursing, and health science.

Comprehensive School Health Approach

Comprehensive School Health integrates school-based health promotion into a framework that expands beyond classroom-based health education models and integrates the education and the whole school environment (Lewallen et al., 2015). The process includes the application of holistic approaches to the provision of health and social services that have been found to be beneficial to the psychological wellbeing of the individual (Joint Consortium for School Health, 2012)

This approach to health promotion in schools is referred to in Canada as Comprehensive School Health (CSH). This is synonymous with the term Health Promoting Schools (commonly used in Europe and Australia) or Coordinated School Health (used in the United States) (Lewallen et al., 2015). The Ottawa Charter for Health promotion in 1986 provided an overarching framework for CSH (WHO, 1986). Since then 43 countries have begun implementing this program (Lister et al., 1999; Stewart, 2006; Williams & Richardson, 2000).

Allensworth and Kolbe expanded the traditional 'three-component' model in 1987 and went further, pioneering an eight-component Comprehensive School Health Program which incorporated the following: health education, physical education, school health services, school nutrition services, school counselling, psychological and social services, healthy school environment, health promotion for staff, and family and community involvement. This framework shifted from 'comprehensive' to 'coordinated,' according to Fetro (2010), so as to stress the interrelationship of the various components.

Comprehensive School Health school programs facilitate improved academic achievement, which can lead to fewer behavioural problems. Students are assisted in developing skills necessary to physical and emotion health that they will carry into

adulthood (Stewart, 2006). The mission statement of the CSH is to recognize that healthy young people learn better and achieve more. It posits that schools can directly influence students' health and behaviour, in part by encouraging healthy lifestyle choices, and promoting students' health and wellbeing. It incorporates health into all aspects of school and learning, linking health and education issues and systems (Joint Consortium for School Health, 2012). To achieve these ends it needs the participation and support of the families and the community as a whole. The framework of CSH is designed to assist educators, health practitioners, school staff, the students, and all others in working to create an environment that is conducive to learning, working, and playing (Joint Consortium for School Health, 2012).

The Joint Consortium for School Health (JCSH) classifies what they refer to as the four pillars for CSH (see Figure 2). These four pillars are: (a) teaching and learning; (b) social and physical environments; (c) healthy school policy; and (d) partnerships and services.



Figure 2. The Pillars of Comprehensive School Health from the Joint Consortium for School Health (Alberta Health Services, 2012)

The designated first pillar, teaching and learning, applies to a form of student-centered learning, combined with teacher training, applying resources, activities, and provincial and territorial curriculums. Knowledge and experiences appropriate to each age level assist students in building skills that improve their health, well-being, and learning (Joint Consortium for School Health, 2012).

The second pillar refers to the school community; social and physical environments that engage with students to develop programs and fair opportunities for all with students increasing their sense of engagement in the learning process. This leads to an improvement in health (Willms, 2003; WHO, 2003). Through this program the social environment is addressed; the quality of relationships between the staff and students, with the emotional well-being of the students being improved. This spills over into the students' relationships with their families, along with the community. A part of this program includes physical environment; improvements to school buildings, the grounds, and the play space and equipment inside and outside of the school. Basic amenities such as proper sanitation and air cleanliness also play an important factor (Joint Consortium for School Health, 2012).

The third and essential cornerstone for all CSH models deals with the implementation of policies that support health in schools. These policies are not one-size-fits all. They must be developed, implemented, and tailored to suit each school, providing specific activities, guidelines, and practices to promote and support students' well-being and achievement through a respectful, caring, and welcoming school environment (Joint Consortium for School Health, 2012).

Forming the fourth pillar of CSH is Partnerships & Services, includes developing partnerships between the school and the students' families (Joint Consortium for School Health, 2012). These connections promote supportive working relationships among the schools as well as between schools, other community organizations, and representative groups. Community services and school-based services that support and advance the health and well-being of both student and staff form this portion of the model and this includes nurses that visit or work in the schools (Joint Consortium for School Health, 2012).

By providing access to school services prior to, or after school hours community facility usage and health professional engagement in the local community are improved in a significant way (Lewallen et al., 2015). The effectiveness of comprehensive school-based intervention programs that promote health in children and youth has been evaluated through a number of studies and several systematic reviews. The results, according to Fairclough & Stratton (2005), Kriemier (2011), and Pardo (2013) provide positive evidence for this approach.

Research on Comprehensive School Health

In 2015, the WHO carried out a Cochrane systematic review and meta-analysis that summarized the effectiveness of the Who's Health Promoting Schools (HPS) framework, a framework that promotes a holistic approach to promoting health and educational achievement in schools (Langford et al., 2015). In this systematic review, a selection of 20 health, education and social science databases, and trial registries and relevant websites were reviewed in 2011 and 2013, that included cluster randomized controlled trials. The criteria for inclusion were that study participants were school-aged

children and young people, from ages 4 to 18 years, that had participated in a HPS interventions that incorporated three specific elements: input into the curriculum; changes to the school's ethos or environment; and engagement with families and/or local communities.

A total of 67 eligible trials were identified that focused on interventions for a range of health issues. Positive intervention effects were found for body mass index (BMI), physical activity, physical fitness, fruit and vegetable intake, tobacco use, and being bullied, however the intervention effects were small. The study findings varied in that there was little evidence of effectiveness for zBMI (BMI, standardized for age and gender) or no evidence for fat intake, alcohol use, drug use, mental health, violence and bullying in others. The authors suggested it was impossible to conduct a meta-analysis of the data on other health outcomes because there was a significant lack of data available (Langford et al., 2015). Overall, however, Langford et al, 2015 determined that the HPS framework was effective at improving some aspects of student health; specifically physical activity and nutrition. Although the results appeared to be modest overall it was possible to see an impact on the school population as a whole.

Research conducted by Naylor (2006) and Day (2008) supported indications that an integrated physical activity and healthy eating promotional program into the school environment was imperative. Action Schools! BC was designed and implemented in British Columbia in 2004 to address these health issues. The purpose of the Action Schools! BC model was to incorporate physical activity and healthy eating into the school environment by assisting elementary schools with the design of individualized action plans (Naylor et al., 2006; Day et al., 2008). Action Schools! BC was also

designed to create systematic change by utilizing multi-level partnerships based primarily on knowledge exchange (Naylor et al., 2006). In order for the AS! BC model to provide tools for teacher and schools to create individual action plans for increasing PA and healthy eating together, the model provided six ‘Action Zones’: (a) School Environment “makes healthy choices the easy choices by creating healthy living policy supporting safe and inclusive school environments;” (b) Scheduled PE “provides an annual physical education calendar of ideas and best practice resources that support the goals of the Ministry of Education;” (c) Classroom Action “provides innovative physical activity and healthy eating activities for the classroom that complement physical and health education, and build healthy bodies and minds;” (d) Family and Community “fosters the development of partnerships with families and community practitioners to benefit from the resources available to promote and encourage healthy living;” (e) Extra-curricular “supports a variety of opportunities for students, staff and families to engage in healthy living before and after school, and during lunch and recess;” and (f) School Spirit “cultivates school spirit by encouraging physical activity, supporting healthy eating choices, and celebrating the benefits of healthy living for the whole school” (Naylor et al., 2006). The result showed that the Action School! BC was effective, as elementary school- aged children had increased both their physical activity and their consumption of fruit and vegetables (Naylor et al., 2006; Day et al., 2008).

In 2007, the Alberta Project Promoting active Living and healthy Eating (APPLE) was established in Schools in Alberta, Canada to change diet, physical activity, and weight status in elementary students (Fung et al., 2012). This project included 10 schools, with Grade 5 student participants who completed questionnaires about physical activity,

height and weight (Fung et al., 2012). To assist the schools with the implementation of the healthy eating and active living strategies a full-time School Health Facilitator was placed in each of the schools. School Health Facilitators participated by organizing parent information nights, after school physical activity programs, and by supporting the implementation of the healthy eating and active living strategies (Fung et al., 2012). They circulated newsletters and encouraged both parent and community involvement. Between 2008 and 2010 eight of the 10 APPLE schools implemented a nutrition policy. All students in all 10 schools received a minimum of 30 minutes of physical activity per school day (Fung et al., 2012). After a two-year period students attending the APPLE schools indicated through a self-report questionnaire that they were eating more fruits and vegetables, consuming fewer calories, and were more physically active (Fung et al., 2012). Results indicated they were less obese than their peers in non-APPLE schools (Fung et al., 2012).

Another results of this project point to the positive impact of such programs in helping to control weight gain and thereby avoid related health care costs related to unhealthy living (Tran et al., 2014). Evidence concerning the impact on long-term health and the economic impact is especially critical to support decision-making that contributes to a reduction in overall health care costs (Tran et al., 2014). Body Mass Index (BMI) rates were modeled using longitudinal data gathered by the National Population Health Survey between 1996 and 2008. Growth rates from the data were used to project BMI trajectories in the APPLE Schools, as well as in 141 randomly selected control schools throughout Alberta (Tran et al., 2014). Results demonstrated the effectiveness of the project. Overweight prevalence (including obesity) was 1.2% to 2.8% (1.7 on average)

less among the APPLE School students compared to their peers in the control schools, while life course obesity prevalence was 0.4% to 1.4% (.08% on average) lower for the APPLE School students (Tran et al., 2014). In other words, if the APPLE Schools program were to be scaled up, the potential cost savings for the province of Alberta would be \$33 to 82 million per year, or \$150 to 330 million per year for Canada (Tran et al., 2014). In conclusion, these projected health and economic benefits appear to support the need for broader implementation of school-based health-related programs that combine physical activities with healthy eating habits (Tran et al., 2014).

School Health Service is a Key Component within CSH Models

Coordinated systems that ensure a continuum of care from school to home, home to the community health care provider, and back are a key component to school health services (Small et al., 1995). They are invaluable because they connect school staff, students, families, the community, and healthcare providers, promoting the health care of students, along with a healthy and safe school environment (Lewallen et al., 2015). School health services are essential for intervening when actual and potential health problems occur; first aid, emergency care and assessment, and planning for management of chronic conditions such as asthma or diabetes (Lewallen et al., 2015). Also within the school health services' purviews are wellness promotion and preventive services that include staff, student and parent education, complementing the provision of coordinated care services which ensure access and/or referrals to medical home or private healthcare providers (Lewallen et al., 2015).

In Saudi Arabia, school health services are integrated into the Primary Health Care system (Almasabi, 2013). The Primary Health Care (PHC) system dates back to

1978 (Albejaidi, 2010). The aim of the primary health care centers at that time was to provide maternal and childhood health (Almasabi, 2013). Today health care is free for all Saudi citizens. Included in PHC's mandate today are: preschool check-ups, mass screenings for common health problems, an immunization campaign, health education, and nutrition and school environmental health (Kingdom of Saudi Arabia, Ministry of National Guard, Health Affairs, 2016).

The main activity of these school health services is to assign a nurse in a part-time capacity to carry out general examinations of students at each of the three education levels (Alrowaily & Abolfotouh, 2012). These examinations include general physical health, visual acuity, and vaccinations. As part of their training, Nursing College students are assigned to the preventive section where they are trained on issues related to school health and preventive medicine (Alrowaily & Abolfotouh, 2012).

The Ministry of Education provided the school health services for a long time. PHC was promoted as the basis for health care delivery under the auspices of the Ministry of Education. Difficulties were encountered, however, with shortfalls in resources, especially with infrastructure and availability of drugs (Khan, 2011). In 2011, a proposal was made for the Ministry of Health to take charge of the curative services, while leaving the preventative and promotional services with the Ministry of Education (Khan, 2011). However, to date, while there are numerous health education campaigns operating under the umbrella of school health services, so far there have been no comprehensive programs implemented to overcome health issues (Al Dhaifallah et al., 2015)

In countries with comprehensive School Health Services (SHS) is actively collaborate with the school and community, providing support services to increase the ability of students and families to adapt to health and social stressors: i.e. chronic health conditions or social and economic health barriers (Lewallen et al., 2015). In addition, they provide information on managing these stressors, as well as advocating for their own health and learning needs. Qualified professionals such as school nurses provided these services (Lewallen et al., 2015).

School Nurse is a Major Player Providing School Health Services

Some authors have suggested that the placement of a full-time school nurse is crucial to the role of establishment of comprehensive health services for children and youth in schools (Hanink et al., 2016). In the west, the tradition of school nursing has its roots in the inspections of public schools by health professionals in the early twentieth century as a means of controlling and preventing the spread of contagious disease and of upholding certain standards of health (Lightfoot & Bines, 2000). Eventually, as the threat of contagious diseases like mumps and rubella receded, this role changed into one focused on mental health, lifestyle, and disability and chronic illness (Lightfoot & Bines, 2000; Selekman, 2012).

According to Magalnick and Mazyck (2008, p. 1053), the National Association of School Nurses (NASN), a US agency evolved from the Department of School Nurses (founded July 4, 1968), has seven “core roles”:

- The provision of direct health care treatment of injuries and acute illness.
- Establishing health care leadership roles within school environments.

- Performing health screenings and engaging in early identification techniques.
- Creation and maintenance of a healthy school environment.
- Providing and assisting with health education programs.
- Development of in-school health care policies.
- Acting as liaison between various stakeholders, such as parents, school staff, and other health professionals.

As is evident, this is a strong community leadership role as well as a necessary touchstone for physical and mental health in environments devoted to other endeavours (i.e., academic learning) but that nevertheless are only able to function with consistently high levels of student and teacher health (Magalnick & Mazyck, 2008). These roles are also supported in Canada by the Canadian Community Health Nursing Standards of Practice which outline the role of the public health nurse in working in settings such as schools within the broader standard of promoting health; prevention and protection (Community Health Nurses Association of Canada, 2003). In Canada the role of the school nurse is currently provided by public health nurses or nursing practitioners that visit the schools. In Saudi Arabia in 2006, the Ministry of Education established a policy that each girl's school should employ one nurse to promote health for children and school staff (Alkenani, 2006). The concept was that School Health Services would provide a nurse specialized in school health; that nurse to provide health services in a maximum of five schools. A doctor would supervise a number of nurses, to be determined, and would be linked to the Directorate Health Affairs (Arab News, 2012). However, this policy has

yet to be fully implemented in the public school system, and while some private schools do employ nurses they utilize them only on a limited basis.

The National Association of School Nurses (NASN) developed the Framework for 21st Century School Nursing Practice, introduced in June 2015, to reflect current school nurse practice (NASN, 2016). Feedback was requested, and obtained from practicing school nurses in a variety of methods. A review of current needs and healthcare topics concerning school-age children, the health care climate, evidence-based literature, and critical skills necessary to meet student health challenges was undertaken at the development stage of the framework (NASN, 2016).

Ultimately the determination was to provide the school nurses with a resource guide which was intended to assist them in their practice helping students with their health, staying safe, and being prepared to learn (NASN, 2016). The ‘Whole School, Whole Community, Whole Child’ model has been aligned with NASN’s ‘Framework for 21st Century School Nursing Practice as demonstrated in Figure 3. This calls for a collaborative and coordinated approach to the learning process, as well as student health (ASCD & Centers for Disease Control and Prevention [CDC], 2014; NASN, 2016). The concept is to surround the student, their families, and the school community with a non-hierarchical, but overlapping set of principles: Care Coordination, Leadership, Quality Improvement, and Community Public Health. A fifth principle, Standards of Practice, surrounds the rest, providing the integrity of evidence-based, clinically competent, quality care (NASN, 2016).

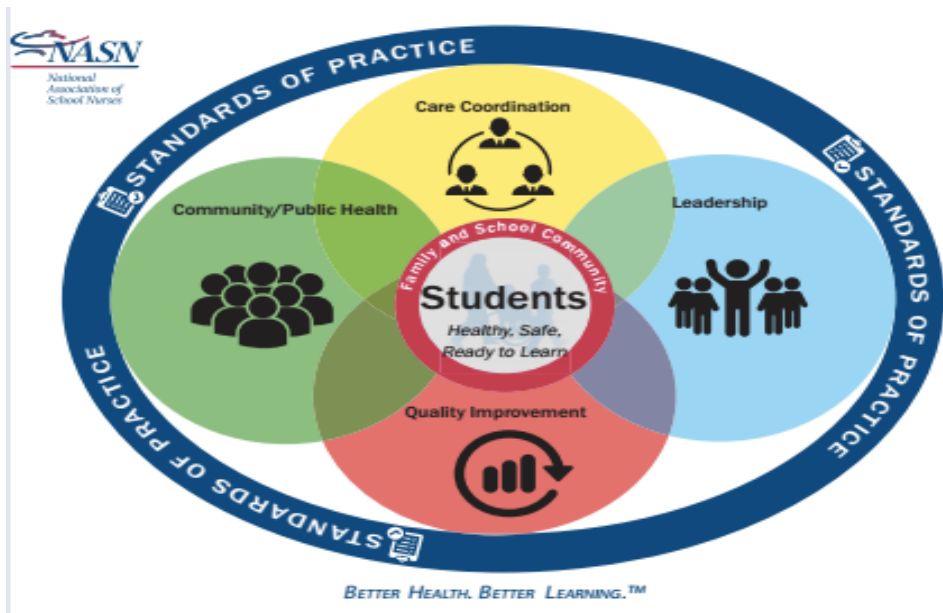


Figure 3. Framework for 21st Century School Nursing Practice (NASN, 2016)

The first principle in the framework of Care Coordination encompasses 12 principles: Case Management, Chronic Disease Management, Collaborative Communication, Direct Care, Education, Interdisciplinary Teams, Motivational Interviewing/Counseling, Nursing Delegation, Student Care Plans, Student-centered Care, Student Self-empowerment, and Transition Planning (NASN, 2016).

The second framework principle of Leadership breaks down into Advocacy, Change Agents, Education Reform, Funding and Reimbursement, Healthcare Reform, Lifelong Learner, Models of Practice, Technology, Policy Development and Implementation, and Systems-level Leadership (NASN, 2016). The third principle, Quality Improvement, covers Continuous Quality Improvement, Documentation/Data Collection, Evaluation, Meaningful Health/Academic Outcomes, Performance Appraisal, Research, and Uniform Data Set (NASN, 2016).

The fourth principle in the framework, Community Public Health, is broken out to include Access to Care, Cultural Competency, Disease Prevention, Environmental

Health, Health Education, Health Equity, Healthy People 2020, Health Promotion, Outreach, Population-based Care, Risk Reduction, Screenings/Referrals/Follow-up, Social Determinants of Health, and Surveillance (NASN, 2016). The fifth and final principle is the Standards of Practice. These are the controlling integrity factors, covering Clinical Competence, Clinical Guidelines, Code of Ethics, Critical Thinking, Evidence-based Practice, NASN Position Statements, Nurse Practice Acts, and the Scope and Standards of Practice (NASN, 2016).

Nursing Profession in Saudi Arabia

In collaboration with the WHO, the Saudi Ministry of Health (MOH) initiated the first comprehensive Health Institute Programme in Riyadh in 1958 for boys (Aldossary et al., 2008). At this time there are 46 training establishments (Almalki et al., 2011) that currently constitute the 21 health training institutes (females – 17, males – 4), and 25 junior colleges (females – 10, males – 15) (Alhusaini, 2006). All of these education organizations were transferred from the Ministry of Health (MOH) in 2008, to the Ministry of Higher Education (MOHE) with the aim of improving the quality of nursing education (Almalki et al., 2011)

The first Bachelor of Science Nursing (BSN) programme was initiated in 1976 by the Ministry of Higher Education (MOHE), introducing a Master of Science in Nursing in 1987 at King Saud University in Riyadh (Aldossary et al., 2008). These courses were limited to women until 2004, when male applicants were also accepted.

In cooperation with British universities a PhD programme was established in 1994 at King Abdulaziz University to facilitate career advancement for female nurses unable to travel overseas for additional training (Abu-Zinadah, 2004). As a result of the

increased numbers of graduates from the academic programs many private health institutes and colleges have been established throughout Saudi Arabia (Al Thagafi, 2006) with the first private health institute and college opening in 1999 and 2002, respectively (Abu Zinadah, 2006). To achieve a Bachelor of Science Nursing degree a five-year university level course is a prerequisite to developing quality and safe nursing care (Almalki et al., 2011). This nursing curriculum is divided between theoretical classroom work and practical, fieldwork in hospitals and clinics.

In the field or clinical training students participate as part of the staff in various nursing skills in practical situations in hospitals and other training centres: i.e. the fundamentals of nursing, pediatric nursing, community health nursing, and critical care nursing. Through these hands-on applications they learn to work with real patients under diverse conditions (University of Damman, 2016).

At this time there is no public health training within the nursing curriculum. Integration of public health education and associated competencies has yet to be considered (Jradi et al., 2013). The Ministry of Health in Saudi Arabia continues to underline the importance of nursing education but is facing ongoing challenges to its efforts to deliver public health education and training within the nursing curriculum (Tumulty, 2001; Al-Malki et al., 2011).

The latest figures demonstrated a 67% graduate rate of Saudi nurses from Health institutes, with 30% from Junior Colleges, and 3% from BSN Programmes. In addition, there were 28 Masters' Degree graduates, and 7 Doctorate graduates (Abu-Zinadah, 2006). However, only female students are accepted for the Master's programme (AlYami & Watson, 2014). However, due to the volume of students entering the field of nursing,

many sponsored students are studying nursing in various countries worldwide (Alhusaini, 2006). Recent international scholarship programmes embrace almost all educational levels, that is, Bachelor's, Master's, and PhD, with the focus of these programmes designed to prepare highly educated and qualified local nurses to lead the profession of nursing in Saudi Arabia (Alhusaini, 2006).

Regardless of its push to increase the number of trained nurses in country, Saudi Arabia still suffers from a chronic shortage of Saudi healthcare professionals, accompanied by a high turnover rate (Abu-Zinadah, 2004; WHO, 2006). Forming a large portion of the nursing staff, expatriate nurses outnumber Saudi nurses: MOH (2008) statistics estimated that out of approximately 101,298 nurses, only 29.1% are Saudi (MOH, 2008; WHO, 2006). In the private health care sector the percentage of Saudi nurses drops to 4.1%. Fueling the nursing shortage in Saudi Arabia is the high dependency on foreign nurses (Al Ahmadi, 2006), in part due to the fact that expatriates are apparently using the Saudi healthcare system as a means to obtain training and experience before moving on to positions in first world nations: i.e., Canada, U.S.A., U.K. and Australia (Alamri et al., 2006; Alhusaini, 2006). Also playing a role in the Saudi nursing shortage is the poor image of nursing. Lack of awareness among high school students concerning nursing job opportunities, coupled with the nature of the job which impacts on family and personal life (high workload, long working hours, nights shifts, and having to work over public holidays and weekends), along with low pay, places nursing very low on job desirability (Abu-Zinadah, 2004; Al-Sa'd, 2007).

Despite the drawbacks, nursing in Saudi Arabia has seen substantial advances in recent years, and holds a promising future. Established in 1987 at the MOH the Central

Nursing Committee is working hard to advance the quality of nursing care, along with recruiting more Saudis to the nursing profession (Tumulty, 2001).

Improvements to the nursing profession have contributed to its professional enhancement (Almalki et al., 2011). In spite of the efforts of the MOH and the Division of Nursing (General Directorate of Nursing) in Saudi Arabia, advancement of nursing practices remains an uphill battle. A major concern with regards to expatriate nurses is that their personal beliefs and values often clash with those of Saudi culture. Many of them lack sufficient knowledge about the local culture which leads to them ignore the importance of Islamic beliefs and values for their patients (Almalki et al., 2011).

Language plays a major part in this issue. In fact, many expatriate nurses do not even speak English as their first language. Nor are they competent in Arabic (Simpson et al., 2006). This issue becomes more obvious in the Primary Health Care (PHC) where nurses interact with the open community. However, cultural sensitivity, along with family and patient values, form a fundamental aspect to nursing (Mebrouk, 2008). Finally, because many of them are new to the nursing workforce, seeking to expand their knowledge and experience, they lack the level of competency vital to health care services, requiring additional training and constant monitoring, which cuts down on the availability of qualified Saudi nurses and physicians who are trying to care for patients as well (Alamri et al., 2006).

Best Health Delivery - School Nurses

School nurses can be effective in delivering health promotion not only to children, but also for children to their families and community. A study published by Wright (2012) revealed that children, especially girls, were found to be below the recommended

physical activity guidelines, this inactivity leading to obesity. They researched the impact of a nurse-directed and coordinated, culturally sensitive school-based, family-centered lifestyle program that focused on activity behaviours and body mass index. The researchers employed a six-week program that met weekly, providing 45 minutes of structured physical activity and 45 minutes of nutrition education class for parents and children (Wright, et al., 2012). A questionnaire was distributed through which the researchers measured physical activity behaviour, combined with anthropometric measures on height, weight, body mass index, resting blood pressure and waist circumference. The intervention phase collected a baseline prior to the completion of a 4-month intervention phase, and included a 4-month and 12-month post-intervention follow-up (Wright, et al., 2012). Results determined that nurse-led intervention decreased TV viewing in boys, while in girls it increased daily physical activity, physical education class attendance, and decreased body mass index z-scored from baseline to the 12-month follow-up (Wright, et al., 2012).

Another role for school nurses is the delivery of evidence-based obesity prevention to students. A study recently undertaken examined the effects of partnering a school nurse with a senior-level nursing student, with the aim of having the nursing student assist in delivering evidence-based obesity prevention health messages (Tucker & Lanningham, 2015). The program, *Let's Go 5-2-1-0*, coached Fourth and Fifth Grade students throughout the school day, with two nursing schools and two elementary schools participating. Self-reported health habits were collected along with measurements of PA and BMI percentile to form a baseline (Tucker & Lanningham, 2015). Students in School A were studied in September 2009, while students in School B were studied in

January 2010. In April 2010, at the end of the school year for both schools, findings were compiled that included statistically significant increases in PA levels and reported improvements in child health habits (Tucker & Lanningham, 2015). The findings indicate school nurses have a positive impact in helping to prevent obesity in schoolchildren. Cowell's findings demonstrated that future research could clarify how the willingness and ability of school nurses to engage in obesity prevention. At the same time, additional research will need to address issues of resources (Cowell, 2011). Ideally the school nurse would be an ongoing resource contributing to the health message each year, introducing new strategies where required (Tucker & Lanningham, 2015).

It is clear that children and youth in Saudi Arabia are at risk and that the comprehensive school health approach is a viable framework for action on health risk factors in the schools. Although the role of the Saudi Arabian nurse has been explicated, implementation of an initiative/policy to place school nurses in schools has not been implemented broadly. With evidence emerging that nurses can play an effective role in prevention activities a need for more information on what is currently going on and how nursing students, faculty and current nurses see their future role. With issue of lack of physical activity and physical education in girls' school a specific issue in Saudi Arabia there also appears to be a need to explore the potential role for the school nurse in providing physical education as one component of their school health promotion efforts.

Chapter 3: Method

Design

A pragmatic qualitative approach was chosen for this study to address the research questions and capture participants' knowledge and experiences as well as revealing the context and meaning of their actions (Esterberg, 2002; Yilmaz, 2013). This method is flexible, reliable and valuable as the first step in developing interventions (Baxter & Jack, 2008). The approach focused on gaining insight into the attitudes and beliefs of nursing students, nursing faculty members and nurses about the need for, and their potential role in, school health education and promotion.

This study was grounded in two conceptual frameworks, the first of which was the comprehensive school health framework (CSH). Comprehensive School Health integrates school-based health promotion and defines health action more broadly than classroom-based health education models by integrating education and the whole school environment (Lewallen et al., 2015). CSH addresses four distinct elements that form its strong foundation:

- Teaching and learning.
- Social and physical environment.
- Healthy school policy.
- Partnerships and services.

Harmonized actions in all of these four elements support students to recognize their full potential as learners and as healthy productive members of society. This study focused on the role of school nurses in providing health education and physical education in Saudi girls' schools as an action utilizing these four elements. Similarly, the second

framework titled the 21st Century School Nursing Practice consists of five principles, which reflect on five overlapping principles that are considered equally important in the school nurse practice. At this time no similar model exists in Saudi Arabia. These five principles are vitally necessary to the health and well-being of school children.

Participant Selection and Recruitment

For the purposes of this study, the participants were comprised of nursing students and nursing faculty members at the University of Dammam and nurses in Saudi Arabia. All participants were over the age of 20 years. Nursing students were Saudi citizens in their 4th year of studies at the University of Damman. Nursing faculty were females, both Saudi and non-Saudi and working and teaching full-time at the University of Dammam. Similarly, the nurses were all Saudi females who were working in Saudi Primary Health Care Centers.

The sampling was purposive to identify information rich informants; those most familiar with the role and education of nurses in Saudi related to school health promotion. Nursing faculty members as health educators could best explain the current role of nurses and clarify the potential role of nurses in Saudi school system. The attitude and beliefs of nursing students currently being educated as future healthcare providers could also provide insight into the potential role of nurses in Saudi schools system. Nurses were selected as the focus because they have already visited schools and played an important role in health education and health promotion.

After receiving the approval of Human Research Ethics Board in the University of Victoria, an email was sent to the Dean of the College of Nursing at the University of Dammam with a letter of invitation for nursing students and nursing faculty (see Appendix

A and B), attached to which were: a Consent Form, an Interview Schedule, and the Certificate of Approval from the University of Victoria Human Research Ethics Board (provided in Appendix C).

The Dean expressed interest in allowing the participation of the faculty member and students. The Dean contacted four faculty members. Two faculty members expressed interest in participating, while the other two declined. Subsequently, the Dean arranged contact with two other faculty members who were currently at King Fahd University Hospital with 4th year students for practicum. These two nursing faculty members were contacted by phone and agreed to participate.

The Dean could not arrange permission for in-person recruitment at classes because it was the end of term but agreed to allow me to contact students on practicum at King Fahd University Hospital. Following contact with me and after reviewing the study information, informed consent, and interview questions, eight nursing students undertaking their practicum agreed to participate.

Nurses were recruited through second party contacts, which passed along my contact information to those individuals working in Primary Health Care Centers and expressed an interest in participating in the study. The interested individuals contacted me via cellphone. After receiving and signing the Informed Consent Form, Certificate of Approval, and the Letter of Invitation for nurses (see Appendix D), the participants were interviewed over the phone (due to practical considerations like geographic separation between me and their location).

Recruitment of participants continued until the point when no new material emerged from the interviews (Ryan, et al., 2007). The recruitment of participants stopped

after data from 15 people ($n = 8$ nursing students; $n = 4$ nursing faculty; $n = 3$ nurses) had been collected and reviewed.

Data Collection

Participants were randomly assigned a number linked to their role following ethical approval from the University of Victoria Human Research Ethics Board. To protect the participants' privacy the focus groups were assigned specific numbers (faculty 1-4, students 1-8, nurses 1-3), while the individuals were given pseudonyms.

Data were gathered using two qualitative interview methods (one-on-one and focus group) using semi-structured open-ended questions (Patton, 2002). It was important to understand how participants viewed their world. It was necessary to learn their terminology, as well as attempting to capture the complexities of their personal perceptions and experiences, especially as it linked to the proposal of embedding (School Health Nurses) into the education system (Patton, 2002). The questions of the semi-structured interviews were based on interview guidelines (see Appendix E & F), using a set of questions prepared ahead of time by the researcher. The development of these interview questions was based on the research questions and generated from the school nursing literature (Mastrogiannis et. al, 2013), and from conceptual frameworks in the implementation literature (Maughan et. al, 2015; Veugelers & Schwartz, 2010).

In-person interviews (one-on-one or focus group) were selected as the data collection method where possible because face-to-face interviews create a more personal connection than simply perusing a questionnaire or speaking with a prospective participant over the phone (Seitz, 2015). These types of interviews allow researchers to not only generate a personal connection with the individual with the participant, but also

afford the researcher the opportunity to pick up on important nonverbal cues (Seitz, 2015). Focus group interviews are useful in generating a rich understanding of participants' experiences and beliefs (Morgan, 1998). Open-ended questions encourage unsolicited information from participants, drawing out personal experiences in the participants' own words (Esterberg, 2002; Yilmaz, 2013).

The focus group interviews with nursing faculty took place in an office at the University of Dammam and with students at King Fahd University Hospital in Saudi Arabia. Nurses were interviewed one-on-one over the phone. Each focus group or interview took between 40 and 60 minutes.

Participant responses were digitally recorded during the interview process and later transcribed verbatim to hard copy. The conversations were recorded with two digital devices to avoid the risk of technological failure.

Data Analysis

Audio recordings of the interviews were transcribed for ease of in-depth analysis of the data that had been collected. Data was accumulated in four transcripts that compiled information gathered from participants in four different groups: practicing nurses, faculty members (two who were teaching courses at the University of Dammam, and two who were mentoring students in King Fahd University Hospital), and student nurses (who were students at University of Dammam) Transcripts were reviewed several times to acquire familiarity, comprehension, and to get a sense of the participants' responses as a whole (Patton, 2002). To analyze the data, data analysis strategies typically used in grounded theory (Strauss & Corbin, 1998) were used. The first step is open coding which was used to identify concepts, and their properties and dimensions

(Strauss & Corbin, 1998). Each of the four transcripts was coded and coding categories in separate papers for each group broke out the results. From there the information was compiled from the four groups, by coding, in a codex of four themes, complete with sub-themes, categories, and sub-categories. During this step, data were examined and compared for similarities and differences. The conceptually similar open codes were then grouped into higher order concepts or categories (Strauss & Corbin, 1998).

The open coding step provided the groundwork for another analytic step called axial coding. The step of axial coding was used to explain the properties and dimensions of categories and sub-categories (Strauss & Corbin, 1998). This step also involved reviewing the context for the selected quotes used to establish the various categories and their sub-categories. The various categories and subcategories were worked through to remove redundant and very similar headings to generate the refined list of categories, which cover all aspects of the interview (Burnard, 1991). This step recommends underlining the relevant words and phrases, giving each one a unique color (Burnard, 1991).

Since the interview guides are similar for all the interviewees, certain categories and sub-categories were determined based on the roles of school nurses outlined by the National Association of School Nurses (NASN). These categories and sub-categories included prevention and management; health promotion, and healthy school environment; and consultation with other school professionals. For example, some sub-categories that emerged under prevention and management dealt with obesity and with school violence.

The relationships that emerged between these categories were examined along with their relationship to other categories. Comparing one piece of data with another is an

important process in validating the researcher's interpretations (Strauss & Corbin, 1998). This process is also important for defining what conditions, actions, interactions, and consequences would prove the simplest or most challenging aspects that affect the implementation of school nursing in Saudi Arabia related to the provision of health education and physical education.

Another analytic step to perceive the relationships across categories and subcategories is selective coding. This step involved selecting and identifying the core categories and their relationship to other categories. During this step categories were worked through for refinement, development, and integration (Strauss & Corbin, 1998). The developed categories were merged taking the form of nodes.

Meeting with the supervisory committee was another important element in the process of data analysis. This is important to discuss the viability of the work, determining the analytical strategies and emerging data patterns that were discovered. The validity and reliability of the data analysis and findings were ensured through the use of external validation of the coding strategy by comparing the existing coding to how a colleague would have carried out the same procedure (O'Connor, & Gibson, 2012).

Coding entailed the identification of specific groups of information that consist of related themes. These themes emerged from phrase frequency use, incidents, types of behaviour, and unfamiliar terms within each interview (Pope et al., 2000). After establishing the themes, the findings were worked through for interpretation and given meaning. This is done based on the conceptual frameworks from the implementation literature (Maughan et. al, 2015; Veugelers & Schwartz, 2010). The factors identified by NASN and CSH literature were compared with the themes, sub-themes, and categories.

These comparisons provided additional interpretation to the findings, gave them meaning, and optimized their quality.

In reviewing the compiled data an investigation was carried out through which all information that was gathered was compared to see how it compared to the results that were anticipated prior to undertaking the research. The combination of transcripts, codes, along with the writing process, was critical to establishing the themes. Finally, a statement addressing the overall findings of the research was developed which included the over-arching theme, its implications on Saudi society, whether change can be implemented, and, if so, how quickly that change can be put into place. The various themes and sub-themes were determined by 28 categories and 15 sub-categories, which are described and supported by transcript quotes in the following chapter.

Chapter Four: Results

Data gathered from among 15 participants (8 nursing students, 4 nursing faculty, and 3 nurses) addressed four research questions that aimed to identify the current role of nurses in school health promotion, illuminate the views of both new and established nurse's regarding their potential role and explore the facilitators and barriers to implementing this future role. The results of the thematic analysis are outlined by question following.

Current Role of Nurses in Saudi Arabian Schools

For the first question dealing with the “Current role of nurses in Saudi Arabian schools” three themes emerged from the data that identified their current role. These themes comprised the roles “Health educator”, “Health promoter”, and “Community liaison”. The theme of educator emerged from coded data, which fit into four sub-categories illustrated in Table 2. Each of health promotion and liaison with the community themes emerged from only one category. The key data for this theme and sub-themes are displayed in Table 2 and discussed following.

Table 2

Current Role of Nurses in Saudi Arabian Schools

THEMES	<i>Categories</i>	<i>Subcategories</i>
Health educator	Increasing health awareness of students and school staff	Growth and development Healthy lifestyle and healthy eating Personal hygiene and daily needs Benefit of physical activity
Health promoter	Immunization and controlling communicable diseases	
Liaison with community	Communication with primary health care centers	

In the table above the role of nurses in the Saudi Arabian school system was mapped as it is currently. While the themes showed nurses (nurses and nursing students) to be reasonably involved in the education of students and school staff, in actual fact the quotes illuminated that their duties and responsibilities were quite limited in these areas.

Theme 1: Nurse's Role as Health Educator

Participants in this research stated that they were ideally situated as nurses and nursing students to perform the role of health educator within the Saudi school system. For example, one student said, "...we are in the 4th year of our study, so we visit schools, and our role is health educator...", yet they had very little to do with actual health

education. Student nurses visit the schools and community to provide health education and immunization but a quote illustrates the limitations of this

...the role of nurses in Saudi Arabia school. It's is very limited and maybe not well defined. It is only that nursing students provide information to students during their education and only the university contact with manager of school to arrange the needs and topics that nursing student could provide... Only that... only the Ministry of Education contact with university to let nurse students visit schools to give vaccination and some topics about health education to students. (Faculty member 2).

At this time the responsibilities of the nurses (nurses and nursing students) are one of dealing with increasing health awareness of students and school staff through visits to the various schools throughout the school year. Nurses (nurses and nursing students) supply information promoted and provided by the Public Health Care Centre and the university, for example one nurse said:

...making a plan for frequent health education to schools, which are already set up by the ministry of health by allowing nurses to visit three times on schools year and other community places to provide health education... (Nurse 2).

Increasing health awareness of students and school staff. The majority of the participants, 14 participants out of 15, responded that nurses (nurses and nursing students) educated students and school staff about growth and development, healthy lifestyle, and healthy eating, as well as personal hygiene and daily needs.

...So nurse would be able to select topics that can be taught to this group of people that I told you... how to teach the students with different age groups the importance of growth and development and the importance of health nutrition, the importance of exercise and rest, the importance of personal hygiene... (Faculty member 1).

They also reported teaching about the benefits of physical activities as illustrated by Faculty member 1: "...It is just nursing students provide video about physical exercise to students and give health education for obesity and another health topics by using exercise...".

In addition, 6 participants out of the 15 stated that nurses (nurses and nursing students) instructed the students in the requirements regarding personal hygiene self-care and personal attitude as Faculty member 3 observed: "...she teaches them personal hygiene. It is very important because school always complain about physical hygiene and preparing the girls especially for puberty..." Also, Nursing student 2 asserted that they educated students about the daily needs: "...We educate students about hygiene, self-care, and attitude. We are focusing on the daily needs of students..."

Moreover, the current role of the nurses (nurses and nursing students) focuses on encouraging regular physical activity on the part of the students through videos and literature related to the importance of a healthy body. One faculty member supported this statement in her observation that, with their university education, nursing students were provided with appropriate and necessary health classes that included such activities:

.... It is just nursing students that provide video about physical exercise to students and give health education for obesity and another health topic by

using exercise. Only the video or that show, how to make exercise and how can exercise reduce the chronic diseases like obesity. (Faculty member 1).

Theme 2: Nurse's Role as Health Promoter

At the present time the role of the nurses (nurses and nursing students) focuses on immunization and controlling communicable diseases. This is carried out at the Primary Health Care centers. While nursing students do speak to the students about this issue when they visit the schools to perform immunization clinics, their impact is minimal. For their part, Nurses visit the schools only three times over the course of a school year.

...making a plan for frequent health educations to schools, which are already set up by the ministry of health by allowing nurses to visit three times on schools year and other community places to provide health education. Schools cooperate and encourage nurses to come and lectures... (Nurse 2).

Immunization and controlling of communicable diseases. One key role that nurses are currently implementing in the schools is health care in the form of vaccinations. Faculty member 2 spoke to how the Ministry of Education coordinates with the university to provide vaccinations to students: "...Only the Ministry of Education contact with university to let nursing students visit schools to give vaccinations and some topics about health education to students..."

Faculty member 1 addressed preparation of nursing students during their university nursing education to understand what their role will be within the community, along with the reasons and importance of their duties in promoting healthy life-styles and

preventing health problems: "...There is a university here preparing the students. And also, we are preparing the students to know their role in health promotion. Because you are not just only treating, you are preventing when we are promoting health..."

Theme 3: Nurse's Role as Liaison with Community Health Services

Communication with the students occurs at Primary Health Care centres, which is another part of the Saudi nurses' current role. Nurses provide the link between schools and the Primary Health Care centers. They visit the schools three times over the course of a school year to provide and assess health care to students including but not limited to health education and vaccination.

Communication with Primary Health Care Centres. Under the present system pre-school age children are examined at the School Health Unit in their local area prior to starting school to ensure they are sufficiently healthy to attend school. There are follow-up visits for the students during their school terms by the Primary Health Care Centre but there is no nurse actually in the school throughout the school year. One faculty member and one nurse addressed this situation.

...Here in Saudi Arabia, there is unit of school health. It is known as School Health Unit. This unit... He has completed the vaccination and his weight and growth development all these in Baby Clinic from the primary health care until he is now school age. So this unit it will continue what it started there in the primary health care to make sure this child is fit now to go into the school... (Faculty member 1).

Potential role of nurses in Saudi Arabian schools

The second research question explored the “Potential role of nurses in Saudi Arabian schools.” Four themes were identified based on the findings and data analysis of this question (see Table 3): “Leadership”, “Care provider”, “Health educator”, and “Liaison with the community.” These significantly overlapped with the themes from question one addressing current role. Leadership was a unique theme with two sub-themes and categories. The theme of care provider emerged from 2 subthemes, 2 categories, and 4 subcategories. Two subthemes, 4 categories, and 3 sub-categories established the educator theme. Liaison with the community emerged as an overarching concept from 2 categories and 3 sub-categories. Data for these themes is displayed and discussed following.

Table 3

Themes and Categories Emerging from the Data on the Potential Role of Nurses in Saudi Arabian Schools

THEMES	<i>Subthemes</i>	<i>Categories</i>	<i>Subcategories</i>
Leadership role	Planning	Prevention & management	Obesity School violence Stress and anxiety
	Leadership for development and evaluation of school health policies	Health promotion & healthy school environment	Protecting chronic and communicable diseases
		Consultation with other school professionals	Physical education teacher

(continued)

Table 3 (continued)

Themes and Categories Emerging from the Data on the Potential Role of Nurses in Saudi Arabian Schools

THEMES	<i>Subthemes</i>	<i>Categories</i>	<i>Subcategories</i>
Care provider role	First aid	Dealing with incidents and accidents	Contusions and other Injuries Unexpected collapse
	Health screening	Detecting and inspection for early health hazard of students	Recognition of mental health issues and challenging behaviour Monitoring and Follow up assessment of physical and growth development
Educator role	Physical educator	Physical education as nursing curricula sub-specialty Knowledge about anatomy Importance of physical activity	
	Health educator	Increase health awareness of students and school staff	Prevention and controlling chronic and communicable diseases Proper posture First aid
Liaison with community		Coordinating linkage between the medical home, family and school	Communication between teachers and administration Communication with family
		Improve access to social and health care professional	Social specialist and school physician

Theme 1: Leadership Role

Participants in this study highlighted prevention and management, health promotion and healthy school environment, and consultation with other school professionals as potential roles of nurses. Two subthemes emerged from data that are planning and leadership for development and evaluation of school health policies.

Planning.

A necessary part of the nurses' roles needs to focus on developing a plan for ensuring health needs. As one Faculty member asserts:

...As I told you like chronic disease and communicable diseases like flu or some problem that can spread among students, she will be able to detect... protect these health problem and should be also to plan how to protect the spread or outbreak these communicable diseases among students as well as among the teachers... (Faculty member 1).

In addition, faculty member 3 suggested that they could undertake the leadership position in developing and evaluating school health policies when she said: "...make assessment for each school first to know their need and according for this assessment we make our plans."

Prevention & management. Six participants asserted that the prevention and management as a potential role of nurses in Saudi schools would include coordination of a plan dealing with education about and methods for combating obesity, school violence, and stress and anxiety experienced by students and faculty, applied through intervention and knowledge.

Obesity. Four participants stated that the nurse should handle the prevention of obesity through ongoing classroom instruction into causes, effects, and avoidance. Faculty member 3 discussed the importance of having a school nurse to provide preventative measures with regards to the health of students that could include intervention in extreme cases when she said: “I mentioned before that health education very important and also, prevention of any problem and treat actual problem if it is present, for example obesity or there is another health problem...” The presence of a school nurse during school time is necessary to combat obesity as Faculty member 3 said, “...It is important to have school nurses during school time because of the promotion and prevention of any health problem for example, obesity...”

School violence. One of the participants spoke about the issue of violence among students and the need for prevention and control programs of such health issues as illustrated in the quote, “also the school nurse be useful for students and teachers in two ways ... for children school, how to prevent and control problem such as violence. Violence is present most important health problem in our school...” (Faculty member 4).

Stress and anxiety. Two participants focused on how stress affects many students. They spoke about how it is necessary to have nurses in place because nurses can prepare and implement a plan to help students to cope with stress and anxiety. For example, Faculty member 3 said:

...in fact, the majority of the school from my experience, need emergency first aid for example, bleeding, fracture and everything related to first aid about nutrition and hygiene care growth and development and changes in adolescent and how to deal with stress...

Nurse 3 pointed to fainting and the academic stress and anxiety that students experience during exams time and how the presence of school nurses is necessary to deal with such situations when she said: "...the presence of school nurses is necessary for the purpose of ...fainting caused by anxiety especially during exams..."

Leadership role in the development and evaluation of school health policies.

The majority of the participants talked about leadership roles that nurses can play in promoting health of students and ensuring a healthy school environment, and how nurses in consultation with other school professionals would provide development of health promotion and healthy school environment.

Health promotion & healthy school environment. A large number of participants addressed how through promotion of health, combined with a healthy school environment, nurses would protect students with chronic diseases, as well as promoting an environment to prevent the distribution of communicable diseases.

Protecting against chronic disease and communicable diseases. Nine participants addressed the ability of school nurses in preventing and controlling communicable and chronic diseases. They also highlighted that nurses can set up the plan to control the spread of these diseases as Faculty member 1 said:

...as I told you like chronic disease and communicable diseases like flu or some problem that can spread among students, she will be able to detect... protect these health problem and should be also to plan how to protect the spread or outbreak these communicable diseases among students as well as among the teachers...

The following quote by Nursing student 3 also illustrate that as qualified people nurses can deal with students with chronic diseases such as diabetics and asthma.

“...Another aspect is that the nurse can provide a care to children who have chronic diseases such as diabetics, and asthma because the nurse is qualified to deal with these situations.”

Consultation with other school professionals. Four participants suggested how nurses’ consultations with physical education teachers could help to set up and monitor a productive physical education curriculum.

Physical education teacher. Faculty member 1 spoke about the need for a nurse to be a part of the school staff to consult with other school professionals, in particular as an assistant to the physical education teacher.

...In schools, there will be a teacher related to this physical education but if the nurse is there she will integrate with the teacher and she will enhance the role of the teacher who are doing physical education because she will give tips of student about the importance of physical education to their health and growth, and development, so there will be integration and linking between the nurse and teacher who are to assigned the physical education...

Theme 2: Care Provider Role

Two subthemes, first aid and health screening emerged from the data that identify dealing with incidents and accidents and detection and inspection for early health hazard of students as potential roles of nurses.

First aid.

Accidents do happen in the school environment, and students with chronic diseases also suffer attacks. While some Saudi schools have teachers trained to respond with basic first aid, there are instances where a qualified nurse or nursing student is better able to assess and treat the problem. Seven participants addressed the issue of having qualified nurses in place to deal with accidents. With their education and experience nurses are in the best position to respond to and treat injuries when they occur.

Dealing with accidents. Nurses are qualified to handle injuries, especially those dealing with bleeding, fractures, and contusions. They are also knowledgeable about the best ways to deal with unexpected collapse due to health-related issues or medical conditions.

Contusions and other injuries. Of the 15 participants, 5 spoke out concerning the need for a nurse or student nurse to be part of the school faculty to provide prompt first aid when there are students suffering injuries. They are trained to stabilize patients. This is especially important if the patient will require transportation to a hospital for further treatment.

...In fact the majority of the schools, from my experience, need emergency first aid; for example, bleeding, fracture, and everything related to first aid... (Faculty member 4).

Unexpected collapse. Five participants mentioned the need for qualified nurses and student nurses to be available to deal with students who might suffer from diabetes-related issues such as hypoglycemia, or other medical conditions. The following are examples of their comments.

Also, the existence of nurse in school is important ...when students suddenly fall down from hypoglycemia or another medical condition, nurse is qualified to deal with these students... (Nursing student 6).

...The presence of school nurses is necessary for the purpose of first aid, the cases of diabetic falls, injuries, fainting caused by anxiety especially during exams... (Nurse 3).

Health screening.

Some participants talked about the potential role of the Saudi school nurses in the health screenings, detecting and inspection of children for early health conditions.

Detecting and inspection for early health hazards. Through their nursing education, nurses are able to recognize mental health issues and challenging behaviour in its developmental stages. They are qualified to follow up with parents and teachers on the causes, as well as suggesting methods for rectifying the problem before it escalates. Also, nurses are able to monitor and assess physical and growth development of students. The participants highlighted these specific categories that summarize their role in the detection and inspection of health hazards.

Recognition of mental health issues/challenging behaviour. Mental health and other challenging behavioural issues can manifest very slowly and be difficult to detect. Four participants spoke about the need for professional nurses in the school system because they are qualified to recognize mental health issues and other challenging behaviours.

...some nurses can help in dealing with a child or student, especially students who are in kindergarten, because the nurse can recognize the

attitude of children with abnormal behaviour, so that the nurse can give advice to the teacher about how teacher can deal with this children...

(Nursing student 2).

The need for nurses in the schools on a day-to-day basis cannot be downplayed. They have special education that makes them qualified to track and follow-up on existing health issues in students.

...Regarding the school nurse role and scope of function is very useful for the students and the teachers and affecting both, affecting the students' health because through school nurse, we can make early inspection for the health hazard of students... (Faculty member 4).

Monitoring and follow up assessment of physical and growth development. Of the 15 participants 4 discussed the need for a qualified nurse to be in the school because of their ability to assess the physical and growth development of students. This would be a direct follow-up from the initial school entry health requirement examination to monitor and assess each student's health and wellbeing throughout their school years. According to Faculty member 2, "... it is very important to put nurses in schools for health education and continue or follow up for students' health and should be dealing with students; environment from accident, to control diseases or anything..."

Theme 3: Educator Role

Two subthemes, physical educator and health educator emerged from data categorized as physical education as nursing curricula subspecialty, knowledge about anatomy, importance of physical activity, and increase health awareness of students and school staff .

Physical educator role.

Qualified nurses and nursing students are ideally qualified to teach the importance of physical activity and to create necessary programs. According to Nursing student 4, “I think that nurses can provide physical education because she is knowledgeable of anatomy and she knows which type of exercise is suitable for students who have chronic diseases”.

Physical education as nursing curricula sub-specialty. At this time there was no specific course, which focused on physical education within the nursing major. Serious consideration should be given to implementing this particular course into the Community Nursing program. As Faculty member 1 stated:

...but maybe...because nurses now, in the nursing curricula, there are a lot of specialties. There are a lot of specialties in the curriculum and it may be part of the whole community nurse to get a specialty in physical education. This would be a sub-specialty...

Knowledge of the anatomy. Within their curriculum, nurses learn in depth about the human anatomy. This makes them imminently suited to dealing with medical problems. Nursing students mentioned the need to design exercise routines for students with medical problems so that those students’ medical issues do not escalate due to lack of physical activity. This is a current problem. Nursing student 4 said:

...I think that nurse can provide physical education because she is knowledgeable of anatomy and she knows which type of exercise is suitable for students who have chronic diseases. For example, we currently as nurses give information about physical education for patients who have

diabetes and high blood pressure, which the exercise fit for each patient.

So, the nurse can provide physical education because she has the knowledge about the physical exercises...

Importance of physical activity. The potential role of the nurses may focus on trying to provide information about the importance of physical activities and how exercises impact on health and prevent chronic diseases such as obesity. Six participants out of 15 addressed the concerns of physical education, the need for a proper exercise routine, and how daily exercise can prevent health problems. The following is an example of their comments. "...She must also provide information about the role of the important of physical education such as exercise, daily exercise to prevent obesity..." (Faculty member 4).

Health educator role.

Health education is an essential responsibility in nursing carrier. As a health educator nurses can increase health awareness among students and school staff.

Increasing health awareness of students and school staff. Eight participants addressed the need to teach about First Aid including CPR, and how to react to someone who is suffering an attack of epilepsy, hypertension, and other common health crisis. They also highlighted (see following quotes) that nurses can also instruct students on how to react to and cope with a family member who might be suffering from diabetes or hypertension. Diabetes has become almost epidemic among the Saudi population, especially in young adults and students. Nurses can teach and reinforce the importance of prevention and controlling chronic and communicable diseases.

Nurses can teach first aid, how to deal with an injury and who should they contact in case of injury. She can teach students how to deal with a child's family member who may be diabetic or have a high blood pressure or other simple cases that may happen within the family members. (Nurse 1).

...School nurses can teach student about first aid, CPR, epilepsy, hypertension and hypo-tension, and hyperglycemia and hypoglycemia.... (Nurse 3).

...The most important subject the school nurse must be; teach the student about prevent and control communicable diseases, diabetes most health problem among students and teachers and people... (Faculty member 4).

One faculty member nurse mentioned the need for students to be taught the necessity for proper posture and exercises to strength bones and the musculoskeletal system.

... most of students complain here from musculoskeletal system such as back pain, neck ache, shoulder, and hand. She must be present to provide health education on how to use body in good position like how to stand how to sit. It is important role of school nurse in school... (Faculty member 4).

Theme 4: Liaison with the Community

The participants highlighted coordinating linkage between the medical home, family, and school and improving access to social and health care professional as potential roles of nurses in Saudi schools.

Coordinating link between medical system, family, and school. According to one faculty member, there is a real issue with not having nurses assigned to all of the schools. There is a real need within the school system to have nurses in place, especially when taking into consideration their qualifications and what the variety of areas that nurses can address if they are given the support, authority, and the equipment to fulfill a real position.

...there are no nurses in schools, I do not know the schools that has a nurse, but from my point of view if the nurse has to be there, so should be qualified and should be specialized as community nurse, so she will able to help a students and school staff even an administrative to benefit her being there because she will be related to community... (Faculty member 1).

Communication with teacher and administration. One faculty member observed how the nurses are trained to communicate with students as a faculty member, through different age groups, as well as with the faculty and the community. The nurse will fill the role of coordinator and advisor.

...and even the important of communication because we are preparing these students, level after level, so as a nurse, also she will has role in that how to teach about the importance of community between the different age groups, between their needs, between teachers, and the administration...(Faculty member 1).

Communication with family. One of the student nurses mentioned the fact that the nurse in the school system is necessary to monitor students for behavioural issues, and bring these issues to the attention of the faculty and, where necessary, to the parents.

“...Also, the existence of nurse in primary school is important. Nurse has to monitor students’ health and behaviour. For example, if nurse notices an abnormality in students behaviour, then the nurse can directly talk to teachers or parents...” (Nursing student 6).

...sometimes consulting if there is any health problem and communicate with family to treat some problem or maybe do social worker, if it is present on hospital they can collaborate together and work together to treat and also consult... (Faculty member 3).

Improve access to social and health care professionals. The presence of a nurse provides improved access for the community to social workers and health care professionals such as a social specialist and a school physician. One participant addressed the proposition of placing nurses in all of the schools and the advantages to utilizing them in positions that include a link between the role of social specialist and of school physician. “...The presence of nursing in schools is very effective from the scientific and practical aspects because nurses are qualified and prepared to deal with...In addition, nurses can be the link between the social specialist and the school physician...” (Nurse 1).

Facilitators and barriers

The third research question covered “Facilitators and barriers to providing health and physical education in Saudi schools.” Within the facilitators the research uncovered two themes: university and college level support, and school health services. School health services developed two subthemes: Private schools and Public schools.

Three barrier themes were identified and explored following: Government support, lack of cultural approval, and demand for nurses exceeds supply. The themes, sub-themes, and categories, are presented in Table 4.

Table 4

Themes and Categories for Providing Health and Physical Education in Saudi Schools: Facilitators and Barriers

THEMES	<i>Subthemes</i>	<i>Categories</i>
Facilitators		
University and college level support		Providing practicum at community and schools Providing courses related to health promotion
School health services	Private schools	Providing school nurse in private school Providing physical education in private girls' schools
	Public schools	Providing some clinic in public schools Periodic visits of nurse to schools
Barriers		
Governmental support	Lack of financial support and infrastructure	No equipment on clinic Budget no supplements for providing health education No space and equipment to provide physical education to girls' schools
	Lack of regulation	Long process No existence school nurse in public schools Lack linkage between Ministry of Education and Ministry of Health Banning of physical education in girls' public schools

(continued)

Table 4 (continued)

Themes and Categories for Providing Health and Physical Education in Saudi Schools: Facilitators and Barriers

THEMES	Subthemes	Categories
		Barriers
Lack of cultural approval		Community - lack awareness Parental disapproval
Demand for nurses exceeds supply		Shortage of nurse and expatriate nurses employment

The above table sets out and explores the various facilitators and barriers that currently exist within the Saudi culture and the Saudi school system with regards to physical education and health education, in particular with regards to physical education of girls and women at all levels of society.

Theme 1: University and College Level Support

Within the nursing field of nursing education university and college courses are broken down into theoretical and practical. This is enforced through exposure at the community and school level where the student nurses have the opportunity to attend patients in real life situations.

Providing practicum in communities and schools. The university provides courses that are related to the health promotion and education for use within the community. This course is broken into two parts: theoretical and practicum. Three faculty members and three student nurses outlined the current Nursing Curriculum in the

university at this time, which includes a Community Nursing course. The following is an example of their comments:

...I think it is related to that, in what way our university prepares our nurses, as I told you here we have community nursing course, we are providing the students with all of the subjects in the theoretical part, and in the practicum part... (Faculty member 1).

The practicum portion of the course takes the nursing students out into the communities where they received first hand hands-on experience. One faculty member outlined how the student nurses studied for their practicum. Each student nurse is assigned out to carry out home visits, school immunization visits, and to perform pediatric care in clinics specializing in childcare. A faculty member described this process:

...they will go for home visits, they will go for the schools, they will go for pediatric. We will prepare the students with different areas of the community. And particularly to the schools we are getting our students there, we are educating them how to deal with students with their different age groups, what are the important topics they can teach. During this course, this course for 4th year students, during this course student will be a group and will be rotated it special schools, not all schools, particular schools which are welcome that our student go to schools... (Faculty member 1).

Three of the student nurses described visits to schools while training where they practice health education in the various schools and health care units even though there is

no specialized course, ensuring they receive not only training in the hospitals, but also in the various schools and health care units. The following excerpt is an example of the description they provided of their education.

...During these courses, we visit schools to do training there. We don't have a special course in health education or promotion in our university. However, the University gives us activities to practice health education on schools and health care units. This is a good point from our university, so we are not only trained in hospital but also we work in schools and health care units... (Nursing student 4).

Providing courses related to health promotion. Some courses are provided at the college level related to health education and health promotion, such as the Growth Development, Community Nursing and Pediatric courses. Three student nurses explained how they develop and expand their knowledge base through supervised practical application. "...Actually, we are taking courses of growth development, community and pediatrics, all of these courses are related to health promotion..." (Nursing student 3).

Theme 2: School Health Services

Private schools.

School health services provide school nurses in the private school system. Two faculty members and one nurse advised that while there are no nurses assigned to the public schools, there are nurses present within the private schools.

...There is no presence of nurses in public schools but nurses are present in private schools and their presence is effective.... (Nurse 3).

...I mean that, should put one nurse on each school to take responsibility to the students. There is no nurse on whole public schools but I think some of private schools have a nurse... (Faculty member 2).

Providing physical education. One nurse and one faculty member mentioned that there is some limited physical education for girls within the private school system, but the public schools do not include such activities. Nursing student 5 said "...here, some private schools provide physical education but on public schools don't provide PE education..." In addition, Nurse 3 stated that "...There is no physical education in Saudi public girls' school; however, private girls' schools provide physical education..."

Public schools.

The government provides some public schools with a clinic. The nurses (nurses and nursing students) make periodic visits, but most of the time the assigned space is not used. Other schools only have a small room, or they use the school rest area for when there is a health-related issue such as an accident.

Providing some clinics. Three participants stated that some schools have a space set aside as a clinic, or small room used for the purpose of emergency situation. However, not all of them have a nurse assigned or visiting. In the case of some schools a teacher has received some training to fill this need. "...In Saudi Arabia, some school have clinic with nurse and some school have clinic without nurse, so not all school have school nurse but the even school without school nurse they already prepared teacher or admin to be oriented..." (Faculty member 4).

Periodic visits of nurse. Five participants mentioned that at this time there are periodic visits by nurses to the schools. However these visits are not set for specific times, and the nurses do not fulfill the role for which they should be utilized.

...there will be periodic visits to the school to see how is the health of the students, how everything is going, but it is not fixed in the school. They will not play the role of a school nurse who is being there appointed full time... (Faculty member 2).

As indicated by one nurse, it is important to the school system to generate a proper plan that sets up frequent health education within the schools. The Ministry of Health already devised a proper system of instruction, along with placement of nurses that include provision for necessary proper health education. “Facilities, making a plan for frequent health educations to schools, which is already set up by the Ministry of Health by allowing nurses to visit schools and other community places to provide health education...” (Nurse 2).

Theme 3: Governmental Support

Lack of financial support and infrastructure.

Barriers to establishing a proper physical education and health education program with the Saudi school system encompass a number of problem areas. To begin with, there is no assigned budget for the implementation of such a program. While there are clinics in some of the schools, there is no equipment. There are no supplements such as projectors or computer connections for providing health education, nor is there space and equipment to provide physical education in the girls’ public schools.

No equipment on clinic. Three participants said that although some schools might have a clinic, many do not, and clinic spaces are not always properly designated spaces. Some clinics are simply spaces within a restroom. They lack proper equipment.

...in fact, not all schools will have a clinic, if there is clinic in schools, it will be just a room or rest area without nurse. But where is qualification and what is there in that room? Nothing. Also, there is no equipment in clinic. Even the equipment they will not have. Schools do not cover to the clinic... (Faculty member 1).

No budget and no supplement for providing health education. One nurse mentioned that a large part of the issue is that there is no existing budget to provide proper financial support to the nurses. The nurses would have to be paid while they carried out their function of health educator. Furthermore, there is no suitable, reliable transportation for them, as stated by Nurse 2 "...on the other hand, the barriers include the lack of stable transportations and no enough financial support for nurses to improve the level of health education..."

Three participants addressed the lack of adequate equipment such as overhead projectors, which impedes their ability to carry out proper instruction into health education, and there are no funds available with which to rectify the problem. Nurse 3 reinforced this, saying "...barriers include unavailability of projectors to explain about the health education, difficulties in accessing schools to provide health education, absence of financial support to provide health education..."

No space and equipment to provide physical education. Proper physical activities require a designated, large, open space indoors and outdoors in which to carry

out various sports and exercise programs. Six participants responded that there is frequently neither the space for physical education, nor the necessary equipment to implement exercise. Faculty member 3 suggested, “they have to provide place for physical education, and also, need the equipment to do exercise...”. Nursing student 7 added “...I think the major barrier is spaces and equipment. Most of schools are not provided with the equipment of physical exercises...”

Lack of Regulation.

Securing school approval for nursing students to provide health education in the Saudi school system is a time-consuming process. At present there are no assigned school nurses within the public school system. There is a lack of existing connection between the Ministry of Health and the Ministry of Education. At the university and college levels there is no program for female physical education teachers. Compounding this issue, there is a ban on physical education for girls in the public school system.

Long process. School permission must be sought well in advance from the university and Primary Health Care centers before any visits can be carried out by the nurses (nurse and nursing students). This is a time-consuming process, and is not a one-time request. It happens every time a visit is proposed. Five participants spoke about how long it takes just to get approval from the various schools for a visit from a nurse to present a class on health promotion and health education. This is borne out by Faculty member 3: “... we cannot reach this target easily but sometimes we found barrier like approval to enter schools and how to access the school take process, so it will take long process...”

Faculty member 2 supported this in her comment “...all the teachers, I think they like to have nurse in school or some visitors come from outside to provide some health education to students but the barriers sometimes, it needs of course process to get approval for providing health education in schools...”

No existence of school nurse. While some private schools have a nurse, most schools do not, and there is a need for all public and private schools to have a nurse on the faculty. Three participants spoke about this lack of school nurses in public schools. The following excerpt is an example of their comments:

...but I am not sure that all the schools here in Saudi Arabia there is a school nurse. Maybe some schools have nurses, but not all schools are covered to provide these things. All schools should be covered by school nurses to help the student as well as teachers... (Faculty member 1).

According to participants, all schools should have a properly designated and outfitted clinic, and this would have to be implemented if nurses are assigned to all of the schools. Two faculty members spoke about how the presence of nurses within the school system should be implemented, and required minimum level of qualifications. The following is a representative comment.

...there will be a clinic, but who is there in that clinic, and what is the role of that person who is not be qualified nurse. Maybe she is having a first aid certificate or she is nurse assistant that she will help if some of student who get injury or some have headache or fever.... (Faculty member 1).

Also, one faculty member highlighted that the role of nursing in Saudi schools is very limited and not well defined. She commented that the university only communicates

with the schools management to define the topics that need to be provided to students.

The following comment represents her concern:

...the role of nurses in Saudi Arabia school. It's is very limited and maybe not well defined. It is only that nursing students provide information to students during their training and only the university contact with manager of school to arrange the needs and topics that nursing student could provide ... Only that. I think that good participation between University and Ministry of Education to achieve objective community courses.

(Faculty member 2).

Lack of linkage between Ministry of Education and Ministry of Health. One faculty member stated that some of the public schools have clinics, but they are not properly set up, nor are they actually being used. According to this faculty member, the Ministry of Education needs to take a serious stand on this issue. She suggested the following:

...clinics at schools are not activated. There should be communication, there should be a link between schools and the Ministry of Education to get this point as a serious point, or to think about this point to put a nurse school in each schools, and this is school nurse...and there should be link between Ministry of Health and Ministry of Education because these nurses are related to Ministry of Health, and the place related to Ministry of Education... (Faculty member 1).

Banning of physical education for girls. Political opposition to girls participating in any form of serious physical activity is a major obstacle. It is seen as a morality issue.

Nine participants stated that in conjunction with the cultural mindset of the majority of the Saudi public, it poses a serious impediment to any proposal that includes physical education within the curriculum at girls' schools. One faculty member addressed the lack of any form of physical activities in the girls' schools. Also, another faculty member mentioned the restriction on the part of the Minister of Education concerning girls participating in physical education.

...But the boys have physical education. Why don't the girls have? This is the point. We should find out why it is not allowed for the girls. It is the same like boys need the physical education for their health the girls also need and ... Both sexes are equal to promote their health... (Faculty member 1).

Faculty member 1 followed up her statement by saying "... maybe here, as you told, I do agree that the Minister of Education, it has a restricted rule that this physical education to girls is not allowed at all..."

Of the 15 participants, 3 of them stated that there are currently no courses for women in university or college to train in the field of physical education. In addition, physical education has been banned in girls' public schools. One nurse commented on the fact that there are no spaces in some of the schools to provide for physical education, nor any teacher trained in that specialty. Nurse 2 advised that "... there is no physical education course provided in girls' university. There is no support from authority in ministry of education to provide this subject..." Nurse 2 went on to say: "...there is no enough spaces in some schools to provide physical education. In addition, there are no specially trained teacher or enough space..."

There was consensus amongst participants that without support of the government, nothing will be done to rectify the current situation within the population. This is especially true at the youth level. The government has released statements on the growing concern with regards to the escalating levels of obesity and chronic diabetes, especially among girls. Two student nurses discussed these concerns:

...I think that the government should endorse physical education in girls' schools. Because these days childhood obesity and chronic diabetes are increasing especially in girls because they do not exercise. During our training in schools, we notice that most children from primary schools have diabetes. Because of the advance in technology, the sedentary behaviour is increasing in girl student, and most children after they finish school, they go back to their homes and play with these technological devices... (Nursing student 7).

Theme 4: Lack of Cultural Approval

According to participants, community awareness is lacking when it comes to the importance of having a school nurse working within the education system. They suggested that most parents and guardians are unaware of the importance and benefits of health education and physical education. Parents generally disapprove of the idea of their daughters being involved in strenuous physical activities, primarily through ignorance of the implications of a sedentary lifestyle on their children's health. There appeared to be consensus amongst all the participants that no one wants to take responsibility for driving forward an initiative to institute proper physical and health education within the girls' education system.

Community lack of awareness. According to participants, awareness levels need to be raised at the community level concerning the importance of the school nurse within the school system, and how their inclusion in the school faculty will improve the health and safety of students. This lack of awareness appeared to be coupled with the lack of knowledge on how physical and health education are affecting the health and wellbeing of their children. Three participants spoke about the lack of awareness and education within the community and the school system concerning the importance of having nurses permanently within the school system. According to Nurse 1 "...the facility and barriers depends on what school management can provide for the nurses such as ...the awareness of the community of the importance of school nursing...".

Two student nurses suggested that the issue attached to girls and physical exercise is largely one that is based in culture. Many families either do not know or do not really care, and this also includes concerns about their children's dietary concerns and related health issues. Nursing student 1 addressed this, saying "...in my opinion, in our culture, some families don't exercise because they think that physical exercise is not important. Also, some families don't even care about the type of food served at school, which can affect their children's health...".

According to the participants, there is an apparent lack of concern and knowledge connected to physical education within the population, in particular when it relates to females. One student nurse stated that nobody appears to be particularly concerned about the lack of physical activities amongst the girls in school. In many cases this seems to be because many people do not attach importance of exercise to health. This is a serious culture-related impediment to the health and wellbeing of the children. As identified by

Nursing student 3 "...another problem is that nobody claim about providing physical education for girls schools because people don't feel that physical exercise is important to children's health. Also, our community and culture will not accept this...".

Parental disapproval. Saudi culture is male-dominated. It is the senior male figure in the family component that makes the decision on what is permitted, especially when it comes to the females in the family. Many men are extremely protective of their daughters and see physical activities such as gym and sports as a breach of morality. One faculty member and one student nurse addressed this problem. Faculty member 2 mentioned this issue, stating "...fathers or brothers of girl students refuse this program for their girls. The barrier is the culture, still people not give female this point. Some teachers provide this program, but some rules restrict...".

Theme 5: Demand for Nurses Exceeds Supply

At this time, there is a challenge by a nursing shortage in Saudi Arabia. The participants highlighted that to offset that, the government brings in nurses from other countries to perform these duties. According to participants, supplementing the number of qualified nurses with nurses from outside of Saudi Arabia presents a threat to the employment of Saudi nurses.

Shortage of nurse and expatriate nurses' employment. One faculty member suggested that the reason for not having school nurses in schools was the shortage of nurses in Saudi Arabia and the employment of expatriate nurses. "...I think still not put these in their policies, may be reason for shortage in nurses in general, is to bring in nurses from outside or not enough nurses to put them in schools..." (Faculty member 2).

Question Five Responses

Question Five was a closed-ended question, so the findings and its data analysis was explored below. The question asked “In your opinion, could nurses provide physical education for girl students?”

Figure 4 below represents the groupings of various responses on the part of the participants when asked whether or not, in their opinion, nurses could provide physical education for girl students. The largest number of positive responses among the participants to the proposal of nurses providing physical education came from the Nursing students. Three out of the four faculty members support the proposal, while only one nurse believed it was a worthwhile suggestion. Three participants did not respond to the question.

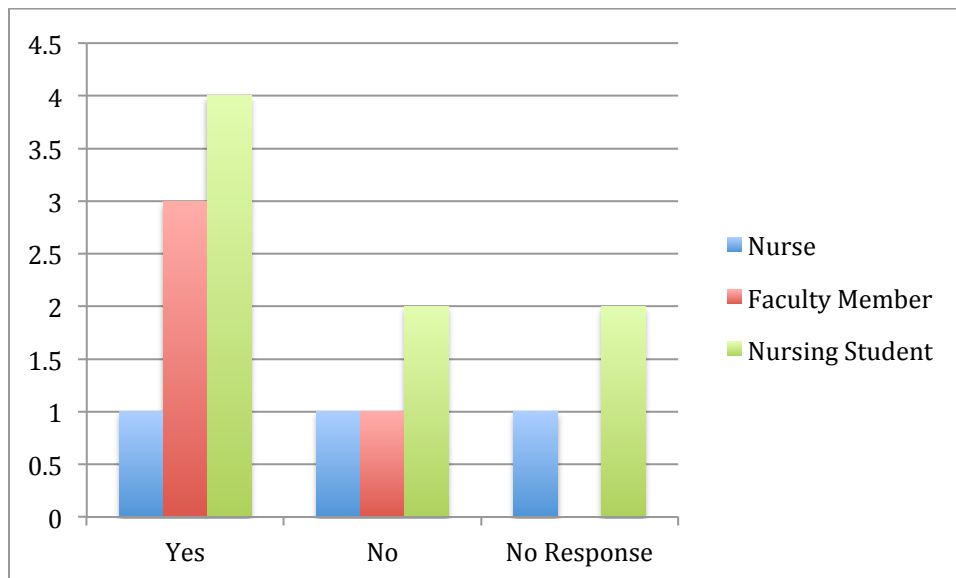


Figure 4. Responses to Question 5

Results of this study into the current and potential roles of nurses in Saudi Arabia shows support for their role and demonstrates that their current and potential roles overlap substantially. Both current and potential roles identified included the role of

“Health educator” and “Community liaison”. The current role of “Health promoter” was also identified in the data. However, the data also showed that the current role of nursing within the Saudi school system is extremely limited. The study participants indicated that the potential role for nurses within the school system included “Health education” (including physical education) and “Community liaison”, but could be expanded to include the additional roles of “Leader” and “Care provider”. The data also showed that there were more barriers to implementing school nurses within a broader CSH model than there are facilitators to providing health and physical education in Saudi Arabia’s schools.

Chapter Five: Discussion

The need for enhanced health promotion efforts that serve Saudi Arabian girls has been identified (Al Dhaifallah et al., 2015). Many researchers and school health experts have identified the school as an important setting for intervention because children spend much of their day there, for approximately two thirds of the year from age 5 until late adolescence (American Academy of Pediatrics, 2008). In addition, these experts also emphasize that schools have the infrastructure, trained professionals and the responsibility to provide health education (McKay et al 2015; Fairclough & Stratton, 2005; Kriemier, 2011; and Pardo, 2013).

The comprehensive school health model provides a framework for understanding the scope of potential health promotion efforts in schools. Included in the categories for action are Health Services within which the role of the School Health Nurse falls. Further supporting a role for nurses in the community broadly and schools specifically is the 21st Century School Nursing Practice framework (NASN, 2016). With an identified gap in school health promotion and physical activity provision for girls in Saudi schools the aim of this study was to explore the current and potential role of Saudi Arabian nurses in school health education and promotion generally and in physical activity promotion specifically. Interviews encompassed current nursing students, members of the nursing faculty, and nurses and a number of key themes emerged. I compare the key themes that emerged and discuss them in the context of the aforementioned frameworks and the existing literature.

The key themes that emerged that are related to the current and potential role of the school health nurse in the girls' schools in Saudi Arabia supported their role in

providing health education, health promotion, liaising with the community, leadership, and in providing care. Each overarching theme will be discussed.

Current role of nurses in Saudi Arabia

Theme 1: Nurse's role as Health Educator

The first major theme in the current role of the nurses in Saudi Arabian schools was that of their role as Health Educator. This theme highlighted that nursing students, faculty and current nurses felt that “Increasing health awareness of students and school staff” was a primary role for school nurses. Most of the participants in this study stated that nurses presently educated students and school staff on the importance of the role of healthy lifestyle and healthy eating in relation to growth and development, along with good personal hygiene and daily needs. These findings were not surprising, given that these health topics are already covered within health education programs in Saudi Arabia (Kingdom of Saudi Arabia, Ministry of National Guard, Health Affairs, 2016). While there are numerous health education campaigns operating under the umbrella of the School Health Services, so far no comprehensive programs have been initiated (AlDhaifallah et al., 2015).

The results from this study also showed that nursing students during their education mainly carrying out the health education in the schools, especially in the girls' schools. This is consistent with the literature as Alrowaily (2012) highlighted that Nursing College students were assigned to prevention as part of their nursing education and were educated on issues related to school health and preventive health care. Despite this assertion, some of the participants suggested that the role of the nurse was very limited suggesting that there may be room to enhance health education. Further

highlighting this issue are Karachi and Elzubian (1997) who suggested that the school curriculum does not mention the area of ‘health education’ (Karachi & Elzubian 1997). These researchers advocated for the integration of health education into the Saudi schools as a mandatory subject in the school curriculum. By comparison, in Canada health education programs for all school-age children from Kindergarten to Grade 12 are ensured in the curriculum by Provincial and Territorial governments, ensuring beneficial health education that meets the international level criteria (Lu & McLean, 2011).

Health education also fits within the Comprehensive School Health framework (Alberta Health Services, 2012), as part of the teaching and learning component. Veugelers & Schwartz (2010) suggested that health education should be an integral element of education because healthy citizens are more likely to be productive citizens (Veugelers & Schwartz, 2010). Fetohy (2007) supported this as well and suggested that health education programs can effectively be achieved through school nurse/health personal, education within in school curriculum and knowledgeable parents (Fetohy, 2007). Finally, according to the National Association of School Nurses (NASN) one role of the school nurse is providing and assisting with health education programs (Magalnick and Mazyck, 2008). As previously mentioned this would also be considered in a Community/Public Health principle in accordance with 21st Century School Nursing Practice Framework (NASN, 2016).

Theme 2: Nurse’s Role as Health Promoter

Nurses, and nursing students as part of their practicum , primarily focus on immunization and controlling communicable diseases through visits to the schools according to four participants in this study. Examinations include general physical

examination and vaccinations by the visiting nurse in a part-time capacity as a school health worker (Alrowally & Abolfotouh, 2012). Ideally, these visits are supposed to occur every 2-3 visits/month (Alrowally & Abolfotouh, 2012). However, according to one of the nurses in this study, these visits are actually carried out only three times within the course of a school year. Allen (2003) advocates that improved student outcomes occur where schools have a full-time school nurse, as noted in studies in Canada and the U.S.A. and a report by NASN (2011) reinforcing the need for integrating health solutions into the education setting.

In point of fact, the necessity exists within the Saudi Arabia school system for students of both genders to receive comprehensive health instruction and monitoring throughout the school year as part of the curriculum. This level of health promotion requires integration with the local community/students' families, in particular with their parents, and coordinated with the Public Health Services as directed by the 21st Century School Nursing Practice Framework developed by NASN (2016). In addition to this, the two facets of the Pillars of Comprehensive School Health (Alberta Health Services, 2012), which are teaching and learning, and partnership and services, substantiate and emphasise this requirement. The current involvement of the nurse in Saudi Arabian school health education appears limited but the interviewees supported the importance of the role similar to perspectives highlighted in the literature. The support for this role indicates that efforts to implement this may be well received by nurses.

Theme 3: Nurse's Role as Liaison with Community Health Services

In Theme 3 the current role of the nurse as a liaison with the Community Health Services is highlighted. According to participants they visit the schools three times over

the course of a school year to provide and assess health care to students including but not limited to health education and vaccination. Pre-school children in Saudi Arabia undergo examination by Primary Health Centres in their area to ensure they meet the health standard requirements to attend school.

The main activity of these school health services is to assign a nurse in part-time capacity to carry out general examinations of students in each of the three education levels (Alrowally & Abolfotouh, 2012). Two participants highlighted that there are follow-up visits for the students during their school terms by the Primary Health Care Centre but there is no nurse actually in the school throughout the school year. However, none of the schools have a nurse attached to them full time to monitor the children throughout their education. Although they did indicate the extent and topics of their involvement in health education within this theme there were no clear indications of what other activities beyond linking students to community health care in the form of immunizations and health examinations and follow-ups. For instance, the interviewees did not talk about linking the students to community resources or liaising with other services beyond the health unit.

The importance of embedding a school nurse full time has been emphasized in the literature. In a study by the American Academy of Pediatrics (AAP, 2008), it was determined that every school-age child deserved a registered nurse. To ensure this requirement is being met, every full-time school nurse should be on staff at every school throughout the school year to ensure a strong connection between the student's health at school and at home (NASN, 2014). The Massachusetts Essential School Health Services implemented a program of full-time nurses in their schools following a study carried out

by Wang, et al. (2014) that demonstrated the cost benefits of having a full-time nurse on staff throughout the school year. Allen (2003) also supported this study, advocating the positive impact on students with and without adequate health care coverage. NASN (2016) refers to this in his framework under Care Coordination, specifically collaborative communication, and under Community Public Health in health promotion, outreach, and surveillance. It is clear that the role of the full-time school nurse is comprehensive extending from preventive activities to follow-up of health issues, accidents and injuries.

The second research question that emerged from the perspectives of the participants concerned the potential role of nurses in girls' Saudi Arabian schools. The theme was identified during the collection and analysis of the data related to this question as being: "Leadership role", "Care provider role", "Educator role", and "Liaison with the community".

Potential role of nurses in Saudi Arabian schools

Theme 1: Leadership Role

The first theme in the potential role of the nurses in Saudi Arabian schools was that of a leadership role. This theme highlighted that nursing students, faculty and current nurses, strongly believed that "Prevention and management," "Health promotion and healthy school environment," and "Consultation with other school professionals" was a primary role for them.

In a leadership role nurses are essential to preventing and managing programs to combat obesity and weight gain in students through planning and creating school curriculum. Some participants discussed that the potential role for nurses in the school system was to educate students about obesity and methods for combating obesity and

weight gain, as well as other issues like school violence and dealing with stress and anxiety. This is particularly important in the Saudi girls' schools according to studies into the lifestyles of both school-age genders that demonstrated an increasing level of obesity, especially since recent studies reported that overweight and obesity was significantly higher among girls than it was among their male counterparts (Al-Mohaimeed et al., 2015).

In a study published by Wright (2012) school nurses provided effective delivery for health promotion and prevention of obesity through physical activity guidelines. In this case study the presence of a full-time nurse in the school provided an effective intervention infrastructure (fully professional staff time) towards preventing obesity and behaviours related to weight gain. Another area of focus for the participants in this study was student stress and anxiety (Wright, 2012). This is reinforced by a related study in Saudi Arabia that identified a high rate of depression among adolescents, with females ranking 19% higher than their male peers (AlBuhairan et al., 2015). Nurses possess the competencies to provide emotional support and can facilitate a process for assisting students in understanding the range of normal stress reactions. At the same time nurses can teach students ways with which to cope with trauma, disaster, or the day-to-day stress of schooling and home life (Kataoka et al., 2012).

All of the participants in this study indicated that health promotion by school nurses, combined with a healthy school environment, would help in protecting students from developing chronic diseases. At the same time a healthy environment would prevent the spread of communicable diseases. Wolfe (2006) included this role for the school nurse indicating the importance of their assistance in collaborating with school

administrators to develop school safety plans for the control and prevention of communicable diseases. Policies the third pillar of the health promoting schools framework supported by the Joint Consortium for School Health in Canada (2012) highlights these leadership activities within the area of healthy school policy which integrates decision-making processes and rules, procedures and policies, and management practices. Finally, NASN (2016) set out role of the school nurse in the Framework for 21st Century School Nursing under the principle of Leadership, and established how it linked to the other four principles in the model. Factoring the recent data regarding overweight and obesity in Saudi girls, in conjunction with NASN's (2016) model, the need for health promotion leadership and health education in the school curriculum is critical and nursing students, faculty and current nurses support this role.

Theme 2: Care Provider Role

Nurses also identified their role in providing health care and first aid in the schools; dealing with accidents and health issues among students and school faculty and acting as an on-site First Responder in the case of an accident or other emergency. This was substantiated by a majority of participants in this study who stated that it was essential to have a qualified nurse in each school to assist in protecting students and applying proper first aid when necessary.

According to results of participants' responses in this study, some teachers are trained in basic first aid and take the role of a nurse in dealing with minor injuries and accidents in Saudi Arabian schools. The Ministry of Education in Saudi Arabia has established a program to train teachers in First Aid and Basic Life Support based on published comprehensive guidelines on how to respond to potential hazards and common

emergencies (Bashir & Bakarman, 2014). However since its establishment in 2001 no data has been collected to confirm the effectiveness of the program (Bashir & Bakarman, 2014). Bashir and Bakarman (2014) stated that female primary school staff lacked sufficient knowledge and practice of first aid. This indicates that nurses may be far more appropriate and qualified to carry out this role as caregiver in the school system.

Moreover, participants believed that school nurses are invaluable as they are able to detect, through a screening process, early health hazards developing in students, because they are qualified to carry out health inspections. Many times a child will develop a health issue during their school years. Such problems often go undetected by the family. Even with the annual visit by the Nurse there might be a lengthy lag time between the problem taking hold and its detection. Through having a trained health care worker in the school such as a nurse or nursing student who is cleared to detect and carry out inspections, such health issues arising in students can be detected earlier and treated more expeditiously. Parents in Saudi Arabia factor the highest responsibility of the school nurse to be screening of students. Health education placed second in their consideration (Helal & Al Hudaifi, 2015).

This is reinforced by findings by NASN that school nurses engage in screenings of vision, hearing, BMI, mental health, and other screening procedures (NASN, 2011). According to participants in this study qualified nurses are also able to recognize the early stages of mental health issues and challenging behaviour. Evaluations and follow-up assessments are required throughout students' schooling especially in the case of abnormal behaviour or mental issues. To highlight the importance of this type of screening between 16% and 59% of secondary school students have significant levels of

mental or emotional symptoms (Koenig, et al., 2014). Mental health illness among the Saudi population was discovered to be 48%, with the problem more endemic among females (51%) than males (41%) (Al-Sughayr & Ferwana, 2012). In light of this research, screening and health education programming concerning psychological problems need to be introduced into the schools, and designed to enhance public awareness. In the Framework for 21st Century School Nursing Practice, dealing with mental health issues would also come under the heading of Care Coordination (NASN, 2016).

It appears from the literature and study participants alike that this is an appropriate and needed role for the school nurse. If this was provided the third and fourth component of Comprehensive School Health of healthy school policy, and Partnership and Services, are addressed by promoting health and well-being, shaping a respectful, welcoming and caring school environment.

Theme 3: Educator role

Nurses and nursing students in this study clearly saw their potential role as health educator in schools. As a part of this role some also indicated they had the appropriate education to provide physical education. They understood human anatomy and could identify which exercises would fit students with medical problems. For nurses, anatomy is taught either as a stand-alone course, or included as part of other clinical courses, with the expectation that anatomy and physiology courses will provide additional framework to assist nurses in understanding pathophysiology, clinical evaluation, and various other nursing procedures (Jordan & Reid, 1997). Thus, as discussed by this study's participants, qualified nurses and nursing students are ideally qualified to teach the importance of physical activity and to create necessary programs. With these programs nurses can

ensure increased activity for both male and female students through mandatory attendance in Physical Education classes (Wright et al., 2013). It was clear that they did not yet have the specific education and experience to teach physical education but that they believed they could have a role and had the underpinning knowledge to provide this. This is due to the issue with the university system where, as with primary school, women attend classes at segregated campuses, with limitations on the subjects they are permitted to study in comparison to their male counterparts (Hamden, 2005). It was suggested that Physical Education should be added to nursing studies as a specialty or sub-specialty to the existing curriculum. The proposed physical education course as a sub-specialty under the nursing curriculum within the nursing major would be available so both male and female nursing students could elect this sub-specialty and receive additional education in instructing Saudi school students. Making this education available to female nurses as well as males would help to remove the barrier against the participation of females in physical education and sports activities. Because of present attitudes towards female sports and physical education, as emphasised by Samara et al. (2015) and Mobaraki (2010), there are no physical education programs in the girls' schools at this time.

Creating this Physical Education sub-specialty for all nurses, male and female, would ensure the implementation of effective health and fitness programs for both genders among school-age children. As it currently stands, there is a need for this role as currently only boys participate in physical activities in school (Al-Eisa et al., 2016) and Saudi Arabian girls and women have higher levels of chronic disease risk which physical activity could mitigate.

In keeping with these policies, and implementing physical activities, the Saudi government would find it more advantageous, due to the lack of qualified teachers to instruct physical education to female students, to utilize the existing teaching resources presented by the nurses rather than filling the gap by outsourcing for foreign PE qualified teachers. Utilizing nurses in the capacity of faculty members at the grade school level would be ground-breaking, however since there are currently no school teachers in the girls' public schools trained in teaching physical education and health education, placing nurses on the faculty to carry out this function would avoid the necessity of hiring foreign female faculty members who may not understand the culture to fill the gap.

Beyond physical education, a majority of participants in this study stated that it was extremely important for staff and students to be provided with basic instruction in first aid. Few Saudi students have actually attended first aid training, and 78% of students indicated they lacked adequate knowledge of first aid (Mobarak et al., 2015). As indicated previously in the absence of a school nurse staff are expected to take charge in an emergency and provide such first aid as they are able until emergency medical personnel arrive (Mobarak et al., 2015). However, Younis & El-Abassy (2015) found that over half of primary school teachers (67.0%) who had undergone the first aid training were inadequately prepared to deal with a variety of first aid crises. It is evident that further training of staff is needed to ensure currency and competency to act. These individuals wouldn't have the extensive knowledge or background to educate others about this, as would a school nurse. This would be in keeping with the first pillar of the CSH model, Teaching and Learning, which sets out the need for professional development opportunities for staff related to health and well-being. In addition, this part

of the model promotes student knowledge, understanding, and skills designed to improve their health and well-being, as well as enhancing their learning.

Lieberman, et al., (2000) suggested that first aid should become a compulsory subject, rather than optional within the school curriculum. Canada, which possesses a different model for testing first aid competency in students, concluded that instituting mandatory, video assisted CPR programs in Junior and Senior High schools, and colleges produced positive results (Lieberman et al., 2000).

Younis & El-Abassy (2015) also reinforced the need for compulsory first aid training in all schools using modern, advanced, hands-on instruction methods. One of the areas of importance deals with epileptic attacks. Epilepsy is prevalent in Saudi Arabia. As highlighted by Alqahtani (2015) 13% of the teachers had an epileptic relative. Seventy-two percent had witnessed an epileptic seizure, 39% had taught a child with epilepsy, and 31.7% had seen a student having a seizure. Alqahtani's (2015) study found that of teachers who had witnessed an epileptic seizure 64.1% did not know the proper first aid treatment, approximately 84% needed more information about epilepsy, and 86.7% needed instruction on giving proper first aid to someone suffering an epileptic seizure. Nurses are trained to competently respond to emergencies. Because they are qualified to instruct first aid they can teach Basic First Aid and refresher courses. This falls under NASN's (2016) Framework directives as part of the principles of Care Coordination and Community/Public Health, which advocate teaching students, faculty, and the community in treatment, and management of chronic health issues.

Theme 4: Liaison with Community

Nurses and nursing students in this study clearly saw liaison with the community as a key role for the school nurse. In referencing the community they appeared to mean the public health system and the family rather than a broader group of community stakeholders. They felt that health issues diagnosed in a student need to be shared between the nurse and the family, as well as with the student's school. This nurse should coordinate a link that connects the medical system with the family and the school, the better to facilitate knowledge of what issues, if any, need to be addressed and monitored. According to one faculty member, not having a nurse assigned to all of the schools creates a knowledge gap wherein what might occur at school does not necessarily reach the family or the Public Health services. Nurses possess the knowledge and experience to speak to health issues. As part of the Saudi school system, with the authority and proper equipment and facilities, nurses can provide necessary instruction in health and physical education. As substantiated by NASN (2011) school nurses provide an important, coordinated link between the medical home, the family, and the school. They can provide families with referral information, as well as available community resources, improving access to comprehensive health care.

Participants also spoke about how nurses who are a part of the school faculty would be ideally suited to speak directly and with knowledge and authority to teachers and parents. They can communicate with the family as a health care professional, as well as a teacher. Participants believe that the nurse, as a member of the school faculty, would provide a bridge between social and health care professionals, the teachers, and administration, as well as with the community. This is corroborated by NASN (2011)

which highlighted findings that substantiated that the school nurse is a vital member of the school team. They advance changes to health; collaborating with school staff, parents, and the community to ensure the safety and health of the students. Participants in this study highlighted how school nurses would improve access to social and health care professionals. This fits within the principles of Community/Public Health as set out by the 21st Century School Nursing Practice framework. Pillar Four of the Comprehensive School Health model also supports and promotes working relationships among schools, and among schools, other community organizations, and representative groups.

Facilitators and Barriers

This study focused on the current and potential roles of school nurses including their role in health education, health promotion, providing leadership, and liaising with community. Facilitators and barriers to implementation of these roles were explored and five themes emerged. These themes are “University and college level support,” “School health services,” “Governmental support,” “Culture,” and “Supply and demand.”

Theme 1: University and College Level Support

Participants in this study stated that Saudi Arabia currently supports the role of the school nurse through university and college level education, which advances student nurses’ practica at communities and school. This includes provision of growth and development courses. As part of clinical and field education, as directed by the University of Damman (2016), student nurses participate in practical situations in hospitals and other education centres where they exercise their nursing skills. However, as Jradi (2013) observed in their research there is no integration of public health education and associated competencies at this time because it is not part of the existing

nursing curriculum. The Saudi Ministry of Health continues to underline the importance of nursing education. However, the Ministry faces ongoing challenges to implementing public health education and training within the nursing curriculum (Tumulty, 2001; AlMalki et al., 2011).

Clearly without the full support of the Saudi government changes will not be made in a timely fashion. One possible approach that would facilitate the implementation of nurse led health education and health promotion in the schools is to enhance physical health studies within the Public Health courses that are part of the nursing curriculum. By enhancing this component within the nurses' education it will raise the awareness and skill level, which in turn could influence access to this in the schools.

Theme 2: School Health Services

A key barrier to a more fulsome role in health education and promotion in the schools identified by participants in this study and in the literature is lack of services. Helal and Al Hudaifi (2015) highlighted this in their research in which they determined the majority of the schools did not have a nurse. Of the 6% that did have a school nurse, all were private schools. In the same study, it was established that all of the parents questioned stated they wanted a nurse to be hired for the schools. The U.S. Department of Health and Human Services (2000) recommended at least one nurse to every 750 students, depending upon community size and student population.

In Saudi Arabia in 2006, the Ministry of Education established a policy that each of the girls' school should employ one nurse to promote health for children and school staff (Alkenani, 2006). However, in keeping with this policy and because most schools cannot afford to hire a nurse, investment from the government would facilitate action. A

global comparison of where school nurses are used carried out by MacDougall & Maughan (2013) indicated that in Canada 56.3% of schools had access to nurses in the school system, while in the U.S. the presence of nurses in the schools was 41.3%, with a total of 74.6% having a registered nurse visit at least once a week (NASN, 2007).

Theme 3: Governmental Support

At this time, according to study participants, the Saudi government is providing some clinics in the public schools but that often there were no proper facilities for conducting these clinics. While there are numerous health education campaigns operating under the umbrella of school health services so far no comprehensive programs have been implemented to address this deficiency (Al Dhaifallah et al., 2015). So an emerging overarching barrier and/or facilitator to school health nursing emerging from this study and supported in the literature was government support. Financial resources are integral to changes in nursing education and the provision of adequate space, equipment, and staff for school health services. Helal and Al Hudaifi (2015) emphasized this in their study as well.

Among the changes that will have to be undertaken is addressing the lack of support facilities within the schools at this time. Moreover, many schools lack adequate designated space to carry out clinics. Those that do have facilities either have inadequate equipment or no equipment at all. Corroborating this, study participants stated that while some schools might have a designated clinic space, many do not. Existing clinic spaces are not always properly designated spaces either. According to participants the space might be a classroom or a very small room set aside as a rest area. Furthermore, most of them lack proper equipment. In 2014 Riyadh Connect reported that the Saudi Minister of

Education, Prince Khaled Al-Faisal issued a directive to the education departments to allocate properly equipped and supplied clinics in all of the country's schools.

Conclusions reached by Helal and AlHudaifi (2015) stressed the need to establish a fully equipped school health clinic in each school, to include regular visits by an assigned school physician, along with coordination between the established school health team and the local community. Despite Prince Al-Faisal's decree no efforts appear to be forthcoming as of the time of this study to rectify the lack of proper facilities within the Saudi school system.

The changes, upgrades, and expansions required within the schools extend beyond merely the space required for proper clinics. No space presently exists within the girls' schools to accommodate physical education. In fact there are no gyms, nor sports fields. Indoor and outdoor spaces need to be allocated and constructed that will ensure privacy for the girls at all times during training. Additionally, there is no equipment for physical education at this time in most of the girls' schools. Al-Bakr, Al-Haramlah and Merza (2016) highlighted the need for the implementation of physical education in all girls' schools to accustom them to the idea of physical fitness as a necessity. In conjunction with this proposal, Al-Bakr, Al-Haramlah and Merza (2016) recommend all female sports activities in local communities should be in areas easily accessible to women travelling on foot.

One of the other barriers to implementing the establishment of adequate, properly equipped and manned facilities within the Saudi schools is the lack of finances. The budget is not set up to accommodate such changes which, in many cases, will require structural changes and/or additions to existing infrastructure. Participants mentioned that

a large part of the issue is that there is no existing budget to provide necessary equipment for instruction such as computers, projectors, etc. In addition there is the issue of a lack of stable transportation system for the nurses to travel to and from the schools. Mohamud and Al-Ahmed (2014) highlighted the results of the government's official limitations and restrictions mostly through bans on female mobility, which directly influence their health and wellbeing, economics and other societal issues.

In light of these issues Arab News (2012) reported that the Saudi government, in conjunction with the Ministry of Education, and in keeping with the government's policy to continue to provide health and physical education, fitness testing and health promotion, must provide additional funding to ensure changes are made to the Saudi school system, especially within the girls' schools. While private girls' schools are in a position to implement the advocated changes, participants indicated that public schools are not similarly positioned to move forward due to a lack of finances.

Another barrier under the theme government support is the existence of regulations or restrictions that have an impact. One such regulation reported by participants in this study was the directive governing the process of nurses requesting and receiving permission to visit various schools under the present system, which is extremely cumbersome and convoluted. Every request for approval must be made separately. Participants indicated that it takes time for each request to make its way up through the chain of authority, and then back down again, to be granted permission to make just one visit to one school. However, embedding nurses in each of the schools will eradicate the need for this lengthy process since the nurses will be part of the faculty at each school, and their participation will be included in the school curriculum.

Clearly without the Saudi government's endorsement and shifts in regulations and restrictions on women providing physical education to women will remain challenging and this will have a direct impact on their health. Not surprisingly with restrictions on physical activity Al-Mohaimed et al., (2015) reported the predominance of overweight and obesity was significantly higher in girls (34.3% vs. 17.3%)

Theme 4: Lack of cultural approval

Due to existing social norms in Saudi Arabia, physical activity on the part of females, especially in public, is highly frowned on (Mobaraki, 2010). Participants in this study highlighted the existence of limited physical education for girls, but indicated that this was only in the private school system and that it was only recently instituted. At this time there is no similar program in the public school sector. A recent article published by Laboy (2015) highlighted the issue of the tacit approval of physical education programs for girls attending private schools. However girls attending public school are still banned from any form of physical activity as part of their curriculum.

Laboy (2015) reported that while the Saudi private schools for girls may have received government approval to institute a proper physical education curriculum, resistance remains. As of the time of this study no such program has actually been introduced in accordance with the Saudi government's mandate which states that the Ministry of Education shall continue to provide health and physical education, fitness testing, as well as health promotion, ensuring environmental sanitation and occupational health of school workers, along with providing nutrition education and first aid services,

An added barrier to physical education and health education for girls lies in broader cultural approval. Raising community awareness levels regarding the importance

of a full-time qualified school nurse if necessary as the first step towards the improved health of female students. Three participants in this study commented on the lack of awareness within the communities regarding the importance of nurses in the schools, along with comprehensive school health programs such as physical exercise.

Highlighting this are Halal's and AlHudaifi's (2015) findings that reported that there were many parents in Saudi Arabia that lacked adequate awareness of the extent of the role a school health nurse could play in educating students on the importance of physical activities and healthy lifestyles and overall lack of awareness of the importance of comprehensive school health. This lack of awareness, and the importance of the potential role of nurses in the schools, along with the need for more comprehensive school health program, extends beyond family units to encompass the community in general.

In addition, cultural restrictions against Saudi females participating in physical activities are well entrenched, further complicating the issue. Many parents consider it unseemly for girls to take part in sports of any kind, and even basic fitness activities are frowned upon as being improper. Study participants highlighted this problem, stating fathers or brothers of girl students refuse this type of program for their girls, which is a cultural issue. Lack of parental support is a major reason for disinterest in physical activities among girls (Khalaf et al., 2013). This is an age-old mindset, which, unfortunately, the Saudi government has supported through bans on physical fitness programs in the girls' schools (Mohamud & Al-Ahmed, 2014).

Theme 5: Demand for Nurses exceeds supply

Identifying the need for qualified nurses full time in the school system is only the first step. Participants identified a critical shortage of trained nurses in Saudi Arabia.

There is a need for more Saudi students in the nursing field of studies. Unfortunately, community image, family disagreement, cultural and communal values, combined with long working hours, mixing with members of the opposite gender, and the worry about not being a "marriageable" prospect number among the reasons many Saudi females are reluctant to choose nursing as a career (Al-Omar, 2004). According to Abu-Zinadah (2004) and Al-Sa'd (2007) another contributing factor in the Saudi nursing shortage is the poor image of nursing. This also could explain the low level of satisfaction among Saudi female nurses (El-Gilany, 2001). To rectify this shortfall the Saudi government could promote the school nurse position as a specialty that would have stable daytime hours in an all-female setting. This would satisfy parental concerns about their daughters mixing with members of the opposite gender and reasonable work hours. Additionally, this will encourage students to study nursing as a respectable career.

The Ministry of Health (2009) reported Saudi Arabia's nurse shortage was leading to a high dependency on hiring expatriate nurses. At this time Saudi Arabia expatriate nurse workforce numbers 74% expatriate (Aboshaiqah, 2016). Foreign nurses may be well qualified to perform their duties, but most of them lack cultural sensitivity and knowledge, and a large percentage of them have extremely limited, or no knowledge at all of Arabic as substantiated by AlMutari and McCarthy (2012). This is supported by Almalki, Fitzgerald, & Clark (2011) who highlighted the fact that expatriate nurses in KSA do not, for the most part, understand Saudi culture and Islamic faith, and this impacts negatively the quality of nursing care provided to Muslim patients. Many of them lack any competency with the language, and in addition, tend to sign on for short-term contracts (Al-Mahmoud & Mullen 2013). As one participant stated this issue could well

be the primary reason for the reluctance of the Saudi government to institute a school nurse program. Understandably Saudi-born and raised nurses are preferred, not only because it is assumed they can provide a higher quality of nursing care for the Saudi population, but they are also much more capable of efficiently communicating with patients and families (Aboshaiqah, 2016).

Conclusion

At this time, the role of school nurse in Saudi Arabian is extremely limited, especially as the nurses connect to the schools. In Saudi Arabia, visits by nurses are restricted, and the existing space and equipment is, in many cases, non-existent. In other countries, notably, the U.S., and some of the European nations, nurses play a significant role in the primary school system. These countries have developed a Comprehensive School Health system that often incorporates access to nurses in the schools. This idea of a Comprehensive School Health system is foreign to the Saudi education system. The enormous potential for nurses in the Saudi schools as a full-time faculty member, providing leadership as well as in the role as educator, “health and physical educator,” especially in the girls’ schools, is currently unrealized despite its potential. Unfortunately, at this time there are many barriers to realizing the nurses’ potential in the Saudi school system, particularly when it comes to providing health and physical education in the girls’ schools. In addition, until the stigma attached to the idea of females in the nursing field the lack of Saudi female nurses will be insufficient to accommodate the proposal. This is true also of the situation related to girls’ physical education.

Limitations and Delimitation

The results of the study need to be viewed in light of the limitations and delimitations. Limitations include the short timeline and small sample size that resulted from recruitment challenges. All of the nursing students and nursing faculty were busy with end-of-semester work. All participants' input was further restricted by differences in time zones of ten hours between the researcher and the participants. In addition, there was an added delay of connecting with the Dean of the University of Dammam to receive permission to recruit the participants for this research. The findings are also limited by the assumption that all of the study participants responded willingly and truthfully to the questions, to the best of their abilities, and that their responses were interpreted accurately and reliably. It is acknowledged that the study was also subject to recruitment bias in that the sample included those willing to volunteer. Finally, data collection was carried out at two separate locations: at King Fahd University Hospital and at the University of Dammam. Due to these limitations the study may not have captured a complete picture of the challenges and issues related to school nursing in Saudi Arabia. Results of this study may have limited, generalized or transferable data to other population areas.

On the other hand there were strengths to the study as well. Despite difficulties presented by distance and time zones, the sampling of participants was diverse, encompassing Saudi nursing students, nursing faculty, and nurses. All of the student nurses had completed their theoretical studies and were working on their practicum, which included visits to the schools which ensured they were knowledgeable about the context for action.

Future Recommendations

After reviewing the findings of this research it is highly evident that there is a need for health education and health promotion in girl's school in Saudi Arabia. It is also evident that there is a policy requirement for the recruitment of full-time qualified school nurses, to be placed in each of the primary schools, both government and non-government run, as a basic support for school health programming, in particular in the girls' schools. These school nurses would ensure a system of continuing health education and physical education and current nursing students, faculty and nurses indicate support for this role. In conjunction with the placement of the nurses it appears important that fully equipped school health clinics and spaces and equipment for physical activity be established in each school. Coordination between the school health team and the community to address the health and physical needs of school-aged children, boys and girls, must be established. Awareness programs concerning the role of the school nurse must be directed not just at the parents, but also to the school faculty, school administration, and the students themselves.

A recent study recommended there should be a legal requirement for full-time, qualified nurses embedded in each school, regardless of whether the school is government run, or privately owned and operated. Along with this requirement is the need to establish and maintain a Comprehensive School Health program that emulates the tried-and-true systems presently operating in countries such as in Canada and Great Britain. The primary question to be addressed is how to motivate such drastic change into the Saudi school system and convince the Saudi government to deem the proposal acceptable. Given the high regard Saudi society holds for health care workers it may be

possible to have the Saudi Ministry of Health direct the program via the Ministry of Education.

Consideration should be given to establishing pilot programs in various schools, at both public and private institutions for both girls and boys, in various population centres. Through these pilot programs the efficacy and success could be evaluated over a minimum of two years. The reasoning behind a two-year minimum is to establish the program in the minds of the schools' staff, the students, and the community as a whole.

More research must be carried out on child and adolescent health. A five-year surveillance/monitoring system focused on a random selection of male and female students in various populations centres and schools should be undertaken, with parents fully involved in the education and monitoring process. Evidence accumulated through these studies will drive the formation of government policy, and assist in the establishment of vitally necessary services and programs to address the health promotion needs for Saudi adolescents.

At this time the shortage of native Saudi female nurses is critical. Stigmas created by culture and family opinion deter many prospective female students from pursuing a career in nursing. In addition, long hours and difficulties travelling to and from university and health facilities for training generate reluctance among young women to consider this a viable career. Furthermore, training in mixed company is severely frowned upon and can affect a woman's marriage prospects. Consequently, the lack of graduates in the field of nursing is leading Saudi Arabia to hire expatriates to make up the shortage. By offering School Nursing as an alternative to hospital or clinic employment the Saudi

government will provide a satisfactory alternative to the more traditional image of the nursing profession.

Finally, the establishment of a comprehensive Public Health course in the nursing curriculum at Universities that includes a combined Health and Physical Education specialty should be undertaken as soon as is practical. The failure to address the lack of health and physical fitness awareness is an issue that will severely impact on Saudi Arabia as the present and subsequent generation of children approach adulthood, in particular the girls whose levels of inactivity at this time (34.3%) (Mohaimed et al., (2015), in comparison to their male peers (17.3%). If this situation is not turned around within the next decade the country's health care system will be severely impacted from a population that is suffering from chronic, debilitating health issues. Furthermore, it will translate into adulthood with serious repercussions as overweight women produce children already predisposed to overweight and obesity.

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Appendix A

Letter invitation for nursing Students

Good Day,

My name is Hebah Alqallaf and I am here because I am a Saudi Arabian nurse who is currently a graduate student in the School of Exercise Science, Physical and Health Education at the University of Victoria. I am running a qualitative study called “Exploring the Need and Potential Role for the School Nurse in Saudi Arabian Schools”.

The purpose of the research is to explore the current and potential role of nurses in school health education and health promotion in Saudi Arabia. Primarily the research would like to explore the attitudes and beliefs of nursing students at the University of Dammam. The research will also explore the potential role of nurses in the provision of physical education in girls’ schools.

With the importance of physical activity and obesity prevention in childhood gaining world-wide attention a focus on comprehensive school health approaches has been highlighted. There are differences between the organization of schools and health promotion efforts across countries and an exploration of the context in Saudi Arabia for nurses involvement in school health promotion is needed.

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without giving a reason or any explanation. If you choose not to participate in the study, your grades and evaluation in your courses will not be impacted.

I am hoping that you might agree to participate either in a focus group or individual interview that will take about 40 -60 minutes of your time. The interviews will

be scheduled on campus. If you are interested I have a more detailed consent form here for you to read.

Please come and see me after your class or email me at:

hebah.alqallaf@gmail.com

Thank you for considering this request.

Appendix B

Letter invitation for faculty members

Good Morning

My name is Hebah Alqallaf and I am contacting you because I am a Saudi Arabian nurse who is currently a graduate student in the School of Exercise Science, Physical and Health Education at the University of Victoria in Canada. I am running a qualitative study called “Exploring the Need and Potential Role for the School Nurse in Saudi Arabian Schools”.

The purpose of the research is to explore the current and potential role of nurses in school health education and health promotion in Saudi Arabia. Primarily the research would like to explore the attitudes and beliefs of nursing students and nursing faculty members at a Saudi university (University of Dammam). The research will also explore the potential role of nurses in the provision of physical education in girls’ school.

With the importance of physical activity and obesity prevention in childhood gaining world-wide attention a focus on comprehensive school health approaches has been highlighted. There are differences between the organization of schools and health promotion efforts across countries and an exploration of the context in Saudi Arabia for nurses involvement in school health promotion is needed.

I am hoping that you might:

- a. agree to participate in the faculty interviews and,
- b. allow me to come into your university classes to recruit nursing student participants

Attached you will find a letter of consent for both you and the students that outlines what is involved. Essentially I would like to conduct qualitative focus group or individual interview (based on your availability) (1-5) with nursing faculty and a focus group or individual interview (n=8-10) with students.

Thank you for considering this request.

Sincerely,

Hebah Alqallaf

Appendix C

Certificate of Approval



Office of Research Services | Human Research Ethics Board
 Administrative Services Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
 T 250-472-4545 | F 250-721-8960 | uvic.ca/research | ethics@uvic.ca

Certificate of Approval

PRINCIPAL INVESTIGATOR: Hebah Alqallaf UVic STATUS: Master's Student UVic DEPARTMENT: EPHE SUPERVISOR: Dr. Patti-Jean Naylor	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">ETHICS PROTOCOL NUMBER</td> <td style="text-align: right;">15-414</td> </tr> <tr> <td colspan="2" style="text-align: center; font-size: small;">Minimal Risk Review - Delegated</td> </tr> <tr> <td style="text-align: left;">ORIGINAL APPROVAL DATE:</td> <td style="text-align: right;">16-Dec-15</td> </tr> <tr> <td style="text-align: left;">APPROVED ON:</td> <td style="text-align: right;">16-Dec-15</td> </tr> <tr> <td style="text-align: left;">APPROVAL EXPIRY DATE:</td> <td style="text-align: right;">15-Dec-16</td> </tr> </table>	ETHICS PROTOCOL NUMBER	15-414	Minimal Risk Review - Delegated		ORIGINAL APPROVAL DATE:	16-Dec-15	APPROVED ON:	16-Dec-15	APPROVAL EXPIRY DATE:	15-Dec-16
ETHICS PROTOCOL NUMBER	15-414										
Minimal Risk Review - Delegated											
ORIGINAL APPROVAL DATE:	16-Dec-15										
APPROVED ON:	16-Dec-15										
APPROVAL EXPIRY DATE:	15-Dec-16										
PROJECT TITLE: Exploring a Potential Role for the School Nurse in Saudi Arabia Schools RESEARCH TEAM MEMBER: Patti-Jean Naylor (Supervisor, UVic) DECLARED PROJECT FUNDING: None											
CONDITIONS OF APPROVAL											
<p>This Certificate of Approval is valid for the above term provided there is no change in the protocol.</p> <p>Modifications To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.</p> <p>Renewals Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.</p> <p>Project Closures When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.</p>											
Certification											
<p>This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.</p> <p style="margin-top: 20px;">Dr. Rachael Scarth Associate Vice-President Research Operations</p>											

Certificate Issued On: 16-Dec-15



Appendix D

Letter invitation- Public health nurses

Good Morning

My name is Hebah Alqallaf, I am a Saudi Arabian nurse who is currently a graduate student in the School of Exercise Science, Physical and Health Education at the University of Victoria in Canada. I am running a qualitative study called “Exploring the Need and Potential Role for the School Nurse in Saudi Arabian Schools”.

The purpose of the research is to explore the current and potential role of nurses in school health education and health promotion in Saudi Arabia. Primarily the research would like to explore the attitudes and beliefs of nursing students and nursing faculty members at a Saudi university (University of Dammam) or public health nurses. The research will also explore the potential role of nurses in the provision of physical education in girls’ school.

With the importance of physical activity and obesity prevention in childhood gaining world-wide attention a focus on comprehensive school health approaches has been highlighted. There are differences between the organization of schools and health promotion efforts across countries and an exploration of the context in Saudi Arabia for nurses involvement in school health promotion is needed.

I am hoping that you might:

- a. agree to participate on my research
- b. allow me to make interview with you by Skype online

The interview will take about 40 - 60 minutes of your time. Thank you for considering this request.

Sincerely,

Appendix E

Nursing Students Interview Guide

1. How could the presence of school nurses be useful for students and teachers' health?
 - Do Saudi schools have a school nurse?
 - What can nurse do on schools?
 - If any student suffered from chronic diseases, can teacher provide care for her?
2. What do you think about the role of nurses in Saudi schools?
 - Do nurses visit schools?
 - How often do nurses visit schools?
 - What do nurses do there in schools?
3. Which subjects do you think a school nurse could teach?
 - Can nurse teach about nutrition?
 - Can nurse teach physical education?
 - Can nurse teach first aid?
4. In what way has your university education prepared you for providing health promotion and physical education?
 - Do you visit schools?
 - Do you have special curriculum for health education and health promotion?
 - What role can nurse do to prevent chronic diseases?
5. In your opinion, could nurse provide physical education for girl students?
 - Do nurse have background about Physical activity?
 - Do nurse qualified to teach physical education?

- Do you agree to integrate physical education in nursing curricula?
- Do you think girl's school should have physical education?
- Is there relationship between lack of physical activity and childhood obesity?

6. What are the facilitators and barriers to providing physical education to girls in Saudi schools?

- Is there enough space and equipment to providing physical education in schools?
- Do you think that the culture can be the major reason of not providing physical education in girl's school?
- Do you think that Saudi families accept the idea of providing physical education in girls' schools?

Appendix F

Nursing faculty members and Public Health Nurses interview guide

1. How could the presence of school nurses be useful for students and teachers' health?
 - Do Saudi schools have a school nurse?
 - What can nurse do on schools?
 - If any student suffered from chronic diseases, can teacher provide care for her?
2. What do you think about the role of nurses in Saudi schools?
 - Do nurses visit schools?
 - How often do nurses visit schools?
 - What do nurses do there in schools?
3. Which subjects do you think a school nurse could teach?
 - Can nurse teach about nutrition?
 - Can nurse teach physical education?
 - Can nurse teach first aid?
4. What are the facilitators and barriers to providing health education and health promotion in Saudi schools?
 - Do nursing students visit schools to give health education during their study?
 - Does your university provide a specific curriculum of health education and promotion for nursing students?
 - Do you think that government should employ nurses to schools?
5. In what way has your university prepared nurses for providing promotion health and physical education?

- Do you visit schools?
 - Do you have special curriculum for health education?
 - What role can nurse do to prevent chronic diseases?
6. In your opinion, could nurses provide physical education for girl students?
- Do nurse have background about Physical activity?
 - Do nurse qualified to teach physical education?
 - Do you agree to provide physical education in nursing curricula?
 - Do you think girl's school should have physical education?
 - Is there relationship between lack of physical activity and childhood obesity?
7. What are the facilitators and barriers to providing physical education to girls in

Saudi schools?

- Is there enough space and equipment to providing physical education in schools?
- Do you think that the culture can be the major reason of not providing physical education in girl's school?
- Do you think that Saudi families accept the idea of providing physical education in girls' schools?