



School Nursing During COVID-19 Pandemic: A Brief Report with A Special Focus on Qatar's Experience

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ABSTRACT

Background: Most countries all over the world enacted school closures in response to the novel coronavirus disease 2019 (COVID-19) pandemic, ranging in duration from one month to the rest of the academic year. Even if the school doors were locked, the school nurses were able to help with emergency situations. The challenges and solutions in maintaining student health and wellness during extended school closures as well as school reopening due to the COVID-19 pandemic are discussed in this article.

Methods: A systematic literature search was conducted on PubMed, ScienceDirect, Medline and Scopus from inception to 11th September 2021. The current report is a summary of data regarding the challenges faced by school nurses during COVID-19 pandemic and their coping strategies all over the world with a special focus to Qatar's experience.

Results: Governments worldwide implemented different strategic plans involving school nurses to deal with COVID-19 pandemic during school closing as well as school reopening. School nurses faced a big challenge in both situations to ensure a safe return of school for the new academic year. In Qatar, school nurses faced two main situations: (i) during school closure as school nurses were required to work in different working environments which included the Ministry of Public Health, Drive-thru swab facilities, Airport, COVID-19 centers, and home care as well as primary health care facilities and (ii) during school reopening as the school nurses were fulfilling their usual daily task as well as implementing a proper COVID-19 infection control in their school and increasing the awareness regarding the COVID-19 vaccine for eligible age groups.

Conclusion: The role of the school nurse was changing in response to the COVID-19 pandemic, with the school nurse carrying on a wider role in community health, disaster planning, and infection control. This is in addition to changing their communication strategies and care delivery to provide students with the same level of care they have always provided. The voice of the school nurse is crucial in developing current and ongoing school health and safety standards, and school communities may be more prepared than ever to listen in order to make evidence-based decisions to ensure the safety of students and school personnel. Understanding the capacity constraints of an already overburdened school nursing staff, on the other hand, is critical, as is a thorough understanding of the supports and resources required for school nurses to succeed in their new roles.

KEYWORDS: Communicable disease; Nursing; Outbreak; Public Health; Sars-CoV-2

INTRODUCTION

When the coronavirus had spread across all continents, the WHO proclaimed it a pandemic on March 11, 2020 [1]. Since the pandemic began, more than 238 million confirmed cases of coronavirus disease 2019 (COVID-19) have been documented worldwide, with more than 4.8 million deaths, up to 11th October'21 [2]. In order to contain the spread of COVID-19, the World Health Organization

(WHO) launched a strategic readiness and response strategy in conjunction with international governments and authorities [3-7]. To prevent the virus from spreading, widespread physical separation measures and movement limitations were implemented at the community level [3,7].

COVID-19 outbreak has had a long-term impact on people's

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lives, including education, business, and the economy, as well as social life, politics, and entertainment [8-12]. Humanity's united purpose was to stop the spread of this deadly disease and return to normalcy. One of the most important key players during the pandemic were health care workers and mostly the nurses, who were required to perform multiple tasks over long periods of time in order to provide nursing care to COVID-19 patients as well as protecting the spread of COVID-19 amongst healthy citizens [13]. The sharp increase in COVID-19 cases was associated with a significant increase in nurse staffing demands, as health-care authorities all over the world were forced to deploy and train nurses to work in medical/surgical, emergency, and critical care units right away [14]. This caused a great deal of stress, fear, and lack of confidence in health-care providers because they must treat a disease that was poorly understood and outside of their area of expertise; additionally, they nurses were forced to learn and master new technical skills in a short period of time [15]. In Qatar, the health authorities have transferred some nurses from governmental hospitals to COVID-19 designated facilities, and recruitment of nurses has been accelerated (those who are currently in the country with a valid nursing license and willing to work in a COVID-19 facility) [13]. Orientation and training were accelerated to expedite the deployment of nurses to various COVID-19 facilities in Qatar [13]. As a result of the change in the working environment, health-care providers were required to work in areas that did not meet infection-control standards. They were perplexed by the distinction between protocols such as prescribing and carrying out doctor's orders [15]. Furthermore, various studies have shown that health-care professionals who treat COVID-19 patients are at a higher risk of physical and mental health problems as a result of insomnia, stress, anxiety, and depression [15-17].

According to the International Council of Nurses (ICN) report, approximately 2,262 nurses died and over 1.6 million were infected since the start of the COVID-19 pandemic. In addition to the ICN report, there is an alarming rate of burnout and exhaustion among nurses, which causes them to leave their jobs [18]. The safety and health of frontline nurses is critical to provide safe and quality nursing care to patients and is critical in the fight against the COVID-19 crisis and future pandemics [13]. Several studies have shown that nursing is a stressful profession that has a negative impact on physical, mental, and social well-being, particularly during outbreaks [19-21].

Understanding these consequences allows governments to reduce and avoid burnout among acute health-care workers during a period of exceptional difficulty especially for the school nurses as their duty got much harder during the pandemic.

School nurses, as gatekeepers of health care were playing an important role in preventing and controlling the spread of COVID-19 in school communities especially for students which are young and considered as asymptomatic carrier [22,23]. Indeed, a better gaining a better knowledge of how school nurses dealt with the COVID-19 pandemic allows researchers to better appreciate the critical role of school nurses in primary health care in responding to and preventing pandemics. Primary health care settings, particularly school communities and school communities with kids who are further hampered by cognitive and intellectual disabilities, play an important preventative role [22,23]. Indeed, both school nurses and managers can benefit from understanding how an extraordinary event in society can affect a certain professional group's work situation. However, little still known regarding the

impact of COVID-19 on school nurses.

Thus, the aim of this research was to shed light on how school nurses' work was impacted during the COVID-19 pandemic in different place all over the world with a special to Qatar's experience.

METHODOLOGY

From the beginning of the COVID-19 pandemic to September 11th '2021, a systematic literature search was conducted on PubMed, ScienceDirect, Medline, and Scopus. The current report is a summary of information on school nurses' challenges and worldwide coping strategies during the COVID-19 pandemic.

This study is presented in three parts:

Part 1: A definition of school nurses' duties in normal times as well as during school closure

Part 2: COVID-19 impact on school nurses in United States and Sweden (the author wanted to discuss other country experience around the world. However, the only available scientific research regarding the impact of COVID-19 on school nurses was talking about the United States and Sweden' experiences)

Part 3: COVID-19 impact on school nurses in Qatar and comparing such strategies to the United States and Sweden' strategies based on the COVID-19 status in their respective countries.

DISCUSSION

School Nurses

School nurses during normal time: The school nurse plays a critical part in the school health service's mission to improve students' health promotion and learning. The World Health Organization (WHO) defined health promotion as a method that allows people with the correct direction to participate in and improve their condition of health in the Ottawa Charter of 1986 [24]. According to the School Act [25], elementary and secondary school students should have access to school health services, which include medical, psychological, psychosocial, and special pedagogical measures aimed at prevention and health promotion and supporting students' development toward educational goals. Health dialogues, also known as health discussions, are one of the most essential techniques used by school nurses in their health promotion work. Golsäter's dissertation [26] digs into health conversations, emphasizing the need of student preparation and school nurse flexibility. The health promotion work of the school nurse is done on both a group and individual level [27]. There are many key features of the school nurse's job responsibilities. Collaboration with other professionals in the school health service is important. Working alone, as school nurses do, can bring feelings of insecurity and vulnerability, as well as a sense of power and independence [27]. The function of school nurses regarding the core of a school, which is teaching and learning, might cause nurses to have difficulty establishing their professional roles [27]. The principal, special education teacher, psychologist, counselor, school nurse, school physician, and study and career counselor make up the school health service. The collaboration between the school health service and the pedagogical staff helps to provide good learning environments and scenarios for the school's students [27,28].

The school nurse's role during school closures: The school

nurse is a “vital member of the school team who collaborates with community agencies to develop comprehensive emergency response procedures,” according to the National Association of School Nurses (NASN) [29]. Similarly, as a “leader and integral partner with school staff and outside agencies in developing comprehensive school plans/procedures,” the school nurse provides expertise in school [29]. The National NASN is constantly updating COVID-19 resources for school nurses, which include new information from the Centers for Disease Control and Prevention (CDC) and other organizations [30,31]. Furthermore, the unpredictability of future COVID-19 or other infectious disease outbreak emphasizes the importance of emergency and disaster planning.

The school nurse plays a critical role in addressing student health and wellness during school closures as school districts enter this new phase of emergency management. The document “Considerations for School Nurses When Providing Virtual Care” emphasizes the importance of virtual care in meeting student needs, maintaining case management, providing resources to families, and reducing health disparities [30]. “Guidance for School Nurses to Safely Send and Receive Resources Between School and Home During COVID-19,” from NASN, is also available to ensure the safe transfer of both student and school property, such as backpacks, student medication, school supplies, electronic devices, and ongoing food services to socially and medically disadvantaged families [30]. Finally, “Ideas for School Nurse Activities During the COVID-19 Pandemic” offers a list of tasks that school nurses can complete in the event of closures [30].

NASN provides template letters to state leaders, local leaders, and school superintendents advocating for the inclusion of school nurses in planning processes for school reopening [30]. NASN outlines school nurse roles according to the Framework for 21st Century School Nursing Practice which included five major principles (Care Coordination, Community/Public Health, Leadership, Quality Improvement, and Standards of Practice) NASN has “Considerations for School Nurses Regarding Care of Students and Staff Who Become Ill at School or Arrive Sick” and “Facemask Considerations for Healthcare Professionals in Schools” for school nurses working in open schools [31].

Sweden School Nursing Experience during COVID-19 Pandemic

During the spring of 2020, Sweden’s COVID-19 management diverged from those of many other countries [22]. According to Martinsson et al. [22], Sweden’s decision to adopt gentler governance could be owing to a high level of confidence between people and officials in Sweden, as well as legal considerations. The administration had legal challenges in deciding whether to implement lockdown [32].

Sweden has chosen to keep its educational institutions open. Keeping schools open was a proactive tactic in Sweden in response to the COVID-19 pandemic’s threats [33]. According to Lindblad et al. [33] education becomes a deliberate strategy in the fight against the COVID-19 epidemic and in maintaining society’s viability [33]. The goal of the infection control approach was to slow rather than stop the spread of infection [34]. Sweden’s strategy was strongly criticized globally in the spring of 2020 [35]. Although international research on the subject were ongoing, a few brief pieces revealed that school nurses in several countries played an essential role in students’ well-being during the epidemic and, in many cases, during school closures [36].

During the COVID-19 pandemic, Sweden’s Public Health Agency worked closely with the government, which shared information on pandemic procedures. Wash your hands, keep your distance, avoid large gatherings and unnecessary travel, and stay at home if you’re sick [37]. Compliance was the responsibility of each school and employer. At the same time, it was incumbent to everyone, especially children and teenagers, to follow the regulations to prevent infection from spreading. Those who were stressed or anxious were able to get help from the school nurse.

According to Martinsson et al. [22], there were three types of outcome categories regarding the impact of COVID-19 pandemic on school nursing. The first outcome category dealt with changes in the relationship between students and their guardians. The Swedish National Agency for Education’s decisions on distance education vs. on-site instruction, as well as the Public Health Agency’s advice on staying at home, had an impact on attendance. School nurses had to change their availability from on-site to active availability through phone or other communication tools. The second category highlighted the importance of collaboration with school health service teams. School nurses adopted different communication methods while working in teams, according to Apker et al. [38], the first of which was gathering as much information as possible. Increased collaboration with other types of school professionals could alter the value of the school nurse’s work. Within the school health service, the teamwork transitioned to digital working techniques, with decisions taken at the municipal or workplace level based on Public Health Agency advice on keeping distance. The third outcome category emphasizes the school nurse’s role in the organization and how the school nurse was also reliant on management and school nurse colleagues.

United States School Nursing Experience during COVID-19 Pandemic

According to Hoke et al. [39], School nurses in the United States have spent the last year (2020) preventing the spread of the coronavirus in the classroom and assisting with vaccinations for both staff and kids. The authors reported that after a year of continuous work to curtail mitigation of COVID-19, many school nurses as well as other health care professionals have burned out [39]. This was due to the huge number of responsibilities that were assigned to them [39]. Children’s vaccinations in United States declined dramatically in 2020, according to CDC data, as more families ignored monthly wellness exams [40]. This increased the likelihood of other preventable illnesses spreading across the classroom [40].

Additionally, Hoke et al. [39] mentioned that as schools returned despite a soaring Delta variant, many schools’ nurses reported feeling scared, weary, and confused about how to plan for the coming year. School nurses in United States, who were nearly completely women and were paid less than their hospital-based colleagues, functioned as a one-stop shop for any number of illnesses that children may encounter, including mental health issues, chronic illnesses, and playground scrapes [39]. To prevent strep throat and other common children’s ailments from spreading across the school, they keep track of cases [39]. They were the first line of defense against COVID-19 outbreaks in schools in 2020, working full-time as contact tracers, coronavirus testers, disease-mitigation specialists, and, eventually, vaccination administrators [39]. The nursing team devised a technique to make in-person schooling tenable during a pandemic. By the end of 2021, the COVID-19 vaccination gave a ray of hope [41,42]. However, a

current rise in cases, along with a sluggish vaccination effort in the United States, has clouded that hope. As schools around the country reopened and parents were worried about their children's safety, school nurses were once again overburdened by their efforts to contain the outbreak [43]. The COVID-19 vaccination was not available to students under the age of 12 [41]. Vaccination rates were still low among middle and high school students: According to data from the Centers for Disease Control and Prevention, little over 40% of children aged 12 to 14 have received at least one dose of the COVID-19 vaccination [44]. Between the ages of 15 and 16, around half of the population has had at least one vaccination [39]. United States health authorities were urging school districts to hold on-site immunization clinics for students and eligible family members, a strategy that the National Association of School Nurses has already embraced. School nurses would almost certainly be in the forefront of such efforts [39].

Many school nurses mentioned that they don't know what role they can play in encouraging students and parents to get vaccinated, and that they didn't know how to convince vaccine-resistant families to get vaccinated [39].

Qatar School Nursing Experience during COVID-19 Pandemic

COVID-19 status in Qatar: From the start of the pandemic, Qatar has established a clear roadmap to control and minimize the crisis's scope, resulting in the best possible conclusion [3]. The National Response Plan for COVID-19 in Qatar outlined the procedures necessary to protect people's health and well-being by adopting prompt and effective measures to prepare for, monitor, and respond to the pandemic outbreak in the country [3].

Progressive reopening of school in Qatar strategic plan: According to the Ministry of Public Health of Qatar (MOPH) regulations, all teaching staff were required to follow necessary infection control measures to prevent the spread of COVID-19 during the re-opening of schools, as well as undergoing a COVID-19 PCR test prior to beginning the gradual re-opening of schools [3,45].

1st Phase: During this phase, 1/3 of students in all grades were attending school.

2nd Phase: Blended Learning Model for a two-week period, in which students were divided into two groups and attended school on alternate days throughout this time, with a 50% attendance rate.

3rd Phase: 100% attendance were demanded, with all students to attend school and strict controls implemented. There were certain exceptions, such as students or parents with chronic ailments being exempt from this requirement and being able to continue their online e-learning as during school closure. In addition, all schools were required to have school nurses on site with designated isolation rooms for any sick students or instructors.

School Nursing during school closure: During school closure, school nurses were affected in different department within primary care facilities as to reenforce the health care system in all department and help to curtail the pandemic within Qatar.

As per Qatar strategic plan, and as per the guidelines of the primary health care corporation: School nurses were affected in:

i. Regular health center where school nurses were providing reinforcement in triage, patients screening, ensuring a better workflow in different clinics, administering medications as well as

Recording and analysing aggregate medical data.

ii. COVID-19 Centres where school nurses were affected at triage, swabbing, explaining confinement and quarantine process, providing health education to patients as well as monitoring any change in COVID-19 patients health conditions.

iii. Airport where school nurses were helping in swabbing all the incoming travellers to Qatar.

iv. Home care (Swabbing patients who are unable to present to health centers as per their health conditions, or in some case when family members are big so to reduce the number of potential COVID-19 cases to reduce the exposure to positive cases as well as to prevent the saturation of the service inside the COVID-19 centers)

v. Vaccination campaign in QNCC (The Qatar National Convention Centre), which is the dedicated governmental vaccination facility.

School Nursing during school reopening: The real challenge for schools' nurses was during the reopening of schools as nurse become overwhelmed with the number of tasks. Nurses founded themselves in a situation where they must maintain their same tasks as per pre-COVID-19 pandemic as well as infection control tasks to limit the COVID-19 contamination inside the school [46]. It's much important to curtail the spread of the pandemic amongst the students age groups as they constitute a potential source of contamination as they are usually asymptomatic carriers of COVID-19. The main tasks of school nurses during school reopening were ensuring their usual normal tasks (pre COVID-19 times) as well as ensuring extra tasks related to the COVID-19 pandemic which were: (i) Educating staff and students on COVID-19 prevention measures, (ii) Identifying students and teachers at high-risk with pre-existing medical conditions to come up with strategies to keep them safe, (iii) Follow-up on the application of measures to prevent the spread of the COVID-19 inside the school (such as contact tracing and quarantine of COVID-19 contacts, ensure physical distancing, hand hygiene practices and age-appropriate mask use, follow up of ventilation and environmental cleaning measures), (iv) Ensure that the necessary resources, policies and infrastructure were in place, (v) Testing all school staff who were not vaccinated or received just one dose of COVID-19 vaccine in a weekly basis (first day of school), (vi) Testing all students who were not vaccinated or received just one dose of COVID-19 vaccine, every first day week after, (vii) Isolate any students presenting any symptoms of COVID-19 and arrange his transfer to health center for doing an RT-PCR and follow up to his results, in case of negative result the school nurse facilitated his return to school in the brief delays, in case the suspected case was positive, the school nurse informed and coordinated with the communicable disease department of PHCC to insure the transportation of the positive case and help in tracing the potential contact to limit the spread of COVID-19 inside the school, (viii) participating in the COVID-19 awareness amongst students and highlighting its importance for eligible age groups and (ix) presenting once into two weeks in COVID-19 centers as reinforcement to COVID-19 workforce.

EXTENSION

The proactive strategy taken by the government to combat the epidemic early on, as well as the cooperation of the country's comparatively youthful and healthy expat population, may have contributed to the country's reduced mortality rates when

compared to the global average [3-6,10]. Additionally, by 11th October 21, Qatar has one of the lowest infection rates in the world, especially as compared to Sweden and the United States (Figure 1) which have similar school nursing system. Such results are due

to strong health care service and infection control and could be attributed also to the big role of school nurses in limiting the spread of COVID-19 during this whole period [47].



Figure 1: Number of COVID-19 positive cases per million population in Qatar as compared to United States, Sweden and the world population [47].

By the 11th of October 21, only 42 patients remained in ICU with 235758 patients having recovered from COVID-19 in Qatar with a total active case of 944 patients. The fatality rate remained the lowest in the world, with 607 recorded deaths in a population of 2,807,805 people from the beginning of the COVID-19 pandemic. Qatar has provided all its citizens access to high-quality health services for no cost, thereby building a healthy society with a strong and progressive long-term strategy to control the pandemic. The school nurses in Qatar played a huge role in curtailing the spread of the pandemic as they participated to all COVID-19 related facilities as well as their important role to limit the infection amongst students which are considered as asymptomatic carrier [48].

Their role in the awareness of the importance of COVID-19 vaccination was crucial to help to build a full herd immunity in Qatar. However, the COVID-19 vaccination eligibility still above 12 years old, school nurse still has big role in the vaccine campaign for children below 12 years old once COVID-19 vaccine get approval for this age group.

In Qatar, the total number of vaccines does administrate Up to 11th of October was 4,756,578 which exceed 90% of the total of the population. The authors therefore hope that, like seasonal influenza, COVID-19 would become endemic amongst the global population and that COVID-19 vaccines will be included as an add-on to seasonal influenza vaccinations, which will be provided every winter for at least another few decades. With proper immunization, the school nurses will return to pre-Covid duty with the hope that COVID-19 scenario won't happen again.

CONCLUSION

As a result of the COVID-19 pandemic, the function of the school nurse was evolving, with the nurse taking on a larger role in community health, disaster planning, and infection control. This is in addition to changing their communication tactics and care delivery to give students with their usual level of care. School nurses played an important role in controlling the spread of COVID-19. The school nurse's voice remains critical in developing current and ongoing school health and safety standards, and school communities may be

more prepared than ever to listen to make evidence-based decisions to ensure student and school personnel safety. Understanding the capacity limitations of an already overloaded school nursing staff, on the other hand, is vital, as is a thorough understanding of the necessary supports and resources for school nurses to succeed in their new tasks.

LIMITATION

The main limitation of the present study was that no proper comparison has been between different impact of the COVID-19 pandemic between different countries, which was mainly due to the lack of available data and references.

CONFLICTS OF INTEREST

The authors declare no direct conflict of interest. However, the following authors declare their current work status with the School Health Services and Programs department of PHCC which was responsible for writing the infection control guidelines for school reopening. Ali Ben Salem - employee of school health department which is under PHCC. Layla Abdulla AlDahnaim - Manager of School Health Services and Programs in PHCC.

AUTHOR CONTRIBUTIONS

Conceptualization: A.B.S., I.D., L.A. A; Formal analysis: I.D.; Draft preparation writing: A.B.S., I.D.; Review and editing: A.B.S., I.D., L.A.A. All authors have read and agreed to the published version of the manuscript.

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