

Clinical Presentation to Nursing Office in a Selected International School

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ABSTRACT

Nurses in Schools play an important role in the provision of comprehensive health services to school students. Increased number of students entering nurse office with chronic health conditions requiring nursing attention during school day. The aim of this study is to investigate related physical illness or injury that effects the student's studies and performance. Students in International School in Malaysia physical ailments are the main factor that affects their educational achievements. A total of 2,764 nursing office visit logs were reviewed retrospectively from January 2012 to December 2018. The students' age group ranging from 4 to 17 years old. Most of the respondents were boys (50.1%), and the mean age of 9.7 years with Standard Deviation (SD)=3.7. During the nursing office visit, the school children were mostly diagnosed with injury (n=1432, 51.8%). Followed by stomach-ache (n=476, 17.2%) and headache (n=383, 13.9%). Independent t test showed that there was no significant difference of age ($p=0.419$) and the duration of treatment ($p=0.453$), between boys and girl who went for treatment in the nursing office. Pearson Chi Square test indicated that there were no significant difference of nationality and the diagnosis given during the clinic visit when compared to the gender, with $p=0.227$ and $p=0.478$, respectively. School nurse role in health education is primarily to advise and support student's education success rather than to directly deliver education.

Keywords: Nursing Office; Nursing Clinic; Children; School Nurse

INTRODUCTION

School children health is very important in the public health landscape. School health program was a crucial element of entire health care delivery system in the country with a notion of right direction of healthcare delivery needs for children (Asghar *et al.*, 2017; Kulkarni *et al.*, 2016; Nurul Izzah *et al.*, 2019). Children at 3-5 years of age shows progressively motoric, cognitive, social and social skill development (Pratiwi, Andriati, & Indah, 2020). School nurses have the obligation to be more alert of the common causes of morbidity (Cummins *et al.*, 2013) in the school setting. Communicating to their parents is also essential to prevent detrimental of the health condition. Furthermore, the role of school nurse is to provide care on acute, chronic, special health care needed for students and also provide care during emergency (The National Association of School Nurses, 2014). The examples of care given by school nurse to the students are minor and severe injuries, special care to diabetic, asthma, epilepsy, mental health, severe or mild

allergic reaction and many more (Cummins *et al.*, 2013; Lee *et al.*, 2019; The National Association of School Nurses, 2014). They must also develop and monitor individual health care plans to ensure effective management of any problems in the school environment (The National Association of School Nurses, 2014). Beneath the comprehensive school health system, school communities create, arrange, and execute different wellbeing advancement activities (Allensworth *et al.*, 1997; Gohal, 2018; Hoekstra *et al.*, 2016; The National Association of School Nurses, 2014). This scope target on engagement for wellbeing advancement, starting with introduction of comprehensive health care in school is a beneficial system along with education system for the wellbeing advancement activities (Best, 2018; Hoekstra *et al.*, 2016; Qureshi *et al.*, 2018). Hence, the school nurse has a significant role within this school health program setting (Olympia, 2005; Quinn, 2016; Rossman *et al.*, 2012). This is especially challenging when dealing with school children with special needs (Quinn, 2016). In fact, some scholars suggested student nurses as the

Received October 30, 2021; Received in revised form November 4, 2021; Accepted June 18, 2022

school nurse extenders (Rossman *et al.*, 2012; Wolfe *et al.*, 2019) to fulfil the shortage of school nurses. Others recommended new model as an integral competency for the school nurse practice (Quinn, 2016). Ironically, some scholars encouraged school nurse to leverage on advanced technology to monitor the sick school children, such as ECHO telementoring to monitor student with seizures (McPhillips *et al.*, 2021) and alike.

The children approach nursing office or health clinic for various reasons, including routine screening, injuries, other illnesses, behaviour, and psychological issues. Soil-transmitted helminths is also a common cause of childhood parasitic infection particularly in developing countries (Gallego, & Abdullah, 2021). The absenteeism due to any of these reasons results in poor academic performance in many literatures (Asghar *et al.*, 2017; Hoekstra *et al.*, 2016; Kulkarni *et al.*, 2016). In Malaysia, with the given fact, clinical presentation of school children to nursing office in international school and the school nurse role in supporting their health and academic advancement becomes too pertinent to analyse the reason for school children presence in nursing office. The problem related to physical illness or injury effects the student's studies and performance and thus must be very carefully investigated in the school (Lee *et al.*, 2019; New Strait Times, 2017; Qureshi *et al.*, 2018) so that a set of measures could be suggested for all such children. One in 10 of children in Malaysia has an undiagnosed vision issue which can lead to headache problems and chronic learning problems (Arumugam, 2017). Separately, in other part of the world, health status for school children in the rural areas was reported with dental carries (Asghar *et al.*, 2017; Kulkarni *et al.*, 2016), followed by refractory error (Kulkarni *et al.*, 2016), anemia (Asghar *et al.*, 2017), ear discharge (Asghar *et al.*, 2017), overweight (Kulkarni *et al.*, 2016; Schroeder *et al.*, 2016; Schroeder *et al.*, 2017), injuries (Lee *et al.*, 2019), and pain (Høie *et al.*, 2017; Rohde *et al.*, 2015). Prevalence of overweight and obesity was also reported in Malaysia. The similar study also indicated that maternal education plays an important role in child weight status (Nurul Izzah *et al.*, 2019). Hence, it is imperative for the school nurses to be alert of the common causes of the school children morbidity, especially in their populations of care. By doing this, it would allow the school nurses, to work together with the parents and school community (McPhillips *et al.*, 2021; Wolfe *et al.*, 2019) and develop specific strategies. In the long run, this will help to educate more parents and students (Best *et al.*, 2018; The National Association of School Nurses, 2014).

However, to our best knowledge, the review of the literature pertaining specifically to Malaysia international school children showed limited amount of study on clinical presentation to nursing office. The purpose of this study is to investigate the various reasons for the students visiting nursing office. The children are assessed and evaluated by the registered nurses on duty. For cases such as injuries or any illnesses, the children will be treated with first aid as the given guidelines by government and school policies. Depending on the severity of the illnesses and injuries, some children may return to their individual class. Others may require further referral and treatment by the medical doctor. In this effort to optimise care for the school children, by conducting this study, the significance of the findings is to institute preventive measurements.

METHODOLOGY

This descriptive retrospective study was conducted based on the clinical logs in nursing office of a selected international school in Klang Valley, Malaysia, from January 2012 to December 2018. The school students are with mixed nationality. This international school has an in-house nursing office as a clinic and is operated by two registered nurses. Students here are ranging from age group of four to 16 years. It includes elementary and secondary school children. Total of 4,886 students' records were taken for this study. It has three preschool classes, seven elementary classes and seven secondary classes. About 2,764 cases were used from the clinical logs in the nursing office. Subject inclusion criteria consisted of all school children who reported to the nursing office for physical illness or injuries.

The instrument consisted of a questionnaire: Section I included demographic data such as the child's age, gender, nationality, and grade level. Section II included clinical presentation during nursing office visit, and duration of the nursing office visit. The scoring was done by counting the number of incidences in each visit to the nursing office. If the children made multiple visits, only the initial visit was taken in the analysis. As the purpose study focuses on the medical presentation in the nursing office, those visited with social, emotional, psychological or behaviour issues were excluded. Those with normal physiological process such as thirst and hunger were excluded from the study (Cummins *et al.*, 2013). The children with routine screening for vision and hearing were also excluded. The content validity was done by back tracking various literature (Cummins

et al., 2013; Kulkarni *et al.*, 2016; Lee *et al.*, 2019; Nurul Izzah *et al.*, 2019).

Ethical Approval

Prior to the data collection, permission was taken from the authorities involved. This study was approved by Open University Malaysia Research Ethical Committee (BNS/2018: 851022076168001) on 27 December 2018. Followed by the permission of the school management. As aforementioned, it is a retrospective study consisting of school nurses visit to the nursing office clinical logs of the children attending the nursing office. In view of the fact that students were not directly met, but rather seeking permission to access the school clinic database of the student, thus, parent’s consent is not required in this study. The privacy of the study population in this international school was maintained by not including the student’s names, parents address, or school ID number which is in the health office visit logs.

RESULTS

Table 1 shows the demographic characteristics of the respondents. Overall, total numbers of respondents were 2,764 school children. Most of the respondents were boys (50.1%), and the mean age of 9.7 years (Standard Deviation (SD)=3.7). The respondents’ countries of origin were categorized according to the continents. Majority of the respondents were from France (n=2252, 81.5%), followed by America (n=48, 1.7%) and Tunisia (n=43, 1.6%).

Table 1: Demographic Characteristics of Respondents (N=2,764)

Variables	Respondents n (%)
Gender	
Boys	1385 (50.1)
Girls	1379 (49.9)
Age (years)	9.7 (3.7) ^a
Nationality (continents)	
Europe	
French	2252 (81.5)
Portuguese	36 (1.3)
Spanish	26 (0.9)
Belgian	24 (0.9)
Italian	18 (0.7)
North America	
American	48 (1.7)
Canadian	27 (1.0)

Africa	
Tunisian	43 (1.6)
Algerian	20 (0.7)
Ivoirian	19 (0.7)
African	17 (0.6)
Senegalese	17 (0.6)
Moroccan	14 (0.5)
Asia	
Siamese	28 (1.0)
Korean	25 (0.9)
Chinese	24 (0.9)
Malaysian	21 (0.8)
Japanese	20 (0.7)
Vietnamese	17 (0.6)
Indonesian	10 (0.4)
Australia	
Australian	31 (1.1)
South America	
Brazilian	27 (1.0)

^amean (SD)

Clinical presentation of the respondents in the study is presented in Table 2. The school children were mostly visit nursing office with injury (n=1432, 51.8%) during the clinic visit. This is followed by stomach-ache (n=476, 17.2%) and headache (n=383, 13.9%).

Table 2: Clinical Presentation of Respondents (N=2,746)

Variables	Respondents n (%)
Injury	1432 (51.8)
Stomach-ache	476 (17.2)
Headache	383 (13.9)
URTI	206 (7.5)
Epistaxis	58 (2.1)
Insect bite	57 (2.1)
Vomited	44 (1.6)
Nausea	30 (1.1)
Asthma	16 (0.6)
Otitis	13 (0.5)
Rashes	13 (0.5)
Diabetic type 1	10 (0.4)
Others	26 (0.9)
Epilepsy	7 (0.3)
Menstrual pain	6 (0.2)
Conjunctivitis	5 (0.2)
Anxiety attack	2 (0.1)
Fever	2 (0.1)
Tonsillitis	2 (0.1)
Neck pain	1 (0.04)
Sinusitis	1 (0.04)

Respondents were compared based on their gender, as shown in the Table 3. Independent *t* test was performed for comparison on age of the students and duration for the treatment in the nursing office. The test presented that there was no significant difference of age ($p=0.419$) and the duration of treatment ($p=0.453$), between boys and girl who went for treatment in the clinic. The mean duration for treatment was 19.21 minutes (SD=11.84 minutes). Additionally, Pearson Chi Square test was used to examine any differences on the nationality and the diagnosis given during the nursing office visit, among the respondents. However, the test indicated that there was no significant difference of both variables when compared to the gender, with $p=0.227$ and $p=0.478$, respectively.

Table 3: Comparison Characteristics of Respondents (N=2,764)

Variables	Boys n (%)	Girls n (%)	<i>p</i> value	
Age (years)	9.63 (3.74) ^a	9.74 (3.65) ^a	0.419 ^b	
Nationality (continents)				
Europe				
French	1139 (82.2)	1113 (80.7)	0.227 ^c	
Portuguese	15 (1.1)	21 (1.5)		
Spanish	9 (0.6)	17 (1.2)		
Belgian	10 (0.7)	14 (1.0)		
Italian	10 (0.7)	8 (0.6)		
North America				
American	22 (1.6)	26 (1.9)		
Canadian	14 (1.0)	13 (0.9)		
Africa				
Tunisian	29 (2.1)	14 (1.0)		
Algerian	10 (0.7)	10 (0.7)		
Ivoirian	7 (0.5)	12 (0.9)		
African	9 (0.6)	8 (0.6)		
Senegalese	4 (0.3)	13 (0.9)		
Moroccan	7 (0.5)	7 (0.5)		
Asia				
Siamese	11 (0.8)	17 (1.2)		
Korean	9 (0.6)	16 (1.2)		
Chinese	12 (0.9)	12 (0.9)		
Malaysian	13 (0.9)	8 (0.6)		
Japanese	7 (0.5)	13 (0.9)		
Vietnamese	8 (0.6)	9 (0.7)		
Indonesian	7 (0.5)	3 (0.2)		
Australia				
Australian	17 (1.2)	14 (1.0)		

South America			0.453 ^b
Brazilian	16 (1.2)	11 (0.8)	
Duration for treatment	19.04 (11.85) ^a	19.38 (11.83) ^a	0.478 ^c
Diagnosis			
Injury	696 (50.3)	736 (53.4)	
Stomachache	243 (17.5)	233 (16.9)	
Headache	196 (14.2)	187 (13.6)	
URTI	118 (8.5)	88 (6.4)	
Epistaxis	26 (1.9)	32 (2.3)	
Insect bite	30 (2.2)	27 (2.0)	
Vomited	24 (1.7)	20 (1.5)	
Nausea	13 (0.9)	17 (1.2)	
Asthma	7 (0.5)	9 (0.7)	
Otitis	7 (0.5)	6 (0.4)	
Rashes	9 (0.6)	4 (0.3)	
Diabetic type 1	6 (0.4)	4 (0.3)	
Others	10 (0.7)	16 (1.2)	

a mean (SD)

b Independent *t*-test

c Pearson Chi Square test

DISCUSSION

The study was conducted in a selected international school in Klang Valley, Malaysia. The school has other branches in different countries including Singapore, Jakarta, Pekin, Phnom Penh, Ho Chi Minh, Hong Kong, Manila, Seoul, Shanghai, Sydney, Bali, Bangkok, Hanoi, Tokyo and Vientiane. The three most common factors are injury, stomach-ache and followed by headache. The main reason of injuries is sport injuries as they have a lot of activities and sports to do after and during the school.

The present findings revealed the reasons why the school children visited nursing office to seek help for their illness and injuries. Majority were presented with injuries, stomach-ache and headache. Fortunately, those injuries were non-fatal injuries, such as cuts, bleeding, bruises, and sport injuries. Our findings were validated by the previous studies (Cummins *et al.*, 2013; Lee *et al.*, 2019) which showed that injuries were the most common reason for the school children seeking help in nursing office or school health clinic. Sport injuries among school children was reported to be the highest incidence (Al-Hajj *et al.*, 2020; Schneuer *et al.*, 2018) in some studies, which included children in kindergarten, elementary and secondary school. In this study, nearly half of the population

shown a significantly high percentage of injuries may be due to the fact that our school children were in their active years which are prone to injuries like cuts, sprains, bleeding, sport injuries and falls.

In our study, stomach-ache was the second highest (17%) that lead to presentation in nursing office. Few studies (Brett *et al.*, 2012; Brodwall *et al.*, 2018) reported that recurrent stomach-ache (abdominal pain) during childhood is common and usually is functional abdominal pain. In our study, the main reason for the stomach-ache could be due to the anxiety of separation from the parents for the kindergarten children, stress of the class test and examinations for higher grade children. Due to the mixed nature of nationality, social factors may inflict the episodes of stomach-ache for their adjustment of new life in the new country, new climate, and new system. This is supported by a qualitative study in Norway (Brodwall *et al.*, 2018) where social factors do play significant impact on the children adaptation process.

Headache ranked number three in our finding. Few school-based studies in different parts of the world have reported that headache is common among the school children (Genc *et al.*, 2020; Luvsannorov *et al.*, 2020; Philipp *et al.*, 2019; Zewde *et al.*, 2020). Global Campaign against Headache in Lithuania, involving data collected from children (7–11 years) and adolescents (12–17 years) reported that tension type headache (TTH) was 25.6% and undifferentiated headache (UdH) accounted for 24.0%, but migraine was also prevalent (21.4%) in their study (Genc *et al.*, 2020). Ironically, findings in Ethiopia (Zewde *et al.*, 2020) revealed that the most often reported type (over one third) was migraine, followed by TTH (one fifth) and UdH (12.7%). Impact of headache among school children also had been reported by a study in Austria (Philipp *et al.*, 2019), where during the preceding four weeks, 15.6% of school children with headache missed at least one whole school day. On the other hand, 11.7% of the participants left school early at least once. Whereas, 41.9% claimed at least one day they were incapable to do other activities they had wanted to. Other presentations such as asthma, upper respiratory tract infections (URTI), epistaxis, insect

bite, ear pain, rashes, nausea, vomiting, diabetes type 1 and miscellaneous reasons (non-specific fever, dizziness, anxiety attack, menstruation cramp, eye infection, neck pain, sore throat and toothaches) ranked from forth to twelfth, and accounted for 17.1% of the total presentations to the nursing office.

This study has the limitations to be acknowledged. Although the clinical logs in the nursing office were standardised, however, there may be bias in the input due to different levels of registered nurses' experiences and previous training. Secondly, the findings were based on one international school. Thus, caution should be exercised in generalising to other school children locally or internationally. Moreover, this study was conducted in the metropolitan city in Kuala Lumpur, hence, the findings may not be applicable to the sub-urban or rural districts.

CONCLUSION

The study concluded that injuries, stomach-ache and headache were the common reasons for school children to visit the nursing office. The results suggested that implications for school nurses must be pondered upon. One of the core duty of school nurses is to provide optimum care, treat injuries and acute illness for the school children. Hence, school nurse is the point of contact to decide if the children are to return to class or provide referral to the physician. Due to this reason, knowledge of the common causes for these morbidity among school children is very important to the school nurses or any other trained healthcare personnel. In our study, the high incidences of injuries in our population revealed that the school nurses have the authority to be the advocate, to institute and re-strategize injury prevention measures in order to prevent further serious injuries.

Conflict of Interest

All authors declared no competing interests in the study.

ACKNOWLEDGEMENT

The authors are thankful to the international school management in Klang Valley for their cooperation in the study.

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