

## Factors influencing school nurse service utilization in selected schools of Kathmandu district: a mixed method study

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### ABSTRACT

**Introduction:** One school one nurse is a new program in Nepal aiming to improve students' health. This study aimed to find utilization of school nurse service and associated factors in selected schools of Kathmandu district using mixed methods approach.

**Method:** Study included Kirtipur Secondary School and Shivapuri Higher Secondary School. It used concurrent triangulation mixed method design. Quantitative phase included survey among 30 students, 15 from each school while qualitative phase had 4 in-depth interviews and 2 key informant interviews. Fisher's exact test and Braun and Clarke's six-step thematic analysis based on socio-ecological model were used to analyze factors associated with service utilization quantitatively and qualitatively. Results were triangulated using convergent, divergent and expansive findings.

**Result:** Out of 30 participants, 27(90%) had ever contacted to school nurse for any health issue. Student's visit to school nurse for mental health issue was the only factor found significantly associated with frequency of visit. Qualitative analysis explored many associated factors at different socio-ecological level. No sex wise variation in sharing sensitive health issue with school nurse was convergent finding. Divergent findings were identified regarding factors like health issues to visit school nurse, motivator, perceived privacy and sex. Expansive finding was that a school nurse appointed in a school also served nearby schools beyond her job description.

**Conclusion:** An effort from individual level to policy level is needed to resolve hindering factors of school nurse service utilization and maintain the promoting ones.

**Keywords:** Factors, Nepal, nurse, program, school, service utilization

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## INTRODUCTION

"One school one Nurse" program was initiated by Provincial Government of Bagmati Province in year 2075/76 B.S. with aim of promoting healthy life styles among school children, improving their mental health, reproductive and sexual health so that they can contribute to build a healthy society in long run.<sup>1</sup>

Many countries in the world have shown that despite existence of health service providers in schools, there is gap in utilization among students and there are various factors associated with it.<sup>2-4</sup>

"One school one Nurse" program is a new program and is in expansion phase in other provinces too. Since there are scant research literatures in this program till now, this Mixed Method study aimed to quantitatively assess service utilization practice of this program and identify factors influencing service utilization and qualitatively explore the same to produce a more enriched findings through triangulation of results from quantitative and qualitative studies.

## METHOD

This study was conducted in two public schools of Kathmandu district implementing "one school one nurse" program; namely Kirtipur Secondary School, Kirtipur and Shivapuri Higher Secondary School, Baluwatar using concurrent triangulation mixed method design. Quantitative phase included survey among 30 students, 15 from each school (5 from each grade: 8, 9 and 10) using a structured questionnaire. Qualitative phase involved in-depth interviews (IDI) with two students (1 male and 1 female) previously included in survey using IDI Guideline and key informant interviews (KII) with school nurses using KII Guideline. Judgmental sampling was used to select the schools and students. Tools were developed and finalized after literature reviews and series of feedbacks from peer and experts. Survey was conducted to assess service utilization practice and factors influencing service utilization among students while In-depth interviews were conducted to explore experience of service utilization and perception about factors influencing service utilization with selected students and Key Informant Interviews were done with school nurses of each school to explore further about service utilization and factors influencing from individual, community, organizational and policy perspectives.

Dependent variable was utilization of school nurse service, which has been measured as different aspects like frequency of visit to school nurse (prefer contacting school nurse for any issue in future and/or contact school nurse for sensitive health issues). Independent variables included age, sex, religion, health issues leading to contact school nurse, existence of motivator, privacy in school nurse's room and ever contacted to school nurse for any health issues by the students.

For quantitative study, data entry and cleaning were done in MS-Excel 2013. Statistical analysis was done using STATA MP13 and Easy R software. Descriptive analysis included frequency, percentage and, median and inter-quartile range (as data was not normally distributed) and, inferential statistical analysis included test of association between dependent and independent variables using Fisher Exact Test. Two-sided p value less than 0.05 was taken as the decision criteria for test of significance of association.

For qualitative study, recordings were kept safely in a password locked laptop. One school nurse did not allow for recording and thus the note of interview with that nurse was transcribed the same day to avoid recall bias. Other recordings were transcribed later. Thematic analysis was done following Braun and Clarke's six steps method.<sup>5</sup> Initial codes were generated from transcriptions which were refined and then fitted into predefined code categories or themes as socio ecological model was used for analysis of factors influencing school nurse service utilization. All these data management was done using RQDA package of R software.

Participant's written consent was taken after providing them information sheet about the study before collecting data. Participants were also assured about the confidentiality of their identity and information collected.

## RESULT

### Part 1: Quantitative findings

#### Utilization of school nurse service

Among 30 participants, 27 (90%) had ever contacted to school nurse (Table 1). Median visit to school nurse was 2, so half of participants had visited school nurse for two times. Students visited school nurse mostly for ear, nose, and throat issues followed by reproductive and nutritional issues. Students mentioned stomachache as most common problem even when they had other health issues which led them to visit school nurse.

### Test of Association

The p value <0.001 was found between visiting school nurse for mental health issue with frequency of visit shows that there is significant association between visiting school nurse for mental health issue with frequency of visit (Table 2). All other variables showed no significant association.

### Part 2: Qualitative findings

Total six themes were identified; one addressing the research question about how is the utilization of service in school and other 5 themes on factors influencing school nurse service utilization (Table 3).

### Part 3: Triangulation of Qualitative and Quantitative Findings

### Convergent Finding

Quantitative finding shows that there is no variation between male and female regarding contacting school nurse for their sensitive health issues. Qualitative aligns with these findings.

*"I: If you have any sensitive health issue like mental, reproductive or sexual which you can't even share with your family or friends, can you share that with your school nurse?"*

*R: 1 "... I can share when there is no one with her"*  
-14 years, Male, Student

*R: 2 "...I feel I can share"*  
-15 years, Female student

**Table 1. Descriptive analysis of utilization practice of school nurse services by students**

Variable	Frequency	Percentage
<b>Ever contacted to school nurse (n=30)</b>		
Yes	27	90
No	3	10
<b>Median visit ± IQR</b> Median visit to school nurse = 2 ± 1 (Q1=2 and Q3=3)		
<b>Health Issues Students Visited School Nurse for (Multiple Response)</b>		
<b>Problems</b>	<b>Frequency of Response</b>	<b>Percentage of Response</b>
Nutritional Issue	6	14.63
Ear Nose Throat Issue	13	31.71
Mental Issue	5	12.20
Reproductive Issue	6	14.63
Sexual Issue	5	12.20
Stomachache	3	7.31
Eye issue	1	2.43
Fever	1	2.43
Headache	1	2.43
Total	41	100

### Divergent Findings

Quantitative findings included nutritional, ear/nose/throat, mental, reproductive, sexual and others issues (stomachache, fever, headache and eye) but not skin issues as a health reason among students to visit school nurse while qualitative findings show that students visit for allergies or scar issues

*"...I also visited her when I suffered from allergies..."*  
-15 years, Female student

*"Yes, I have come. I asked her if these scars (pointing on scars on forehead) can be removed. She then said that it can be removed with plastic surgery and I should visit skin hospital for this."*  
-15 years, Male student

Quantitative finding did not show any significant association between existences of motivator to

utilization of school nurse service (p value=0.156) but qualitative findings suggested motivators have role to make students utilize service from school nurse.

*"I was sitting head down in the desk and teacher asked me what happened. I replied I have stomach pain, then he and my friend told me to visit school nurse."*

-16 years, Female student

*"Most teachers guide students to visit school nurse for any problem and motivate them to take service."*  
-32 years, School Nurse

Quantitative finding does not show any significant association between perceived feelings of privacy in nurse room to frequency of visit (p value=1) but qualitative finding suggests that students prefer to

contact nurse when they are ensured about privacy in nurse room.

*"Students come time and again with their issues. So, I am not comfortable to share such issues when there are other people with school nurse"*

-14 years, Male, Student

**Table 2. Factors influencing school nurse service utilization**

Variable	Frequency /Percentage		P value *
Age wise variation in service utilization			
	High visit (>2)	Low visit (<=2)	
=<14 years	5 (33.33%)	10 (66.67%)	0.408
>14years	2 (16.67)	10 (83.33%)	
Sex wise variation in service utilization			
	High visit (>2)	Low visit (<=2)	
Male	4 (30.77%)	9 (69.23%)	0.678
Female	3 (21.43%)	11 (78.57%)	
Religion wise variation in service utilization			
	High visit (>2)	Low visit (<=2)	
Hindu	6 (27.27%)	16 (72.73%)	1
Bauddha	1 (33.33%)	2 (66.67%)	
Kirat	0	1 (100%)	
Christian	0	1 (100%)	
Health Issues for which school nurse was contacted			
Nutritional health Issue	High visit (>2)	Low visit (<=2)	
Yes	6 (28.57%)	15 (71.43%)	1
No	1 (16.67%)	5 (83.33%)	
Ear Nose Throat Issue	High visit (>2)	Low visit (<=2)	
Yes	2 (15.38%)	11 (84.62%)	0.385
No	5 (35.71%)	9 (64.29%)	
Mental Health Issue	High visit (>2)	Low visit (<=2)	
Yes	5 (100%)	0	0.0000743 <sup>a</sup>
No	2 (9.09%)	20 (90.91%)	
Reproductive Health Issues	High visit (>2)	Low visit (<=2)	
Yes	1 (16.67%)	5 (83.33%)	1
No	6 (28.57)	15 (71.43%)	
Sexual Health Issues	High visit (>2)	Low visit (<=2)	
Yes	0	5 (100%)	0.283
No	7 (31.82%)	15 (68.18%)	
Other Health Issues	High visit (>2)	Low visit (<=2)	
Yes	1 (16.67%)	5 (83.33%)	1
No	6 (28.57%)	15 (71.43%)	
Motivator to contact school nurse			
	High visit (>2)	Low visit (<=2)	
No motivator	2 (66.6%)	1 (33.3%)	0.156
Existence of motivator	5 (20.83%)	19 (79.16%)	
Felt Privacy in school nurse room in previous visit			
	High visit (>2)	Low visit (<=2)	
Yes	5 (25%)	15 (75%)	1
No	2 (28.57%)	5 (71.43%)	
Sex with contacting school nurse for sensitive issue			
	Yes	No	1
Male	15(100%)	0	
Female	14 (93.33%)	1(6.67%)	

\* Two-sided p value from Fisher Exact test; <sup>a</sup>Haldane Anscombe Correction used as one of the observed values is zero

**Table 3. Themes and related codes**

Themes	Codes
Service Utilization	Frequency of Student Visit
	Utilization of school nurse service
	Service utilization among female
Individual Factors	Active Role of School Nurse, cultural mindset, motivation of school nurse, information confidentiality perceived, Perceived benefit of school nurse service, Student's attitude towards service utilization, Student's knowledge about school nurse services
Interpersonal Factors	Motivator to utilize service, Nurse Student relationship, School Nurse's friendly behavior, Trust on school nurse
Organizational Factors	Co-ordination of school nurse and school, Support from local government, Support from local health care organization, Number of students in school, Nurse Availability in school
Community Factors	Parent's Attitude towards child health, Separate Budget for Community in school nurse program
Policy Factors	Job Security of school nurse, Program limited to certain number of schools, Supervision by higher authority

Quantitative finding does not show any significant variation in frequency of visit to school nurse between male and female ( $p$  value= 0.678) but qualitative findings shows that service utilization is less among male compared to female.

*"I don't see variation in service utilization based on any caste or religion but male students or teachers visit less than female students or teachers. Female students and teachers visit and share their problems very openly but male students and even male teachers visit less."*

-24 years School Nurse

#### Expansive Finding

Qualitative interview with one of the school nurses revealed that in co-ordination with school head teacher, she also provides service to nearby primary schools once a month as they are concerned about those schools who are deprived of this service. She explained that her absence on the day she goes to serve other schools affects service utilization among students in the regular school.

*"Our Head teacher suggests me to visit other schools too... In this ward no 3 we have three government school. Most of the student come here with their health problems as there is no school nurse in their school. There is co-ordination among the schools so I visit other schools once in a month as per mutual understanding between me and my school."*

*"The day when I visit other school is very difficult. Most of the student get worried in my absence. Some schools are getting daily service whereas other school have no nurse. So, I have to serve other school as well so that they can have positive reinforcement."*

-32 years, School Nurse

#### DISCUSSION

Visit to school nurse for service was found higher (90%) in this study than that of the Finland<sup>4</sup> done in 2017 among students of Grade 8<sup>th</sup> and 9<sup>th</sup> which showed only 36% of students involved in the study visited school nurse for some other reason than their regular annual checkup. Also, the same study from Finland showed significant gender difference in utilization of school nurse service which resembles with findings from qualitative phase but contrasts with the finding of quantitative phase as there was no significant difference in frequency of visit to school nurse by sex. Likewise, a study published in Public Health Nursing in 2011<sup>6</sup> showed that physical health complaints and injuries were leading reasons for students to visit school nurse while current study revealed ear nose throat issues followed by reproductive and nutritional issues as major reasons.

Significant association has been found between students visit to school nurse for mental health issues and frequency of visit in current study. A qualitative study conducted in 2018-19 in Norway<sup>7</sup> among adolescent boys also revealed that adolescent boys experienced barriers to visiting Public Health Nurse for their mental health issues. The same study from Norway also found that social norms and confidentiality concern restrained boys from using public health nurse service while trust on nurse motivated them to utilize it. Findings from qualitative phase of current study also showed that cultural mindset and confidentiality concern negatively influenced utilization while trust on school nurse influenced positively.

Another qualitative deviant case study conducted in a city of Mid-western US in 2017<sup>3</sup> explored students' perception about service provider of school-based health center as rude and

unwelcoming restrained students from utilizing service. Contrastingly friendly behavior of school nurse and good student nurse relationship have been found to positively influence service utilization in current study.

Another Qualitative, explorative study conducted in two provinces of South Africa explored no supervisory visit from higher authority was hindering factor for better service of school nurse program and its utilization which resembled with findings from a key informant interview of current study.<sup>8</sup>

A systematic Review published in Healthcare in 2020 showed that parental engagement has been a facilitator for school health care services which contrasts with findings from qualitative phase of current study that negligence of parents of some students has been a barrier for better service utilization among students.<sup>9</sup>

As this study used non-random sampling and has small sample size i.e. 30, extreme caution must be used when evaluating results of this study.

## CONCLUSION

Most of study participants were comfortable utilizing service but according to key informants it is low among males.

Qualitative study suggested student's attitude towards service utilization, cultural mindset, student nurse relationship, Support from Local government and non-governmental organizations, Parent's attitude towards child's health and poor supervision by higher authority are some major factors influencing school nurse service utilization. Quantitative study showed only one factor i.e. visiting school nurse for mental issue influencing frequency of service utilization.

Convergent finding was that there is no variation on sharing sensitive issue with school nurse between male and female students while divergent findings were found on type of health issues to visit school nurse for, privacy in previous visit and existence of motivator as an influencing factor for service

utilization and variation of service utilization between male and female. Additionally, visit to other nearby schools to provide service by a school nurse once a month was found as an expansive finding of this study.

Results of this study can't be generalized due to its limitations.

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