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Editorial View

It is our great pleasure to publish 15th volume of Journal of Nursing Education of Nepal (JONEN) from Maharajgunj Nursing Campus, Institute of Medicine (IOM), Tribhuvan University (T.U), Nepal. This double-blinded peer-reviewed journal publishes the original research and review articles related to nursing and midwifery education, practice and professional development, is published annually. It is an open access journal, indexed in NepJOL and has achieved Digital Object Identifier (DOI) too.

This Journal aims to provide an opportunity to augment the practice of writing scientific papers for Nursing and Midwifery professionals and to disseminate new knowledge among the readers, contributing to social relevance and evidence-based practice. The editorial team has meticulously worked to make this journal a standard one.

I would like to acknowledge all the authors for their scientific contributions, the reviewers and editorial team for their tireless efforts and commitment in bringing this volume to its current form.

Prof. Muna Rana Thapa
Campus Chief
Chief Editor
JONEN, Vol 15th

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Awareness and Attitude on Dyslexia among Primary School Teachers, Lalitpur

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ABSTRACT

Introduction: Dyslexia is the most common learning disorder in school-age children, affecting areas such as basic reading skills, and written expression, listening, and speaking significantly impacts children's education, career, communication, and health. Teachers' awareness and attitudes toward learning disabilities are crucial for timely diagnosis, preventing further mental and social damage through educational rehabilitation and treatment measures. The study aims to assess the awareness and attitudes regarding dyslexia among primary school teachers in selected schools of Lalitpur Municipality.

Methods: This study employed a descriptive cross-sectional research design using a multistage cluster sampling method to select 180 participants from 30 public schools of Lalitpur Municipality. Ethical approval was obtained from Institutional Review Committee of Tribhuvan University, Institute of Medicine. Data collection was conducted using a self-administered questionnaire from September 1 to 28, 2019. Data analysis involved both descriptive and inferential statistics.

Results: Most of the respondents (88.3%) had an adequate level of awareness about dyslexia, and more than half (53.9%) had a positive attitude toward the disorder. A significant association was found between the level of awareness and religion (p-value 0.049), but no significant association with age, ethnic group, educational status, experience, class teaching, or subject teaching. Additionally, there was a significant association between attitude levels and age group (p-value 0.002) and educational level (p-value 0.001).

Conclusion: Awareness of dyslexia among primary school teachers in Lalitpur is encouraging, comparily only more than half of the teachers have positive attitude. So there is need to improve awarness and attitude among school teachers.

Keywords: Awareness, attitude, dyslexia, public school, teacher

INTRODUCTION

Dyslexia, the most prevalent learning disorder in children, often receives insufficient attention in developing countries, where resources are predominantly allocated to other issues like infections and nutritional disorders.[1] As economies grow and literacy rates rise, the need to address educational and social disabilities becomes more evident. Dyslexia is a specific and persistent learning disability that primarily affects reading and spelling. It results in significant challenges in academic achievement and daily activities.[2,3] It is characterized by reading performance that is considerably below the expected level for a person's age and intelligence and also difficulties that cannot be attributed to other sensory, neurological, or educational causes.[2] According to the British Dyslexia Association, dyslexia is a learning difficulty that affects accurate and fluent word reading and spelling.[4]

It impacts children's education, career, communication, and health, making research in dyslexia crucial for educational, medical, and social researchers.[5] Studies have revealed varying prevalence rates of dyslexia among children. For instance, a study in Thailand found that 66.6% of children were at high risk of dyslexia, and 14.6% fell into the mild-risk category.[6] In India, a study of students from Class III to V in Bikaner city reported that 10.2% were identified as dyslexic.[7] Moreover, dyslexia and other learning disorders such as dyscalculia and dysgraphia accounted for 72.7% of poor school performance in a learning disability clinic in Mumbai.[8] The overall prevalence of dyslexia among school-aged children in India is estimated to be between 5% and 17%.[9]

The lack of specialty clinics and trained personnel makes diagnosing and raising awareness about dyslexia more challenging, especially in developing countries.[10] In Iran, the prevalence of specific learning disabilities was reported to be 15.17%, with dyslexia accounting for 11.2% of cases.[11] Timely diagnosis of such conditions is crucial, as it allows for appropriate educational interventions that can prevent further mental and social harm. Teachers play a vital role in this process, as their awareness and attitudes toward learning disabilities directly influence early identification and support.[11,12]

Research showed that primary school teachers often have limited knowledge and understanding of specific learning disabilities, including dyslexia. In the context of Nepal, especially in areas like Lalitpur Municipality, there is a scarcity of research on teachers' awareness and attitudes toward dyslexia. This gap underscores the need for studies focused on this topic. Therefore, the general objective of this study is to assess awareness and attitudes regarding dyslexia among primary school teachers in selected schools of Lalitpur Municipality. The findings may support curriculum planners in developing educational materials and serve as a reference for future research in this area.

METHODS

Descriptive cross-sectional study was used. A quantitative research method was employed. The study was conducted in 30 public primary schools in Lalitpur Municipality. The target population included all full-time teachers teaching primary-level students. A multistage cluster sampling method was used to select the participants. First, a random selection of 30 schools was made from the 40 available public schools. Proportional sampling was then used to select 180 teachers, ensuring representation from all selected clusters. Ethical approval was obtained from Institutional Review Committee of Tribhuvan University, Institute of Medicine with ref.no 122/(6-11) E^2/076/077. Prior to data collection written official letter was obtained from the administrative authority of district education office Lalitpur ref no344 and selected public schools of Lalitpur. Data collection was conducted using a self-administered questionnaire in the presence of researchers by maintaining anonymity from September 1 to 28, 2019. Self-developed questionnaire for awareness and modified tool for attitude was used. Adequate awareness and inadequate aware on the basis of median score that is more than 50 % is aware and less than 50 % is unaware.[2] The higher score > 45 indicates positive attitude < 45 indicate negative attitude as mean was taken due to symmetrical data.[13]

The instrument was validated through expert reviews and pretested in a similar setting with 18 sample size. The data were analyzed using descriptive statistics to assess the socio-demographic characteristics, awareness, and attitude levels. Associations between demographic factors and awareness/attitude levels were tested using chi-square tests.

RESULTS

Among the 180 respondents, 47.2% were aged between 40-49 years, and 96% were female. Most respondents (86.1%) followed Hinduism, and 52.2% belonged to the Brahmin/Chhetri ethnic group (Table 1). Nearly half (44.4%) had between 21-30 years of teaching experience, and nearly all (90%) taught multiple grades and subjects (Table 2).

Most of the respondents (88.3%) had adequate awareness regarding dyslexia. However, gaps were noted in specific areas; for instance, 50% of respondents were unaware that hearing and visual impairments do not cause dyslexia (Table 3).

More than half (53.9%) of the teachers exhibited a positive attitude towards dyslexia. However, misconceptions remained: 46.7% disagreed with the notion that dyslexia could be caused by poor home environments, while 30% strongly disagreed with the myth that dyslexia is a curse (Table 4).

Table 1: Socio-demographic Characteristics of the Respondents (n=180)

Characteristics	Number	Percentage
Age group (completed years)		
20-29	11	6.1
30-39	53	29.4
40-49	85	47.2
50-59	31	17.2
Mean ± SD: 45.1 ± 7.5		
Sex		
Female	173	96.0
Male	7	4.0
Education Level		
SLC/SEE	21	11.7
Intermediate	62	34.4
Bachelor	69	38.3
Master	28	15.6
Ethnic group		
Brahmin/Chhetri	94	52.2
Janjati	74	41.1
Dalit	7	3.9
Others	5	2.8
Religion		
Hinduism	155	86.1
Buddhism	25	13.9
Marital Status		
Married	171	95.0
Unmarried	9	5.0

Below half (47.2%) were from the age group 40-49 years, among them, almost all (96%) were female and married (95%). More than half (52.2%) identified as Brahmin or Chhetri and most of (86.1%) them adhered to Hinduism. Regarding education, 38.3% had elementary level education (Table 1).

Table 2: Respondents' Work-related Characteristics (n: 180)

Characteristics	Number	Percentage
Experience (in years)		
1-10	21	11.7
11-20	37	20.4
21-30	80	44.4
>30	42	23.3
Mean ± SD: 2.7 ± 0.9		
Mostly involved teaching area		
> 1 class (1-5)	162	90
One class	1	0.6
Two class	3	1.8
Three class	8	6.4
Four class	5	2.8
Five class	1	0.6
Teaching subject		
More than one subject	108	60
Nepali	5	2.8
English	19	10.6
Maths	16	8.9
Others	32	17.8
Related training	1	0.6

Out of 180 respondents, nearly half of the respondents (44.4%) had 21-30 years teaching experience. Among them almost all (90%) were teaching in all grades, similarly more than half (60%) were teaching all the subjects. Regarding training only one (0.6) had obtained training (Table 2).

Table 3: Respondents' Awareness Regarding Dyslexia (n= 180)

Statements	Correct	Incorrect	Don't know
	No. (%)	No. (%)	No. (%)
Dyslexia is a learning disability that affect language processing	93(51.7)	18(10)	69(38.3)
Dyslexia is a reading disorder due to vision or hearing problem.	90(50)	63(35)	27(15.0)
Dyslexia has problems in reading the letters of the word.	134(74.4)	24(13.3)	22(12.2)
Dyslexia has difficulty in Maths solutions.	138(76.7)	24(13.3)	22(12.2)
Dyslexia is difficulty in learning and remembering printed words.	148(82.2)	20(11.1)	12(6.7)
Dyslexia has difficulty in reading and writing on reversal of letters or sequences of letters, or mirror writing, reads or writes b as d, or p as q, bad as dad etc.	152(84.4)	13(7.2)	15(8.3)
Dyslexia has difficulty in understanding what he reads comprehensively.	146(81.1)	26(14.4)	8(4.4)
Dyslexia has repeated spelling errors.	155(86.1)	17(9.4)	8(4.4)
Dyslexia is difficulty in speaking the right word when speaking.	115(63.9)	58(32.6)	6(2.8)
In Dyslexia may be late in learning right and left and other directionality components such as up-down, front behind, east west, etc.	134(73.9)	25(13.9)	21(11.7)
Problems in learning the concepts of time and temporal sequencing, i.e. yesterday-tomorrow, days of the week, etc.	120(66.7)	41(22.8)	19(10.6)
Students with dyslexia feel different from their peers.	115(63.4)	49(26.7)	16(8.9)
Approximately one in eight children in a classroom have dyslexia	98(54.4)	52(28.9)	30(16.7)
Students with dyslexia worry about what people think of them.	90(50)	59(32.8)	31(17.2)
Early intervention has great impact on students with dyslexia	143(80)	15(8)	22(12.0)
The most effective intervention strategies for student with dyslexia, is focused on their self-concept and self-esteem	162(90)	14(7.8)	4(2.2)

Table 3 shows that majority of the respondents were aware about dyslexia. Among them, more than half (51.7%, 50%) incorrectly answered about language process and hearing and visual impairment. Most of them (74.4%) knew about difficulty reading words is dyslexia d. Similarly, most of the respondents (84.4,81.1,86.1%) were aware that dyslexia is difficult in reverse words to read, understand and repeat spelling error. Half of them (50%) were aware about the incidence of dyslexia. Most of them (90%) were aware of intervention strategies used in dyslexia (Table 3).

Table 4: Respondents' Attitude Regarding Dyslexia (n =180)

Statements	SA No. (%)	A No. (%)	U No. (%)	D No. (%)	DS No. (%)
I think dyslexia is a cruse	7(3.9)	23(12.8)	12(6.7)	84(46.7)	54(30.0)
Dyslexic students often do not succeed as adults	8(4.4)	45(25.0)	17(9.4)	88(48.9)	22(12.2)
Dyslexic students have low ability	15(8.3)	66(36.1)	17(9.4)	65(36.1)	17(9.4)
Dyslexic students have below average intelligence	13(7.2)	81(45.0)	13(7.2)	67(37.3)	6(3.3)
Dyslexic students are likely to be unmotivated because of delayed intervention.	25(13.9)	108(60.0)	15(8.3)	28(15.6)	4(2.2)
Dyslexia is a hereditary	6(3.3)	39(21.7)	46(25.6)	67(37.2)	22(12.2)
Physician can prescribe medication to help for dyslexic student	4(2.2)	34(18.9)	26(14.4)	95(52.8)	21(11.7)
Teacher cannot improve the dyslexic student	4(2.2)	33(18.3)	11(5.1)	104(57.8)	28(15.6)
Multisensory instruction can be useful for student with dyslexia to learn	44(24.4)	130(72.2)	2(1.1)	2(1.1)	2(1.1)
Dyslexia is caused by a poor home environment/poor reading instruction.	22(12.2)	80(44.4)	10(5.6)	56(31.1)	12(6.7)
Pupils with dyslexia suffer social isolation.	22(12.2)	118(65.6)	13(7.2)	26(14.4)	1(0.6)
I feel more training should be given to teachers about dyslexia	44(24.2)	40(22.0)	-	64(35.2)	32(17.6)
The high number of students in the class reduces the opportunity for early intervention.	29(16.1)	117(65.0)	4(2.2)	26(14.4)	4(2.2)
Appropriate classroom rewards should be provided to enhance self-concept and self-esteem.	15(8.2)	10(5.5)	5(2.5)	132(72.6)	18(9.9)
There is a lack of cooperation from parent(s) in delivering early intervention	35(19.4)	77(42.8)	12(6.7)	52(28.9)	4(2.2)
All classes should be dyslexic friendly	33(18.1)	47(25.8)	1(0.6)	58(17.6)	41(22.5)

SA-Strongly Agree A-Agree U-Undecided D-Disagree   DS-Disagree Strongly

Below half (46.7%) disagreed with the misconception that dyslexia is a curse. Nearly half (48.9%) also disagreed that dyslexic students often do not succeed as adults. Responses were mixed on whether dyslexic students have low ability or below average intelligence. Over half (57.8%) disagreed with the belief that teachers cannot help dyslexic students. A large majority (72.2%) agreed that multisensory instruction is effective for teaching students with dyslexia. Less than half believed dyslexia is hereditary or caused by poor home environments. Only a small percentage (24.2%) strongly agreed that more training should be given to teachers about dyslexia (Table 4).

Table 5: Association between Level of Awareness Regarding Dyslexia and Selected Socio-demographic Characteristics (n=180)

Variables	Levels of Awareness		χ2	p-value
	Adequate No.(%)	Inadequate No.(%)		
Age group (in years)				
< 40	29(16.1)	3(1.6)		0.105*
≥ 40	130(72.2)	18(10.0)		
Ethnic group				
Brahmins /Chhetri	85(47.2)	9(5.0)	0.836	0.361
Others	74(41.1)	12(6.6)		
Religion				
Hinduism	140(77.7)	15(8.3)	0.085	0.049
Buddhism	19(10.5)	9(5.0)		
Educational status				
Up to proficiency	77(42.7)	6(3.3)	2.943	0.086
Above proficiency	82(45.5)	15(8.3)		
Marital status				
Married	152(84.4)	19(10.5)		0.283*
Unmarried	7(3.8)	2(1.1)		
Experience (in years)				
< 21	58(32.2)	7(3.8)	0.080	0.778
≥ 21	101(56.1)	14(7.7)		
Class teaching				
All the classes	118(65.5)	44(24.4)		4.047*
Specific class	17(9.4)	1(0.5)		
Subject teaching				
All the subject	80(44.4)	28(15.5)	0.123	0.725
Specific subject	55(30.5)	17(9.4)		

*Significance level at 0.05. *Fisher's exact test*

Table 5 presents the association between teachers' level of awareness regarding dyslexia and their socio-demographic characteristics. Among the variables analyzed, religion showed a statistically significant association with awareness levels (p:0.049), indicating that respondents' religious background may influence their level of awareness. Specifically, a higher proportion of Hindu respondents had adequate awareness compared to Buddhist respondents.

Other variables such as age, ethnic group, educational status, marital status, years of experience, class taught, and subject taught did not show statistically significant associations ($p >$ 0.05), suggesting these factors had no meaningful impact on awareness levels in this sample.

Table 6 shows that there was statistically significant association between level of attitude with age and level of education. Other variables like ethnic group, class teaching, subject teaching and marital status had no significant association with level of attitude on the basis of higher score more than 45 indicate positive attitude less than 45 indicate negative attitude.

Table 6: Association between Level of Attitude Regarding Dyslexia and Selected Socio-demographic Characteristics (n=180)

Variables	Levels of Attitude		χ2	p-value
	Positive No. (%)	Negative No. (%)		
Age group (in years)				
> 40	25(13.8)	7(3.8)	9.200	0.002*
≥ 40	72(40.0)	76(42.2)		
Ethnic group				
Brahmin/Chhetri	34(18.8)	29(16.1)	0.000	0.987
Others	63(35.0)	54(30.0)		
Religion				
Hinduism	71(39.4)	84(46.6)	0.042	0.838
Buddhism	12(6.6)	13(7.2)		
Educational status				
Below Bachelor	34(18.8)	49(27.2)	10.355	0.001*
Up to Bachelor	63(35.0)	34(18.8)		
Experience (in years)				
< 20	37(20.5)	28(15.8)	0.377	0.539
≤ 20	60(33.3)	55(30.5)		
Involved classes				
All the classes	64(35.5)	44(24.4)	0.022	0.881
Specific class	33(18.3)	39(21.6)		
Subject teaching				
All the subject	87(48.3)	75(41.6)	3.134	0.077
Specific subject	10(5.5)	8(4.4)		

Significance level at 0.05

DISCUSSION

The current study highlights a notable awareness of dyslexia among primary school teachers in Lalitpur. However, significant gaps persist in their understanding of its causes and characteristics. This finding aligns with previous research conducted in other low- and middle-income contexts, which often report similar inconsistencies between general awareness and specific knowledge of dyslexia .[14,15]

For instance, a study by Aladwani and Al Shaye [16] in Kuwait found that while teachers generally recognized dyslexia as a learning difficulty, many held misconceptions, such as believing it stemmed from sensory impairments. Similarly, the current study revealed that approximately 50% of teachers mistakenly believed dyslexia is related to hearing or visual problems, reinforcing the global trend of confusion between dyslexia and general learning or sensory disorders.

Furthermore, the negative attitudes observed in more than half of the respondents mirror findings from studies in other South Asian contexts. For example, in a study conducted in India, Ramaa reported that teachers often viewed students with dyslexia as lazy or inattentive, attributing the condition to parental negligence or socioeconomic background.[17] This corresponds with our finding that a significant minority of teachers perceived dyslexia as a consequence of a poor home environment or even as a curse highlighting the influence of cultural beliefs and a lack of targeted professional training.

The persistence of such misconceptions, despite an overall awareness of dyslexia, underscores the

need for enhanced teacher training programs. Studies in Nigeria and Ghana have shown that professional development focused specifically on learning disabilities significantly improves teachers' attitudes and knowledge.[18] Therefore, similar interventions could be beneficial in Lalitpur to bridge the knowledge gap and promote inclusive education practices.

CONCLUSION

Although awareness of dyslexia among primary school teachers in Lalitpur is encouraging, persistent knowledge gaps must be addressed. Incorporating structured professional development programs focusing on learning disabilities like dyslexia is essential. Such efforts can enhance teachers' capacities to provide inclusive education, reduce stigma, and ultimately improve educational outcomes for children with dyslexia.

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Original Article

Awareness on Child Abuse among Students in Public Schools of Rural Municipality of Nepal

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ABSTRACT

Introduction: Child abuse is a global issue, all around the world which violates the rights of the children affecting their personal, social and psychological development leaving a lifetime psychological scar. It can happen at home, in organizations, schools or communities by parents, caregivers, neighbors and teachers. School children's self-awareness is very important to prevent child abuse. The study aimed to find out level of awareness of child abuse among students in public schools in the Rural Municipality of Nepal.

Methods: A descriptive cross-sectional study was conducted among 250 students in grade 8, 9 and 10, selected through cluster sampling, using a self-administered questionnaire. Data were analyzed, using descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, chi-square and fisher exact test.

Results: The study found out that around half (46.8%) of the respondents had an average level and 28% had an inadequate level of awareness on child abuse with a mean score of 62.3 ±19.8. Majority (63.2%) of the respondents considered smoking and drinking alcohol as possible consequences of child abuse, 69.6% stated that sharing problems with parents or close friends is preventive measures and 82.0% were aware of reporting to the police administration if they experience abuse. A significant association was found between the level of awareness and educational level (p-value 0.000).

Conclusion: The students have an average level of awareness about child abuse but significant number of students still lack adequate level of awareness. Hence, awareness raising program on child abuse focusing school students is recommended.

Keywords: Awareness, child abuse, students

INTRODUCTION

Child abuse is a global issue that violates the rights of the child causing injury, death, emotional trauma or serious harm. Child abuse and neglect are experienced by both girls and boys of all ages, ethnic groups, and socioeconomic status.[1] Globally, 1 billion children aged 2-17 years have experienced physical, emotional, sexual violence and neglect. Similarly 3 in 4 children aged 2-4 years experiencing physical punishment and psychological abuse regularly from their parents and caregivers and 1 in 5 women and 1 in 13 men experienced sexual abuse within 17 years.[2] Most common abuse in India is physical abuse (72.7%) followed by emotional abuse (47.7%), child neglect (17.4%).[3] In the context of Nepal, over 50 % children are experience physical punishment, among them 14 % had severe punishment.[4] Nearly half (49.8%) children experience moderate

physical abuse followed by emotional abuse (77.3%).[5] The child abuse results long term effects to the child such as learning disabilities; behavioral disorders; and depression, even death may occur due to the physical harm.[4] All forms of child abuse are risks to health and increase burden of disease in all parts of the world.[6] Families with low socioeconomic status have five time higher rates of child maltreatment and neglect.[6,7] Similarly, 82% children aged 1 to 14 years experienced physical and psychological abuse by their caregiver. The rate of physical and psychological abuse is higher in Koshi province (87.6%) followed by Lumbini (84.2%).[8] Around 90% of children are aware about their abuser, who were loved and trusted. Most of them delay or never disclose abuse to their friends, family, or the authorities.[9] Similarly 3 in 4 children aged 2-4 years experiencing physical punishment and psychological abuse regularly from their parents and caregivers and 1 in 5 women and 1 in 13 men experienced sexual abuse within 17 years.[2] It has been revealed that 30% in Bangladesh[10], 26% in India[11] and 27.3% in Nepal[12], had inadequate level of awareness on child abuse among school level students. The abuse may occurs in home, school, orphanage and community irrespective of their age, sex, religion, culture and socioeconomic background by parents, caregivers, relatives, teachers, peers, and strangers. Child abuse can be prevented for safe, happy and healthy childhood for all children. The purpose of this study was to find out level of awareness on child abuse among students and to measure association between levels of awareness of students with selected variables.

METHODS

A descriptive cross sectional study design was used to identify the level of awareness of respondents on child abuse. Data were collected from 16th September to 14th October 2024, cluster sampling methods was used for the study. Among 11 public secondary schools of Triveni Rural Municipality, Rukum West of Nepal, 3 schools were selected randomly with lottery method, then all the students studying in grades 8, 9 and 10 were selected (250 students) for the study. Data were collected using structured self-administered questionnaire. Questionnaire was developed by researchers after reviewing literature. It was translated in Nepali language and again back-translation was done in English language. Ethical approval was obtained from the Institutional Review Committee (IRC), of Institute of Medicine, Tribhuvan University. The questionnaire was modified after pretesting and getting feedback from experts. The instrument consisted of two parts, part one consists of socio-demographic characteristics and part two is related to students' awareness on child abuse. Awareness < 50% is taken as inadequate, 50 to 75% is moderate and>75% is taken as adequate level of awareness. Data were analyzed by using Statistical Package for Social Science (SPSS) version 22 with descriptive statistics such as frequency, percentage, mean and standard deviation and inferential statistics such as Chi-square test and Fisher's Exact with the level of significance < 0.05.

RESULTS

Table 1: Socio-demographic Characteristics of Respondents (n= 250)

Characteristics	Number	Percentage
Age in completed years		
<14	228	91.2
≥14	22	8.8
Mean age ±SD = 14.11±1.090, Min − 12, Max - 17		
Sex		
Male	123	49.2
Female	127	50.8
Ethnicity		
Brahman/Chhetri	179	71.6
Janajati	39	15.6
Dalit	32	12.8
Educational Level		
Class 8	75	30.0
Class 9	86	34.4
Class 10	89	35.6
Type of family		
Nuclear family	124	49.6
Joint family	113	45.2
Extended family	7	2.8
Single Parent	6	2.4
Marital status of parents		
Married	230	92.0
Separated	10	4.0
Widow/Widower	8	3.2
Divorce	2	0.8

Most (91.2 %) of the respondents were <14 years and around half (50.8 %) were female. Among them, majority (71.6 %) were Brahmin/Chhetri and almost half (49.6%) of the respondents belonged to nuclear family. Almost all (92%) of the respondents' parents were staying together (Table 1).

Table 2: Awareness Regarding Meaning, Risk factors and Place of Child Abuse (n=250)

Variables	Number	Percentage
Meaning of child abuse		
Child abuse is maltreatment that cause harm to the children's development	230	92.0
Types of child abuse *		
Physic abuse	191	76.4
Emotional/ Psychological abuse	180	72.0
Sexual abuse	153	61.2
Child Neglect	121	48.4
Risk factors of child abuse*		
Poor socioeconomic status of family	152	60.8
Lack of education among parents	135	54.0
Alcoholic parents	121	48.4
Single/divorced parents	113	45.2
Presence of disability in the child	102	40.8
Children who have low academic performance	98	39.2
Common places of child abuse*		
Community	180	72.0
Working place	168	67.2
Home	140	56.0
School	136	54.4
Child abuser*		
Peers	207	82.8
Neighbors	149	59.6
Strangers	124	49.6
Relatives	97	38.8
Teachers	84	33.6
Caretakers	80	32.0
Family members	73	29.2
Victims of child abuse		
Both boys and girls	225	90.0

Multiple Responses

Most (92%) of the respondents knew the meaning of child abuse and three in five (60%) of the respondents said poor socio-economic status is a risk factor of child abuse. Majority of them (72.0%) said the community setting is common place of child abuse, followed by working place (67.2%), home (56.0%) and school (54.4%). The majority of the respondents (82.8%) had said that peers were the abusers, followed by neighbor (59.6%), strangers (49.6%). Most (90.0%) of the respondents said that both boys and girls are victims of child abuse (Table 2).

Table 3: Students' Awareness on Physical and Emotional Abuse (n = 250)

Variables	Number	Percentage
Meaning of physical abuse		
Any intentional act that results in physical injury to a child	197	78.8
Activities of physical abuse*		
Hitting/beating	219	87.6
Shaking	148	59.2
Slapping/punching	140	56.0
Pulling hair or ear	121	48.4
Kicking	110	44.0
Burning	109	43.6
Biting	100	40.0
Possible identification features *		
Injuries on the body	210	84.0
Burn injuries on the feet, hand, buttocks, face	159	63.6
Bite marks	145	58.0
Broken bones	113	45.2
Black spots in the eyes	103	41.2
Meaning of emotional Abuse		
Maltreatment that make scare, humiliate, isolate and ignore a child	194	77.6
Activities of emotional Abuse*		
Threatening and humiliating	182	72.8
Compare the child with other children	152	60.8
Keeping the children locked alone at the room	134	53.6
Expose the children's problem publicly	125	50.0
Constantly criticizing the children	87	34.8
Consequences of abuse*		
Sadness	140	56.0
Deterioration in school performance	138	55.2
Keep separate from others	126	50.4
Violent	123	49.2
Drug/alcohol abuse	112	44.8
Poor peer relationship	106	42.4
Sleeping problem	88	35.2
Feeling of shame/guilt	88	35.2

*Multiple Responses

The majority (78.8%) of the respondents knew the meaning of physical abuse. Four fifth (84.0%) of the respondents said injury on the body is a feature of physical abuse. Similarly, the majority (72.8%) of them said threatening and humiliating as an activity of emotional abuse. Around half of the respondents said sadness (56.0%) and deterioration in school performance (55.2%) as the consequences of abuse (Table 3).

Table 4: Students' Awareness Regarding Sexual Abuse and Child Neglect (n=250)

Variables	Number	Percentage
Meaning of sexual abuse		
Any behavior to children for sexual stimulation such as touching in sexual manner or sexual relation with child	220	88.0
Activities of sexual abuse*		
Intentional touching of children's private body parts	205	82.0
Exposing own genitals to children	170	68.0
Scolding the children with vulgar words	106	42.4
Rape / attempted rape	95	38.0
Exploitation through prostitution	94	37.6
Possible identification feature of sexual abuse*		
Experiences bleeding or swelling in their private parts	174	69.6
HIV/AIDS	162	64.8
Having sexual transmitted disease	161	64.4
Unwanted pregnancy	158	63.2
Stay alone	101	40.4
Suddenly refused to go to school	88	35.2
Meaning of child neglect		
Provide inadequate food, shelter, love, supervision, education, and medical care for the children	83	33.2
Activities of child neglect*		
Creating the fearful environment	164	65.6
Ignoring the children's health problems	147	58.8
Ignoring the children's basic needs like food, shelter, and clothing	137	54.8
The children may not be enrolled in school	136	54.4
Permitting a child to use alcohol or other drugs	136	54.4
Identification features of child neglect*		
Frequently absent from school	169	67.6
States that there is no one at home to provide care	140	56.0
Begs or steals food or money	126	50.4
Abuses alcohol or other drugs	121	48.4
Lacks sufficient clothing for the weather	110	44.0
Constantly dirty and has too much body odor	98	39.2

* Multiple Responses

Most (88.0%) of the respondents answered correctly the meaning of sexual abuse and more then four fifth (82.0%) had said intentional touching of children's private body parts is a activity of sexual abuse, followed by exposing own genitals to children (68.0%). Around two third (69.6%) of the respondents said bleeding and swelling in their private parts is a identification feature of sexual abuse. Likewise, majority (67.6%) said frequent absent from school is a identification features of child neglect (Table 4).

Table 5: Respondents' Awareness on Possible Consequences and Preventive Measures of Child Abuse (n=250)

Variables	Number	Percentage
Possible Consequences of Child Abuse*		
Smoking and drinking alcohol	158	63.2
Poor academic performance/ learning difficulties	154	61.6
Drug abuse	111	44.4
Self-destructiveness	111	44.4
Low self –esteem	105	42.0
Aggressive/Violent behavior	102	40.8
Sleep disorders	98	39.2
Increased probability of becoming an abusive parent	91	36.4
Eating disorders	72	28.8
Preventive Measures of Child Abuse*		
Share your problems with your parents or close friends	174	69.6
Creating awareness regarding child abuse	161	64.4
Avoid going to isolated areas alone	145	58.0
Providing training to teachers and parents about the prevention of child abuse	144	57.6
Avoid talking to unknown persons	136	54.4
Formulation and implementation of the law on child abuse	126	50.4
Enhancing family child relationship	124	49.6
Follow the disciplinary rules	111	44.4
Do not eat sweets or anything given by strangers	111	44.4
Places of Reporting Child Abuse*		
Police Administration	205	82.0
Child protection service	151	60.4
Child helpline	116	46.4
Parents	115	46.0
Local child right committee	111	44.4
Administration of the school	82	32.8
Principal	81	32.4
Ways to Reduce Physical Punishment in School*		
Training to teachers and school personnel to build a positive school climate and violence-free environment	184	73.6
Implementation enforcement of laws to prohibit physical punishment	173	69.2
Awareness programs to change harmful social norms on child-rearing and child discipline	165	66.0
Parents must be regularly informed about their children's progress in class	96	38.4

More than three fifth (63.2%) of the respondents said smoking and drinking alcohol is possible consequences of child abuse. Most (82%) of the respondents said that the place of reporting child abuse is police administration. Similarly, the majority(69.6%) of the respondents said sharing

problems with parents and friends is a preventive measure of child abuse. The majority (73.6%) of the respondents said training to the teachers and school personnel is necessary to built a violence-free environment in school (Table 5).

Table 6 reveled that less than half (46.8%) of the respondents have average level of awareness and more than one fourth (28%) have inadequate level of awareness on child abuse.

Table 6: Students' Level of Awareness on Child Abuse (n=250)

Level of awareness	Number	Percentage
Inadequate (≤ 50%)	70	28.0
Average (50-75%)	117	46.8
Adequate (≥ 75%)	63	25.2
Mean ± SD (62.3 ± 19.8)		

Table7: Association between Students' Level of Awareness with Selected Variables (n=250)

Variables	Inadequate (%)	Average to adequate (%)	χ2	p-value
		Level of Awareness		
Age in years				
≤14	50 (31.6)	108 (68.4)	2.830	0.092
>14	20 (21.7)	72 (78.3)		
Sex				
Female	40 (31.5)	87 (68.5)	1.565	0.211
Male	30 (24.4)	93 (75.6)		
Ethnicity				
Brahmin/Chhetri	50 (27.9)	129(72.1)	0.001	0.970
Others*	20 (28.2)	51 (71.8)		
Educational level				
Class 8	34 (45.3)	41 (54.7)	2.481	0.000*
Class 9	24(27.9)	62 (72.1)		
Class 10	12 (13.5)	77 (86.5)		
Marital status				
Married	3 (60.0)	2 (40.2)		0.135#
Unmarried	67 (27.3)	178 (72.7)		
Father's occupation				
Agriculture	42 (30.7)	95 (69.3)	1.061	0.303
Others*	28 (24.8)	85 (75.2)		
Mother's occupation				
Agriculture	48 (28.1)	123 (71.9)	0.001	0.971
Others**	22 (27.8)	57 (72.2)		
Type of family				
Nuclear family	33 (26.6)	91 (73.4)	0.235	0.628
Joint Family	37 (29.4)	89 (70.6)		
Parent's marital status				
Living with spouse	61 (26.5)	169 (73.5)	3.116	0.078
Single	9 (45.0)	11 (55.0)		

** Government service/ Non-government-service, Self- employed, Foreign employment, * Dalit & Janajati χ2Pearson's Chi Square Test, # Fisher's Exact test, *p value significant at <0.05 level

Table 7 showed that there is statistically significant association between level of awareness on child-abuse and education of the respondents (P-value 0.000) but age, ethnicity, occupation marital status is not statistically significant with level of awareness.

DISCUSSION

In this study, one fourth (25.2%) of the respondents had an adequate level of awareness of child abuse. This finding is consistent with a study conducted in India, showed that 7.0 % students had an adequate level of awareness on child abuse. [13] Similarly, a study of Nepal found that only 15.9% students had an adequate level of awareness.[11]

In the present study, most (76.4%) of the respondents said physical abuse is a common type of abuse followed by emotional abuse (72.0%). These, findings are consistent with a study conducted in India revealed that majority (68.2%) of the students reported physical abuse as the common type of child abuse followed by emotional abuse (22.6%) which was very few.[14]

The findings of this study on awareness of different types of child abuse revealed that physical abuse (76.4 %), emotional abuse (72.0 %), sexual abuse (61.2%) and child neglect (48.4 %) had an adequate level of awareness. However, a study done in India reveled the higher awareness level than this study, where physical abuse (95.3%), emotional abuse (96%) and child neglect (85.5%) had adequate level of awareness on meaning and activities of different types of child abuse.[15] A study, in Nepal also revealed that less than half (43.9%) were aware about child sexual abuse[16], which might be due to the difference in setting, sampling technique and sample size.

The present study findings revealed that 15.2% had adequate level of awareness. Similar finding were found in India, that 10% had adequate awareness about sign and symptoms of different types of child abuse.[14]

The findings of this study revealed that majority (63.2%) of the respondents reported smoking and drinking alcohol as the possible consequences of child abuse followed by poor academic performance (61.6%) and drug abuse (44.4%). These findings are inconsistent with a study[17], showed that psychiatric disease (94%) followed by memory loss (92.6%) and drug addiction (88.6%) as the consequences of the child abuse. Regarding the victim of child abuse, almost all (90%) identified that both girls and boys can be the victims and most (85.8%) of the respondents reported the peers are the abuser for child abuse. The findings are inconsistent with a study of Bangladesh, which revealed the most (86%) of the respondents reported, that girls are the victim of child abuse. Regarding perpetrators, majority (70.5%) of the respondents reported the parents as the child abuser.[17] Another study conducted in Egypt revealed that half (50%) of the students stated that strangers followed by friends (29.0%) and family members (17.4%) as the sexual abuser.[18]

Regarding reporting, child abuse, most (82%) of the respondents stated, that they would report the police administration after the incident, followed by child protection center (60.4%) in case of experiencing the abuse. These, findings are inconsistent with a study conducted in Egypt, which revealed that most (83.2) of the respondents said share to the parents if suspected abuse.[18]

In this study, one fourth (27.6%) of the respondents had an adequate level of awareness regarding preventive measures of child abuse, which is supported by a study of India, where around one third (30.8%) had an adequate awareness on preventive measures.[13] Similarly, majority (69.6%) reported to sharing with parents or close friends followed by creating awareness on child abuse (64.4%). This result is consistent with a study conducted in Bangladesh, which revealed that majority (60%) of the respondents stated that increasing awareness among peoples, followed by enforcing of laws (26%) is necessary for the prevention of child abuse.[14]

CONCLUSIONS

Most of the respondents were aware on physical, emotional and sexual abuse but only one third of them were aware on child neglect. Similarly, most

of the respondents stated children are abused by their peers. Likewise, majority of them were aware that they should report child abuse to the police administration if they experienced it. Most of the students received information regarding child abuse by radio. Levels of awareness on child abuse among students are average however, significant number of students still lacks an adequate level of awareness. Significant association is found between level of awareness on child abuse and the educational level of the respondents.

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Awareness on Suicide among Adolescents Residing in Metropolitan City, Kathmandu

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ABSTRACT

Introduction: Suicide is become a primary cause of mortality and illness in adolescents, worldwide and has been identified as one of the key mental health problems, which is the third leading cause of death among adolescents. The objective of the study is to find out awareness on suicide among adolescents.

Methods: A descriptive cross-sectional study was conducted among 145 respondents in Kathmandu Metropolitian city ward no. 14, Kalanki. Non-probability convenient sampling technique was used. Data was collected by self-administered questionnaire by using self-developed structured tool. Data was analyzed using descriptive and inferentian statistics.

Results: The findings of this study reveals that more than half of respondents (56.6%) had high level of awareness and (43.4%) had low level of awareness on suicide. Despite of that, less awareness on risk factors (66.2%), prevention on suicide (65.5%) and suicidal behaviour (57.2%). There was no association between level of awareness and selected variables i.e. age, sex, ethnicity, education, marital status, family type, staying with and income.

Conclusion: The study findings conclude that there is need to enhance the level of awareness among adolescents to prevent potential risk from suicidal behavior.

Keywords: Adolescents, awareness, suicide

INTRODUCTION

Adolescence is a unique developmental period of life marked by the transition from childhood to adulthood in which adolescents have to adjust to various changes and challenges, and this might make adolescents prone to various psychosocial problems.[1] In the United States, suicide is the third leading cause of death among adolescents. Suicide accounted 8% of deaths in aged 10 to 14 years and 14 % of deaths in aged 15 to 19 years.[2] According to the World Health Organization (2021), more than 7, 00,000 people die due to suicide every year. A prior history of suicide attempts is the single most important risk factor for suicide in the general population. Among,

77% of global suicides occur in low and middle income countries.[2]

In Nepal, due to limited engagement of families in reporting suicide because of fear of legal entanglements anticipated with reporting suicide, anticipated stigma for families of suicide victims, and financial burden lead to the less evidence of suicide.[3] A study conducted in Kerala, India showed that 40% of respondents had awareness on prevention of suicide, 31 % of respondents had awareness on general aspects on suicide and 14 % of respondents had awareness on management of a suicidal adolescents.[4]

A study conducted in Nepal showed that main risk factors of suicide are history of past suicidal attempts, the presence of mental illness,

substance use disorder, impulsivity, financial or social losses, and easy access to lethal means. Although, social support and strong problem-solving skills mitigate the risk of suicide, there is limited knowledge on suicide in the Nepalese community.[5] A study conducted in Peru showed that, adolescents who were unhappy 9.0% with their lives were more likely to report suicidal ideation and suicide attempts and decreasing life satisfaction also considered the increasing prevalence of suicidal thoughts during adolescence.[6]

Based on the literature, suicide is the 3rd leading cause of death among adolescent, there is inadequate knowledge regarding suicide among adolescents. The researcher has found very limited research in the context of Nepal regarding suicide. Therefore, the researcher is interested to conduct this study. Suicide affects not only the individual, but also the adolescent's family, peers, school and community. Likewise, suicide does not just occur in high-income countries, but is a global phenomenon.[2] A study conducted in United Kingdom revealed that, whose sibling had attempted suicide were 3.5 times, a maternal suicide attempt were 2.7 times and paternal suicide attempt were 1.9 times risk family history which is likely to attempt suicide.[7]

In Canada, participants who were aware of a friend's non-suicidal self-injury (NSSI) was 23.5%. Among them who had knowledge of a friend's NSSI, 15.8% engaged in their own self-injury which was statistically significant (p<0.05). Among those who were engaged in NSSI, 15.7% reported suicidal ideation and 8.1% had both thought about and attempted suicide.[8]

A cross-sectional study among Mexican adolescents showed that attempt suicide was 2.7% and proved higher among women than men i.e. 4.6% and 0.9% respectively. Adolescents who were living with relatives as grandchildren, nephews/nieces or others had 43% greater chance of attempt suicide than those living at home with their parents. Those who lacked social security were more likely to engage in attempt suicide.[9]

A study conducted in Turkey among students showed that 36.88 % had awareness regarding Literacy of Suicide Scale (LOSS) where 22.91% of respondents had awareness on symptoms and 67.11 % had awareness on treatment/precaution.[10] A study conducted in china showed that, 32.7% of adolescents had at least one form of deliberate self-harm in the which common forms of self-harm were scratching (10.3%), preventing wounds from healing (9.2%), and wrist cutting (8.5%). Likewise, it also showed that family and social factors are linked to suicidal ideation and attempts i.e. history of physical abuse (OR = 5.8), conflicts with friends (OR = 5.72), poor family relationship (OR = 3.8) and perceived loneliness (OR = 2.2).[11]

A study conducted in India, indicates that majority of adolescents (85%) were from the age group of 15-18 years, 50% were educated up to secondary level, 68% belonged to joint family where, 10% had high level of knowledge regarding suicide. Among them 51% adolescents got the information about suicide from newspaper.[12] A study conducted in South Western Rajasthan, indicated that 22.5% had knowledge on meaning, 24 % had knowledge on risk factors and warning signs and 25.45 % had knowledge on preventive measure of suicide.[13]

A study conducted in India, risk factors of suicide were family problem (43.96%), and economic problems (42.5%), physical problems (37.5%), psychological problems (34.1%), academic problems (31.56%), negative peer relations (22.5%), problems related to love affairs (15%) and family history of mental illness (12.5%) were the main factors responsible for suicide.[14]

A study conducted in South Africa, participants reported that peers who completed suicide displayed changes in behavior some weeks or days before their suicide and they seemed to bid farewell to their friends. The changes in behaviors included, sleeping during study, talking about death, withdrawing from social interactions, exhibiting mood changes, truancy, and writing farewell messages. Early identification of these warning signs of suicide by students and referral to professional help might prevent attempt suicide among adolescents.[15]

Different literature suggested that early identification of warning signs of suicide and referral to professional help might prevent attempt suicide among adolescents. Up to this date researcher had found few studies conducted in Nepal related to awareness on suicide among adolescence. This study will determine adolescent awareness on suicide in Kathmandu district to some extent and give thorough review of the prevention strategies that improve health.

METHODS

A descriptive cross-sectional study was conducted in ward no. 14 of Kathmandu Metropolitan City, Kalanki, Bagmati Province, to assess adolescents' awareness of suicide. The study targeted adolescents aged 15 to 19, with a population of approximately 8,400. Using non-probability convenient sampling, a sample size of 145 was calculated based on Cochran's formula, considering 10% high awareness on suicide (Aryal, 2015) and a 5% non-response rate. Data were collected using a self-developed questionnaire, translated into Nepali with expert assistance. The questionnaire was divided into two parts:

Part I: It consists of questions related to socio-demographic characteristics.

Part II: It consists of multiple-choice questions and multiple responses which was related to awareness on suicide among adolescents including meaning, risk factors, suicidal behavior (warning signs) and preventive measures. For each question, 1 mask was given for each correct answer and 0 for each wrong answers. Level of Awareness was categorized as:

High level awareness: $\geq$ mean score 28.23

Low level awareness: < mean score 28.23

The instrument's validity and reliability were ensured. Data was collected through a self-administered questionnaire by the researcher. Approval was obtained from the Internal Research Committee of MMIHS and formal permission from the authority of Kathmandu Metropolitan City, Ward No. 14. Informed consent was taken from respondents over 16 years, while assent was obtained from parents of those under 16. Anonymity and confidentiality were maintained by using code numbers and informing respondents that their names would not appear on the questionnaire.

Data was thoroughly checked for accuracy and completeness, then edited and coded. It was analyzed using SPSS version 16. Descriptive statistics (frequency, percentage, mean, and standard deviation) were applied, and chi-square and Fisher's exact tests measured the association between suicide awareness and socio-demographic variables.

RESULTS

Table 1. Socio-Demographic Characteristics of Respondents (n: 145)

Variables	Number	Percentage
Age in Years		
Middle adolescent (15-17)	81	55.9
Late adolescent (18-19)	64	44.1
Mean+ SD (17.29+1.417)		
Sex		
Male	62	42.8
Female	83	57.2
Ethnicity		
Brahmin/ Chhetri	65	44.8
Madhesi	11	7.6
Dalits	9	6.2
Newar	42	29.0
Janjati	17	11.7
Muslim	1	7
Education		
Basic	12	8.3
Secondary	105	72.4
University	28	19.3
Marital Status		
Married	7	4.8
Unmarried	138	95.2
Family Type		
Nuclear family	57	39.3
Joint family	88	60.7
Staying with		
Grandparents	3	2.1
Uncle-aunty	21	14.5
Parents	114	78.6
Husband	7	4.8
Economic Status (Rs.)		
Low income (< 124878)	24	16.6
Lower middle income (124997- 489353)	71	49
Upper middle income (489472-1517053)	50	34.5
Suicidal related Information		
Family history of suicide	12	8.3
Exposed to suicidal attempt	12	8.3
Exposed to committed suicide	15	10.3

Table 1 reveals that 55.9% of respondents were aged 15-17 years, with 57.2% identifying as female. Additionally, 44.8% were from Brahmin/ Chhetri backgrounds, and 72.4% had completed secondary education. Most respondents (95.2%) were unmarried, while 60.7% lived in joint families, and 78.6% resided with their parents. Nearly half (49%) had a lower middle-income economic status. Regarding suicidal behavior, 10.3% reported a family history of suicide, and 8.3% had either attempted or committed suicide.

Table 2: Level of Awareness on Suicide (n= 145)

Variables	Number	Percentage
Low awareness (<28.23mean score)	63	43.4
High awareness (≥28.23mean score)	82	56.6
Mean ± SD 28.23 +3.68		

Table 2 depicts that the level of awareness on suicide, simple majority (56.6 %) had high level of awareness regarding suicide whereas, 43.4% of respondents had low level of awareness.

No significant association was found between the respondents' sex, ethnicity, family type, education, marital status, residence, family history of suicide, exposure to suicide attempts, and their level of awareness regarding suicide.

Table 3: Association between Level of Awareness on Suicide and Selected Variables

Variables	Categories	Level of	Awareness	Chi square	p value
		High n (%)	Low n (%)		
Age	Middle adolescent (15-17)	41(50.6)	40(49.4)	2.63	0.10
	Late adolescent (18-19)	43(67.2)	21(32.8)		
Sex	Male	41(66.1)	21(33.9)	0.99	0.32
	Female	43(51.8)	40(48.2)		
Ethnicity	Brahmin / Chhetri	35(53.8)	30(46.2)	0.86	0.35
	Others (Dalit, Newar, Muslim, madeshi, janjati)	49 (61.2)	31(38.8)		
Types of Family	Nuclear family	35 (61.4)	22(38.6)	0.18	0.67
	Joint family	49 (55.7)	39(44.3)		
Education	Basic	64 (54.7)	53(45.3)	0.12	0.72
	Secondary	20 (71.4)	8(28.6)		
Marital Status	Married	3 (42.9)	4 (57.1)	_	1.00*
	Unmarried	81(58.7)	57(41.3)		
Staying with	Parents	53 (46.5)	43(53.5)	2.009	0.16
	Others (Grandparents, uncle-aunty, mother, father, husband)	10 (32.3)	21(67.7)		
Income	Low income	12(50)	12(50)	0.50	0.49
	Lower/middle income	72 (59.5)	49 (40.5)		
Family History of Suicide		84 (57.9%)	61 (42.1)	0.23	0.63
Exposed to Suicidal Attempt		84 (57.9%)	61 (42.1)	0.02	0.89
Exposed to Committed Suicide		84 (57.9%)	61 (42.1)	0.08	0.78

*Significant (p <0.05), * Fisher's exact test value*

DISCUSSION

The survey revealed that 56.6% of respondents had a high awareness of suicide, significantly higher than a Turkish study, where only 36.88% of 1,100 participants showed similar awareness.[10] This may be due to the different sample size (n=145) and the urban location of the study. It also contrasts with a survey of 100 respondents in Rajasthan, India, where 10% had high suicide awareness..[12] This could be attributed to the fact that all respondents were literate. The study found that 86.9% of respondents had a high awareness of the definition of suicide, in contrast to a study in South Western Rajasthan, where only 22.5% of 100 respondents showed high awareness.[13] The majority of respondents (78.6%) live with their parents, whereas in the contrasting study, only 39% do. Respondents identified financial issues (45.5%), stress (11.7%), mental illness (62.1%), and unemployment (49.7%) as suicide risk factors. In contrast, a study from Chandigarh, India, found lower percentages for these factors: financial problems (34%), stress (33%), mental illness (21%), and unemployment (15%).[16] The difference may be attributed to the study setting, as all respondents were from urban areas, while in the contrasting study, 74.4% were from rural areas. In terms of suicide prevention, most respondents (65.5%) demonstrated a high level of awareness, similar to a Turkish study of 1,100 participants, which found that 67.11% were aware of prevention measures.[10] This study's

findings contrast with those from Ernakulam, Kerala, where 40% of 150 adolescents were aware of suicide prevention.[4] The majority of respondents (60.7%) lived in joint families, while a contrasting study found only 9.3% did. Additionally, nearly half (46.2%) identified hanging as the most common suicide method, compared to just 29.3% of 1,000 respondents in a New Zealand study who were aware of this method.[9] The sample size of 145 may account for the difference observed. In this study, 57.2% of respondents recognized suicidal behavior, while a Chennai study found only 40.45% awareness among 60 respondents.[17] This discrepancy may stem from the sample size (n=145) and the higher proportion (60.7%) of respondents from joint families, compared to 31.67% in the current study. A suicide study in Rajasthan, India, found no significant links between socio-demographic factors—such as age, sex, ethnicity, education, marital status, family type, residence, economic status, family history of suicide, or exposure to suicide attempts—and completed suicides.[12] In contrast to the study in southwestern Rajasthan, India, there were significant differences related to residence and awareness levels (P < 0.05).[12] This may be due to differences in residence, as 78.6% of respondents live at home, compared to only 39% in a contrasting study.

CONCLUSION

The study concludes that nearly half of the respondents were aware of suicide. Most were knowledgeable about its meaning, risk factors, and prevention, but less than half understood suicidal behavior. No significant association was found between suicide awareness and socio-demographic variables.

The research findings offer baseline data on adolescent suicide awareness and serve as a reference for future studies on suicide in Nepal. Nurses can implement structured programs to educate on suicide risks and early detection of suicidal behavior to help prevent its occurrence.

ACKNOWLEDGMENTS

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Awareness Regarding Preconception Care among Reproductive Age Women in a Community

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ABSTRACT

Introduction: Preconception Care is critical component between planning pregnancy to conception. It aims at successful pregnancy and its outcome. It focuses on health promotion, risk factor assessment and intervention. The objective of this study was to find out the awareness regarding preconception care among reproductive age women in a community.

Methods: A descriptive cross-sectional study was conducted among 85 women of reproductive age in ward no 4 of Tokha municipality, samples were selected using the non-probability convenience sampling technique. A self-developed, semi structured interview schedule was used for data collection by in person interview method. Data was analyzed by using SPSS version 16. Descriptive statistics frequency, mean, mode, median, range, percentage, and standard deviation were used to describe socio-demographic variables and level of awareness and inferential statistics Chi-square and fisher exact test were used to measure the association between level of awareness and selected variables.

Results: The findings revealed that nearly half (44.7%) respondents had adequate awareness, 43.5% had moderate awareness, and 11.8% had low awareness regarding preconception care. The level of awareness was associated with husbands' education level and history of abortion.

Conclusion: Less than half women of reproductive age have adequate awareness regarding preconception care with more awareness on risk factor assessment and less awareness on the area of intervention and management therefore it would be preferable to implement formal and informal education and awareness programs on many aspects of preconception care in the community to promote awareness.

Keywords: Awareness, preconception care, reproductive age, women.

INTRODUCTION

Preconception care is needed for all women of reproductive age who are capable of becoming pregnant whether they are planning to conceive or not.[1] Key components of preconception care are health promotion, risk factor assessment and interventions.[2]

The preconception care package must effectively address long-term health conditions like mental health issues, metabolic disorders, and various chronic medical conditions including obesity, counselling cessation of smoking, alcohol intake, and addressing drug misuse. Furthermore, it also promotes healthy behaviours related to nutrition like folic acid supplementation and prevention of sexually transmitted infections.[3]

In 2020, globally almost 800 women died every day from preventable causes related to pregnancy and childbirth. Almost 95% of all maternal deaths occurred in low- and lower-middle-income

countries. Sub-Saharan Africa alone accounted for approximately 70%, while southern Asia accounted for about 16% of global maternal death. Hypertensive disorder accounted for 14% and abortion for 7.9% maternal death globally which can be prevented by preconception care.[4]

In United States only 29.7% of women take daily folic acid supplements, more than 25% use tobacco, 24.9% are overweight just before pregnancy, 42.9% report that their most recent pregnancy was unintended.[5] In Australia 80.4% women have high knowledge of preconception care there are gaps related to awareness on sedentary lifestyle and adverse outcome of pre pregnancy obesity.[6]

In Nepal, in Kaski district 64.5% women had average and 20% had poor knowledge on preconception care.[7] In Biratnagar 71.8%% women had moderate and 11.8% had inadequate knowledge on preconception care.[8] In Dang, majority of respondents 84.58% had average level of knowledge where highest knowledge was in the reproductive health risk factors while lowest level was health promotional behaviours.[9] In Chitwan 51% women had inadequate level of knowledge regarding preconception care, Birgunj 20% women had inadequate knowledge. Moreover, the study stated that preconception care is found associated with improved outcomes like to prevent unplanned pregnancies, gestational complication like macrosomia, eclampsia etc.[10]

METHODS

A descriptive cross sectional research design was used to find out the awareness regarding preconception care among reproductive age women in community. This study was conducted in Tokha municipality ward no. 4 Kathmandu. Non-probability convenience sampling technique was used by in-person interview technique using self-developed semi structured interview schedule. The sample size was calculated using Cochran, 1977 formula. The total sample size was 85.

Awareness was measured in terms of the following score. Each right answer was scored 1, wrong answer and don't know was scored as 0. The awareness level was classified as adequate, average and inadequate. Validity of instrument was enhanced by extensively reviewing the literature, consulting with peers, research advisor and subject experts. The instrument was developed in English and then translated into Nepali language. Pretesting of instrument was carried out among 10% of sample size who were residing in Tokha municipality ward no. 4 for at least six months or more. Ethical approval was obtained from the Institutional Review Committee of Institute of Medicine Ref no 451(6-11) E2. After receiving formal permission from Tokha municipality ward no 4, data collection procedure commenced from 28th April 2024 to 11th May 2024. Informed verbal and written consent were obtained from each participant before data collection. Respondents were informed that it would take around 20-30 minutes for data collection and they would be free to withdraw at any time if they don't want to continue. Data were collected by researcher herself using in person interview technique from 10 am to 4 pm depending upon the availability of the samples and from five to six respondents per day during data collection period. Households were approached by researcher herself. One sample was taken from one household until required sample size met.

Privacy was maintained. Written consent was taken from each respondent. Confidentiality was maintained by ensuring the respondents. Dignity of the respondents was secured by respecting their right to take part in research and discontinue from research at any time. To maintain anonymity, code number was used. The filled-up questionnaires were kept safely and the data were used for study purpose only. All the collected data were checked for its completeness, consistency and accuracy of the information. The collected data was reviewed, organized and coded. The coded data was entered and analyzed by using SPSS software version 16. Data was analyzed by using descriptive and inferential statistics. Findings of the study were presented in tabular form.

RESULTS

Table 1: Socio-demographic and Obstetric Characteristics of the Respondents (n=85)

Characteristics	Number	Percentage
Age (in completed years)		
<20	6	7.1
20-35	65	76.5
>35	14	16.5
Mean age ±SD= 28.3 ± 6.6, range=18-45		
Marital Status		
Married	49	57.6
Unmarried	36	42.4
Occupation		
Home maker	35	41.2
Students	22	25.9
Service holder	21	24.7
Business	7	8.2
Educational Status		
Can read and write	15	17.6
Basic level (1-8)	10	11.8
Secondary level (9-12)	34	40.0
Bachelor level and above	26	30.6
Educational Status of Respondent's Husband (n=49)		
Can read and write	5	5.9
Basic level (1-8)	6	7.1
Secondary level (9-12)	21	24.7
Bachelor level and above	17	20.0
History of Abortion (n=37)		
No	28	75.7
Yes	9	24.3
History of Complication on Child (n=9)		
Premature birth	5	55.6
Low birth weight	3	33.3
Birth defect	1	11.1

Multiple response

Majority of the respondents (76.5%) belong to age group 20-35 and 41.2% were house-maker and 57.6% were married. Likewise, 40% respondents had completed secondary level education. Among married nearly quarter (24.3%) had history of miscarriage. Similarly, premature birth was the highest complication (55.6%) (Table 1).

Sixty percent of the respondents knew correct meaning of preconception period and most of them (82.4%) mentioned that component of preconception care is health promotion. Almost all of them (91.8%) stated that preconception care is important to prevent complication during pregnancy (Table 2).

Table 2 : Awareness on Meaning of preconception period, Components and Importance of Preconception care (n=85)

Variables	Number	Percentage
Correct meaning of Preconception period	51	60.0
Components of Preconception Care *		
Health promotion	70	82.4
Detect present health condition	67	78.8
Risk assessment	64	75.3
Intervention and Management of risk factors	52	61.2
Importance of Preconception Care *		
Prevent complications during pregnancy	78	91.8
Promote health of both mother and child	74	87.1
Prevent congenital birth defects	73	85.9
Prepare couple for pregnancy by improving health	70	82.4
Prevent stillbirths, preterm birth and low birth weight	69	81.2
Reduce maternal and child mortality	61	71.8
Prevent vertical transmission of HIV/STIs	54	63.5
Prevent complication during delivery	49	57.6
Prevent unintended pregnancies	44	51.8

Table 3: Respondents' Awareness on Health Promotional Activities (n=85)

Variables	Number	Percentage
Health promotional activities*		
Take regular balanced diet	82	96.5
Avoid smoking	81	95.3
Avoid alcohol intake	81	95.3
Avoid use of over-counter drug	75	88.2
Consult with health personnel	71	83.5
Avoid stress	69	81.2
Perform regular exercise	65	76.5
Intake of Iodized Salt	59	69.4
Maintain normal body weight	55	64.7
Intake of Folic Acid	54	63.5
Adopt safer sex practice	46	54.1
Daily 30 minutes of moderate exercise	35	41.2

Multiple responses

Almost all (96.5%) answered taking regular balanced diet is health promotional activity. Similarly avoiding smoking and alcohol intake was stated by almost all (95.3%) of respondents. more than half (60%) correctly answered the importance of folic acid to prevent congenital birth defect. Notably only 21.2% knew that folic acid should be started three months before pregnancy. Concerning recommended exercise during preconception period less than half (41.2%) respondents correctly (Table 3).

Table 4 : Awareness on Health Management During Preconception Period (n=85)

Variables	Number	Percentage
Maintain blood pressure with in normal level*	72	84.7
Control blood sugar level in diabetic women	69	81.2
Control thyroid hormone level	69	81.2
Correction of nutritional deficiency	66	77.6
Treatment and management of any mental problem	54	63.5
Treatment and management of sexually transmitted disease	47	55.3

Multiple response

High level of awareness was noted among participants regarding physical health management during the preconception period, particularly in maintaining normal blood pressure (84.7%), and controlling blood sugar (81.2%) and thyroid hormone levels (81.2%) (Table 4).

Table 5 : Respondents' Level of Awareness Regarding Preconception Care (n=85)

Variables	Number	Percentage
Adequate (>70%)	38	44.7
Average (50-70%)	37	43.5
Inadequate (<50)	10	11.8

Mean ±SD=61.4±13.1, Median=61.0, Mode=57, range=54, min=33, max=87

Below half (44.7%) of the respondents have adequate level of awareness regarding preconception care and 43.5% have average level whereas 11.8% of respondents have inadequate level awareness. The mean awareness score is 61.4 with standard deviation 13.1 (Table 5).

There is statistically significant association between respondent's level of awareness on preconception care with educational status of husband (p=0.035) and history of abortion (p=0.022) (Table 6).

Table 6 : Association between Level of Awareness on Preconception Care with Selected Variables (n=85)

Variables	Level of Awareness			Chi-square	p value
	Adequate No. (%)	Average No. (%)	Inadequate No. (%)		
Age in years				0.26	0.987
<28	18(43.9)	18(43.9)	5(12.2)		
≥28	20(45.5)	19(43.2)	5(11.4)		
Educational Status				3.913	0.141
<Secondary	8(32.0)	15(60.0)	2(8.0)		
≥Secondary	30(50.0)	22(36.7)	8(13.3)		
Marital status				1.760	0.415
Married	24(49.0)	21(42.9)	4(8.2)		
Unmarried	14(38.9)	16(44.4)	6(16.7)		
Educational Status of Husband (n=49)					0.035*
<Secondary	2(18.2)	7(63.6)	2(18.2)		
≥Secondary	22(57.9)	14(36.8)	2(5.3)		
Number of Pregnancy(n=37)					0.239*
One	8(66.7)	4(33.3)	-		
≥ two	9(36.0)	14(56.0)	2(8.0)		
History of Abortion (n=37)					0.022*
Yes	1(11.1)	8(88.9)	-		
No	16(57.1)	10(35.7)	2(7.1)		
History of Complication on Child (n=37)					0.169*
Yes (Birth defect/Low birth weight/Prematurity)	2(22.2)	7(77.8)	-		
No any	15(53.6)	11(39.3)	2(7.1)		
Age at First Pregnancy (n=37)					0.379*
<20	4(30.8)	8(61.5)	1(7.7)		
20-35	13(54.2)	10(41.7)	1(4.2)		

Fisher exact test is computed for p-value, Significance level ≤ 0.05

DISCUSSION

In this study, below half (44.7%) of respondents had adequate level of awareness, 43.5% had average level and 11.8% of respondents had inadequate level awareness on preconception care. These findings were consistent with a study conducted in Saudi Arabia which reported 43% had good knowledge, 48.2% had fair and 8.8% had poor knowledge on preconception care[11] and contradicted with study conducted at National Medical College Teaching Hospital in Birgunj where only 10.91% respondents had adequate, 69.09% had average and 20% had inadequate.[10] It may be due to difference in educational status

of respondent as there 45.45% of them were not able to read and write.

Concerning awareness aspects of respondents regarding preconception care, the study illustrates that highest knowledge was in the area of health assessment and investigation with 71.12% and mean score±SD of 17.78±4.335 followed by health promotional 70.0% and mean score±SD of 21.00±5.127 and lowest in the area of intervention and management of risk factors 65.61% with mean score±SD of 11.81±3.493. This finding was consistent with the study conducted in Dang, Nepal[9]. In this study, 82.4% respondents answered health promotion as component of preconception care and 60%

knew the correct meaning of preconception period. These findings were supported by a study in which majority (94.5%) responded health promotion as component of preconception care, 81.0% mentioned correct time of preconception period.[12] In Current study Majority (91.8%) said prevent complication during pregnancy as importance of preconception care which is contradict by a study in Bheerkot Municipality, Syanja District of Nepal in which only 60. 9 % answered to prevent pregnancy complications.[13]

Regarding health promotional activities this study shows that almost all (96.5%) know regular balanced diet. Similarly avoiding smoking and alcohol intake was said by majority (95.3%) of respondents which is consistent with the study done in Biratnagar in which 99.1% identified there should be good nutrition before conception and 95.5% responded smoking cessation.[8]

Likewise, regarding folic acid supplementation in current study more than half (60%) correctly answered the importance of folic acid to prevent congenital birth defect which is supported by study in Saudi Arabia in which majority (85.2%) responded to prevent congenital abnormalities and neural tube defect to baby.[11] Furthermore, in current study 21.2% knew that folic acid should be started three months before pregnancy which is supported by study in Biratnagar where only 9.1 % respondents answer correctly.[8] Concerning recommended exercise during preconception period, current study found that 41.2% respondents answer correctly which contradicts the study in which 95.3% were aware.[14] This may be due to difference in study population as those were nursing students.

In present study, 97.6% respondent answered risk of high blood pressure and diabetes is effect due to obesity and least (49.4%) said congenital birth defect. These results were similar to a cross-sectional study in Abu Dhabi, UAE which revealed that women's awareness of pregnancy-related complications due to obesity was 80.3% for diabetes and least (3.4%) knew birth defect.[15]

Current study found 82.4% of respondents knew that abortion is due to intake of alcohol and smoking during preconception period. This result is similar to a descriptive cross-sectional study in Tulsipur municipality of Dang District.[9] In this study, 96.5% respondents said investigation of blood group, 94.1% responded screening for non-communicable disease and 81.2% answered test for HIV/AIDS were necessary prior to conception. This result was inconsistent with a study in Syangja where most of the respondents (83.3%) answered same.[13]

In current study, only 35.3% answered exposure to risk condition which is higher than the study among undergraduate student in Banepa where 79.1% of respondents knew that chance of having toxoplasmosis is increased from contamination to cat faeces.[16] This study illustrates that majority (83.5%) of the respondents knew history of genetic disorder in family followed by history of previous child with birth defect (68.2%) and two or more recurrent miscarriages (55.3%), history of previous child with mental retardation (52.9%) and women aged 35 years and above (45.9%) are candidates for genetic testing and counseling. These results were contradicted by study in Turkey were women had a low level of knowledge regarding prenatal genetic screening where mean knowledge score was 3·43 ± 3·21 of a possible score of 10.[17]

This study found that level of awareness has significant association with educational status of husband and previous abortion which is supported by a study in Ethiopia that illustrated woman whose husbands attended secondary and above education had higher knowledge scores.[18]

Limitation of the study is that inferental statistics is applied in small sample size with limit the inferences.

CONCLUSION

This study concludes that nearly half women of reproductive age women have adequate awareness regarding preconception care, there is more awareness on risk factor assessment and investigation and less awareness on the area of intervention and management. The level of awareness is associated with husband's

education level and history of abortion. Therefore, it is recommended that, as the health professionals play a significant role in establishing awareness, it would be preferable to implement formal and informal education and awareness program on many aspects of preconception care in the community to promote knowledge among people.

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Awareness Regarding Stroke among Patients with Hypertension Attending a Tertiary Hospital

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ABSTRACT

Introduction: Stroke is a global burden especially in developing countries with hypertension being one of the preventable key risk factors. Patients' awareness of stroke is crucial for its prevention and early and effective management. The objective of this study was to find out the awareness of stroke among patients with hypertension in a tertiary hospital in Nepal.

Methods: A descriptive cross-sectional study was conducted in the Outpatient Department of Manmohan Cardiothoracic Vascular and Transplant Centre, Kathmandu. A total of 106 patients diagnosed with hypertension were selected using a non-probability convenience sampling technique. Data was collected from April to May 2024 with face-to-face interviews using a researcher-developed semi-structured interview questionnaire. Data were analyzed with Statistical Package for Social Science version 16 with descriptive statistics for frequency, mean, percentage, and standard deviation and inferential statistics Chi-square and Fischer exact test to measure the association between stroke awareness and selected variables.

Results: The study findings revealed that out of 106 hypertensive patients, 40.6% had a good level, 49.1% had a fair level, and 9.4% had a poor level of awareness of stroke. Level of awareness were statistically significant with place of residence, educational status, regular medicine intake, and regular follow-up schedule.

Conclusion: This study concludes that patients with hypertension have a fair level of awareness of stroke. Thus, stroke awareness programs incorporating lifestyle modifications, blood pressure control, regular medications, and follow-ups, should be conducted to control hypertension and decrease the stroke burden among patients with hypertension.

Keywords: Awareness, hypertensive patient, stroke

INTRODUCTION

Stroke is the second leading cause of death, responsible for approximately 11% of deaths of which more than three-fourths occur in low and middle-income countries.[1] There is a remarkable increase in stroke incidence and mortality rates from 1990 to 2019, with a 70% rise in stroke incidence and a 43% rise in stroke-related deaths.[2] South Asians have a twofold higher risk of getting a stroke than Europeans due to the higher prevalence of hypertension.[3] Age, sex, and race/ethnicity are non-modifiable risk factors while hypertension, diabetes mellitus, smoking[4-6], hyperlipidemia, diet, and physical inactivity are modifiable risk factors.[7] Lifestyle factors contribute to around two-thirds risk of stroke, while genetic factors account for one-third.[8] Hypertension remains the most important, well-documented modifiable risk factor of stroke,[9,10] and has been found in 64 % of stroke patients.[10] Worldwide, hypertension is believed to cause 7.5 million deaths, about 12.8% of

the total of all annual deaths.[11] Nepal reached 12,909 deaths due to stroke, constituting 8.04% of the total mortality.[12] A meta-analysis reported that the estimated rate of hypertension was found to be 27.3% in Nepal.[13] Studies from Nepal among hypertensive patients have highlighted inadequate awareness of stroke.[14-16] Awareness of stroke among hypertensive patients can reduce the risk of stroke by recognizing the importance of blood pressure control.[17] It is possible to prevent or avoid up to 80% of strokes by raising awareness about the risk factors and warning signs associated with stroke.[18] A systematic review of studies from 2010 to 2020 on stroke awareness among hypertensive patients found significant variation in awareness, ranging from 4.4% to 79%. Awareness of stroke signs and symptoms ranged from 23.6% to 87%.[19] Low levels of awareness on stroke were found in Indonesia (77.4%) [20], India (76%),[21,] and Nepal (61.3%)[14]. A study from Nepal shows that one of the main reasons for the rise in stroke-related deaths is patients' lack of awareness about the risk factors.[22] Poor awareness of stroke among hypertensive patients leads to inadequate management, unhealthy lifestyles, non-compliance with medications, and irregular blood pressure monitoring. However, educating these patients about stroke risks, warning signs, treatment, complications, and prevention can help reduce stroke incidence. [23-25] Despite the high risk, stroke awareness among hypertensive patients remains low due to the lack of structured health education efforts. Therefore, this study aims to assess stroke awareness among hypertensive patients attending a tertiary hospital not only to fill the gap in existing literature, but also to support the development of targeted educational and preventive strategies that can reduce stroke-related morbidity and mortality. So, the researchers were interested in assessing the awareness regarding stroke among patients with hypertension attending a Tertiary Hospital.

METHODS

A descriptive cross-sectional study was conducted in the Outpatient Department (OPD) of Manmohan Cardiothoracic Vascular and Transplant Centre (MCVTC), Maharajgunj,

Kathmandu among 106 patients diagnosed with hypertension. The sample size was determined using Cochran's formula (1977), based on a prevalence rate of 0.51.[16] A non-probability convenience sampling technique was used to collect the sample. This method was chosen due to practical considerations such as limited time, resource constraints, and the ease of accessing eligible participants who were already attending the OPD of MCVTC for follow-up treatment. Hypertensive patients aged 18 years and above, of both sexes, diagnosed for at least six months, attending the OPD of MCVTC for follow-up, taking antihypertensive medication, able to communicate in Nepali, and willing to participate were included in the study. Patients with gestational hypertension, speech difficulties, a prior history of stroke, or those working in healthcare were excluded.

The research instrument was developed in English language and then translated into Nepali language. It comprised three parts: 1) socio-demographic characteristics, 2) disease-related factors, including a family history of stroke, duration of hypertension, co-morbidities, and the duration of antihypertensive treatment, and 3) awareness of stroke. The awareness section included items on knowledge of stroke risk factors, warning signs and symptoms, immediate actions, preventive measures, diet, activities, consequences, and preventive measures. The score ranged from a minimum of 18 to a maximum of 49 and the total score was converted to 100%. Awareness levels were categorized as good (≥ 75%), fair (50-74%), or poor (0-49%).[16] The instrument was determined through extensively reviewing the literature, and consulting with cardiologists and neurologists. Pretesting was done among 11 patients with hypertension at the Nephrology Department of Tribhuvan University Teaching Hospital. Ethical approval was obtained from the Institutional Review Committee, Institute of Medicine (Ref. 491 [6-11] E2), and administrative permission was taken from the hospital authority. Data was collected using a Nepali version questionnaire through face-to-face interviews from 28th April to 11th May 2024 six days a week, excluding public holidays.

Written informed consent was obtained from each respondent before data collection. To ensure confidentiality, respondents' information was not disclosed to others and was used solely for study purposes. The dignity of participants was respected by allowing them voluntary participation and the right to refuse or withdraw from the study at any time. Privacy was maintained by conducting interviews in a separate room in the Cardiac OPD of hospital.

Data were entered in the SPSS version 16 and Descriptive statistics were used to calculate frequency, mean, percentage, and standard deviation. Chi-square and Fischer exact test was used to measure the association between stroke awareness and demographic and disease-related variables.

RESULTS

Regarding the socio-demographic characteristics, 55.7% were in the age group 40-59 years and the mean age was 53.4 years (SD ±12.372), 59.4% were male, and 92.5% were married. The majority (53.8%) of the respondents belonged to Brahmin/Chettri ethnicity, 60.4% lived in urban municipalities, 35.8% had no formal education, 34.9% were homemakers, and 45.3% had income sufficient for 6-12 months.

Table 1: Respondents' Disease-related Information (n=106)

Variables	Number	Percentage
Duration of hypertension (in years)		
< 5	48	45.2
6-10	37	34.9
11-15	13	12.3
16-20	5	4.7
21-25	3	2.8
Duration of antihypertensive medication (in years)		
5	53	50.0
6-10	37	34.9
11-15	9	8.5
16-20	5	4.7
21-25	2	1.9
Regularity of medicine intake	103	97.2
Regular follow-up visit	83	78.3
Presence of comorbidities	79	74.5
Co-morbidities (n=79)		
Heart disease	48	60.8
Hypothyroidism	36	45.6
Diabetes mellitus	22	27.8
High blood cholesterol level	21	26.6
Chronic kidney disease	5	6.3
*Others	5	6.3
History of stroke in family	14	13.2

Gastritis, gout, asthma, and benign prostate hyperplasia

Table 1 shows the disease-related information. Most of the respondents (45.2%) had hypertension for 6 months to 5 years, and 50% of the respondents were taking antihypertensive medication for the same duration. All most of the respondents (97.2%) took their prescribed medications regularly, 78.3% had a regular follow-up visit, and 74.5% had comorbidities such as heart disease (60.8%), hypothyroidism (45.6%), and diabetes mellitus (27.8%). A family history of stroke was found in 13.2% of respondents.

Table 2: Respondents' Awareness on Stroke: Meaning, Risk Factors, Warning Signs, and Immediate Action (n=106)

Variables	Number	Percentage
Meaning of stroke		
A sudden interruption of blood flow to the brain that leads to paralysis	44	41.5
Risk factors of stroke *		
Alcohol intake	87	82.1
High blood pressure	86	81.1
Stress	79	74.5
Cigarette smoking	78	73.6
High blood cholesterol	76	71.7
Increasing age	60	56.6
High blood sugar	58	54.7
Sedentary lifestyle	50	47.2
Family history of stroke	50	47.2
Warning signs of stroke *		
Sudden difficulty in walking or unable to walk	82	77.4
Sudden numbness or weakness in the face, arm, or leg (especially on one side of the body)	81	76.4
Sudden trouble speaking or loss of voice	63	59.4
Sudden trouble seeing in one or both eyes or blurring of vision	55	51.9
Immediate actions for stroke warning signs		
The person should be taken to the nearest hospital	69	65.1

Multiple responses

Table 2 shows that 41.5% of respondents correctly identified the meaning of stroke, which is a sudden interruption of blood flow to the brain that leads to paralysis. Regarding risk factors, 82.1% mentioned alcohol intake, 81.1% said hypertension, and 47.2% respondents equally said about sedentary lifestyle and a family history of stroke. Most of the respondents recognized sudden difficulty walking (77.4%) and numbness in the face, arm, or leg (76.4%) are stroke warning signs. The primary immediate action was to take the person to the nearest hospital, which was correctly responded by 65.1%.

Table 3: Respondents' Awareness on Preventive Measures and Diet (n=106)

Preventive measures of stroke *	Number	Percentage
Take medicine regularly as a prescription	101	95.3
Consumption of low salt diet	99	93.4
Abstinence from alcohol	99	93.4
Regular medical follow-up with doctor	98	92.5
Quitting smoking	97	91.5
Consumption of diet high in fruits, vegetables, and fiber-rich	96	90.6
Control and management of high blood pressure	90	84.9
Consumption of low-fat diet	89	84.0
Performing active exercise daily	79	74.5
Managing stress	73	68.9
Control and management of high blood sugar level	68	64.2
Maintaining normal body weight	66	62.3
Daily dietary salt Intake		
1/2 teaspoon (less than 3 gm)	35	33.0
Foods and fruits to be consumed per day*		
4 to 5 servings of fruits	93	87.7
2 to 3 servings of low-fat dairy products	70	66.0
4 to 5 servings of vegetables	56	52.8
2 to 3 servings of lean meats, poultry, and fish	33	31.1
Foods to be avoided *		
Red meat	95	89.6
Salty snacks	95	89.6
Deep-fried foods	91	85.8
Sugar-rich foods	89	84.0

Multiple responses

Table 3 shows that almost all the respondents (95.3%) identified with regular medicine intake, (93.4%) consumption of a low-salt diet, (93.4%) abstaining from alcohol, (92.5%) regular medical follow-ups, (91.5%) quitting smoking and (90.6%) consumption of a diet high in fruits, vegetables, and fiber as preventive measures of stroke. Similarly, 84.9% said managing high blood pressure, 84.0% said a low-fat diet, 80% avoiding red meat, salty snacks, deep-fried foods, and sugar-rich foods lowers the risk of stroke.

Table 4: Respondents' Awareness on Daily Activities, Measures to Reduce Stress and Complications (n=106)

Variables	Number	Percentage
Daily activities (5 days a week) *		
Daily home activities like gardening and mopping for 30 minutes	93	87.7
Moderate-intensity activities like yoga and badminton for 30 minutes daily	88	83.0
Sweat-inducing activities for 30 minutes daily,	74	69.8
Vigorous-intensity activities like running and heavy lifting for 20 minutes daily	38	35.8
Measures to reduce stress *		
Interacting with family	102	96.2
Practicing meditation, yoga, and dhyana	97	91.5
Visiting friends, family, and relatives	90	84.9
Sleep for 6-8 hours per day	81	76.4
Staying busy	81	76.4
Brisk walking	46	43.4
Consequences of stroke *		
Unable to walk	93	87.7
Unable to speak or loss of speech	87	82.1
Paralysis of limbs for lifelong	70	66.0
Loss of vision	70	66.0
Loss of memory	56	52.8
Loss of ability to control bowel and bladder	42	39.6

Multiple responses

Table 4 reveals that most of the respondents, were aware of daily home activities like gardening and mopping (87.7%) and moderate activities like yoga and badminton (83.0%) for 30 minutes, 5 days a week and 35.8% recognized vigorous activities like running and heavy lifting to 20 minutes could prevent stroke. Regarding stress reduction measures, almost all the respondents mentioned interacting with family (96.2%), practicing meditation (91.5%), and visiting friends and relatives (84.9%). Regarding the consequences of stroke, 87.7% of respondents mentioned inability to walk, 82.1% said loss of speech, and 66.0% said lifelong limb paralysis.

Table 5: Respondents' Level of Awareness on Stroke

Level of awareness	Number	Percentage
Good (≥75%)	43	40.6
Fair (50-74%)	52	49.1
Poor (0-49%)	10	9.4
Total	**106**	**100**

Table 5 presents the respondents' level of awareness regarding stroke. Nearly half (49.1%) had a fair level of awareness, 40.6% had a good level of awareness and only 9.4% had a poor level of awareness of stroke.

Table 6: Association between the Level of Awareness and Demographic and Disease Related Variables (n=106)

Variables	Level of awareness			Chi-square	p value
	Poor	**Fair**	**Good**		
	No. (%)	**No. (%)**	**No. (%)**		
Age (in completed years)				0.851	0.323
≤ 50	4(9.3)	20(46.5)	19(44.2)		
>50	6(9.7)	32(51.6)	24(38.7)		
Sex				1.756	0.416
Male	4(6.5)	31(50.0)	27(43.5)		
Female	6(14.0)	19(44.2)	18(41.9)		
Place of residence				22.665	0.001*
Urban municipality	1(1.6)	26(41.3)	36(57.1)		
Rural municipality	9(21.4)	26(61.9)	7(16.7)		
Marital status					0.512[a]
Married	10 (9.8)	50(49.0)	42(41.2)		
Unmarried	0(0.0)	2(66.7)	1(33.3)		
Educational status				17.339	0.001*
Non- formal	7(18.4)	25(65.8)	6(15.8)		
Formal	3(4.5)	27(40.3)	37(55.2)		
Duration of hypertension				0.147	0.929
<7 years	6(60.0)	28(53.8)	23(53.5)		
≥7 years	4(40.0)	24(46.2)	20(46.5)		
Duration of anti-hypertensive medicine intake				0.689	0.709
<7 years	7(70.0)	31(59.6)	24(55.8)		
≥7 years	3(30.0)	21(40.0)	19(44.2)		
Regular medicine intake					0.003[a]*
Yes	7(70.0)	50(96.2)	43(100.0)		
No	3(30.0)	2(3.8)	0(0.0)		
Regular follow-up visits					0.005[a]*
Yes	7(7.1)	48(49.0)	43(41.0)		
No	3(42.9)	4(57.1)	0(0.0)		
Presence of co-morbidities				1.400	0.497
Yes	9(11.4)	39(49.4)	31(39.2)		
No	1(3.8)	13(50.8)	12(46.2)		
History of stroke in family				2.717	0.257
Yes	0(0.0)	6(42.9)	8(57.1)		
No	10(11.0)	46(50.5)	35(38.5)		

[a]*Fischer exact test is computed for value*

*Significance level ≤ 0.05

Table 6 shows that there is a significant association between respondents' level of awareness regarding stroke and selected socio-demographic variables including place of residence (p = 0.001) and educational status (p = 0.000). A significant association was also found between stroke awareness and regular medication intake (p=0.003) and regular follow-up visits (p = 0.005). No significant associations were observed with other variables.

DISCUSSION

This study assessed stroke awareness among patients with hypertension. In this study, the mean age of respondents was 53.4 years (SD ± 12.372). This finding is similar to studies conducted in Saudi Arabia and Ethiopia which reported mean ages of 55.7 years (SD ± 8.16) and 54.1 years (SD ± 9.5), respectively. [24,26] In this study, 41.5% of respondents correctly identified the meaning of stroke as a sudden interruption of blood flow to the brain that leads to paralysis. In contrast a study from Dhulikhel, Nepal reported that only 2.5% of respondents identified blocked blood vessels as the cause of stroke.[15]

Regarding the risk factors of stroke, in the present study 82.1% of respondents recognized alcohol intake, 81.1% high blood pressure, 74.5% stress, 73.6% smoking, and 71.7% high cholesterol. These findings are similar to the study conducted in Ethiopia and Pakistan, where 96.6% [26] and 93.5[27] respectively said high blood pressure a major risk factor. In another study in South India,74.5% of participants recognized stress and 71.7% recognized high cholesterol as risk factors for stroke, consistent with the present study's results.[25] In contrast, a study conducted in Dhulikhel, Nepal reported significantly lower awareness, with only 43.9% of respondents recognizing high blood pressure as a risk factor.[15]

In the present study, regarding awareness of stroke warning signs and symptoms, 77.4 % of respondents said sudden difficulty walking and 76.4% numbness in the face, arm, or leg. These findings are similar to a study conducted in Pakistan where 66.9% of respondents recognized limb weakness or numbness .[27.] This finding

contrasts with the study conducted in Iraq where 29.8% of respondents recognized facial, arm, or leg numbness or weakness as warning signs.[23] Similarly, in a study conducted in Saudi Arabia, 54% of respondents were aware of weakness or numbness on one side of the body, and 51.5% recognized severe headaches as warning signs.[24] In India, 44.7% to 47.3% of respondents knew about sudden numbness or weakness, difficulty speaking, and trouble walking.[25]

Regarding respondents' awareness of immediate actions for those who show warning signs and symptoms, 65.1% said to take them to the hospital immediately. The finding is lower than studies conducted in Dhulikhel, Nepal, and Pakistan where 85.7% and 87.5% of respondents said that a person should be taken to the hospital immediately.[15,27]

In the present study, the majority of respondents (93.4%) recognized that consuming a low-salt diet and avoiding alcohol are important preventive measures against stroke. This aligns with the widely accepted DASH (Dietary Approaches to Stop Hypertension) principles, which emphasize reduced sodium intake and healthy lifestyle practices. In contrast, a study from Morang, Nepal found that respondents primarily emphasized the importance of regular follow-up visits and effective management of hypertension as key preventive strategies.[29] Similarly, in Ethiopia, respondents said treating hypertension could prevent stroke.[26] These differences may reflect variations in health education, accessibility of healthcare services, and public awareness across regions. Overall, the findings from all three studies highlight the importance of taking several steps to prevent stroke. These include eating a healthy diet, taking medicines regularly as prescribed, visiting the doctor for regular check-ups, and keeping blood pressure under control.

In the present study, 40.6% had a good level of awareness, 49.1% had a fair level, and 9.0 % had a poor level of awareness of stroke prevention. This finding is similar to a study conducted in Bharatpur, Nepal where 51.6% of respondents had good knowledge, 32.6% had fair knowledge, and 15.8% had poor knowledge[.16] This finding

is higher than international studies conducted in Ethiopia 24.9%[26], Indonesia 22.54%[20] and Uttarakhand, India 24% [21], who reported low awareness levels. In a study from Chitwan, Nepal 61.3% of participants had poor stroke awareness.[14]

In this study, the level of awareness of stroke showed statistically significant associations with place of residence (p =0.001), educational status (p = 0.001), regular medicine intake (p = 0.003), and regular follow-up schedule (p = 0.005). These findings are consistent with studies conducted in Nepal, where a significant association was found between stroke awareness, educational status (p = 0.048) and place of residence (p < 0.001), [14] as well as other studies showing associations between educational status (p = 0.001)[16], education level and knowledge (p = 0.001). [29]

CONCLUSION

The findings of this study conclude that patients with hypertension have a fair level of awareness of stroke. However, there is a need for more targeted awareness programs focusing on lifestyle modifications, health promotion, and adherence to antihypertensive treatment. In addition, programs should emphasize the importance of a balanced diet, including low-salt intake, regular consumption of fruits and vegetables, and avoiding alcohol, to help prevent stroke and improve overall health in patients with hypertension.

Conflict of Interest

The authors declare that no conflict of interest.

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Barriers in Seeking Treatment among People with Alcohol Problem in a Selected Ward of Dharan

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ABSTRACT

Introduction: One of the most important global addiction demands is an alcoholic beverage. In developing countries like Nepal, alcohol intake tends to be a major problem because of various socio-cultural practices, lack of adequate awareness for alcohol-related problems, and the emergence of social drinking patterns, a large majority of individuals with problematic drinkers do not seek treatment. This study aimed to analyze barriers in seeking treatment among people with alcohol problems and to find out association between socio- demographic factors and barriers in seeking treatment among people with alcohol problem in a selected ward of Dharan.

Methods: A cross- sessional study was conducted in Dharan17 and samples were selected using the snowball sampling method. Ethical clearance was taken from the Institution Review Committee (IRC) of BPKIHS (IRC number: IRC/1576/019). Each participant was interviewed by the researcher herself using the Performa in a separate area. Data collection was undertaken in 2 weeks. A total of 104 samples were screened by the (Cut down, annoyed, Guilty and Eye Opener) CAGE questionnaire. A score of 2 or greater 'Yes' from CAGE, considered clinically significant with alcohol use problems. The Barrier to Treatment Inventory (BTI) scale was used to assess barriers. Mean, median, standard deviation, percent, and frequency were used to describe demographic data and Barriers in seeking treatment. Independent sample T-test, ANOVA, Multiple Linear Regression Analysis were adopted to find out the association between dependent and independent variables.

Results: The majority of the subjects were male (73%), married (77%), and Janjati (60%). Labor was highest among all the occupations (38%). "Absence of problem" barrier in seeking treatment predominated by mean scores of 71%. Further a significant association was found with family income/ month and barriers in seeking treatment (p-value 0.01).

Conclusion: The study findings conclude the absence of a problem as a major barrier in seeking treatment. Barriers in seeking treatment tend to decrease as income increases.

Keywords: Alcohol problem, barriers to treatment, seeking treatment

INTRODUCTION

Worldwide, three million deaths per year occur due to the harmful use of alcohol which represents 5.3 % of all deaths. More than 200 diseases and injury conditions occur due to the harmful use of alcohol. Overall, 5.1 % of injury and the global burden of disease is attributable to alcohol, as measured in disability-adjusted life years. Death and disability due to alcohol consumption are particularly seen in the age group of 20–39 years.[1]

Since 2010, the overall burden of disease and injuries caused by the harmful use of alcohol is unacceptably increasing in European and American regions. Around 2.3 billion are current drinkers. Global consumption of alcohol is predicted to increase in the next 10 years even though almost 95% of countries have alcohol exercise taxes.[1]

Asia is growing fastest among the alcohol market which has led to major challenges especially among youths' males and females as death associated with alcohol consumption is 15 % and 6 % for males and females respectively. Besides this, it is associated with harm, stress, injuries, and even suicide in eight Asian countries viz China, India, Japan, Malaysia, Mongolia, South Korea, Thailand, and Vietnam.[2, 3]

Alcohol consumption is emerging public health attention in India as crimes like sexual/ physical assault, rape, exploitation of women in commercial sex work, and homicide are increased due to alcohol intoxication.[4]

Alcohol intake in Nepal is rising tremendously. The average daily intake of alcohol among Nepalese people is 16.1 grams of pure alcohol and projected that by 2020 and 2025 total alcohol consumption will be 2.3 and 2.6 liters respectively.[1]

Alcoholism is one of the leading causes of major public health issues in developing and developed countries. The interaction patterns in alcoholic families are also very strained. As a result, marital disruptions, disrupted family rituals, poor cohesion, expressiveness, and recreational orientation, difficulties in communication and effective involvement, and lack of clean hierarchical boundaries are common in alcoholics families.[5]

In a cross-sessional study done on Chitwan, few females i.e. 13% consume alcohol among them 5 % are screened positive on AUDIT score. More than, 50 percent of males consume alcohol among 25% (Alcohol Use Disorders Identification Tests) AUDIT positive, positive 80% are having internalized stigma.[6]

Having alcohol problems, as well as realizing the need for and entering treatment, was associated with shame and stigma, producing a strong barrier to treatment. Many people would like to change themselves by cutting down drinking and don't realize their drinking as a problem and need for seeking treatment. Very few had visited psychiatric service for quitting alcohol and majority had come to the service when they had some serious health issues. Despite this many people lack confidence in giving up alcohol and some hesitate due to heavy financial expenses going to treatment.[7]

METHODOLOGY

A descriptive cross-sectional study was conducted in Dharan 17, a Sub-Metropolitan city in January 2020. Community residents who were 18 years and above, having an alcohol problem and didn't seek treatment or discontinued treatment after the first treatment residing in Dharan 17 during the time of data collection were included for the study using non-probability snowball sampling technique. Sample size and calculation was based according to a study done on the Rural Population of India in 2011.[8] Based on majority barriers i.e. 'time conflict' as a barrier account 51.2% i.e. p=0.512 and q=1-p=1-0.512=0.488 and using the formula to calculate the sample size $n=Z^2pq/d^2$. Considering d= 20% of p.= $(1.96)2*0.512*0.488/$ (20 % of $0.512)^2$ = .959/0.01 =95.9. Adding 10% non-respondent rate 10% of 95=9.5. By adding 10% non-respondent rate sample size became 104. Ethical clearance was taken from the Institution Review Committee (IRC) of BPKIHS (IRC number: IRC/1576/019). Permission was taken from the Head of Department and Ward Chairman of Dharan 17. Informed written consent was taken from the participant who is to be evaluated to maintain confidentiality. After obtaining permission from the authority concerned, informed written consent was obtained from each participant. Each participant was interviewed by the researcher herself using the Performa in a separate area of his/her home. It took around 15-20 minutes to interview every single participant. Data collection was undertaken in 2 weeks. Data

or information was obtained using interview questionnaire, which was translated in Nepali version consulting expert, that included Part-I: Demographic Performa. Part-II: CAGE Questionnaire: This is a 4-item tool for alcohol use problem detection. This CAGE tool has been used in Nepal. It is a final validated tool prepared by WHO. It has been found to have good test-retest reliability (0.80-0.95) and adequate co-relation with similar screening tests.[9] Item responses on the CAGE are scored Yes or No, with a higher score an indication of alcohol problems. A total score of 2 or greater Yes is considered clinically significant with alcohol use problems. Part-III: Barriers to Treatment Inventory (BTI): BTI is a seven-element, twenty-five item tool which is widely used for substance abuse person who lacks treatment and has validity and reliability as it has been used in previous research by testing. Cronbach's standardized for alfa for each subscale. The standardized were acceptable, ranging from 0.65 for admission difficulty to 0.86 for the absence of a problem.[10] Responses are scored on a 5-point Likert scale as 1= disagree strongly, 2=disagree, 3= uncertain, 4= agree, and 5=agree strongly.

Instrument was pretested among 10% of the sample size in a similar setting to identify feasibility, completeness, comprehensiveness, and appropriateness before actual data collection. The samples in the pretest were excluded in the study and modification was done accordingly.

After collection of the data, they were checked for completeness, organized and coded and entered in Microsoft Excel and converted into SPSS 11.6 version. Descriptive and inferential statistics taking 95% CI and p- value= 0.05 were used to analyze the data. Inferential statistics i.e. One-way ANOVA, T-Test was applied to find out the association between socio-demographic variables with scores of Barriers to Treatment. Multiple Linear Regression Analysis was applied to find out the relationship between barrier scores and selected socio-demographic variables. Analyzed data and results were presented through tables.

At the end of the interview, brief counseling was provided to participants and their families; visiting BPKIHS hospital for quitting alcohol in case of difficulty to self-control alcohol intake and for regular check-ups.

RESULTS

Table 1: Socio-demographic Characteristics of Respondents (n=104)

Characteristics		Frequency	Percent
	<=30	15	14.42
	31-40	22	21.15
Age group in years	41-50	21	20.19
	51-60	26	25.00
	>60	20	19.23
Mean age ± SD = 47.59±13.66			
Gender	Male	76	73.08
	Female	28	26.92
	Brahmin/Chhetri	6	5.77
Ethnicity	Janjati	62	59.62
	Dalit	36	34.62
	Hindu	65	62.5
	Buddhist	19	18.3
Religion	Christian	13	12.5
	Kirat	7	6.7
Social support for treatment	Yes	83	79.80
	No	21	20.20
	Illiterate	42	40.38
Education	Primary	26	25.00
	Secondary and above	36	34.62
	Labor	40	38.46
	Farmer	22	21.15
Occupation	Service	9	8.65
	Business	15	14.42
	Others	18	17.31
Family type	Nuclear	44	42.31
	Joint	60	57.69
Total No. of Family Members	>4	71	68.30
	<5	33	31.70
	<15000	39	37.50
Family Income/month in NRS	15000-30000	54	51.92
	>30000	11	10.58
Financial Support for Treatment	Yes	87	83.70
	No	17	16.30
	Single	5	4.81
Marital Status	Married	80	76.92
	Widow/Widower	14	13.46
	Separated	5	4.81

Majority of the participants were male (73%), Janjati 60%, Hindu 62.5% illiterates (40 %), and married (77%). One-fourth (25%) of the participants belong to 51 to 60 years. Besides this 38 % of participants were labor by occupation and more than 50% of the participants earn between NRS 15000-30000. A total of 80% and 83.7 % of the participants have social and financial support for treatment respectively. A total of 58% of the participants live in a joint family and around 70% were with five or more members (Table 1).

Table 2: Respondents' Pattern of Alcohol Use (n=104)

Characteristics		Frequency	Percentage
Type of alcohol	Local	75	72.12
	All types	29	27.88
Age at first taking alcohol	<20	71	68.27
	20-40	26	25.00
	40-60	6	5.77
	>60	1	0.96
Amount of alcohol consumed in one sitting	<100ml	35	33.6
	100-300ml	58	55.7
	>300ml	11	10.5
Money spent (Nrs) per day for getting alcohol	<100	78	75.0
	100-300	21	20.1
	>300	5	4.8
Source for getting alcohol	Self	94	90.3
	Others (Wife, husband, children, friends)	10	9.6

The majority (72%) of the participants consume local alcohol i.e. homemade preparations. Around 70% of the participants started taking alcohol before the age of 20. The average intake of alcohol was 100-300 ml and 75% of the subjects spend less than 100 rupees/day for getting alcohol. More than 90% of the participants are getting alcohol on their own (Table 2).

Table 3.1: Overall barriers in seeking treatment of the respondents (n=104)

Barriers to treatment				
Total Score	Mean	Std. Deviation	Variance	Range
Absence of problem	70.70	13.07	170.80	60
Negative social support	39.34	4.99	24.90	48
Fear of treatment	41.92	7.25	52.58	50
Privacy concerns	42.88	10.29	105.94	60
Time conflict	40.19	5.21	27.14	40
Poor treatment availability	39.03	7.28	53.00	46.67
Admission difficulty	40.00	5.75	33.01	60

The mean rating score (70.70) on the overall 'absence of problem' is found to be higher than 60% which indicates, there exists a barrier to go for treatment in the study sample (Table 3.1).

Table 3.2 Responses for Barriers in seeking treatment (n=104)

Barriers to Treatment	Mean± SD	Strongly Disagree No. (%)	Disagree No. (%)	Uncertain No. (%)	Agree No. (%)	Agree Strongly No. (%)
1 Absence of problem	3.53 ± 0.64					
1.1 I don't think I have a problem with alcohol.	3.63± 0.85	2(1.92)	14(13.46)	10(9.62)	73(70.19)	5(4.81)
1.2 No one had told me I had a problem with alcohol.	3.64± 0.79	2(1.92)	13(12.5)	6(5.77)	82(78.85)	1(0.96)
1.3 My alcohol isn't causing any problems.	3.63± 0.80	2(1.92)	14(13.46)	5(4.81)	82(78.85)	1(0.96)
1.4 I don't think I will make my life better	3.27± 0.87	2(1.92)	22(21.15)	27(25.96)	52(50)	1(0.96)
1.5 I can handle alcohol use on my own	3.43± 0.91	4(3.85)	17(16.35)	14(13.46)	68(65.38)	1(0.96)
1.6 I don't think I need treatment	3.63±0.87	2(1.92)	16(15.38)	6(5.77)	75(72.12)	5(4.81)
2 Negative social support	1.96 ± 0.24					
2.1 I will lose my friend if I go to treatment	1.99±0.30	4(3.85)	98(94.23)	1(0.96)	1(0.96)	0(0)
2.2 Friends tell me not to go for treatment	1.96±0.28	6(5.77)	96(92.31)	2(1.92)	0(0)	0(0)
2.3 People will think badly of me if I go to treatment	1.95± 0.32	7(6.73)	96(92.31)	0(0)	1(0.96)	0(0)
2.4 Someone in my family doesn't want me to go to treatment	1.96±0.31	6(5.77)	97(93.27)	0(0)	1(0.96)	0(0)
2.5 My family will be embarrassed or ashamed if I go to treatment	1.97±0.29	5(4.81)	98(94.23)	0(0)	0(0)	0(0)
3 Fear of treatment	2.09 ± 0.36					
3.1 I have a bad experience with treatment	2.12 ±0.47	3(2.88)	89(85.58)	9(8.65)	3(2.88)	0(0)
3.2 I am afraid of what might happen in the treatment	2.13±0.50	3(2.88)	89(85.58)	8(7.69)	4(3.85)	0(0)
3.3 I am afraid of the people I might see in treatment	2.05±0.32	2(1.92)	96(92.31)	5(4.81)	1(0.96)	0(0)
3.4 I am too embarrassed or ashamed to go to treatment	2.10±0.43	2(1.92)	93(89.42)	6(5.77)	3(2.88)	0(0)
4 Privacy concerns	2.14 ± 0.51					
4.1 I don't like to talk in groups	2.16 ±0.58	4(3.85)	85(81.73)	9(8.65)	6(5.77)	0(0)
4.2 I hate being asked personal questions	2.13 ±0.52	4(3.85)	86(82.69)	10(9.62)	4(3.85)	0(0)
4.3 I don't like to talk about my personal life with other people	2.13±0.50	3(2.88)	88(84.62)	9(8.65)	4(3.85)	0(0)

Table 3.2 Contd..: Responses for Barriers in seeking treatment (n=104)

Barriers to Treatment	Mean± SD	Strongly Disagree No. (%)	Disagree No. (%)	Uncertain No. (%)	Agree No. (%)	Agree Strongly No. (%)
5 Time conflict	2.00 ± 0.26					
5.1 I have things to do at home that make it hard for me to get treatment	2.01±0.26	3(2.88)	97(93.27)	4(3.85)	0(0)	0(0)
5.2 It will be hard for me to find a treatment program that fits my schedule	2.01±0.26	3(2.88)	97(93.27)	4(3.85)	0(0)	0(0)
6 Poor treatment availability	1.95 ± 0.36					
6.1 I am moving far away to get treatment	1.95±0.35	9(8.65)	91(87.5)	4(3.85)	0(0)	0(0)
6.2 I don't know where to go for treatment	1.96 ±0.39	9(8.65)	91(87.5)	3(2.88)	1(0.96)	0(0)
6.3 I have difficulty getting to and from treatment	1.94 ±0.36	10(9.62)	90(86.54)	4(3.85)	0(0)	0(0)
7 Admission difficulty	2 ± 0.28					
7.1 I will have to make a waiting list for treatment	1.98±0.31	5(4.81)	97(93.27)	1(0.96)	1(0.96)	0(0)
7.2 I have to go through many steps to get into treatment	2.02±0.31	3(2.88)	97(93.27)	3(2.88)	1(0.96)	0(0)

Table 3.2 illustrates that the absence of a problem is a major barrier behind seeking treatment with a 3.53 mean score. "I don't think I have a problem with alcohol", "No one had told me I had a problem with alcohol" and "My alcohol isn't causing any problems" are the statements that are having the highest mean score to have a strong reason behind seeking treatment. Similarly, poor treatment availability and negative social support has least mean score of 1.96 and 1.96 respectively statement with no barrier.

Table 4: Association of Barriers in Seeking Treatment with Socio-demographic Variables (n=104)

Variables	Fear of Treatment	Poor Treatment Availability	Admission Difficulty
	p- Value		
Gender	0.01 **	0.5**	0.34**
Marital Status	0.01 ***	0.96 ***	0.80 ***
Financial support for treatment	0.04 **	0.18 **	1.00 **
Education	0.82 ***	0.01 ***	0.49 ***
Occupation	0.70 ***	0.44 ***	0.01 ***
Family income/ month	0.67***	0.08 ***	0.01 ***

*** ANOVA   ** Independent T-test

Table 4 illustrates that barrier as 'Fear of treatment' is associated with gender (p-value 0.01), financial support (p-value 0.04), and marital status (p-value 0.01). Besides this, barrier as 'Poor treatment availability' has an association with education (p-value 0.01). and 'Admission difficulty' is associated with occupation (p-value 0.01) and family income per month (p-value 0.01). 'Absence of problem' is the major barrier in seeking treatment which is not associated with any one of the socio-demographic variables.

Table 5: Association between Socio-demographic Variables with Overall Barrier Score (n=104)

Va Variables		Total Barrier Scores	
		Mean ± SD	p-Value
Age group in years	<=30	59.25 ± 4.06	0.77 ***
	31-40	60.69 ± 2.63	
	41-50	58.84 ± 5.55	
	51-60	58.96 ± 6.74	
	>60	59.01 ± 5.92	
Gender	Male	59.09 ± 5.13	0.42 **
	Female	60.07 ± 5.62	
Ethnicity	Brahmin/ Chhetri	57.30 ± 5.41	0.39 ***
	Janjati	59.10 ± 5.94	
	Dalit	60.13 ± 3.76	
Religion	Hindu	60.11 ± 5.42	0.27 ***
	Buddhist	57.66 ± 5.60	
	Christian	58.58 ± 3.84	
	Kirat	58.31 ± 4.34	
Education	Illiterate	60.15 ± 6.12	0.35 ***
	Primary	58.27 ± 3.59	
	Secondary and above	59.20 ± 5.15	
Occupation	Labor	60.31 ± 3.72	0.37 ***
	Farmer	58.88 ± 5.48	
	Service	57.64 ± 9.97	
	Business	60.26 ± 4.18	
	Others	57.91 ± 5.51	
Family type	Nuclear	60.30 ± 4.08	0.11 **
	Joint	58.65 ± 5.91	
Total Family members	<5	59.35 ± 3.48	0.99 **
	>5	59.35 ± 5.92	
Family Income/ month	<15000	58.80 ± 4.11	**0.01** ***
	15000-30000	59.93 ± 5.09	
	>30000	54.90 ± 7.64	
Financial support for treatment	No	59.60 ± 5.64	0.84 **
	Yes	59.30 ± 5.21	
Social support for treatment	No	60.31±4.79	0.32 **
	Yes	59.11±5.36	
Marital Status	Single	59.20 ± 2.19	0.79 ***
	Married	59.15 ± 5.44	
	Widow	61.10 ± 1.22	
	Widower	60.87±7.36	
	Separated	58.20 ± 3.57	

*** ANOVA   ** Independent T-test

Table 5 illustrates, the overall score of barriers in seeking treatment has a significant association with family income/month, barriers tend to decrease as income increases (p- value 0.01).

Table 6: Multiple Linear Regression Analysis for Overall Barrier Score with Socio-demographic

Variables	Unstandardized Coefficient of B	Standardized Coefficient of B	Standard error	t- value	p-value
Constant	67.926		5.742	11.83	0
Age in years	-0.043	-0.112	0.047	-0.928	0.356
Income	-4.63E-05	-0.207	0	-2.018	**0.046**
Financial support for treatment (Sufficient/Not)	0.247	0.017	1.483	0.166	0.868
Social support for treatment (Sufficient/Not)	-0.941	-0.072	1.356	-0.694	0.489
Religion (Hindu/Others)	-1.4	-0.151	0.934	-1.499	0.137
Education (Illiterate/Literate)	-0.996	-0.093	1.263	-0.789	0.432
Occupation (Labor/Other)	-0.781	-0.095	0.819	-0.954	0.343
Ethnicity (Dalit/Other)	0.755	0.082	0.942	0.801	0.425
Marital Status (Single/Other)	-1.371	-0.056	2.579	-0.532	0.596

Variables (n=104)

Table 6 illustrates that family income/ month is significantly associated with the mean of the Barriers to treatment inventory scale (p-value0.046 and standardized coefficient -0.20B). Barriers tend to decrease as income increases.

DISCUSSION

This study also replicated that there is a strong barrier to seek treatment among the subjects with alcohol problems. These results would be interpreted in the light of sociocultural perspectives as alcohol has become a favoring part of social custom like in festivals, marriages, birthday parties, etc. In the present study, self-concept issues like not recognizing the harmful practice of alcohol as an adverse effect on health were ranked as the highest barrier. Similar report was made among psychiatry in-patients with Alcohol Dependence Syndrome (ADS) in a hospital-based study from BPKIHS.[7]

The mean age of the participants was 47.59±13.66. This is similar to the Hispanic study in which the mean age was 44.6±11.3.[11] This points to the fact that alcohol abuse is highest among the parents, who are functioning the role of marital relations, childbearing, and rearing practices. This sort of practice of alcoholism during this vulnerable period leads to offsprings greater risk of alcohol use disorder symptoms and childhood depressive symptoms.[12,13]

In this study, the population consisted of 104 which is consistent with a similar study of India and Spain which had a sample size of 100 and 107 respectively.[14,15]

Study subjects revealed 77% were married which is consistent with the previous study in

India and Nepal majority of the subjects were married.[16,17] Illiteracy is one of the reasons behind substance abuse, and delaying treatment due to limited knowledge about the consequences of heavy drinking could be considered as a barrier.[18] Study too revealed 40% illiterates which is similar to the previous studies.[19,20]

The Majority of the subjects are residing with their in-laws which was consistent with another study.[20] More than 50% of the subjects earn within Nrs.15000-30000 i.e. above the basic salary (Nrs.13450/month according to a source at the ministry of labor, employment, and social security) of Nepal. Study on " The moderating role of perceived social support on alcohol treatment outcomes" the majority of the subjects were financially comfortable and had a higher level of perceived social support. This study supports the present study as around 80% of the people have financial and social support for treatment.[21]

The pattern of drinking among problematic drinkers is quite different. The study found that all the interviewed subjects drink alcohol regularly at night. Locally distilled preparations were the preferred drink for all of the subjects as it was very cheap and readily available. Few subjects 28% who spend more on alcohol, use whiskey, beer, etc. sometimes along with home preparations. A study was done on Bangalore on four communities (urban, rural, slum, and town) where whiskey (49%), arrack (35%) were preferred types and preferences between rural and urban areas respectively contradicting with the findings of this study.[22]

Around 70% of the subjects started to drink alcohol before the age of 20, as a drink was culturally and socially acceptable especially in special festivals, occasions, and meetings. This frequently drinking practice might be a risk factor for other non-communicable diseases like diabetes mellitus, hypertension, Cerebro-vascular diseases, etc., and may lead to raising concerns of drug abuse issues.[23,24] It is consistent with the previous study 'Clinico-demographic profile among female alcohol problems' where the first intake of alcohol among study subjects was 17.45±9.45.[16]

Around 60% of the subjects consume alcohol between 100-300ml in one sitting. This sort of regular drinking pattern may lead to gastrointestinal problems, cancers, changes in genito-urinary changes, muscular changes, neurological changes, etc.[4] Among 104 subjects 75% spend less than Nrs 3000/month on alcoholic drink as they consume alcohol which is cheap and locally prepared. More than 90% of the participants are getting alcohol themselves from their daily wages.

In this study, the barrier 'absence of problem' predominated in the subjects. It is consistent with the European and other studies.[25] These all states that the subject's awareness was very low in the community. 'Absence of problem' barrier was higher in females (table 4) which is consistent with the previous study.[25] In the study "Gender and use of substance abuse treatment services", women are more likely to encounter barriers to treatment, this study too is consistent with the findings of the present study as 'overall barrier scores' among males and females are 59±5.13 and 60.07 ± 5.62 respectively. Females having less favorable means of seeking treatment due to lack of freedom as playing submissive roles in a society might be the reason behind this.[8] Besides this woman might be a victim of other predisposing factors like higher levels of sexual abuse and violence. Additionally, they may ensure low availability of treatment due to higher levels of stigma and lower acceptance of their addiction.[18]

Negative social support and poor treatment availability was the least barrier among the interviewed subjects as they were known they were able to be treated in BPKIHS, hospital, Ghopa. It is contradictory to another study.[26] Moreover, this research also presents that around 80% of the subjects are getting financial and social support. As per previous research, it contradicts as negative social support is one of the influenced barriers.[27]

The majority (mean score 60%) barrier to seeking treatment exists among the subjects. There was an association between the mean score barrier and family income/month only. Those subjects who earn less have more barriers compared to earning more. Lack of association between other socio-demographic characteristics can be explained by the fact that problematic

drinkers' barriers to seeking treatment are highly stigmatized in the community.[28]

There was an association (p-value 0.04) between financial support for treatment with 'fear of treatment' as a barrier. Subjects who have no support had a much mean barrier (Table 4). Similarly, there was an association (p-value 0.01) between marital status and 'fear of treatment' as a barrier. The mean barrier was seen among widower compared to other subjects (Table 4). This is the fact due to deprivation in motivation to seek treatment as wives are the strongest source of motivation in seeking treatment.[29]

There was an association between family income/ month with the 'admission difficulty' barrier. A person who earns Nrs.>30,000 has admission difficulty problem as a barrier to seeking treatment this might be due to fear of stigmatization of hospital stay and busy in earning neglecting effects of health and have to follow lengthy procedures as reported by the subjects.

Correspondingly there was an association between barrier 'admission difficulty' with occupational status (p-value 0.01). The barrier was highest among labor and least among service holders. It might be due to the long waiting time, fear of losing a contract, and money for the laborers.[30]

Besides these, there was no association between socio-demographic variables and other barriers (absence of a problem, negative social support, privacy concerns, time conflicts).

Multiple linear regression after adjusting all possible associated factors of overall Barriers in seeking treatment, it was found that the overall barriers in seeking treatment had a reverse relationship with income i.e. as the income of alcohol users was lesser, the more was the barriers in seeking treatment. (p-value 0.04 and standardized coefficient of B -0.20).

CONCLUSION

This study finding revealed the 'absence of problem' as a major barrier for problematic drinkers. There was an association between barrier, 'fear of treatment', 'poor treatment availability', and 'admission difficulty' with socio-demographic variables like gender, financial support, marital status, family income/month, education, and occupation. Overall, the mean score of sixty-one percent of the barrier exists in the society greatest among widow groups. Overall, barrier score was found to be related to family income/ month, the more the income, less the barrier.

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Disease Severity and Care Practices of COVID-19 Infected Nurses: A Cross-sectional Study

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ABSTRACT

Introduction: Covid-19 has been causing serious medical complications resulting from mild to critical illness, including death. Nurses caring for patients with COVID-19 were getting infected themselves and posing a risk to their families. This study aimed to find out the severity of the disease and care practices of COVID-19-infected nurses

Methods: A cross-sectional study design among 418 nurses from COVID-designated hospitals was contact personally to collect data through a self-administered questionnaire in 2021 after taking Ethical approval from NHRC. The SPSS software version 16 was used to process and analyze the data.

Results: The mean age of participants was 29.69, ranging from 19 to 68 years. Among all female participants, 335 (80.1%) were staff nurses, 236 (56.5%) were working in the COVID-designated area, and only 17% received training. Likewise, participants who were in isolation were 322 (77%), while 8 (1.9%) were admitted and treated in the critical care unit, and 26 (6.2%) received antiviral therapy. Additionally, their practices showed wearing PPE at>90%, following donning and doffing 87%, and eating nutritious food 86%. Music was a relaxation technique for 60%, followed by yoga/meditation for 43%. The Chisquare test showed no association between disease severity and care practices of COVID-19 infection.

Conclusion: The majority of nurses experienced mild to moderate health issues due to COVID-19 infection. Whereas their care practices about wearing PPE, donning, and doffing were good, and no association of disease severity and care practice. Therefore, further exploration is needed to identify the factors associated with disease severity.

Keywords: Care practices, disease severity, COVID-19 infected nurses

INTRODUCTION

Coronavirus disease-2019 (COVID-19) caused a global pandemic with respiratory droplets and contact transmission playing an important role in the spreading of the disease. Standard recommendations to prevent the spread of COVID-19 include frequent practice of proper hand hygiene and respiratory hygiene. [1, 2] The covid-19 affected millions of people across the world including health care workers (HCWs). Its association with a very high rate of infectivity led to a high level of fear and anxiety about getting infected among the public and HCWs.

HCWs especially nurses caring for patients with COVID-19 are facing challenges in the current scenario having a higher rate of infection to themselves and by extension, having to contend with the risk of infecting their families. A survey conducted among 32,000 nurses by the American Nurses Association about 'How are nurses caring' found that 87% had feared going to work, 36%

had cared for an infectious patient without having adequate personal protective equipment (PPE), and only 11% believed they were well-prepared to care for patients with covid-19.[3]

Disease Severity means whether the infected nurse can take care of oneself as a mild disease, needs assisted care for moderate disease, and needs admission in the critical care unit for severe disease these are measured by self-isolation, admission in the hospital ward, and admission in the critical care unit respectively. Whereas, care practice means the care provided to patients by nurses before infected and care employed for themselves when got infected.[4] All infected nurses in the COVID care hospitals assigned by the Ministry of Health at the time of Covid pandemic were considered as the population of the study.

The study among 9684 COVID-19-infected HCWs revealed that 110 had covid-19 infection. Likewise, those working in the low-contagion area and nurses younger than 45 years had a higher rate of infection during the first outbreak. Most HCWs with COVID-19 had no severe disease, with an asymptomatic carrier prevalence of 0.9% and a mortality rate of 0.9%.[5, 6] As the virus is highly contagious with contact transmission playing an important role in the spreading of the disease, hand hygiene became an important measure for the prevention of the disease.[7] This article aimed to find out the disease severity and preventive care practices of COVID-19-infected nurses to prevent transmission in designated hospitals for COVID-19 service delivery in Kathmandu Valley

METHODS

A descriptive cross-sectional study design with a set of self-administered questionnaires was introduced among the 418 COVID-19-infected nurses working in 18 different COVID-19-designated hospitals of Kathmandu Valley. The sample size was calculated by using the following formula, (n) = z2 * p (100-q)/e^2 (Cochrane, 1977). Where, P=50% with an allowable error of 5%, with a 10% non-response rate.

All the hospitals designated for COVID-19 care were listed through the literature search and telephone calls to the NHRC and MOHP (Ministry of Health). There were 20 covid-19 designated hospitals, the name of covid hospitals in the Kathmandu valley were: Tribhuvan University Teaching Hospital, Bir Hospital, Shree Birendra Military Hospital, Civil Service Hospital, Shahid Ganga Lal Heart Centre, National Trauma Center, Kathmandu Medical College & Teaching Hospital, Nepal Medical College & Teaching Hospital, Armed Force Police Hospital, Kanti Children Hospital, HAMS, Birendra Police Hospital, Grande International Hospital, Bhaktapur Hospital, Medi city Hospital, Patan Academy of Health Sciences, Norvic Hospital, Sahid Memorial Hospital, Kist Hospital, and Star Hospital. Among them where nurses were infected with COVID-19 were sorted out through telephone calls to heads of nursing departments of those hospitals. Only eighteen hospitals have had COVID-19-infected nurses except KIST and Sahid Memorial Hospital at the time of proposal submission.

The data was collected from different hospitals by contacting the chief of the nursing department of the hospitals in person and taking the list of covid infected nurses and distriuted the questionnaire to them. The questionnaire was collected back in two weeks and compiled for data entry at the project office. Purposive sampling technique was adopted because we need to focus on specific characteristics (Covid-19 infected nurses) and their experiences, allowing for in-depth exploration and rich insights from infected nurses. The questionnaire was adapted from WHO, therefore the introduced instrument was validated tool.

The infected nurse who can take care of oneself as a mild disease, needs assisted care for moderate disease, and needs admission in the critical care unit for severe disease these are measured by self-isolation (home and hotel), admission in the hospital ward as moderate, and admission in the critical unit care as severe which were considered as severity of COVID-19 disease. Whereas, care practice means the care provided to patients by nurses before infected and care employed for themselves when got infected.[4] All infected nurses in the COVID care hospitals assigned

by the Ministry of Health at the time of Covid pandemic were considered as the population of the study.

RESULTS

The socio-demographic data of COVID-19-infected nurses revealed a mean age of 29.69 years, with all female participants. The majority of participants were staff nurses 335 (80.1%), 236 (56.5%) working in the COVID-designated area and only 71 (17.0%) received training related to COVID-19. Few of the respondents 47 (11.2%) have suffered from chronic diseases; among them, most of the comorbidities was hypertension which was 16 (34.0%) (Table 1)

Table 1: Co-morbidity of COVID-19-infected Nurses

Variables	Number	Percentage
Suffering from chronic diseases	47	11.2
Chronic diseases (n=47)		
Hypertension	16	34.0
Diabetes	8	17.0
Other*	23	49.0

*bronchial asthma, hypo/hyperthyroidism, stroke, RA, heart disease, and COPD

Regarding the physical health status of the respondents, most of them (91.1%) had symptoms while covid-19 infection, only (8.9%) had no symptoms. A majority (77.3%) of the respondents had symptoms of tiredness followed by myalgia (75.4%), fever (57.9%), headache (69.4%), sore throat (59.3%), loss of smell (57.7%), cough (56.9%), and loss of taste (56.2%) respectively. Concerning treatment received while infected with COVID-19 majority (77.3%) of the respondents had received vitamin supplements followed by home remedies (69.4%), observation (40.0%), oral antibiotics (30.9%), antiviral therapy (6.2%) and only 2.2% had received plasma therapy. (Table 2)

Table 2: Symptoms and Treatment received during COVID-19 Infection among Respondents (n=418)

Characteristics	No. (%)
Symptoms of COVID-19 during the illness	
Yes	381 (91.1)
No	37 (8.9)
Types of symptoms*	
Fever	242 (57.9)
Sore throat	248 (59.3)
Cough	238 (56.9)
Myalgia	315 (75.4)
Headache	290 (69.4)
Tiredness	323 (77.3)
Gastrointestinal symptoms	130 (31.1)
Shortness of breath	116 (27.8)
Loss of smell	241 (57.7)
Loss of taste	235 (56.2)
Rashes	18 (4.3)
Others (backache, lack of concentration, ear pain, eye pain, insomnia, loss of appetite, SPO_2 dropped)	20 (4.8)
Treatment received *	
Only observation	167 (40.0)
Oral antibiotics	129 (30.9)
Intravenous antibiotics	14 (3.3)
Antiviral therapy	26 (6.2)
Vitamins	323 (77.3)
Oxygen therapy	18 (4.3)
Plasma therapy	9 (2.2)
Home remedies	290 (69.4)

*Multiple responses

Regarding the disease severity majority (79.9%) of respondents had mild followed by moderate (18.2%) and severe (1.9%) disease among covid-19 infected nurses. Here the home, hotel isolation was considered as mild, admission to

the hospital ward as moderate, and admission to the critical care unit were considered as severity of COVID-19 disease. Regarding repeat PCR tests majority **(**62.7%) of the respondents had negative results after the 14th day of the first infection and 14.1% of the respondents had not done PCR tests. (Table 3)

Table 3: Disease Severity and Repeat PCR on COVID-19 among Respondents (n=418)

Characteristics	No. (%)
Disease severity of covid-19	
Mild disease	334 (79.9)
Moderate disease	76 (18.2)
Severe disease	8 (1.9)
Days after the infection PCR test became negative	
Second test on 14th day	262 (62.7)
Third test 21st day	55 (13.2)
Forth test 28th day	26 (6.2)
After 28th days	16 (3.8)
No PCR test done	59 (14.1)

Similarly, sixty-two percent of respondents revealed that they had different levels of anxiety, 29.4% had mild, 18.7% moderate, and 13.9 % had severe levels of anxiety respectively. Whereas only 38% of the respondents had no anxiety (Table 4)

Table 4: Level of Anxiety among COVID-19-infected Nurses (n=418)

Level of anxiety	No. (%)	Mean Score (SD)
No (0-4)	159 (38.0)	7.58 (5.76) (Range: 0-21)
Mild (5-9)	123 (29.4)	
Moderate (10-14)	78 (18.7)	
Severe (15-21)	58 (13.9)	

The care practices of respondents revealed that, out of the total participants 62% were trained on the correct use of PPE. Almost all (95.9%) of the participants wore face masks followed by wearing gloves (95.2%), wearing gowns (92.3%), and wearing goggles/face shields (90.9%) while in contact with the COVID-19 patient. A majority (93.3%) of the respondents washed their hands frequently during patient care and 87.1% of the respondents followed the donning and doffing protocol as per guideline. (Table 5)

Table 5: Preventive Care Practice of Respondents on COVID -19 (n=418)

Characteristics	No. (%)
Wear PPE when in contact with the COVID-19 patients	
Wearing masks	401 (95.9)
Wearing gloves	398 (95.2)
Wearing goggles/face shield	380 (90.9)
Wearing gowns	386 (92.3)
Washed hands frequently during patient care	
Yes	390 (93.3)
No	11 (2.6)
Sometimes	10 (2.4)
Not mentioned	7 (1.7)
Followed donning and doffing protocol when wearing PPE	
Yes	364 (87.1)
No	21 (5.0)
Sometimes	20 (4.8)
Not mentioned	13 (3.1)

Additional care practices the respondents did include social distancing nearly half (48.1%), and more than two-thirds (79.7%) followed hand washing protocol as per WHO recommendations. Similarly, 86.4% ate additional nutritious food during isolation. However, 29.2% of the respondents shared the same room, toilet, and other utensils during isolation which is not good practice. More than two-thirds (76.3%) of the respondents practiced relaxation techniques, among them more than half (59.8%) of the respondents used music for relaxation. (Table 6)

Table 6: Care Practice on COVID-19 among Respondents (n=418)

Characteristics	No. (%)
Maintained at least 2 meters physical distance	
Yes	201 (48.1)
No	94 (22.5)
Sometimes	116 (27.8)
Not mentioned	7 (1.7)
Followed Hand-washing protocol	
Yes	333 (79.7)
No	11 (2.6)
Sometimes	69 (16.5)
Not mentioned	5 (1.2)
Took additional food	
Yes	361 (86.4)
No	29 (6.9)
Sometimes	25 (6.0)
Not mentioned	3 (0.7)
Shared the same room, toilet, and other utensils	
Yes	122 (29.2)
No	268 (64.1)
Sometimes	22 (5.3)
Not mentioned	6 (1.4)
Practiced relaxation technique	
Yes	319 (76.3)
No	92 (22.0)
Sometimes	2 (0.5)
Not mentioned	5 (1.2)
Type of relaxation techniques	
Yoga/ meditation	182 (43.5)
Music	250 (59.8)
Physical exercises	166 (39.7)
Using social media	219 (52.4)
Others (reading books, watching movies, deep breathing exercises, dancing, praying)	10 (2.4)

DISCUSSION

In this study, the majority (77.3%) of the respondents had tiredness followed by myalgia (75.4%), headache (69.4%), sore throat (59.3%), loss of smell (57.7%), cough (56.9%), and loss of taste (56.2%). In contrast with the study done in China among 1210 general population, it was revealed that the most common physical symptoms were cough (13.9%), sore throat (11.5%), headache (9.7%), myalgia (7.9%), dizziness (7.3%), chills (3.5%), fever (0.5%).[8] This finding is also inconsistent with the study done in India and Singapore on A multinational, multicenter study on the psychological outcomes and associated physical symptoms amongst healthcare workers during covid-19 outbreak which showed that the commonest reported symptoms were headache (31.9%), throat pain (33.6%), anxiety (26.7%), lethargy (26.6%), and insomnia (21%).[9] However these findings are consistent with the study on physical and mental health impacts of COVID-19 on healthcare workers: a scoping review showed that the most common symptoms identified amongst HCWs were fever (85.0%), cough (70.0%), and weakness (70.0%).[10]

In this study, a majority (95.7%) of the respondents had used both hand washing and sanitizer and only 0.7% had used sanitizer. Similarly, in a study done in India, among 16 patients with new onset hand eczema, almost all patients admitted excess use of hand sanitizers and/or hygiene.[11] A Population-Based Survey study done in Saudi Arabia showed that 77% preferred hand washing overusing hand sanitizers and 67.6% reported using hand sanitizers after meeting any person or surface.[12]

In this study 66.7% of the respondents had hand washing more than 20 times per day. Similarly, a population-based survey conducted in Saudi Arabia revealed that 70.4% of the respondents had washed their hands 6-20 times per day.[12] In this study 93.3% of the respondents had washed their hands frequently during patient care. The finding of this study is supported by a study done in Jordan which showed that 98.8% of the respondents used hand washing with soap

and water regularly.[13] In this study, 95.9% of the respondents wear masks when in contact with COVID-19 patients' care. In contrast with this finding with study done in Jordan showed that only 64.7% of the respondents wear masks.[13]

This study showed that 29.4% of the respondents had mild, 18.7% moderate and 13.9 % had severe levels of anxiety. This finding is supported by a study done in Nepal on Student's Anxiety Experiences during COVID-19 which showed that 18.1% of the respondents were experiencing severe anxiety, 22.9% moderate anxiety, and 25.7% mild anxiety.[14] In this study 38 % of the respondents had no anxiety, 29.4% of the respondents had mild, 18.7% had moderate and 13.9 % had severe levels of anxiety. However, this finding is in contrast with a study done on physical and mental health impacts of covid-19 on healthcare workers: a scoping review showed that overall anxiety (23–44%), severe anxiety (2.17%), moderate anxiety (4.78%), mild anxiety (16.09%)[10].

The study findings brought information regarding COVID-19-infected nurse's disease severity, and care practices thereby 79.9% of COVID-19 infected nurses had mild disease followed by 18. 2% had moderate diseases, which generate a new scientific data. This study was limited to the use of self-administered questions to collect information about care practice. Another limitation was that the study excluded those COVID-19-infected nurses who couldn't communicate due to disease conditions might be less representative of the severe disease severity.

CONCLUSIONS

Based on the study it can be concluded that the majority of nurses experienced mild to moderate health issues due to COVID-19 infection. Whereas their care practices about wearing PPE, donning, doffing was good and no association of disease severity and care practice. Therefore further exploration should be needed to identify the factor associated with disease severity

CONFLICT OF INTEREST: None

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Effectiveness of Educational Intervention Regarding Cervical Cancer among Female Teachers in Government Schools, Jhapa

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ABSTRACT

Introduction: Cervical cancer is the leading cause of cancer mortality among women in developing countries. Educational interventions on cervical cancer can decrease the resultant morbidity and mortality. Increasing knowledge on teachers can lead to higher rates of cervical screening and vaccination, both personally and through advocacy. Female teachers not only serve as educators but also act as community influencers and role models for students and other women in society. The aim of this study was to find out the effectiveness of educational intervention regarding knowledge on cervical cancer among female teachers in government schools.

Methods: Pre-experimental one group pretest-post test design was carried out on 105 female teachers from government schools of Gaurigunj rural municipality, Jhapa, Nepal by using non-probability purposive sampling. Pretest knowledge was assessed by using structured self-administered questionnaire. The educational intervention package was developed from literature review and guidelines. After four weeks, post test was conducted on the same participants using same instrument used in pretest. Descriptive and inferential statistics; wilcoxon signed rank test was computed for p-value.

Results: This study revealed that more than two third (69.5%) of the respondents had poor knowledge in the pre-intervention phase and almost all (92.4%) of the respondents had good knowledge in the post-intervention phase. There was a significant improvement in median score and range from 41.86 (34.88-51.16) to 88.37 (86.05-90.70) respectively (p<0.001).

Conclusion: Educational intervention on cervical cancer significantly enhanced the knowledge score of female teachers. Hence, it is recommended that nurses initiate such programs to provide appropriate cervical cancer information to motivate teachers and educate their students and guardians to recommend health behavior for cervical cancer prevention.

Keywords: Cervical cancer, educational intervention, knowledge, teachers

INTRODUCTION

Globally, cervical cancer rank as the fourth most common malignancy among women with an anticipated 604,000 new cases in 2020. Cervical cancer is the leading cancer and the major cause of cancer mortality in women in developing nations.[1] In Nepal, cervical cancer is the first most common malignancy in women. There are 11.4 million women in Nepal who are 15 years of age or older and at risk of having cervical cancer.[2] It was anticipated that without any intervention, total 170,600 women in Nepal will die from cervical cancer by 2070 and 318,855 by 2120.[3]

Before cancer forms in the cervix, cells in the cervix undergo dysplasia. If they are not destroyed or removed, the abnormal cells at advance time

become cancerous and spread deeper into the cervix and surrounding areas.[4] More than 95 percent of cervical cancer is linked to infection with high-risk human papillomavirus (HPV).[5] All women are at risk for cervical cancer. HPV is so prevalent that most people get it at some time in their lives.[6]

Globally, female teachers play a pivotal role in the education sector, particularly in primary and secondary schools. According to UNESCO, women constitute nearly 94% of primary school teachers **in some countries and more than** 50% globally. **This trend is** significant because it positions female teachers not only as educators but also as community influencers and role models for both students and other women in society. Their educational background often allows them to be more receptive to health-related information and to serve as effective channels for health promotion.

The study conducted at Saudi Arabia concluded that interventions to increase knowledge on cervical cancer are essential and additional research is needed to understand and assess the effectiveness of different programme to increase uptake of cervical cancer screening.[7] Study conducted in Nepal concluded that teachers' awareness and knowledge on cervical cancer and vaccination was poor.[8]

METHODS

Pre-experimental one group pretest-post test design based on quantitative approach was carried out on 105 female teachers from all the 30 government schools of Gaurigunj rural municipality, Jhapa, Nepal by using non-probability purposive sampling. Total enumeration sampling technique was used to give full statistical coverage because the population size was small and the entire population could be surveyed.

A structured self-administered questionnaire developed from a literature review and consultation with cervical cancer experts was used as per the objectives of the study. The instrument was translated into Nepali language and then back translated back into English

language with help of bilingual translator holding a Master's degree in respective fields and have translated numerous documents and research papers. Pretesting was done in similar group and setting prior to data collection.

The questionnaire consists of two parts- Part I- Structured questionnaire of 7 items to assess socio demographic information. Part II- It consists of 20 multiple choice questions (MCQ) and multiple response questions (MRQ) related to knowledge regarding cervical cancer. Scoring for Knowledge- The answer was evaluated using answer keys prepared by researcher. For each correct response score 1 and for incorrect response score 0 was given. The obtained score was converted into percentage. The total possible score was 0-43. Overall adequacy of knowledge was graded according to following criteria; poor knowledge :< 50% (< 22 score),moderate knowledge: 50-75% (22-32 score),and good knowledge:> 75% (32-43 score).

Educational Intervention Package

The educational intervention package on cervical cancer was developed on the basis of the literature review, subject expert consultations and national and international guidelines; WHO Guideline for Screening and Treatment of Cervical pre-cancer lesions for Cervical Cancer Prevention, 2022, American Cancer Society Guideline for Human Papillomavirus Vaccine, 2020, HPV Vaccination Recommendations by Centers for Disease Control and Prevention, 2021, Reference Manual, Facilitator's Guide and Trainee's Guide on Cervical Cancer Screening and Prevention in Nepal, 2015 and National Guidelines on Cervical Cancer Screening and Prevention in Nepal, 2078.

For the content validity assessment of the manual, a total of six experts were involved. The content validity of the instrument was established on the basis of extensive literature review, consultation with research advisor and subject experts. Item-Level Content Validity Index (I-CVI) of each individual item was measured using a 4-point scale.

The Scale-Level Content Validity Index (S-CVI): CVI of overall scale 0.9 was obtained.

Data collection was done in month of August to September. Ethical approval was obtained from Institutional Review Committee of IOM, Tribhuvan University. Written and verbal informed consent was obtained from the respondents. Confidentiality was maintained by assigning code number rather than other identification. The educational intervention was given to three groups, each group with 35 participants, total 3 sessions- each session lasting about 45 minutes by using interactive lecture and discussion method with LCD, charts and pamphlets. Meeting hall of Gaurigunj Rural Municipality was used for the intervention program by taking permission with municipality officer. Post test was done after four weeks of intervention to evaluate effectiveness using same instrument of pretest. For the benefits of respondents, screening test via Visual Inspection with Acetic Acid (VIA) for the eligible and willing teachers were done in the post test day with the collaboration of health coordinator and facilitator of the rural municipality.

The obtained data were entered in statistical package for social science (SPSS) version 16 and analyzed according to the objectives and hypothesis of the study by using descriptive statistics (frequency, percentage, mean, standard deviation, median and quartiles) and inferential statistics (Shapiro Wilk test and Wilcoxon Signed Rank Test).

RESULTS

Nearly half (49.5%) of respondents belonged to the age group of 31-40 years with mean age 36.90 ±7.699 SD years. There were 48.6 % Janajati, 93.3 % followed Hinduism, 45.7% had completed bachelor degree, 5.7% respondents' major teaching subject was health. The mean age of marriage was 22.949 with SD ± 3.102 years and 57.3% of married respondents had 2 children (Table 1).

Table 1: Socio-demographic Characteristics of Respondents (n=105)

Characteristics	Number	Percentage
Age (in years)		
<30	24	22.9
31-40	52	49.5
41-50	23	21.9
51-60	6	5.7
Mean Age ± SD = (36.90 ± 7.699) yrs. Min = 24 yrs, Max = 57 yrs		
Ethnicity		
Brahmin/Chhetri	39	37.1
Janajati	51	48.6
Madhesi	11	10.5
Dalit	4	3.8
Religion		
Hinduism	98	93.3
Christianity	3	2.9
Others *	4	3.8
Education		
Higher Secondary Level	48	45.7
Bachelors Level	48	45.7
Master Level	9	8.6
Major Teaching Subject		
Multiple Subjects (more than one)	49	46.7
Nepali	33	31.4
Mathematics	13	12.4
Health	6	5.7
Science	4	3.8
Marital Status		
Married	99	94.3
Unmarried	6	5.7
Age of Marriage (n=99)		
< 20	8	8.1
20 – 24	62	62.6
≥25	29	29.3
Mean Age of Marriage ± SD = (22.949 ± 3.102) yrs. Min = 18 yrs, Max = 30 yrs		
Number of Children (n=89)		
1	28	31.5
2	51	57.3
3	10	11.23

* *Buddhism. Kirat, Islam*

The knowledge score of the respondents on general information, risk factors, time taken to develop cervical cancer, sign and symptoms, preventive measures, screening test, HPV Vaccine and common treatment of precancerous cervical cancer lesion was significantly changed after the intervention. There was statistically significant difference on knowledge among female teachers before and after educational intervention at 5% level of significance (p<.05) [Table 2].

Table 2: Differences on Pre and Post intervention Knowledge on Various Variables of Cervical Cancer (n=105)

Variables	Pre-intervention	Post-intervention	Maximum possible score	p value
	Median (Q1, Q3)	Median (Q1, Q3)		
General information	3(2,4)	5(4,5)	5	<.001
Risk factors	3(1,5)	8(7,8)	8	<.001
Sign and symptoms	2(2,3.5)	6(5,6)	6	<.001
Preventive Measures	2(2,4)	6(6,6)	6	<.001
Screening Test	7(5.5,9)	13(12,14)	15	<.001
HPV Vaccine	0(0,1)	1(1,1)	1	<.001
Precancerous cervical lesion	0(0,1)	1(1,2)	2	<.001

Significance level is 0.05   Wilcoxon Signed Rank –Test is computed for p-value

The total median score and range of pre and post intervention was 41.86 (34.88-51.16) and 88.37 (86.05-90.70) respectively. Changed median score in the pretest and posttest was 46.51. Change in score was significant within the group. Null hypothesis was rejected and research hypothesis was accepted i.e. post intervention knowledge of the respondents was significantly different than pre intervention knowledge (Table 3).

Table 3: Differences of Pre- and Post-Intervention Knowledge Score of Cervical Cancer (n=105)

Variables	Median Score	Range (Q1, Q3)	Change Score	p Value
Pre- Intervention	41.86	(33.72,51.16)		
			46.51	<.001
Post-Intervention	88.37	(86.05,90.70)		

Significance level is <0.05   Wilcoxon Signed Rank –Test is computed for p-value

Before Intervention, more than two third (69.5%) of the respondents had poor and less than one third (30.5%) had moderate knowledge on cervical cancer. After intervention, the knowledge was increased. Almost all (92.4%) of the respondents had good knowledge and 7.6% had moderate knowledge (Table 4).

Table 4: Comparison of Pre and Post Intervention Knowledge Level on Cervical Cancer (n=105)

Knowledge level	Score category (possible score:0-43)	Pre intervention		Post intervention	
		Number	Percent	Number	Percent
Poor (< 50%)	<22	73	69.5	-	-
Moderate (50-75%)	22-32	32	30.5	8	7.6
Good (>75%)	32-43	-	-	97	92.4

DISCUSSION

This study showed that before intervention, more than two third (69.5%) of the respondents had poor and less than one third (30.5%) had moderate knowledge. After intervention, the knowledge was increased. Almost all (92.4%) of the respondents had good knowledge and 7.6% had moderate knowledge. Study done in Nigeria (n=185) supports the findings which revealed 54.4% had poor, 29.73% had moderate and 15.86% had good knowledge which resulted to 3.43% poor knowledge, 24.13% good knowledge and 72.43% very good knowledge after the intervention .[9] The significant increase in knowledge observed in both studies can be attributed to the structured, targeted educational approach that effectively addressed knowledge gaps through clear, accessible information. Additionally, the use of pre-and post-intervention assessments allowed for a within-group comparison, effectively capturing the magnitude of change in knowledge due to the intervention.

Regarding the comparison of pre and post intervention knowledge score, the findings of the study reveals that the total median score and range was 41.86 (34.88-51.16) and 88.37 (86.05-90.70) respectively. There was statistically significant difference between pre and post intervention. Wilcoxon signed rank test was computed for p-value. The p-value was <.001. There was statistically significant difference at 5% level of significance (p<.05). This finding is supported by the study of Nigeria where the pre and posttest differences in adherence score was significant at p value <.05.[9]

Concerning the meaning of cervical cancer, only one fifth (20.0%) of the respondents stated the correct meaning of cervical cancer before intervention. After intervention the correct response was expanded to 96.2%. This finding is supported by the study conducted at Tanta Egypt to find the effectiveness of teaching program where knowledge of meaning of cervical cancer raised from 48.8% to 81.5% after the intervention.[10] The notable increase in both studies can be attributed to the use of educational materials and repeated reinforcement of key concepts.

Before intervention, 35.2% mentioned the correct answer of most common causative organism of cervical cancer as Human Papilloma Virus whereas after intervention, the correct response was expanded to more than 85.7%. In pre intervention, 67.6% of the respondents answered that the causative organism of cervical cancer spreads through sexual contact with the infected person followed by increment to 92.4% in post intervention. These findings underscore the critical role of educational interventions in enhancing awareness and understanding of cervical cancer and its primary cause, HPV.

Regarding the knowledge on risk factors of cervical cancer, this study reveals that the majority (62.0%) respondents answered that unprotected sexual relationship and minority (16.0%) answered low intake of fruits and vegetables prior to intervention. Similarly, after the intervention, the correct response increased to cent percent and 81.0% respectively.

This study shows that correct responses of sign and symptoms of cervical cancer ranged from 29.5% to 57.1% in the pre intervention to 88.6 % to 98.1% after the intervention. The correct answers of knowledge regarding cervical cancer prevention, ranged from 20.0% to 56.2% in the

pre intervention which significantly elevated to 90.5 % to 100% in the post intervention. This finding is consistent with the interventional study conducted at Akwa Ibom State of Nigeria at 2022 by Ijezie where the knowledge of cervical cancer preventive methods within the intervention group increased from 31.4% to 91.3% after the intervention.[9] The consistency between these studies suggests that educational interventions can significantly enhance awareness and understanding of cervical cancer prevention.

In this study, the accurate response regarding screening test of cervical cancer expanded from 63.85% to 96.2%. Before intervention, the correct responses of government service sites for cervical cancer screening in Nepal ranged from 20.3% to 28.8%. After intervention, the correct response ranges heighten by 94.3%-100%. This study revealed that respondent's knowledge regarding appropriate age for HPV vaccine after intervention increased to 92.4% from 37.1%.The findings of the interventional study conducted in Chandragiri municipality, Kathmandu Nepal showed knowledge about the appropriate age to take HPV vaccine increased to 35.5% from 8.1%.[11] The reason of low knowledge on HPV vaccine might be different due to the various occupations and educational status of Chandragiri study.

Similarly, the findings of this study showed that the time taken for precancerous stage to develop into cancer stage was raised from 44.9%to 72.4% after intervention. The correct answer for the common treatment method used in Nepal increased from 17.1% to 50.5% after the intervention. Only half, 50.5% responded correctly. This might be because teachers were new to medical treatment term.

In this study, there was significant difference in knowledge between pre and post intervention at general information, risk factors, sign and symptoms, preventive measures, screening test, HPV Vaccine and precancerous lesion at P value <.001. Similar study done in Turkey (n= 37) revealed statistically significant difference on risk factors and early diagnosis between pre and post test scores at p value<.05.[12] These findings collectively highlight the pivotal role of educational interventions in improving knowledge on cervical cancer. Given that teachers often serve as information disseminators within communities, enhancing their understanding can have a cascading effect, potentially leading to increased awareness and preventive behaviors among the broader population.

CONCLUSION

Based on the findings of the study, it is concluded that the knowledge median score was doubled on variables of cervical cancer after the intervention. Educational package on cervical cancer significantly enhanced the knowledge score of female teachers. Hence, it is recommended that nurses lead educational initiatives can bridge the gap between healthcare services and the community, ensuring that accurate information reaches a broader audience. Organizing interactive sessions in community, schools, and healthcare facilities can facilitate knowledge dissemination. By expanding its implementation through strategic integration into school programs, active involvement of healthcare professionals, community engagement and supportive policies, the program can contribute to reduce the incidence of cervical cancer.

Confict of Intrest: No

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Effectiveness of Structured Educational Intervention on Knowledge Regarding First Aid of Choking and Burns among Nepalese Female Adults: A Pre-experimental Study

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ABSTRACT

Introduction: Injuries and accidents are major public health problems worldwide. Knowledge of first aid is important for female groups who can effectively promote community awareness and prevent the consequences associated with injury and accidents. Most studies have concentrated on a broad and scattered range of injuries and accidents. This study aimed to examine the effectiveness of structured educational intervention on knowledge regarding first aid management of choking and burns among female adults in the community.

Methods: A pre-experimental one-group pre-test-post-test study was conducted among randomly selected 24 female adults of Lalitpur. Sample size determined based on a power analysis. Data were collected via face-to-face interviews using researcher-developed structured questions. A structured educational intervention consisting of two sessions on burn and choking, each lasting one hour was implemented. Data were analyzed with descriptive and inferential statistics, namely the Wilcoxon Signed Rank Test.

Results: Median knowledge scores significantly increased from pre-test to post-test for choking (Md = 4 to 11, Z = –4.294) and burns (Md = 6 to 12, Z = –4.297), both with large effect sizes (r = 0.88). All participants demonstrated improved post-test scores, indicating a consistent and substantial gain in knowledge following the structured educational intervention.

Conclusions: The structured educational intervention was effective in increasing knowledge on choking and burns among female adults. Thus, this study recommends employing structured educational interventions by community health nurses and public health professionals to enhance community awareness of choking and burns.

Keywords: Burns, choking, educational intervention, first aid management, female

INTRODUCTION

Injuries and accidents are major public health problems and pose significant burdens on economies worldwide.[1] Every year, millions of people die due to unintentional injuries (approximately 3.16 million) and violence-related injuries (around 1.25 million), with a greater burden in low and middle-income countries.[1] Furthermore, the National Census of Fatal Occupational Injuries reported an increase in work-related injuries.[2] This trend is reflected globally, including in countries such as China[3] and Nepal,[4] where similar increases have been documented. Such evidence highlights a concerning escalation in injury rates.[4] These injuries not only contribute to physical harm but also increase the risk of mental illness, disability, suicide, and violence, factors that may, in turn, lead to poverty, crime, and substance abuse.[1]

Additionally, these factors may be linked to the development of chronic diseases.[1] In this context, first aid is crucial as a preventive measure to reduce complications and improve outcomes associated with injuries and accidents.[5]

First aid is the initial care or immediate assistance given to a person injured or suddenly ill.[6] First aid can be administered by anyone with minimal or no medical equipment, before the arrival of professional help.[6] Many injuries (i.e., anaphylactic shock, bleeding, burns and scalds, choking, drowning, electric shock (domestic), fractures, heart attack, poisoning, shock, falls, stroke, and unintentional injuries) require emergency first aid management.[1] Prompt and effective first aid can significantly influence recovery outcomes and minimize potential complications. [5,7,8]

Despite the increasing prevalence of injuries, awareness of appropriate first aid techniques remains limited.[2-4,9] Studies from various countries have highlighted this gap. The prior studies revealed a lack of awareness of first aid management in Saudi Arabia among school teachers,[10] a quasi-experimental study in India among mothers,[11] and a cross-sectional survey in Nepal among mothers.[12] In contrast, educational interventions on first aid in Egypt,[13] India,[14] and Nepal[15] demonstrated a significant increase in knowledge of first aid among women. This evidence stresses the effectiveness of targeted education programs in enhancing awareness and potentially reducing injury-related morbidity and mortality._

In Nepal, specific types of injuries, such as burns and choking, are prevalent yet often overlooked. Studies in Nepal highlighted the prevalence of burns among females (40.3%)[16] alongside significant incidences of choking in older adults (83.6%) and children (0.37%).[17] A systematic review highlighted that providing first aid education to laypersons can reduce both morbidity and mortality.[18] especially when effective first aid is administered at the incident site.[19] Moreover, women are recognized as key responders in emergencies, especially within domestic and community settings.[20] In the Nepalese context, female-led community groups, such as Female Community Health Volunteers (FCHVs) and Mothers' Groups, actively participate in health-related initiatives.[21] Therefore, empowering these women with first aid knowledge, specifically for managing choking and burns, can facilitate community-wide knowledge dissemination and awareness-raising.[14]

Choking, in particular, is a terrifying and potentially life-threatening emergency that can affect individuals of any age in any setting.[22,23] Basic first aid skills, including recognizing choking symptoms, performing the Heimlich maneuver, and seeking urgent care, are essential and can significantly increase survival rates.[22,24] Similarly, burn injuries, while often underestimated, contribute substantially to morbidity and mortality.[25] Notably, Nepal experiences one of the highest rates of flame-related burn injuries globally, primarily due to factors such as energy poverty, traditional cooking practices using open fires, cold climate, and the widespread use of flammable clothing.[26] Given these challenges, structured educational interventions focusing specifically on first aid for choking and burns are of utmost importance. However, the existing studies [15,27] focused on a broad range of injuries and accidents and often lacked exploration of in-depth knowledge about specific types of injuries, such as choking and burns.[15,27]

Although previous studies have demonstrated that educational interventions can improve first aid knowledge, the present study is significant in providing context-specific evidence on knowledge of choking and burns, identifying local knowledge gaps, and assessing the effectiveness of the intervention within the target population and setting. Thus, this study aimed to examine the effectiveness of the structured educational intervention on knowledge regarding first aid on choking and burns among female adults in the community of Lalitpur, Nepal.

METHODS

This study used a pre-experimental one-group pre-test-post-test design, which enabled the manipulation of independent variables and

measurement of their effects on dependent variables. This study was conducted among female groups in from Community "A", which included nine groups comprising a total of 246 women, as recorded by the Female Community Health Volunteers (FCHVs). Participants were selected from two of these groups for the pilot study and instrument pretesting. Consequently, the final sample for the main study was drawn from the remaining seven groups. The sample size for comparing two groups was calculated using the formula28: $n = [[[Z]_{(1-\alpha/2)} + Z_{(1-\beta)}]]^2/d^2 + (Z_{(1-\alpha/2)}^2)/2$; where $Z_{(1-\alpha/2)} = 1.96$ (significance level as 0.05), $Z1-\beta = 0.84$ (80% power), and d was the effect size. Using data from Behboudi et al.,29 a quasi-experimental study on Iranian mothers' knowledge of choking: Standard Deviation (SD)1 = 1.84, SD2 = 1.98, Mean (M)1 = 13.47, M2 = 14.68; Mean difference = M2−M1 = 1.21; Effect size (d) = (mean difference)/((σ1 + σ2)/2) = 0.63. Substituting these values, the calculated sample size was 21.5. Accounting for a 15% refusal rate, 30 the final sample size was increased to 24. Furthermore, the chosen sample size was supported by a quasi-experimental study conducted by Qalawa et al.,31 in Egypt. Based on the inclusion criteria, 24 women aged 20 to 50 years were selected using simple random sampling through the lottery method.

The research team developed questions and intervention protocols on choking and burns. Content validity was assessed using the Item-Level (I-CVI) and Scale-Level Content Validity Index (S-CVI), based on ratings from three experts using a four-point scale (1 = not relevant to 4 = highly relevant) as per the recommendation by Polit and Beck.32 Ratings of 1 and 2 were recoded as 0, and 3 and 4 as 1, to compute the CVI. Both the I-CVI and S-CVI were 1.00, indicating excellent content validity of the instruments and intervention protocols. Data collection instruments consist of socio-demographic questions and twenty-nine multiple-choice questions. The scoring of knowledge level on first aid management was done based on a study given by Vallikkannu,33 where each correct response was scored as 1 and the incorrect response was scored as 0. The intervention protocol was of two

sessions [one for choking, one for burns], each of 60 minutes. As noted by Perneger et al.,34 a minimum of 30 participants is recommended for pretesting instruments and calculating reliability coefficients. Accordingly, the research team included 30 participants in the pretesting to assess the reliability of the instruments used to measure knowledge on choking and burns in this study. The reliability coefficient, calculated using the Kuder-Richardson Formula 20 (KR-20), was 0.764 after removing 6 unreliable items. This calculation was based on 29 items retained from an original set of 35 items specifically tailored to the Nepalese context.

A pilot study of the intervention protocol was conducted on 12 samples as recommended by Tseng and Sim.35 To maintain the integrity of the data, participants involved in the pretesting and pilot phases were not included in the main study. Administrative approval for data collection was obtained from the authority of Ward No. 8, Mahalaxmi Municipality. Ethical clearance was granted by the Institutional Review Committee (IRC) of PAHS (Reference: PNC2308011783; Date: August 1, 2023). Informed consent was taken from all participants before the data collection using an informed written consent form. Privacy and confidentiality of the participants were maintained throughout the study. The primary researcher collected data from 13 August to 22 September via face-to-face interviews. The pre-test was conducted among 24 participants from 14 August to 19 August 2023 to assess participants' knowledge of first aid management for choking and burns. Each day, four to five participants were individually interviewed via a face-to-face approach for 20–25 minutes. Following the pre-test, a two-day structured educational intervention was conducted between 22 August and 9 September 2023.

The first session focused on choking, and the second on burns, based on a standardized intervention protocol. The choking session covered principles of first aid, roles and qualities of a first aider and signs and symptoms, management, complications, and conditions requiring medical attention related to choking.

The session on burns addressed the causes, types, prevention, management, complications, and conditions requiring medical attention. Each session was 60 minutes, which was delivered by the researcher using interactive lectures, charts, and meta cards, with refreshments provided afterward. The intervention was carried out in five groups, each consisting of 4-5 female participants. Previous studies have examined post-intervention outcomes at multiple time points, including immediately after training, week, and at two and six months.27,31,36–38 In contrast, the post-test in this study was conducted one week after the intervention, between 30 August and 22 September, among the 24 participants who had completed the pre-test. This timing was intentionally chosen to assess short-term knowledge retention and to provide a practical yet meaningful measure of the intervention's immediate impact beyond initial recall. The same set of questions used in the pre-test was administered, following the approach adopted in previous studies. Field editing was done for completeness, clarity, and accuracy of information after each interview. In the case that participants provided an incorrect answer to the post-test question, the researcher provided clarification at the end of the interview to ensure that all the participants fully benefited from the proper knowledge. Descriptive and inferential statistics were used for data analysis, with the Wilcoxon Signed Rank Test applied due to the small sample size (n < 30), using SPSS version 16.

RESULTS

Table 1: Socio-demographic Information of Participants (n = 24)

Variables	Number	Percentage
Age in years		
20-30	5	20.8
30 - 40	5	20.8
40-50	14	58.4
Median- 43.5 year (Inter quartile range: 33.3, 46.0)		
Education Status		
No Education	3	12.5
Basic Level (Grade up to 8)	7	29.2
Secondary Level (Grade 9 to 12)	10	41.7
More than Secondary (13 and above)	4	16.6
Occupation *		
Home Maker	20	83.3
Self-employed	3	12.5
Non-government employee	1	4.2
Type of family		
Nuclear	17	70.8
Joint	7	29.2
Having Children		
Yes	20	83.3
No	4	16.7

This categorization is done based on Noncommunicable disease risk factors: STEPS Survey Nepal 2019. Self-employed means a person who runs their own business, i.e., a shop owner, and a non-government employee means a person who works for a private organization

Table 1 showed that 58.4% of females were of age group 40-50 years with a median of 43.5 and Inter-quartile range (IQR) [33.3, 46.0]**.** Similarly, 41.7% of the participants completed a secondary level of education and only 12.5% hadn't received any education. Likewise, the majority (83.3%) were homemakers and only 4.2% were non-government employees. Similarly, 70.8% of participants belonged to nuclear families and 83.3% had children.

Table 1. Participants' Pre-test and Post-test Responses on Each Item of the Scale of Knowledge on First Aid for Choking and Burns (n = 24)

Responses to Questions	Pre-test	Post-test
	No. (%)	No. (%)
1. Temporary assistance to an injured or ill person, performed by non-expert persons until medical treatment arrives, is first aid.	11 (45.8)	24 (100.0)
2. To preserve life, promote recovery, and prevent complications related to injury is the purpose of first aid.	12(50.0)	23 (95.8)
3. A first aider is a person who is trained to provide emergency care.	6(25.0)	20 (83.3)
4. After assessing the victim's condition in an emergency, shout for help, but do not leave the victim alone.	19(79.2)	24 (100.0)
5. Choking is an obstruction in the throat or windpipe due to a foreign object.	19(79.2)	24(100.0)
6. Violent coughing is a sign and symptom of choking.	5(20.8)	22 (91.7)
7. Asphyxiation can happen in a complete throat obstruction during choking	15 (62.5)	24 (100.0)
8. The first step for treating choking is to ask the victim if anything is stuck in their throat.	1 (4.2)	18 (75.0)
9. The area for back slaps to the victim is between the shoulder blades.	12 (50.0)	24 (100.0)
10. The first aider swipes it out with their fingers if there is a visible obstruction in the victim's mouth after providing back slaps.	10 (41.7)	21 (87.5)
11. Abdominal thrusts (Heimlich maneuver) are the next step after performing five back slaps if the obstruction in the victim's mouth is not dislodged.	5 (20.8)	23 (95.8)
12. It is not a good idea to give a choking person a glass of water.	10 (41.7)	23 (95.8)
13. "Heimlich maneuver" should be repeated 5 times if the obstruction is not dislodged.	4 (16.7)	22 (91.7)
14. If a person is choking and able to cough, ask them to cough continuously.	5 (20.8)	15 (62.5)
15. The first aider should place the fist and thumb against the center of the victim's abdomen between the navel and bottom of the ribs when performing the Heimlich maneuver.	7 (29.2)	23 (95.8)
16. A complication of choking is brain damage due to a lack of oxygen	3 (12.5)	22 (91.7)
17. A burn is an injury to the skin caused by heat	17 (70.8)	24 (100.0)
18. Pain, redness, and blistering are some symptoms of second-degree burns.	20 (83.3)	24 (100.0)
19. Cool running water should be applied for 5 minutes to burn sites.	10 (41.7)	22 (91.7)
20. Burnt clothing should be cut off with scissors.	8 (33.3)	21 (87.5)
21. Applying home remedies such as turmeric, oil, or toothpaste to a burnt area does not decrease the risk of wound infection.	12 (50.0)	24 (100.0)
22. Rolling the victim on the ground is the recommended way to put out flames on a person who is on fire.	7 (29.2)	24 (100.0)
23. Irrigation with large volumes of water should be done in case of chemical burns.	4 (16.7)	21 (87.5)
24. Switching off the power point first should be done in case of electrical burns.	20 (83.3)	23(95.8)
25. Warm clothes or blankets should be used to prevent a cold in a burn victim.	12 (50.0)	22 (91.7)
26. Rinsing the affected area with water for at least 20 minutes should be done if someone gets a chemical burn.	10 (41.7)	24 (100.0)
27. A victim with burns "more than the size of one hand" needs emergency medical treatment.	18 (75.0)	24 (100.0)
28. Exposure to flies and insects can cause an infection in a burn victim.	19 (79.2)	22 (91.7)
29. Low body temperature and breathing problems are problems that can happen if "skin is destroyed and the area appears black, white, or charred."	1 (4.2)	17 (70.8)

Note. The Correct Answer is only included in the table.

Table 2 indicates a marked improvement in participants' knowledge on each item related to the first aid management of choking and burns from pre-test to post-test.

Table 32: Participants' Pre-test and Post-test Knowledge on First Aid Management of Choking and Burns   n = 24

Level of Knowledge	Choking		Burns	
	Pre-test	Post-test	Pre-test	Post-test
	Number (%)	Number (%)	Number (%)	Number (%)
Inadequate (<50%)	19(79.2)	-	14(58.3)	-
Moderate (50-75%)	5 (20.8)	-	8(33.3)	-
Adequate (>75%)	-	24 (100.0)	2 (8.4)	24(100.0)
Minimum to Maximum Score in Percent (%)	0-66.7	75-100	23.1-76.9	76.9-100
Median (IQR) of Score in Percent (%)	33.3 (25.0, 41.7)	92.3 (92.3, 100.0)	46.2 (46.2, 61.5)	92.3 (92.3, 100.0)

Table 3 indicates that 79.2% of participants in the pre-test had an inadequate level of knowledge, and 20.8% had moderate knowledge on choking. However, all the participants had adequate knowledge of first aid management of choking in the post-test (100.0%). The minimum to maximum score of the pre-test in percent was 0-66.7% with *Md* = 33.3. Similarly, the minimum to maximum score of the post-test was 75-100% with *Md* = 92.3. Likewise, 58.3% of participants in the pre-test had inadequate knowledge, 33.3% of them had a moderate level, whereas 8.4% of them had adequate knowledge on burns. However, all the participants had adequate knowledge of first aid management of burns in the post-test (100.0%). The minimum to maximum score of knowledge on burns in percent of the pre-test was 23.1-76.9%, with *Md* = 46.2. Similarly, the minimum to maximum score of knowledge on burns in percent of the post-test was 76.9-100.0% with *Md* = 92.3.

Table 4: Comparison of Participants' Knowledge Scores on First Aid Management of Choking and Burns Before and After a Structured Educational Intervention   n = 24

Knowledge	Md	Mean Rank	Negative Ranks	Positive Ranks	Sum of Ranks	Z	p-value [a]	Effect Size [b] (r)
Choking								
Pre-test	4	0.00	0	24	0.00	-4.294	< 0.001	0.88
Post-test	11	12.50			300.00			
Burns								
Pre-test	6	0.00	0	24	0.00	-4.297	< 0.001	0.88
Post-test	12	12.50			300.00			

Note. [a]: Wilcoxon Signed Rank Test. [b]: Effect Size = $Z/\sqrt{N}$ was calculated based on the formula by Pallant[38]

Table 4 presents a statistically significant increase in knowledge scores on first aid management of choking from pre-test (Md = 4) to post-test (Md = 11), Z = –4.294, with a large effect size (r = 0.88), indicating that 88% of the variance was explained by the intervention. Similarly, knowledge scores on burns increased significantly from pre-test (Md = 6) to post-test (Md = 12), Z = –4.297, also with a large effect size (r = 0.88). The rank data further revealed no negative ranks (N = 0), meaning no participant scored lower on the post-test. In contrast, there were 24 positive ranks (N = 24, Mean Rank = 12.50, Sum of Ranks = 300.00) for both topics, indicating that all post-test scores were higher than pre-

test scores. These findings reflect a consistent and substantial improvement in participants' knowledge following the structured educational intervention.

DISCUSSION

This study was conducted among 24 females to examine the effectiveness of a Structured Educational Intervention on first aid for choking and burns. The discussion was conducted on the current study's findings concerning prior studies, examining how the results align with or differ from existing research. The current study shows statistically significant differences in participants' knowledge scores on first aid management of choking from pre-test to post-test. The finding of this study aligns with the quasi-experimental studies conducted in Egypt [13,27], and India among females.[36] This consistency may be attributed to the application of comparable methodologies and instructional strategies, providing participants with similar information and learning experiences that enhanced their understanding across diverse settings. Similarly, the current study shows significant differences in the pre-test and post-test knowledge on first aid for burns. The findings of the study are consistent with the quasi-experimental studies conducted in Egypt among females,[27] and mothers,[13] Turkey among parents,[39] and a pre-experimental study in India among females.[40] The similarities in findings are likely due to the use of structured educational interventions that effectively communicated burn first aid principles and practical skills across different contexts. Furthermore, the inclusion of comparable participant demographics, particularly women, such as homemakers with multiple children, may have contributed to the observed enhancement in knowledge.[13,40] Additionally, the consistent findings observed in the current study may be attributed to the structured and focused nature of the educational intervention, the use of evidence-based content, and the relatively narrow and well-defined scope of first aid topics like burns and choking, all of which facilitate effective knowledge acquisition within a short period. However, none of the available prior studies reported findings indicating the ineffectiveness of educational interventions on choking and burn management.

The strengths of the study include the use of a valid (in terms of content) and reliable data collection instrument, which ensures the accuracy and consistency of the results. The intervention protocol was validated by experts, lending credibility to the procedures implemented. Additionally, similar intervention procedures and time intervals for the post-test were applied, enhancing the study's consistency. The use of a simple random sampling technique ensured a fair and unbiased selection of participants, contributing to the study's overall rigor and reliability. Despite its strength, the study is constrained by a few limitations. This study applies a pre-experimental design, which is susceptible to various extraneous variables (such as age, educational level, and occupation) and internal validity threats, including experimenter bias, history, and testing effects, which may have influenced the post-test outcomes. Moreover, the study was limited to female adults residing in a single ward of Community "A". Therefore, the generalizability of the findings to broader populations or different settings is constrained, and the results may not apply to all female adults.

CONCLUSIONS

Structured educational intervention was effective in improving knowledge on first aid management of choking and burns among female adults in the community. Therefore, this study recommends conducting experimental or quasi-experimental studies with a control group across the broader settings, including both genders. Additionally, this study suggests that community health nurses, health professionals, and policymakers should implement regular, well-organized educational sessions on first aid management to address these critical skills and collaborate to develop and disseminate comprehensive training programs by seeking funding and integration into public health policies to ensure widespread access and impact.

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Experiences of Female Community Health Volunteers Regarding Maternal and Newborn Care in Kaski District

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ABSTRACT

Introduction: Female Community Health Volunteer plays vital role in maternal and newborn health of community. Despite being a backbone of health care system of Nepal to reduce maternal and neonatal mortality they are facing different challenges from family, and community while performing their role. Limited studies are being done in this area, so the researcher aimed to explore the experiences of female community health volunteer while performing their role.

Method: A Hermeneutic Phenomenology design was used to collect data from purposively selected twelve Female Community Health Volunteers of Pokhara-11, Kaski district. Data was collected by in-depth interview method using semi-structured interview guidelines. Ethical approval for the study was obtained from the Institutional Review Committee. Data was transcribed and analyzed using the seven-step Collaizi method.

Findings: After analysis of the experiences of study participants emerged eight themes and twenty-nine sub themes. The themes were providing antenatal care, postnatal and newborn care, under-five children care, cross-cutting maternal and newborn health activities, motivating factors, challenges, expectation of female community health volunteers and communication system. People praise and accept their health advice and visit health centers for care.

Conclusion: It is concluded that the participants have experienced both motivation and barriers from family, community and health institutions while providing care to the community. Some people listen and praise their effort and follow their health advice while some ignore them. Good health of mother and child bring dedication to continue to serve the people. The study provided comprehensive information on members working in grassroot level of health and will help local leaders to use these findings for enhancing their performance by addressing their problems.

Keywords: Challenges, community, female community health volunteers, maternal and newborn health

INTRODUCTION

Female community health volunteer is the nationwide community health care program of Nepal. Female community health volunteer (FCHVs) are considered backbone of health care of Nepal that plays a vital role in maternal and newborn health of the community. FCHV program is supported by the National Health Policy, Safe Motherhood Road Map and Sustainable Development Goals, with the aim of reducing maternal and neonatal mortality in Nepal. They provide health education and basic health services to the community in areas of safe motherhood, family planning, immunization, nutrition, communicable and epidemic diseases, acute respiratory tract diseases, diarrhea and non-communicable diseases to promote health and prevent diseases.[1] They received total 18

days training in two phases (9+9) days based on module on safe motherhood which included number of antenatal visit, necessary of antenatal visit, birth preparedness, danger signs of mother and newborns, family planning, immunization, etc.

A cross-sectional study on Nigeria found that the use of modern contraceptives increased among young married women when they were visited by community health care workers (p<0.03).[2] A qualitative study conducted on Community Health Worker (CHW) in Uganda revealed that lack of transport which causes delays reaching their clients, lack of health services or commodities in their locality to use for community members.[3]

A study conducted in India to assess the effect of Accredited Social Health Activist (ASHA) program on the utilization of maternity services found that exposure to ASHA services was associated with an increased number of antenatal visits by 17%, skilled birth attendant delivery by 25%, and institutional delivery by 25%.[4]

A qualitative study conducted in Nepal found that FCHVs are praised by health workers for maternal health improvement where they increased attendance of women for antenatal care, delivery and postnatal care in the health institutions. Similarly, they relied on the recording of FCHVs. However, the geography of Nepal made people difficult to reach the health centre on time, and FCHV had to conduct deliveries, though they were not authorized and not recognized as skilled health personnel. FCHVs loved to go outside of the houses, meet new people, get respect from health workers for the work they did and were happy with the recognition they got from the public. They also felt good while attending the training which motivated them at work.[5] A national FCHVs survey revealed that they are motivated by community appreciation, recognition and respect from the community, and support from their family members.[6]

Limited studies have been conducted to explore the experiences of female community health volunteers. This study aims to explore the experiences of female community health volunteers regarding maternal and newborn care. The findings of this study could be advantageous to healthcare providers and local leaders in developing work plans that can enhance their performance by addressing their problems so that the community could benefit even more from their services.

METHODS

Qualitative research design specifically hermeneutic phenomenological design was used to capture the details accounts relating to subjective experiences of activities of female community health volunteers regarding maternal and newborn care.

The study was conducted in Kaski district of Nepal. The study participants were Female Community Health Volunteers having more than 2 years of experience and who were willing to participate in the study. Twelve participants were selected using non-probability purposive sampling techniques as these participants meet the criteria of having 2 years of experiences. No one of them refused to participate. The study has received ethical approval from the Institutional Review Committee of Institute of Medicine (IRC No. 43(6-11) E2 080/081). A preliminary study was done among two participants. The researcher (primary author) conducted the interview herself.

The time and the place for in-depth interview (IDI) with each participant was set before data collection as per the convenience of the participants. A reminder call was given by taking permission from the participants in advance, a day before and on the day of the interview. One to two participants were interviewed in their convenient place and time in a day.

The researcher explained the purpose of research to participants, informed their participation was voluntary and interviews would be recorded. Privacy was maintained by collecting information in a separate place as per participants convenience where most interviews were conducted in participants' home. Confidentiality was maintained by storing all information in separate files on a password protected computer.

Data was collected via in-depth interview method using semi-structured interview guidelines from September 19 to October 13, 2023. The guideline consists of socio-demographic information in part 1 and general questions related to experiences in maternal and child health in part 2. Date, time and place for data collection set before data collection as per participant's convenience was followed. Field notes and audio-recordings were maintained. Code was given to each participant and the recordings by Arabic number. Interviews lasted for 45 to 60 minutes in a place where participants feel comfortable. Repeat interviews were conducted. Data saturation was maintained using "Boot Strapping Technique".[7] Data was transcribed, translated and analyzed by moving back and forth between transcripts, field notes on the basis of seven-step Collaizi method. Prolonged engagement with transcripts, audio recordings, with peer review was done throughout study. The author was fully involved in analysis. The developed theme was finalized after verification with two research participants and discussion with the research advisor. Detail track record of the data collection was maintained to ensure stability and consistency.

RESULTS

The age range of the participants is 30 to 57 years (mean 42.25 years). The number of FCHV who have completed secondary level were five, higher secondary was four and those who have completed bachelor level was one. Their work experience ranged from 2 and half years to 33 years. The number of families they covered ranged from 25 to 300.

Exploration of experience of FCHV regarding motivation and challenges emerged eight themes namely: (1) Providing antenatal care, (2) Providing postnatal and newborn care, (3) Providing under-five children care, (4) Cross-cutting MNH activities of FCHVs, (5) Challenges faced by FCHVs, (6) Motivating factors, (7) Communication system and (8) Expectations of FCHVs.

Theme 1: Providing antenatal care

Participants mentioned that they faced emergency situation of providing care in road related to pregnancy. They provided health message primarily on various topics which includes medicines, vaccines and self-care. They met people with financial difficulties and had to handle those situations. The family members along with pregnant woman listened and followed her advice.

".........In our locality, one woman delivered at home in the seventh month she was prepared to send to hospital without cutting umbilical cord. Later, mother and child were good when we went there to look." (FCHV 4)

"....... A five months pregnant woman had vaginal bleeding. She was also a patient of hypertension and heart disease. So, she had to be kept in ICU. At that time, she had no money, so we all collected money for her and gave it for her treatment: Amount of Rs. 5000 from mother's group and Rs. 100 from each house. This helped to provide care for her." (FCHV 5)

Theme 2: Providing postnatal and newborn care

One participant expressed sadness by mentioning that she had to cover more houses in compared to friends. They experienced critical health conditions of child while monitoring mother's and child conditions in home visit and faced difficulties coordinating with such parents to convince them for hospital visit. The postnatal woman went to hospital for check-up or to health post. They emphasized the care of mother and newborn.

"...... There was a malnourished child. I advised child's parents to take him to a hospital many times and also advised them to do this and that when I went to their home several times. Later I took them myself to the health post and ward office and kept them in the health education program, they still ignored me. That situation was difficulty. That situation was difficult. In case of a child, it's difficult as a father consumes alcohol and it is difficult to give health advice. But later, I succeeded, and they followed ne and got the treatment. This

is the situation. Besides that, it's not difficult for me to work." (FCHV 4) This participant ended her saying through feeling of despair where she said, "*uff, tetibela ta sarhai garo bho".*

".........We don't look after newborns, so I sent newborn baby to health post, saying that they can get every health service there from health post. I have knowledge and experience on newborn examination, so I referred them to the health post to get newborn care immediately after giving birth and during health check-up of postnatal mother." (FCHV 3)

"...... *I had extra houses to cover compared to my friends, however one friends has supported me while collecting data and making our region a completely immunized region and she had shown me which houses needed to be covered by me." (FCHV1)*

Theme 3: Providing under five children care

According to participants, they used to look after the immunization status of under-five children. Participants felt the problem of immunization clinic being far for people to reach within 30 minutes distance. If they find situation of not following the schedule, then they request parents to get their child being vaccinated. Similarly, some people did not listen and followed their health messages.

"...We also taught them what and how to feed children, and what way, nutrition can be managed for child. We asked them how they fed, and we showed them how to feed, checked whether they were feeding properly or not. Some people did not listen and followed what we said. They felt like they knew better than that. Similarly, there were people coming from outside were listening to our topic so nicely and response us like telling, "oh", "ok". Whereas some people behaved as if they were not paying attention to what we were saying. Despite that, I made sure to convey my message fully." (FCHV 5)

"...... There are no immunization facilities in the outreach clinic, we had to send to a basic school for this service. But it's difficult for them to go to an immunization clinic, so I told them to go where it is convenient for them. We are planning to conduct an immunization clinic close to us. I had complaints on immunization, but other things are going well." (FCHV 4)

Theme 4: Cross-cutting MNH activities of FCHVs

Participants said that they provided services in fields of family planning, senior citizens, and adolescents. They faced difficulties on getting health information from other family members except mother about vaccination. Similarly, difficulty arose on gathering information on hypertension, diabetes, etc.

"......I carried condoms which I distributed to people. People had not asked for pills till now. I gave advise or health messages on devices such as, when to use, what are the side effects like I told them pills should be consumed daily, depo should be used in every 3 months in hand and implant can work 5 years which is inserted in upper arm and IUCD works for 12 years. ICUD is placed inside women's uterus. I told them these types of things, and I also said them to go health posts for additional information and services." (FCHV 10)

".......... I collected information on the number of pregnant women, under five children, adolescents, number of senior citizens. I prepared a report and provided the report once a year to health post staff. We also take information of what services we gave to them by making tally marks and we gave full information to them." (FCHV 2)

Theme 5: Challenges faced by FCHVs

The participants said they faced challenge in their work in their beginning days and at present too. They expressed sadness telling working with people from different backgrounds such as higher-class families was stressful. They got blamed, scolded and ignored by the community

people. Participants said they cannot complete the assigned task within 2 days. Similarly, it was difficult for participants to reach the health post. The challenges are different in the past and the present based on the national policy and their exposure.

"... During my entering phase, it became hard for me during home visit and to gather records as people come and spoke back-to-back us like "who are you?", "why are you coming in my house?". Some of them even thought that I was a repair person repairing home appliances in their house like gas. Now, they ask me about the health program. So, there is no problem at present." (FCHV 7)

Theme 6: Motivating factors

Participants were self-motivated to volunteer. All of the participants said they were motivated because of supportive family members. Community people positive responses on them and their praises motivated the participants to work. Health care staff supportive supervision and timely provision of sufficient medicines were motivating factors in their services. The community members participate in health activities followed by improvement in people's health status add to their motive of serving the community.

"...... I am happy. I will continue, I want to do and don't want to leave. There are no barriers in working. If any problem arises in work or I won't be able to continue at that time, I will think and make my decision." (FCHV 12)

"........ My family members are so good and supportive. My husband is also supportive. Children have grown up. Father and mother-in-law are supportive. If I talk about it to you, you will not believe. I am here due to my father in law's support, he respected my activities and encouraged to continue the activities what I am doing." (FCHV 11)

Theme 7: Communication system

Participants felt easy to communicate. Similarly, they experienced that people easily understand and listened to them while communicating. They used their mother's group, social media and sang song and poetry to convey their health messages to community members.

"...we conveyed them from phone call too. Nowadays, we have messenger too, so it is easier for us to communicate. They received our messenger group call too. If anyone was busy and was unable to answer our call, we informed them individually, or to their family members or nearby relatives or neighbours. So, it's not difficult for me. For new members of the society, it may be difficult once, but it gets easier gradually." (FCHV 7)

Theme 8: Expectations of FCHVs

Talking about the factors that could improve the performance of participants, they mentioned that the improved knowledge and skills facilitate better performance.

"....... When a new vaccine gets introduced, we do not know enough and so for this we need training to know more about them such as which vaccine to give, and when. The thing is that I am confused on newly introduced vaccine. So, I think we need training for that." (FCHV 7)

DISCUSSION

The participants said that they worked for five years without receiving basic training and they had received refresher training. Similarly, they commented on need of further trainings to improve their knowledge which is similar to the study conducted in Hill and Mountain regions of Nepal in 2019 where it was found that new FCHV had not been given proper training by the government. FCHVs addressed the need for refresher training to update their knowledge.[8]

In this study, participants said that they were blamed and ignored by community people. Community people said that FCHVs were

providing volunteer services for their own benefit but not to serve the community. FCHVs also got scolded from people during home visits which is consistent to the study conducted in Terai region of Nepal where FCHVs were scolded saying FCHVs earned money from the government side. [9]

Participants did not ignore any families but faced difficulties in dealing with people of different socio-economic background such as higher-class families. They did not open door and did not listen to them which is inconsistent with the study conducted in Uganda where CHW purposively avoided providing services to people of high community status, like politicians, rich households, etc. [3]

In this study participants mentioned that receiving awards from people and ward were motivating factors. Community people also recognized their contribution as their services helped in the improvement of their health. Such praise and rewards were considered as moral support for FCHVs in this study which is in line with the study conducted in Tanzania to explore the source of motivation of CHW where the participants said that the encouragement of community people and moral support help in their work performance as a motivating factor. [10]

The findings of study might be useful for health post staff and ward members of ward no. 11 of Pokhara to develop workplan for FCHVs in collaboration with different health care team members to enhance their performance so that the community people could be benefitted even more by their services. The findings of the study might be helpful for further researchers.

The nature and amount of information given by participants depends upon their interaction with the interviewers, the circumstances surrounding the interview and their motivation for participating in the study so that the information might be different is the limitations of the study.

CONCLUSION

It is concluded that participants have both support and challenges from family, community and health institutions while providing maternal and newborn care. There were mixed perceptions by the community people about their services. Participants have expectations for increased incentives and training from concerned authorities as a motivation to work. Hence, the findings should be considered by concerned authorities to facilitate their work and overcome their challenges. But lastly, integration of skilled health personnel and their mobilization in different level of health services brings quality services to the mothers and newborns, because all women deserve quality care by skilled professionals a human right approach.

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Exploration of Self-medication Practice among Medical Students of Kathmandu Valley

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ABSTRACT

Introduction: Self-medication has been widely used, most commonly by medical students, for self-diagnosed minor health-related symptoms. Self-medication can be beneficial if used responsibly, however, it can potentially cause harm as well. Thus, the study aimed to identify self-medication practices among medical students.

Methods: Descriptive cross-sectional research was conducted among students studying Bachelor levels in Nursing, Public Health, and Pharmacy at four different colleges in the Kathmandu Valley. Students were selected through a convenient sampling technique. Data were collected using a self-developed Google form. Though the calculated sample size was 447, a total of 285 students filled up the form, representing a 63.7% response rate. Data was analyzed through descriptive and inferential statistics.

Results: The study revealed that nearly all (93.0%) students have used self-medication. Self-medication was high among females (83.0%), students of Bachelor of Science in Nursing (26.0%), and Bachelors in Pharmacy (26.0%). The maximum students used self-medication due to the mildness of illness (63.8%), mostly for the common cold (67.4%). Antipyretics were used by many (71.2%), and the oral route was mostly preferred (97.0%). The pharmacy was the source for self-medication for almost all (98.5%). One-tenth (12.3%) of students experienced side-effects, after which, 74.3% stopped medications and consulted doctors. There was significant association between self-medication among students and the presence of self-medication in family (*p*-value=0.007).

Conclusion: The study concluded that nearly all students used self-medication due to mildness of illness, mostly for common cold and antipyretics was commonly used. There was significant association between self-medication among students and the presence of self-medication in the family.

Keywords: Medical students, self-medication

INTRODUCTION

Self-medication is the irrational use of medications for the treatment of common health problems by oneself without professional supervision.[1,2] Individuals use self-medication for self-diagnosed minor symptoms of health ailments for which the medicine can potentially benefit as well as cause harm.[3] Self-medication has been practiced globally in rural and urban areas,[1-3] creating more issues among medical

students.[4] Self-medication is increasing, which may be due to the easy dispensing of over-the-counter medicines without prescription, easy access to medicine, and low-cost alternatives for people,[3] lack of access to health care, easy availability of medicine in the market, poor drug and regulatory practices.[1]

Self-medication was found to be higher in developing countries than in developed countries. Studies showed self-medication among medical students was high in India (71.7%),[3] Serbia (79.9%)[4], Saudi Arabia (83.7%)[5], South Africa (79.2%)[6], and Nepal (68.4 %)[7]. In contrast, self-medication was much less in developed countries like the United States (13%), Australia (11%), Germany (11%), Spain (9%), the United Kingdom (9%), Switzerland (8%), and South America (15%).[8] In addition, self-medication was nearly half (45.4%) in China. Female medical students were more commonly practicing self-medication in China (50.8%),[9] India (52.8%)[3] which is more in South India (81.2%)[8], Saudi Arabia (85%)[5], and South Africa (85.9%)[6] respectively.

The major sources of information about the medicines for self-medications were found to be academic knowledge (51.7%), family (29.3%)[6], advertisement (35.7%), advice by salesman (23.8%)[10] and reading materials (52.3%), previous prescriptions (17.4%), pharmacist (17.4%), seniors/classmates (12.6%), and media (5.4%).[3]

The main reasons behind self-medication among medical students were found to be previous experience of treating the same illness (51.7%), perceived sufficient knowledge about drugs (35.8%), perceived mildness of illness (25.4%),[6,11] saving time (14.7%) and money (7.8%),[6] or lack of time for treatment (24%) and the cheaper source of treatment (14.7%),[10] illness being too trivial for consultation[2], minor ailment followed by quick relief (24.9%), urgency (20.3%), previous experience (12.3%; 51.7%)[3,5] respectively. Further, 17.9% of males and 11% of females practiced self-medication because of the experience of family members and colleagues.[5]

Self-medication was commonly used for fever and headache (84.5%; 62.9%)[3,6], diarrhea (16.6%;

15.7%) and skin problems (14.3%, 19%)[3,5], pain management (69%; 22.4%), common cold (45%; 25%)[5,6], acidity (53.7%), nausea vomiting (12.9%), ear/eye problems (19.7%),[3] heartburn (34%), constipation (16%),[5] and sore throat (10.3%)[6] respectively. The commonly used medicines for self-medication were analgesics (64.6%) followed by antipyretics (40.7%)[6], and antibiotics (11%)[12]. Similarly, most of the medical students in India also used antacids (55.1%), and topical ointment (20.6%)[3]; in south India mostly used antipyretic (71%), analgesic (65%), antihistamines (37%), and antibiotics (34%).[13] The most preferred routes for self-medicine were the oral (93.7%), topical (18%), and inhalational (1.7%) routes. None of the students used injections.[3]

Self-medication was found effective by half of the students of South Africa (55.2%)[6], Saudi Arabia (44.7%), and said self-medication is a serious issue (52.6%)[5]. Only 35.9% recommend self-medication practice to others.[6]

Though self-medication has some benefits, it also increases risks such as abuse of medication, prolonged consumption, incorrect diagnosis, drug interaction, polypharmacy, and antibiotics resistance resulting in increasing morbidity[14]. About 26.3% of students have experienced adverse effects of medicine after which 53.3% of students stopped medications and consulted doctors, some students changed medications and started other drugs (26.1%) and few stopped medications (5.4%).[3]

Medical students are future healthcare professionals. Self-medication among them can seriously threaten medical professionalism, risking public trust in the medical profession.[4] Further, self-medication is considered a component of self-care; if used responsively, self-medication can prevent and treat various minor ailments, save lives in acute conditions, serve as a cheaper alternative to treat minor ailments, and save time. However, responsible self-medication must be accompanied by appropriate health information.[4]

METHODS

A cross-sectional descriptive research design was adopted for the study. The study population was all the students studying in Bachelor Science (B.Sc.) in Nursing, Post-Basic Bachelor in Nursing Science (PBNS), Bachelor in Public Health (BPH), and Bachelor in Pharmacy (B.Pharm) in Purbanchal University affiliated colleges of Kathmandu Valley, Nepal. Four colleges, Alka Hospital Pvt. Ltd. (College), Dhobighat, Lalitpur, Asian College for Advanced Studies, Satdobato, Lalitpur, Everest College of Nursing, Sinamangal, Kathmandu, and Karnali College of Health Sciences were selected purposively. The principals of respective colleges were contacted, the purpose of the study was explained, and permission was requested through forwarding formal letters.

The sample size of the study was obtained using the formula n = $p\frac{(100-p)z^2}{E^2}$ [15]

where,
percentage of occurrence (p) = 59% [16]
Percentage of maximum error required (E) = 5% value corresponding to the level of confidence (z) = 1.96 at 95% class interval.

The calculated sample size was 372. The non-response rate of 20% was added, and the final sample size was 447. Samples were selected using non-probability convenience sampling method. Data were collected using a self-developed Google form with structured - questions. The validity of the instrument was established by developing the instrument based on a literature review, suggestions from the pharmacology teacher, and peer discussion. The instrument was pre-tested among the 10% of the total sample that was excluded from the actual study. Ethical approval for the study was obtained from Nepal Health Research Council (Ref. no. 4060). Data were collected from 13th June to 14th August 2022. The links to the Google form were sent to students of selected colleges via emails and contact numbers through their respective authorities. The objectives of the study were mentioned in the Google form and only after clicking on the attached informed consent form attached, the students were given access to answer the questions. Students studying in B.Sc. Nursing, PBNS, BPH, and B. Pharm, but refused to participate and do not give consent were excluded from the study. Students were allowed to discontinue their participation at any time during answering. The Google form was designed so that each student could respond only once. The completed forms were automatically stored in the Google account, with access to the principal investigator only. The form did not collect any personal identifying information, such as emails and contact numbers. After the collection deadline, the responses were no longer recorded. The collected information was downloaded. Though, the calculated sample size was 447, a total of 285 students filled up the form representing a 63.75% response rate. Data were analyzed using descriptive such as frequency, percentage, mean, standard deviation and inferential statistics such as chi square test.

RESULTS

The findings showed that the maximum (94.4%) students were 19-28 years old (mean age: 23.45±3.085years). Most students were female (82.5%), Brahmin/Chhettri (50.8%), and Hindu (86%). The maximum number of the students were studying B.Sc. Nursing (26.6%) followed by BPH (25.3%), B. Pharm. (25.3%), and PBNS (22.8%) respectively. Most students were posted in a clinical area (65.6%), had easy access to pharmacy (88.4%) and easy availability of drugs (87.4%). Likewise, 46.7% of the students' family members practiced self-medication .

Table 1 shows that 93.0% of students had a self-medication practice: with the majority being females (83.0%). Likewise, self-medication was common among B.Sc. Nursing (26.0%) and B. Pharm. (26.0%) students. Almost all students preferred the oral route for self-medication (97.0%) and obtained medicines from pharmacy (98.5%). More than half (59.8%) of students had received information on medication dosage from previous prescriptions.

Table 1: Information on Self-medication (n=285)

Variables	Number	Percentage
Presence of self-medication (n=285)	265	93.0
Self-medication according to sex (n=265)		
Male	45	17.0
Female	220	83.0
Self-medication according to faculty (n=265)		
PBNS	64	24.2
B.Sc. Nursing	69	26.0
BPH	63	23.8
B. Pharm.	69	26.0
Preferred route of drug administration		
Oral route	256	97.0%
Topical route	66	25.0%
Inhalation route	11	4.2%
Intravenous route	4	1.5%
Sources of medication		
Pharmacy	261	98.5
Friends, Family, Relatives	47	17.7
Left-over drugs from previous prescription	33	12.5
Knowledge acquired on dosage of medication		
From previous prescription	152	59.8
By checking the leaflet inserted	93	36.6
Internet	70	27.6
From books, newspapers	65	25.6
Asking teachers	14	5.5
By guessing the dosage	7	2.8

Figure 1 shows that the most common health conditions for self-medication included common cold (67.4%) followed by fever (66.3%), and headache (63.2%).
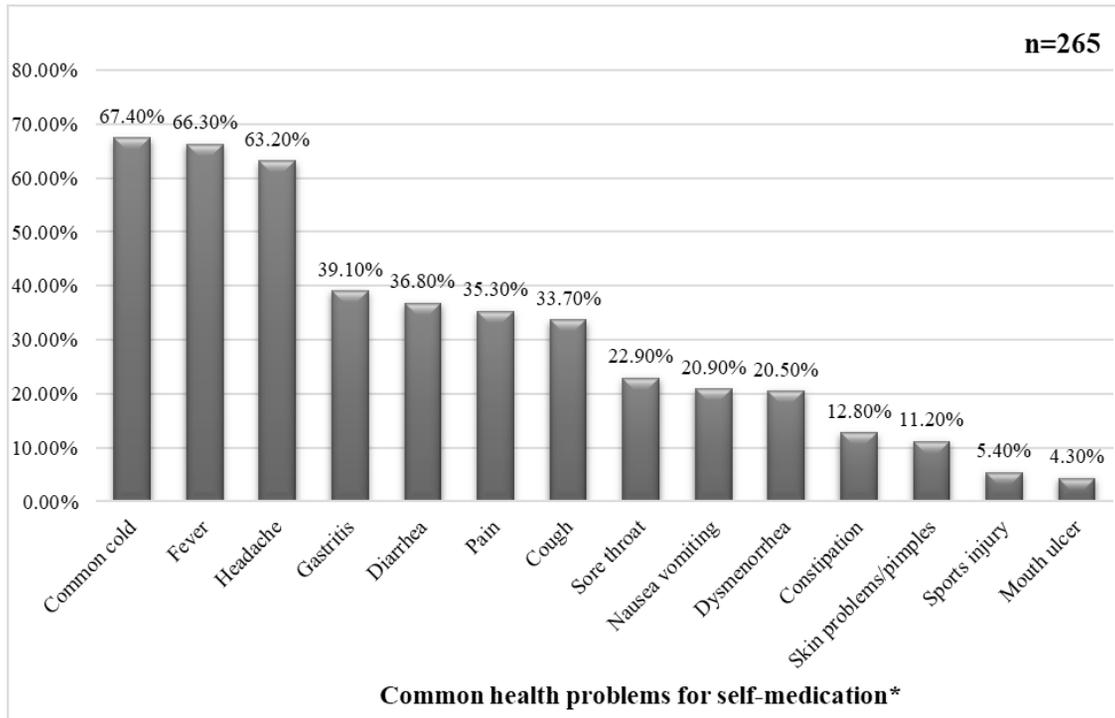
*Multiple responses

Figure 1: Common Health Conditions for Self-medication

Figure 2 shows that the most common drugs used for self-medication by the majority of students were antipyretics (71.2%) followed by analgesics (56.8%), cough medicines (53%), and antibiotics were the least used (22%).
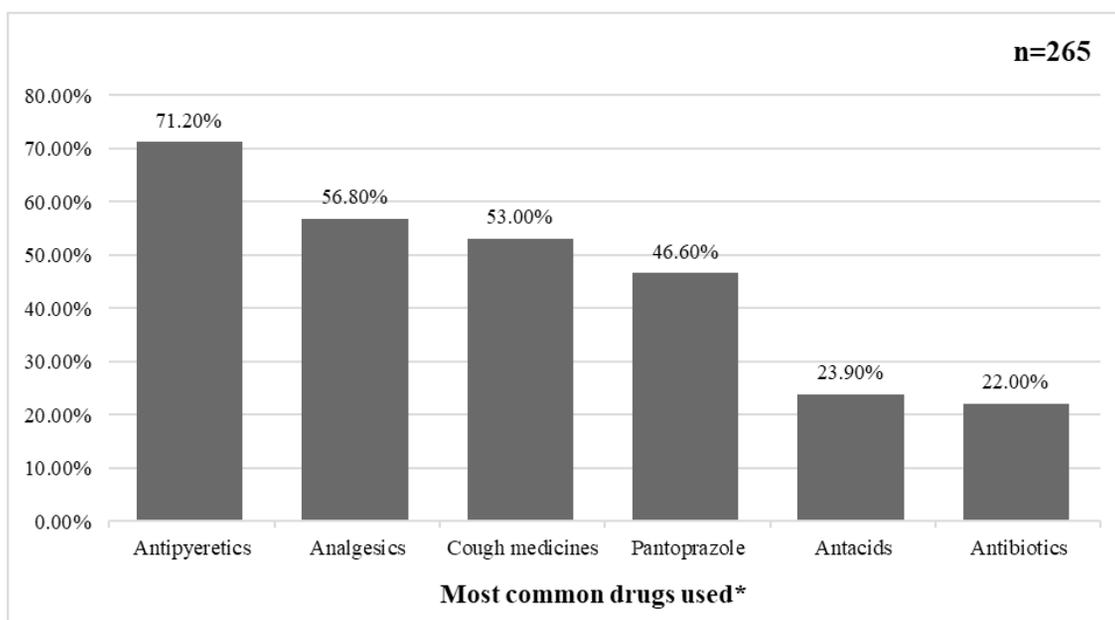
*Multiple responses

Figure 2: Common Drugs Used for Self-medication by the Respondents

Table 2 depicts that maximum student used self-medication due to mildness of illness (63.8%). Furthermore, 12.3% of students practicing self-medication have experienced side-effects; with nearly half (45.7%) reporting sleepiness, followed by allergies (31.4%) and palpitations (6.3%). After experiencing side-effects, 74.3% of students stopped medications and consulted doctors. The symptoms of the majority of students were relieved or improved by self-medication (91.2%). Similarly, 33.3% of students visited a physician after self-medication because their symptoms lasted for more than a week (50.5%). Only 25.7% of students recommend self-medication.

Table 2: Reasons for Self-Medication (n=265)

Reasons for self-medication*	Number	Percentage
Due to the mildness of the illness	148	63.8
Provide quick relief from common illnesses	102	44.0
Emergency use	70	30.2
Easy access to medicine	68	29.3
Personal experience in treating the same symptom in the past	61	26.3
Past experience in treating the same symptoms in others (e.g. family members, friends, etc.)	29	12.5
It is the cheaper source of treatment (Economical)	28	12.1
Personal convenience/Timesaving	27	11.6
Studying Pharmacology subject, so, have enough confidence	26	11.2
Physician's suggestion for self-management	11	4.7
Avoidance of long waiting queues to consult physician at a clinic/hospital	9	3.9
Expensive fee for physician consultation	8	3.4
Poor communication skills of a physician	4	1.7
Did not want to consult a physician because felt uncomfortable discussing about own symptoms	1	0.4

*Multiple responses

Table 3 illustrates that 12.3% of students practicing self-medication have experienced side-effects; nearly half (45.7%) have sleepiness, followed by allergies (31.4%), abdominal problems (28.6%), restlessness (20%), and palpitations (8.6%). After experiencing side-effects, 74.3% of students stopped medications and consulted doctors, 17.1% did nothing, and 8.6% started other drugs on self. Similarly, 33.3% of students visited physicians after self-medication because symptoms lasted for more than a week (50.5%), usual treatment was found to be not so effective (29.0%), thought the problems were serious (16.1%), and symptoms were worsening (9.7%). Self-medication relieved or improved symptoms in 91.2% cases, however, only 25.7% of students recommend self-medication

Table 3: Students' Information on Effects of Self-Medication

Characteristics	Frequency	Percentage (%)
Experienced side-effects (n=265)	35	12.3
Side-effects experienced (n=35)		
Sleepiness	16	45.7
Allergies	11	31.4
Abdominal problems	10	28.6
Restlessness	7	20.0
Palpitation	3	8.6
Manage side-effects (n=35)		
Stopped medications and consulted doctors	26	74.3
Did nothing	6	17.1
Started other drugs on self	3	8.6
Self-medication relieved or improved symptoms (n=265)	260	91.2
Visited physician after taking self-medication (n=265)	95	33.3
Reasons for visiting the physician (n=95)		
Symptoms lasted for more than a week	47	50.5
Usual treatment was found to be not so effective	27	29.0
Thought problems were serious	15	16.1
Symptoms were worsening	9	9.7
Recommends/advises for self-medication (n=265)	68	25.7

*Multiple responses

Table 4 shows a significant association between self-medication among students and the presence of self-medication in families (*p*-value=0.007).

Table 4: Association between Self-medication and Selected Variables

Characteristics	Self-medication				χ^2 Value	*p*-value
	Present		Absent			
	N	%	N	%		
Age						
19-28 years	250	87.7	19	6.7	0.000	1.000**
29 years and above	15	5.3	1	0.3		
Sex						
Male	45	15.8	5	1.7	0.365	0.546**
Female	220	77.2	15	5.3		
Educational Faculty						
Nursing (B.Sc. Nursing, PBNS)	133	46.7	8	2.8	0.772	0.380
Others (BPH, B.Pharm.)	132	46.3	12	4.2		
Ever posted in clinical setting						
Yes	174	61.0	13	4.6	0.004	0.952
No	91	31.9	7	2.5		
Easy accessibility of pharmacy						
Easy access	237	83.2	15	5.3	2.506	0.113**
Not so easy access	28	9.8	5	1.7		
Easy availability of drugs						
Yes	234	82.1	15	5.3	1.898	0.168**
No	31	10.9	5	1.7		
Presence of self-medication in family						
Yes	130	45.6	3	1.0	7.352	0.007**,*
No	135	47.4	17	6.0		

Test statistics: Chi-square test significant at p-value <0.05

***value of continuity correction*

DISCUSSION

The present study showed that nearly all (93.0%) students practiced self-medication. However, self-medication rates were lower compared to findings among medical students in India[3], Serbia[4], Saudi Arabia,[5] South Africa[6,] and Nepal.[7,17,18] The number is even lower in developed countries.[8]

The present study showed that self-medication is higher among females (83.0%). The female students were more prevalent in the present study; hence, the findings might indicate a higher prevalence among females. Several studies supporting the present findings showed that more female medical students used self-medication in Saudi Arabia[5], South Africa[6,] and China.[9] However, a study showed contrasting finding, revealing more male students used self-medication in Karachi.[18]

The present study showed that the most common health conditions for self-medication included common cold (67.4%) followed by fever (66.3%), and headache (63.2%). This finding is incongruent with other studies as the common symptoms for self-medication included headache[18,21], followed by fever[19] while common cold was less than the present finding. A similar finding was seen in a study where the health conditions for self-medication included flu followed by headache.[22]

The findings of the present study showed that the most common drugs used for self-medication by most students included antipyretics (71.2%), analgesics (56.8%), and cough medicines (53%) respectively. These are over-the-counter drugs, so, students most probably used them for symptomatic relief. Studies showed contrasting findings in which the most used drugs for self-medication were analgesic.[6,20,21] Likewise, a study done in South India[13] showed antipyretic (71%) was the commonly used drug, similar to the present finding.

In the present study, 97% of the students preferred the oral route for self-medication followed by topical (25%), inhalation (4.2%), and intravenous (1.5%) routes, respectively. A similar finding was noted in which 93.7 % of students preferred the oral route.[3]

The present study showed that most of the students used self-medication due to mildness of illness (63.8%) followed by quick relief in common illness (44%), emergency use (30.2%), easy access to medicine (29.3%), personal experience in treating same symptom in past (26.3%), a cheaper source of treatment (12.1%), time saving (11.6%) and having enough confidence from studying Pharmacology subjects (11.2%) respectively. A contrast finding was shown by the study conducted in Bahrain where the main reasons behind practicing self-medication among medical students were found to be previous experience in treating similar symptoms[11,20,21] followed by sufficient knowledge about drugs, lack of time, mildness of illness, and easy availability of drugs.[11] Similarly, contrasting findings were seen in the studies which showed the reasons for self-medication include lack of time for treatment followed by the cheaper source of treatment in Pakistan;[10] illness being too trivial for consultation in India[2] and perceived sufficient knowledge about the drug, followed by mildness of illness, and previous experience in South Africa.[6] A similar finding was seen in a study done in India which showed minor ailments followed by quick relief, urgency, previous expertise were the main reasons for self-medication.[3] The present study findings revealed that 12.3% of students have

experienced side-effects from self-medication and three-fourths (74.3%) of students stopped medications and consulted doctors while 17.1% did nothing and 8.6% changed medications and started other drugs on their own. These findings are incongruent with the study that showed more (26.3%) students have experienced adverse effects of medicine, after which 53.3% of students stopped medications and consulted doctors, while 5.4% stopped medications.[3]

The present study showed that most (91.2%) of the students' symptoms were relieved or improved by self-medication. Studies showed incongruent findings where self-medication was found to be effective by fewer students in Saudi Arabia[5] and South Africa.[6] In the present study, among the self-medication users, one-fifth (25.7%) of students recommended self-medication which is high compared to a study in South Africa.[6]

The present study revealed a significant association between self-medication among students and the presence of self-medication in their families. An incongruent finding was revealed where sex and department of study were found to be independent predictors[6].

CONCLUSION

Nearly all the students practiced self-medication. There was a significant association between self-medication among students and the presence of self-medication in their families. The study recommends that awareness can be provided to students for the rational use of medications.

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Conflict of Interest: None

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Fear of Childbirth among Pregnant Women in a Hospital, Kathmandu

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ABSTRACT

Introduction: Fear of childbirth is a significant concern that can affect a woman's health, well-being, and relationships during and after pregnancy. It can lead to distress for the woman and her family, as well as increase the risk of complications during childbirth. So, this study aims to assess the level of fear of child birth and identify associated factors among pregnant women in the hospital of Kathmandu.

Methods: A descriptive cross-sectional study was conducted enrolling 418 pregnant women attending outpatient department of Paropakar Maternity and women's Hospital. Participants were selected using a Purposive sampling technique. Ethical approval was obtained prior to the study from Institutional Review Committee of Paropakar Maternity and women's Hospital. Data was collected through a structured interview questionnaire from an extensive literature review. The collected data was analyzed using Statistical Package for the Social Sciences (SPSS) version 23, with both descriptive and inferential statistics. Statistical significance was determined at a p-value <0.05 with a 95% confidence level in bivariate analysis.

Results: More than half of the respondents (56.7%) reported high fear of childbirth, while 43.3% reported low fear. Several factors were significantly associated with higher fear of childbirth. Maternal age above 27 years were associated with higher fear (OR = 0.61, 95% CI: 0.41-0.89, p = 0.01). Women who were homemakers (OR = 3.05, 95% CI: 1.22-7.74, p = 0.017), engaged in business (OR = 4.68, 95% CI: 1.66-13.21, p = 0.003) and those in their first trimester (OR = 3.35, 95% CI: 1.21-9.33, p = 0.02) were more likely to experience high fear of childbirth.

Conclusion: The study found that more than half of pregnant women reported high fear of childbirth and less than half had low fear. Factors significantly linked to this fear included maternal age, being a home maker, engaging in business and being in first trimester. Addressing this fear through targeted educational programs and counseling during early pregnancy is essential for improving maternal well-being and potentially reducing obstetric complications.

Keywords: Childbirth, fear, pregnant women

INTRODUCTION

Childbirth is a crucial and transformative experience in a woman's life which is marked by physical, emotional, and psychological changes.[1] One of the most intense events of life is giving birth to a child. Many women find the nine months of pregnancy to be an exciting period and their emotions could range from happiness and optimism to anxieties and fear.[2] Pregnant and birthing women have mixed expectations and experiences; they feel excitement and faith,

but they also worry, fear, and endure anxiety. Fear of childbirth (FOC) is a frequent issue that affects women's health and wellbeing during and throughout pregnancy as well as after childbirth. Fear of giving birth affects a woman's connections with her husband, child, and family.[3]

Fear of birth which is also a mental issue can present as nightmares, physical complaints and trouble focusing on tasks like work or family activities.[4] A severe fear of pregnancy and childbirth is known as tocophobia which may have long term effect.[5]

According to a 2016 systematic review and meta-analysis research, 14% of pregnant women globally have FOC, with 6–10% exhibiting severe FOC.[6] In Europe overall prevalence of FOC was 11%, with primipara women having an incidence of 11.4% and multipara women having an incidence of 11%. This study discovered significant variations among the six European nations ranging from 4.5% in Belgium to 15.6% in Estonia for primiparous women and for multiparous women from 7.6% in Iceland to 15.2% in Sweden.[7] In Australia overall prevalence of FOC was 24.0% and 31.0% of nulliparous and 18% of multiparous women reported high fear level[8] whereas only 24.5% of women had severe degree fear of childbirth in Southern Ethiopia[9] and 58.6% of pregnant women had high fear of childbirth in Kenya.[10] In Asian countries like China and India 67.1%[11] and 45.4%[12] of women had FOC respectively.

Fear during pregnancy may have adverse effects on mother. Fear during the first trimester of pregnancy can cause fetal loss, while fear during the second and third trimesters can cause a drop in birth weight.[13] Similarly, during labor, women with greater fear of childbirth had poorer obstetric outcomes, a greater chance of requiring a cesarean delivery,[14] longer duration of labour,[15] and use of epidural anesthesia during labour.[16]

Following childbirth the women may develop emotional disturbances leading to postnatal depression, posttraumatic stress disorder, avoiding further pregnancy or increased interval between pregnancies,[17] ineffective relationship

between couples and parent baby bonding[18], increased rate of admission to neonatal intensive care unit due to diseases, lower birth weight, and negative effects on the infant's emotional and social reactions.[19]

The causes of FOC include a variety of internal and external conditions like mental health issues (such as anxiety disorders) and past experiences with trauma and abuse. In addition, low social support, unemployment, and financial difficulties are the factors of developing FOC.[20]

A study conducted among Swedish women reported that severe FOC women had higher antenatal visits, more sick days taken during pregnancy, longer stays in the maternity department, and at their request, an elective cesarean section was done. Compared to women with low FOC, handling severe FOC women was 38% greater cost.[21]

The above study exhibits fear of childbirth amongst the pregnant women around the globe and the significance of the study. However, limited studies were conducted regarding FOC in Nepal. Thus, the researcher intends/aims to explore and analyze fear of childbirth among pregnant women in a hospital at Kathmandu Nepal and suggests interventions to alleviate the sufferings of the pregnant women in order to improve the maternal mental health.

METHODS

Descriptive cross-sectional research design was carried out among pregnant women attending antenatal outpatient department of Paropakar Maternity and Womens Hospital, Thapathali Kathmandu. Sample size was determined by considering 45.4% prevalence of fear of childbirth from an Indian study.[12] Purposive sampling technique was used. Pregnant women at reproductive age from 18 – 49 years old irrespective of gestational age were included in the study and woman diagnosed with a psychiatric disorder were excluded. Structured interview questionnaire was developed on the basis of objectives, extensive review of literature and subject expert.[12,22,23] The research instrument consists of two parts: Part I: 17 Questions related

to socio-demographic information and obstetric information. Part II: Questions related to fear of childbirth: It consists of 25 questions which was divided into three parts: (1) fear before childbirth- nine questions, (2) fear during child birth- 10 questions and (3) fear after childbirth- six questions. The responses were scored on a 4 point Likert scale from 1to 4 with the score ranging from 25 to 100. The mean score equal to 56.1 or lower considered low fear, and score higher than 56.1 indicating high level of fear. Validity was maintained by extensive literature review and suggestion of subject expert 3 from psychiatric nursing and 3 from women's Health. The questionnaires were developed in English and translated into Nepali by the researcher and language expert. Pretesting of research instrument was done in similar setting in 10 % of the total participants ie: 42 for understanding the practicability of instrument. The questionnaires were tested for reliability using Cronbach's alpha test ie 0.88.

The study was conducted after obtaining ethical approval and permission letter from Paropakar Maternity and women's hospital (1142). Oral and written consent was obtained from each participant using face to face interview technique.

The collected data was entered into Statistical Package for the Social Sciences (SPSS) version 23. The data was analyzed by using descriptive statistics such as frequency and percentage, mean, median, standard deviation, and range. Inferential statistics, bivariate logistic regression was used for finding factors of childbirth considering a 95% confidence interval.

RESULTS

A total of 418 antenatal women were included in the study. Median age of respondents was 27 years with quartile deviation of 4 and all respondents were married. Most of respondents (81.1%) followed Hinduism and more than half of respondents (55.3%) had studied up to secondary level. Majority of respondents (70.0%) were home maker. (Table 1)

More than half of the respondents (51.4%) were married at or before the age of 21, with a median

marriage age of 21 and a quartile deviation of 3. Half of the respondents (50.0%) were from third trimester. More the half of the respondents (55.0%) were multigravidae and less than half of the respondents (49.3%) were nulliparous. (Table 2).

More than half of the respondents (56.7%) reported high fear of childbirth, while 43.3% reported low fear. The mean level of fear was 56.1, with a standard deviation of 13.56, and scores ranged from 25 to 90 (Figure 1). Age and occupation of women were significantly associated with the level of fear of childbirth. Respondents aged more than 27 years were more likely to have high fear (OR = 0.61, 95% CI: 0.41-0.89, p = 0.01) as compared to women aged less than 27 years. Women engaged in business or other occupations had higher odds of experiencing high fear compared to farmers (OR = 4.68, 95% CI: 1.66-13.21, p = 0.003). Home makers also had increased odds of high fear compared to farmers (OR = 3.05, 95% CI: 1.22-7.74, p = 0.017) (Table 3). Women in their first trimester had higher odds of experiencing high fear compared to those in their third trimester (OR = 3.35, 95% CI: 1.21-9.33, p = 0.02) (Table 4).

Table 1: Socio Demographic Characteristics of Respondents (n= 418)

Variables	Frequency	Percentage
Age in completed years		
Less than or equal to twenty seven	217	51.9
Greater than twenty seven	201	48.1
Median=27, QD=4		
Marital status		
Married	418	100
Ethnicity		
Brahmin	148	35.4
Janajati	239	57.2
Dalit	5	1.2
Madhesi	24	5.7
Muslim	2	0.5
Religion		
Hinduism	339	81.1
Buddhism	60	14.4
Christianity	13	3.0
Islam	2	0.5
Kirat	4	1.0
Type of family		
Single	250	59.8
Joint	139	33.3
Extended	29	6.9
Educational level (women)		
Illiterate	12	2.9
Informal	25	6.0
Primary level	83	19.8
Secondary level	231	55.3
University degree	67	16.0
Educational level (Husband)		
Illiterate	7	1.7
Informal	20	4.8
Primary level	69	16.5
Secondary level	252	60.3
University degree	70	16.7
Occupation (women)		
Home maker	280	70.0
Farmer	23	5.5
Service	54	12.9
Business	61	14.6
Occupation (Husband)		
Unemployment	14	3.3
Farmer	37	8.9
Service	133	31.9
Business	172	41.1
Foreign employment	31	7.4
Artist	2	0.4
Driver	28	6.8
Daily wages	1	0.2
Monthly Family Income		
≤ 35000 (NPR)	225	53.8
> 35000(NPR)	193	46.2

Median=35000, QD=12500, Range: 10000-200000 (NPR)

Table 2: Obstetric Characteristics of Respondents (n =418)

|		
Marriage Age		
Less than or equal to 21 years	215	51.4
More than 21 years	203	48.6
Median=21, QD=3, Minimum=12, Maximum=41		
Current gestational age		
First Trimester	24	5.7
Second Trimester	185	44.3
Third Trimester	209	50.0
Gravida		
Primigravidae	182	43.6
Multigravidae	230	55.0
Grand multigravidae	6	1.4
Parity		
Nulliparous	206	49.3
Primiparous	164	39.2
Multiparous	48	11.5
Abortion		
0	352	84.2
1	61	14.6
2 or more than 2	5	1.2
Number of living children		
0	215	51.4
1	173	41.4
More than or equal to 2	30	7.2
No. of still births		
0	409	97.8
1	9	2.2
Planned pregnancy		
No	101	24.2
Yes	317	75.8
First antenatal visits		
Below 16 weeks	374	89.5
17-24 weeks	40	9.6
≥ 25 weeks	4	0.9
Above 33weeks	-	-
Social support		
Yes	414	99.0
No	4	1.0
If yes n=414		
Husband	263	63.6
Husband, mother in law, father in law	147	35.6
Mother in law	2	0.4
Friends	2	0.4
Preferred Mode of delivery		
Vaginal delivery	355	84.9
Cesarean section	63	15.1
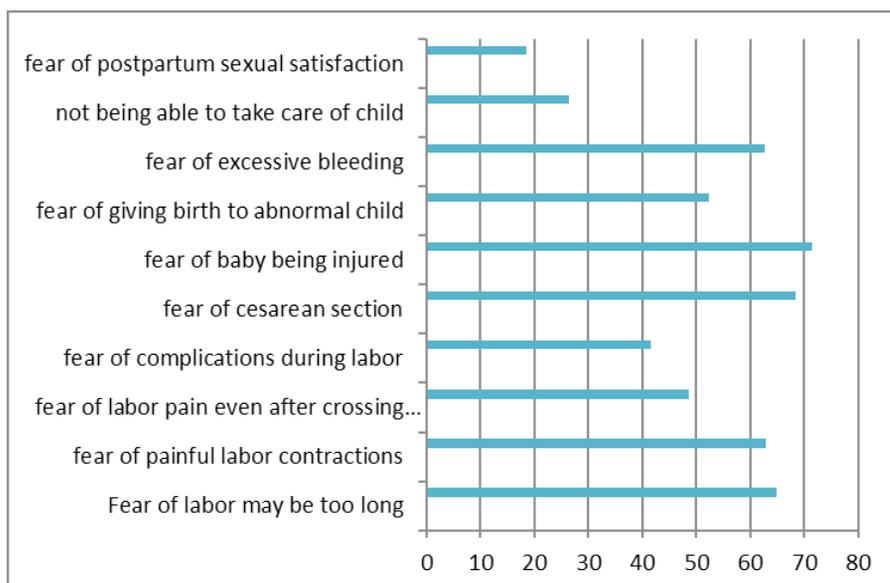
Figure 1: Fears regarding Childbirth

Table 3: Factors Associated with Fear of Childbirth among the Respondents (n=418)

Variables	Low Fear (Count, %)	High Fear (Count, %)	Chi-Square	Odds Ratio (95% CI)	p-value
Age					
≤ 27	81 (37.3%)	136 (62.7%)	6.56		0.01*
> 27	100 (49.8%)	101 (50.2%)		0.61 (0.41-0.89)	
Ethnicity					
Janajati	108 (45.2%)	131 (54.8%)	0.809		0.368
Others	73 (40.8%)	106 (59.2%)		1.197 (0.81-1.77)	
Type of family					
Single	103 (41.2%)	147 (58.8%)	1.119		0.29
Joint or Extended	78 (46.4%)	90 (53.6%)		0.808 (0.54-1.20)	
Educational level (women)					
Primary Level or More	49 (40.8%)	71 (59.2%)	0.418		0.518
Secondary Level or More	132 (44.3%)	166 (55.7%)		0.868 (0.56-1.33)	
Educational level (Husband)					
Primary Level or Less	39 (40.6%)	57 (59.4%)	0.364		0.547
Secondary Level or More	142 (44.1%)	180 (55.9%)		0.87 (0.54-1.38)	
Occupation (women)					
Farmer	16 (69.6%)	7 (30.4%)			
Homemaker	120 (42.9%)	160 (57.1%)	9.43	3.05 (1.22-7.74)	0.017*
Service	25 (46.3%)	29 (53.7%)		2.65 (0.94-7.45)	0.065
Business and Others	20 (32.8%)	41 (67.2%)		4.68 (1.66-13.21)	0.003*
Occupation (husband)					
Farmer	20 (39.2%)	31 (60.8%)			
Service	75 (46.0%)	88 (54.0%)	0.94	1.13 (0.60-2.11)	0.703
Business	86 (42.2%)	118 (57.8%)		0.85 (0.56-1.29)	0.46
Family Income					
≤ NPR 35000	90 (40.0%)	135 (60.0%)	2.16		
> NPR 35000	91 (47.2%)	102 (52.8%)		0.75 (0.51-1.10)	0.141

CI confidence Interval, * statistically significant association P< 0.05

Table 4: Factors Associated with Fear of Childbirth among the Respondents (n = 418)

Variables	Low Fear (Count, %)	High Fear (Count, %)	Chi-Square	Odds Ratio (95% CI)	*p*-value
Marriage age					
≤ 21 years	89 (41.4%)	126 (58.6%)	0.65		
> 21 years	92 (45.3%)	111 (54.7%)		0.85 (0.58-1.25)	0.418
Current gestational age					
First Trimester	5 (20.8%)	19 (79.2%)		3.35 (1.21 - 9.33)	0.02*
Second Trimester	78 (42.2%)	107 (57.8%)	6.129	1.21 (0.81 - 1.80)	0.346
Third Trimester	98 (46.9%)	111 (53.1%)			
Abortion					
Never	151 (42.9%)	201 (57.1%)	0.148		
1 or more	30 (45.5%)	36 (54.5%)		0.90 (0.53-1.53)	0.700
Number of children					
None	99 (40.4%)	146 (59.6%)	2.01		
1 or more	82 (47.4%)	91 (52.6%)		0.75 (0.51- 1.11)	0.156
First ANC visit					
Before 16 Weeks	165 (44.1%)	209 (55.9%)	0.964		
After 16 Weeks	16 (36.4%)	28 (63.6%)		1.382 (0.723, 2.639)	0.326
Social support					
Yes	179 (43.2%)	235 (56.8%)	0.074		
No	2 (50.0%)	2 (50.0%)		0.762 (0.11-5.46)	0.786
Mode of delivery					
Vaginal delivery	150 (42.3%)	205 (57.7%)	1.054		
Cesarean section	31 (49.2%)	32 (50.8%)		0.75 (0.44-1.29)	0.305

*CI confidence Interval, * statistically significant association P< 0.05*

DISCUSSION

The study was designed as a cross sectional study to assess fear of childbirth among pregnant women in hospital. Structured interview questionnaire was used to collect data. This section deals with discussion of major findings of the study.

In this study, median age of the respondents was 27 years while all were married. Ethnic distribution showed that 57.2% were Janajati, 81.1% followed Hinduism, and 59.8% had single family. Majority of respondents (70.0%) were home maker, 50.0% were from third trimester with 55.0% multigravida.

Most respondents reported that their pregnancy was planned (75.8%). Social support was nearly universal (99.0%), primarily from husbands (63.6%) or husbands along with in-laws (35.6%). Studies have shown that support from husband and family members lessens the stress during pregnancy and helps in building up self-confidence.[24]

The preferred mode of delivery was overwhelmingly vaginal (84.9%), with a smaller portion opting for a cesarean section (15.1%) which is supported by study conducted in Ghana where 86.0% and 14.0% preferred vaginal delivery and CS respectively.[25] According to the World

Health Organization, unless there is a medically necessary indication there are no benefits of cesarean section for mothers or babies.[26]

In this study, more than half of the respondents (56.7%) reported high fear of childbirth, while 43.3% reported low fear which is consistent to the study conducted in Egypt (55.33%) [27] and India (45.4%).[12] This finding is in contrast with the study conducted in Kathmandu Nepal (24.8%) [28] in 2022 among primiparous women. These discrepancies may be due to differences in tool used to measure the fear of childbirth. As in the later study standard tool was used which focused mainly on fear during labor mean while the present study used self-developed tool regarding numerous fears prior to, during, and following childbirth.

This study also examined the factors associated with fear of childbirth. Maternal age, occupation of women and gestation age were factors associated with fear of child birth. In present study advanced maternal aged women had high fear of child birth which is similar to study conducted in China.[11] This finding is in contrast to this study in Egypt [27] where young women below 20 years had intense fear of childbirth. This might be due to inexperience in taking care of child.[29]

In this study, women who were engaged in business and home makes had high fear of childbirth which is inconsistent with the study conducted in Ethiopia.[30] The difference may be due to occupation category. Home makers might have experienced fear due to less frequent social interaction possibly due to isolation or fewer support systems. Women engaging in business may be related to the stress of balancing work and pregnancy or concerns about the impact on their business.[31]

In present study, women in first trimester had fear of child birth which is in contrast to the study conducted in Turkey where research was conducted among admitted pregnant women in hospital[32] and in present study conducted among pregnant women attending antenatal outpatient department.

In first trimester women may experience fear of abortions, anemia and initial adjustment to pregnancy which is supported by study conducted in Pakistan.[33] So that prenatal education should be provided to pregnant women.[34]

CONCLUSION

The study found that more than half of pregnant women reported high fear of childbirth. Factors significantly linked to this fear included maternal age, being a home maker, engaging in business and being in first trimester. Designing and applying educational workshops that cover childbirth preparation to help reduce fear through knowledge and preparation.

Conflict of Interest: No

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Maternal Fetal Attachment among Pregnant Women Attending in a Provincial Hospital

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ABSTRACT

Introduction: Maternal-fetal attachment (MFA) refers to the behaviors and emotions exhibited by expectant mothers toward their unborn child including care, commitment, and nurturing actions. The maternal psychological state encompassing thoughts, behaviors, and emotions significantly influences fetal development by promoting healthier self-care and pregnancy-related health practices. The main objective of this study was to assess maternal-fetal attachment among first-time pregnant women attending antenatal care at a provincial hospital in Hetauda, Nepal.

Methods: a descriptive cross-sectional study was conducted among first-time pregnant women attending antenatal care at a provincial hospital in Hetauda, Nepal. Data were collected using a structured two-part questionnaire comprising a socio-demographic and obstetric profile and the validated Cranley Maternal-Fetal Attachment Scale. Descriptive and inferential statistics were performed by using SPSS.

Results: Among 145 participants, 80.7% demonstrated a high level of maternal-fetal attachment, with a mean total score of 85.32. Among the five domains of the Cranley scale, "giving of self" showed the highest mean score (4.31 ± 0.50), while "interaction with fetus" scored the lowest (2.78 ± 0.96). Statistically significant associations were observed between MFA scores and maternal age ($p < 0.003$), educational status of the respondent and her husband ($p < 0.001$), timing of antenatal care initiation, emotional response to ultrasound, and family support ($p < 0.000$).

Conclusion: Most first-time pregnant women in this study exhibited high maternal-fetal attachment. Factors such as education, age, antenatal clinic timing, emotional experiences, and support systems significantly influenced attachment levels. These findings emphasize the importance of integrating psychological support into routine antenatal care to ensure comprehensive maternal well-being.

Keywords: Pregnant women, maternal fetal attachment, cranley maternal fetal attachment scale

INTRODUCTION

Pregnancy involves significant psychological and social changes representing a profound psychological event characterized by various somatic and emotional shifts. Attachment theory introduced by John Bowlby in the 1960s, defines attachment as a set of internal behaviors that enable infants to form close bonds with their primary caregiver typically the mother.[2, 8]

In 1981, Mecca Cranley introduced maternal fetal attachment defining it as the extent to which expectant mothers engage in nurturing behaviors and attitudes that reflect their connection and commitment to their unborn child.[4,29] Muller focused maternal fetal attachment as a unique

bond influenced by a mother's childhood attachment to her own mother emphasizing its role in facilitating the transition to motherhood predicting postpartum behaviors and enhancing mother-infant interactions vital for the health of both mother and fetus.[31, 44]

Inadequate maternal-fetal attachment can negatively impact a child's emotional development and lead to social and behavioral issues while strong attachment fosters better maternal health practices and fetal well-being potentially preventing intergenerational problems such as child abuse and future parenting challenges.[29,35, 42]Maternal fetal attachment is influenced by personal factors, beliefs, past experiences and cultural contexts with lower attachment levels observed in women with unplanned pregnancies.[28, 39,47] Maternal-fetal attachment in developing nations like India and Nepal remains understudied particularly regarding factors influencing this bond during a woman's first pregnancy.

A cross-sectional study in Iran found higher maternal fetal attachment (MFA) scores in mistimed than unwanted pregnancies while a Danish study linked low MFA in 38.6% of women to lack of social support, emphasizing the need for early interventions.[13, 15] A study of 386 pregnant women found that planned pregnancies, marital satisfaction, and lower depression increased maternal-fetal attachment (MFA) while a longitudinal study in Iran highlighted the positive impact of social support on MFA suggesting preparation for motherhood improves bonding and reduces postpartum depression.[1, 11]

A study in Ludhiana found higher maternal-fetal attachment scores than paternal scores emphasizing father involvement in prenatal care while a Tamil scale validation in Pondicherry showed peak maternal attachment between 28-34 weeks with no link to gestational age or trimester.[21, 23]

A study in Nagoya found that employment, pregnancy feelings, and support sources influenced maternal fetal attachment while a Tehran study showed 84.72% had good

attachment positively impacted by race and education but negatively by tobacco use and multi parity, underscoring key prenatal care factors.[19, 20, 32]

A study in Nigeria linked low social support and multigravida to postpartum distress and reduced maternal-fetal attachment while a Swedish study found prenatal attachment is multidimensional influenced by age, parity, and partner relationships, with little impact from psychosomatic discomfort [22, 24, 31, 38, 39] An interventional study conducted in Australia, the Netherlands and Germany found that ultrasonography positively affects maternal-fetal attachment among pregnant women in various trimesters. The results indicated a significant increase in attachment levels after ultrasound exposure ($P < 0.001$). [6, 10, 11]

METHODS

A descriptive cross-sectional study design was used to assess maternal-fetal attachment among first-time pregnant women attending the antenatal outpatient department of Hetauda Provincial Hospital, a secondary-level referral hospital located in Makawanpur, Nepal. The study population included primi gravid women in their second and third trimesters (gestational age 18 to 42 weeks) who visited the antenatal clinic during the data collection period.

A non-probability convenience sampling technique was employed where eligible participants were selected directly from the antenatal OPD queue. The sample size was determined using the formula $n = z^2pq/d^2$, with a prevalence (p) of 34% for strong maternal-fetal attachment. The initial calculation yielded a sample size of 344. However, based on hospital records showing an estimated population of 250 pregnant women, the finite population correction formula was applied resulting in a final sample size of 145.

A structured interview schedule was used for data collection. The instrument was divided into two parts: the first section covered socio-demographic details, obstetric characteristics and family support, while the second part

consisted of the validated Cranley's Maternal-Fetal Attachment Scale (1981). This scale includes 24 items rated on a 5-point Likert scale, generating a total score ranging from 24 to 120. A score above 72 was categorized as a high level of maternal-fetal attachment while a score of 72 or below was considered low.

Ethical approval was obtained from the Bir Hospital Nursing Campus and the IRB of NAMS, with permission from Hetauda Hospital. Written informed consent was obtained from all participants ensuring confidentiality and cultural neutrality. Data were collected through 20–25 minute interviews then verified, coded, and analyzed using SPSS version 25. Both descriptive and inferential statistics were applied and maternal-fetal attachment was assessed across five domains using the Cranley Scale.

Table 1 presents the socio-demographic characteristics of the respondents. The mean age was 24.03 years (SD ± 3.8). More than half (61.44%) resided in urban areas. In terms of ethnicity, the majority (53.12%) belonged to the Janajati group. Most respondents (61.42%) were Hindu, and a large proportion (80.72%) lived in joint families. Nearly half (53.12%) had completed secondary education, and half (50.32%) were homemakers.

RESULTS

Table 1: Socio-demographic Charecterstics of the Respondents (n=145)

Variables	Frequency	Percentage
Respondent Age (completed years)		
≤20	31	21.4
21-25	72	49.7
26-30	35	24.1
≥31	7	4.7
Mean±SD 24.03 (SD ± 3.8)		
Residence		
Rural	56	38.5
Urban	89	61.4
Religion		
Hindu	89	61.4
Buddhist	36	24.7
Muslim	3	2.1
Christian	17	11.7
Ethnicity		
Dalit	4	2.7
Janajati	77	53.1
Madhesi	7	4.8
Muslim	2	1.4
Brahmin/ Chhetri	55	37.9
Type of Family		
Single	26	17.8
Joint	117	80.7
Extended	2	1.4
Respondent`s Education		
Illiterate	1	0.7
Basic	33	22.7
Secondary	77	53.1
Higher or above	34	23.4
Respondent's Occupation		
Homemaker	73	50.3
Private service	8	5.5
Government service	14	9.7
Agriculture	11	7.6
Business/trade	39	26.8

Table 2: Summary of Maternal Fetal Attachment in Different Domains (n=145)

Domains	Mean	SD
Giving of self	4.3076	.50278
Differentiation of self from fetus	3.6172	.76301
Role taking	3.7103	1.06027
Attribution of characteristics	3.3563	.68342
Interaction with fetus	2.7834	.95612

Table 2 reveals that among five domains of maternal fetal attachment scale, giving of self had highest mean score (4.3076±.50278) and interaction with fetus had lowest mean score (2.7834 ±.95612).

Table 3: Overall Maternal Fetal Attachment Level of Respondents (n=145)

Maternal fetal attachment	Frequency	Percentage
High	117	80.70
Low	28	19.30

Table 3 shows that the majority of respondents (80.70%) exhibited high maternal-fetal attachment levels while a smaller portion (19.3%) demonstrated low attachment levels.

Table 4 highlights significant associations between maternal-fetal attachment levels and respondents' age (0.03) as well as the education status of both the respondents (<0.01) and their husbands (<0.01).

Table 4: Association of Socio-demographic Characteristics with Maternal Fetal Attachment Level

Variables	Attachment level		χ^2	p-value
	Low(n=28)	High(n=117)		
Respondent Age (years)				
≤20	12	19		
21-25	13	59	11.551	0.03*
≥26	3	39		
Residence				
Rural	16	40		
Urban	12	77	5.022	0.25
Respondent`s Education				
Basic	14	20		
Secondary	12	65	17.342	0.01*
Higher or above	2	32		
Respondent`s Husband Education				
Basic	11	15		
Secondary	12	62	10.753	0.01*
Higher or above	5	40		
Respondent's Occupation Status				
Non-service	17	56	1.493	0.22
Service	11	61		
Income Status				
< 30000	19	47	7.622	0.06
≥30001	9	70		

Chi-square test p-value at <0.05*

Table 5: Association of Obstetric Characteristics with Maternal Fetal Attachment   Level

Variables	Attachment level		χ2	p-value
	Low(n=28)	High(n=117)		
Status of Pregnancy				
Planned	19	96		
Unplanned	9	21	2.774	.096
Trimester Pregnancy				
Second	15	46		
Third	13	71	1.884	.170
First ANC Visit				
< 3 months	20	66		
≥ 4 months	8	51	6.343	0.01*
Quickening				
0-4 months	14	53		
5-7 months	14	64	.201	.654
Total USG				
1-4 times	27	91		
5-8 times	1	26	5.186	.023
Emotional Status after USG				
Positive	16	111		
Mix feeling	12	6	34.318	0.01*
Feeling regarding Pregnancy				
Positive	10	99		
Mixed	18	18	31.633	0.01*

Chi-square test p-value at (<0.05)*

Table 5 reveals significant associations (<0.01*) between maternal-fetal attachment levels and the timing of the first ANC visit, emotional status after ultrasound and feelings regarding the current pregnancy.

Table 6: Association of Family Support with Maternal Fetal Attachment Level

Variables	Attachment level		χ2	p-value
	Low(n=28)	High(n=117)		
Spouse Togetherness				
Living with spouse	26	107		
Spouse is in abroad	2	5	1.587	.452
Spouse out of town	0	5		
Satisfaction of Marriage				
Satisfied	24	108		
Mixed	4	9	1.789	.409
Support Person for Pregnancy				
Husband	14	65		
Husband and in laws	5	19	.285	.867
Others	9	33		
Satisfaction with Support				
Satisfied	18	112		
Mixed	10	5	28.728	0.01*

Chi-square test p-value at (<0.05)*

Table 6 indicates that a significant association (<0.01*) was observed between maternal-fetal attachment and satisfaction with support.

DISCUSSION

In this study, the majority of respondents (73.8%) were aged 21-30 years, with 61.44% residing in urban areas and 53.12% identifying as janajati; 61.42% were Hindu and 80.72% came from joint families. Most participants (76.5%) had secondary or higher education, and 50.32% were homemakers with 88.30% conceiving naturally and 79.30% having planned pregnancies. Among the respondents, 42.12% were in their second trimester and 57.84% were in their third trimester; 87% expressed positive feelings about their pregnancies. Additionally, most respondents lived with their husbands, reported satisfaction with their marital status and 90.00% were content with their support system primarily provided by their husbands during pregnancy.

The study found that among the five domains of maternal-fetal attachment, "giving of self" and "role-taking" received the highest scores (4.31 and 3.71) while "interaction with fetus" had a lower mean score (2.78), likely reflecting the mother's tendency to prioritize sacrifice for her child.

Similar findings have been reported in various studies conducted in Iran, where the highest scores were observed in the "role-taking" domain and the lowest in "interaction with the fetus".[1, 11, 13, 44] the lower scores in this domain may be due to mothers' concerns about harming the fetus or feelings of shyness and discomfort in expressing such behaviors.

Maternal role-taking is a developmental stage in a woman's life results obtained in Canada[32] and USA[24] study. It is interesting to note the subscale of interaction with the fetus was the low in Cranley study.[9] Mothers at an early stage of pregnancy did not perceive the reality of the unborn baby. The primigravida mothers were confused about interaction with the unborn child because they were confusion in fetal movements and activities.[9, 20]

In this study, 80.70% of respondents reported high maternal fetal attachment, while 19.30% reported low attachment with most participants (73.8%) being young and over 76% educated at or above the secondary level. This high attachment level indicates excitement about motherhood and suggests that education plays a crucial role in enhancing maternal-fetal attachment by reducing pregnancy-related stress. The findings align with a similar study in India [21] where 82% reported strong attachment, but contrast with a study in Iran showing 65.6% attachment and another in Denmark with low attachment levels below 72%.[15]

The overall mean score of maternal-fetal attachment in this study was 85.32 ($\pm$0.594), which aligns with findings from a similar study in India[23] (87.4 $\pm$ 10.1) but is lower than another study reporting a mean score of 90 ($\pm$10.3).[1] and 95.9 ($\pm$ 8.9) was found in a study conducted in Iran.[43]

The study revealed that first-time pregnant Nepali women had lower maternal-fetal attachment scores than reported elsewhere, likely due to younger marriage and pregnancy ages, lower education levels, and cultural hesitance to express maternal roles. This suggests that their limited understanding of pregnancy and motherhood may contribute to the discrepancy compared to women in other countries.[46]

The study identified a significant association ($p < 0.03$) between age and maternal-fetal attachment revealing that most young respondents (73.8%) were excited about motherhood while those over 30 also expressed enthusiasm; it highlighted that higher education levels correlate with stronger attachment supported by studies from Iran [3, 20 42], Sweden [39] and the USA [40] which note that maternal and partner age are critical factors influencing prenatal attachment.

The study revealed a significant association ($p < 0.03$) between education level and maternal-fetal attachment, likely due to the respondents' higher educational attainment influencing their perceptions of pregnancy. Similar findings were reported in studies from Denmark[15], Iran[43], and

Turkey[44] indicating that higher education positively correlates with maternal fetal attachment levels. On contrary to this study result, conducted in India identified no significant association of age and education level.[21, 23]

The study revealed a significant association between the timing of the first antenatal care (ANC) checkup and maternal-fetal attachment levels, with first-time mothers experiencing heightened emotions and expectations during this visit. This finding is consistently supported by similar studies conducted in Egypt [30] and India. [23]

The study revealed a significant link between maternal-fetal attachment and emotions after an ultrasound with first-time mothers experiencing heightened excitement from seeing and hearing their baby's heartbeat, making the ultrasound experience particularly impactful. Supporting research from Australia[6] the Netherlands[10] and Germany[42] further confirms that ultrasounds positively influence maternal-fetal attachment.

The study found a significant association between family support and maternal fetal attachment levels highlighting social support as a key determinant of maternal health consistent with findings from Denmark[15],[18] India[23],Egypt[30], Iran[1], the USA[16], Australia[7] and Italy[40] which all noted positive correlations between perceived social support and maternal fetal attachment.

CONCLUSION

The study revealed that the majority of respondents (80.7%) exhibited a high level of maternal-fetal attachment, with an overall mean score indicating strong attachment. Among the five domains, "giving of self" had the highest mean score, while "interaction with the fetus" scored the lowest, suggesting variations in how expectant mothers express attachment during pregnancy. Factors like age, education, ANC checkups, and family support were linked to stronger maternal-fetal attachment, though the hospital-based setting and use of convenience sampling limit the generalizability of the findings to the broader population. The study highlights the importance of both maternal mental and physical health, emphasizing the need for midwifery care to place greater focus on the psychological aspects of pregnancy.

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Postpartum Family Planning Utilization among Mothers attending Maternal and Child Health Clinic of Tertiary Level Hospital

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ABSTRACT

Introduction: The postpartum period is one of the critical phases in terms of initiation of Family Planning. Postpartum family planning can save mothers' and babies' lives by preventing more than one-third of maternal deaths and 1 in 10 deaths among babies. The prevalence of postpartum family planning utilization is low in our Nepal.

Objective:

Methodology: A descriptive cross-sectional study was conducted in the MCH clinic of Rapti Academy of Health science after obtaining ethical approval from the Nepal Health Research council (NHRC). The objective of study was to find out the prevalence of postpartum family planning utilization. The convenience sampling method was used to collect data from 103 mothers having children from 6 weeks to 1year by using a self-structured interview schedule after pretesting. The collected data was analyzed using discriptive and inferential statistics.

Results: Less than half of the respondents (46.6%) received family planning counseling and postpartum family planning utilization was only 27.2%. The commonly used current postpartum family planning methods were a condom(39.3%) and depo (32.1%). Age of child, resumption of mensuration, resumption of sex, counseling on family planning method, and previous use of family planning were associated with postpartum family planning method with p value less than 0.05.

Conclusion: The prevalence of postpartum family planning utilization is low in Nepal. The counseling regarding postpartum family planning methods during the Antenatal, delivery, and postnatal periods should be improved to increase the use of family planning.

Keywords: MCH clinic, postpartum family planning

INTRODUCTION

The prevention of unwanted pregnancy and closely spaced pregnancies through the first 12 months following childbirth is called postpartum family planning (PPFP).[1]The postpartum period is one of the vital phases in terms of initiation of Family planning[2] Postpartum contraceptives help in reducing maternal and infant mortality and morbidity by preventing unplanned and unwanted pregnancies and repeated and successive pregnancy.[3]

Worldwide, although 9 out of 10women want to avoid pregnancy for 2 years after delivering the baby 7 of them are using contraception.[4]The findings from a study done in Berhan Ethiopia revealed that (41.6%) of women started using contraceptives during the postpartum period.[5] In a study conducted in the Kailali district of Nepal study, about one-third (32.8%) of the participants reported using modern family planning methods during the postpartum period.[6]

Findings of the literature suggested that the utilization of postpartum family planning methods is low in worldwide and Nepal. This research aims to find out the prevalence of the postpartum family planning method and its association with sociodemographic variables.

METHODOLOGY

A cross-sectional descriptive study design was used to assess the utilization of family planning methods among postnatal mothers attending MCH clinic of Rapti Academy of Health Science(Tertiary hospital). The study was conducted from July 2023 to September 2023 . The study population were postnatal mothers of children from 6 weeks to 12 months who visited MCH clinics for vaccination of their child. Non-probability convenience sampling technique was used.The sample size was 103 which was calculated by using Cochran's formula. The content validity of the instrument was maintained by reviewing of literature and consulting with advisors, research experts, and research subject teachers. The instrument was formulated in English to Nepali and translated back to English in order to regain its original meaning. The ethical clearance was obtained from the National Health Research Council, Kathmandu. Postnatal mothers whose husbands were abroad were excluded from the study. A structured interview schedule was adopted to assess postpartum family planning utilization by using self-developed questionnaires. Pretesting was done among women visiting Gynae OPD for follow up. The data was collected by face to face interview after obtaining consent from mothers. The collected data was entered and analyzed using SPSS version 16. The frequencies, percentage were calculated by using descriptive statistics and the association was assessed by using chi-square test.

RESULTS

A total of 103 mothers were interviewed for data collection. The mean age of mothers and children were 26.74± 4.9 years and 8.4±3 months respectively . The majority of respondents (81.5%) were from the age group 20-35years and 81.6% from the sub- metropolitan. Likewise, nearly half of respondents (41.7%) studied up to secondary level education and three fourth of respondents (79.6%) were homemakers. Almost all respondents (94.2%) were following Hindu religion. About 86.4% of respondents have one child and 70.9% of respondents have children six months and more (Table1).More than half (56.3%) had delivered child vaginally. Nearly three fourth (70.9%) and 75.7% of respondents had resumption of mensuration and sex respectively (Table2). Nearly one- fourth (27.2%) had utilized the postpartum family planning method (Figure1). Less than half of the respondents (46.6%) received family planning counseling, among them 41.7% received counseling on the ANC period. One- third of respondents (35.9%) had used the family planning method before. The commonly used current postpartum family planning method was a condom (39.3%). Half of the respondents (57.3%) cited not necessary as the reason for not using the family planning method (Table3). Table 4 shows that age of the child, resumption of mensuration, resumption of sex, counseling on family planning method and previous use of family planning were associated with postpartum family planning utilization with p value <0.05 (Table 4).

Table 1: Demographic Characteristics of Respondents (n=103)

Characteristics	Frequency	Percentage
Age of mother		
<20	14	13.6
20-35	84	81.5
>35	5	4.9
Residence		
Sub-metropolitan	84	81.6
Village municipality	19	18.4
Educational status		
Primary	24	23.3
Secondary	43	41.7
Higher Secondary	23	22.3
Bachelor and above	13	12.6
Occupation		
Homemaker	83	79.6
Farmer	3	2.9
Service	12	11.7
Business	5	4.9
Husband's occupation		
Farmer	16	15.5
Service	37	35.9
Business	31	30.1
Daily wages	19	18.4
Religion		
Hindu	97	94.2
Muslim	4	3.9
Christian	2	1.9
Age of child		
Less than six months	30	29.1
Six months and more	73	70.9
Number of children		
One	89	86.4
One to four	13	12.6
More than four	1	1

Table 2: Reproductive Characteristics of Respondents (n=103)

Characteristics	Frequency	Percentage
Type of delivery		
Vaginal delivery	58	56.3
CS	45	43.7
Resumption of mensuration	73	70.9
Resumption of sex	78	75.7

Table 3: Postpartum Family Planning Utilization (n=103)

Characteristics	Frequency	Percentage
Counseling on Family planning		
Yes	48	46.6
No	55	53.4
Timing of counseling(n=48)		
Antenatal period	20	41.7
During delivery	18	37.5
Postnatal period	10	20.8
Previous use of Family Planning method	37	35.9
Current method of Family Planning(n=28)		
Depo- Provera	9	32.1
Condom	11	39.3
Pills	3	10.8
Copper T	1	3.6
Implant	2	7.1
Permanent Family planning	2	7.1
Side effect of family planning(n=4)		14.2
Bleeding	2	50
weight gain	2	50
Reason for not using family planning method(n=75)		
Ignorance	4	5.4
Fear	15	20.0
Not necessary	43	57.3
Natural Family planning method	13	17.3

Table 4: Association of Independent variables with Current use of Family Planning (n=103)

| Socio- demographic Variables	Family planning utilization		χ² p value
	Utilized n %	**Not utilized n %**	
Age	3(21.4)	11(78.6)	0.75
< 20 years	25(28.1)	64(71.5)	
≥ 20 years			
Residence			
Sub-metropolitan	24(28.7)	60(71.3)	0.50
Village municipality	4(21.0)	15(79.0)	
Educational level			
Below Secondary	7(29.2)	17(70.8)	0.49
Secondary and above	21(26.6)	58(73.4)	
Occupation			
Work inside home	18(21.7)	65(78.3)	0.11
Work outside home	10(50)	10(50)	
Age of child			
Less than 6 months	2(6.7)	28(93.3)	0.03
Six months and more	26(35.6)	47(64.4)	
Husband occupation			
Farmer	2(12.5)	14(87.5)	**0.15**
Other	26(29.9)	61(70.1)	
Number of children			
One child	11(25.6)	32(74.4)	
> 1 child	17(28.3)	43(71.7)	**0.75**
Resumption of mensuration			
Yes	2(6.7)	28(93.3)	0.003
No	26(35.6)	47(64.4)	
Resumption of sex			
Yes	28(35.9)	50(64.1)	0.00
No	0	25(100)	
Counseling on Family Planning			
Received	18(37.5)	30(62.5)	0.028
Not received	10(18.2)	45(81.8)	
Previous use of Family planning			
Used	17(45.9)	20(54.1)	0.001
Not Used	11(16.7)	55(83.3)	
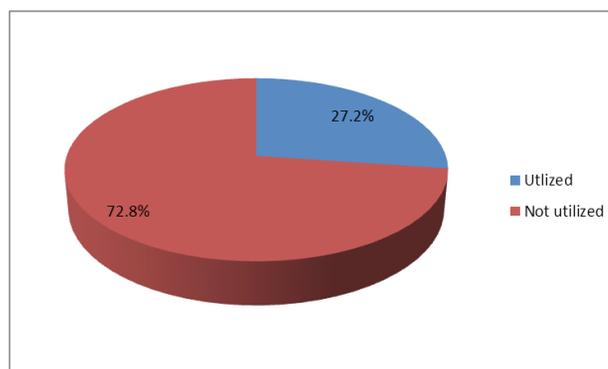
Fig 1: Utilization of Postpartum Family Planning Methods.

DISCUSSION

The current study found that postpartum family planning utilization was 27.2% which is similar from findings from study done in India where postpartum family planning utilization was 33.4%.[2] The finding is lower than the finding from a study done in Minch Ethiopia where postpartum family planning utilization was 44.4% and Kailali Nepal where 38.2% of respondents had used a method of FP.[6,7] The differences may be due to differences in sample size and heterogeneity in culture and religion. The commonly used family planning methods were condoms (39.3%) Depo-Provera (32.1%), and pills (10.8%) and 14% of total users had side effects, which is similar with the findings from a study done in Chitwan where (33.3%) used condom and 6.6% used Depo-Provera and 20.9% had side effects.[8] The findings varies from finding of study done in Minch Ethiopia where 38% of the respondents used implant as post-partum family planning followed by oral contraceptives.[7] This current study revealed only 46.6% of women received counseling on family planning methods, among them only 20.7% received counseling in the PNC period which is contrast to study done in different tertiary level facility of Nepal where postpartum family planning counseling coverage was (93.9%)also in Delhi where India where half of the respondents received counseling on family planning method in the immediate postpartum period.[2,9]

The reasons for not using family planning methods in this study were not necessary, natural family planning method, ignorance, and fear of side effects, which is similar to findings from Chitwan which shows (16.7%) of respondent's reason of not using PPFP were due to husband out of home and using natural method. where (20%) of the respondents had fear of side effects of contraceptives.[8] In this study resumption of mensuration, and resumption of sex are significantly associated with postpartum family planning utilization with p value 0.003 and 0.00 respectively which is consistent to findings from study done in Behran Ethiopia where resumption of menses and the timing of resumption of sexual intercourse were found to be associated with postpartum family planning utilization.[5] In contrast to this study where level of education and residence were not significantly associated, PPFP utilization was significantly associated with level of education in Burundi and Rwanda and women from rural areas had a lower chance of early initiation of modern spacing methods in India[10,11]

CONCLUSION

The utilization of postpartum family planning method is low. Among them majority of respondents used condoms as family planning methods. The counseling regarding postpartum family planning methods during the antenatal, delivery and postnatal period is significantly low. Resumption of menses, resumption of sex, age of child, previous use of family planning method, and counseling on family planning methods are associating factors for postpartum family planning utilization. The counseling of postpartum family planning should be given priority during Antenatal visits, delivery and postnatal visits.

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Conflict of Interest: None

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Self-Care Practice Among Individuals with Diabetes Attending Selected Hospitals in Kathmandu, Nepal

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ABSTRACT

Introduction: Self-care is a cost-effective and essential practice that plays a vital role in preventing complications and enhancing the quality of life for individuals with diabetes. By improving self-care, it helps reduce the burden on healthcare systems and lowers overall healthcare costs. As self-care practices are highly individualized, this study aims to assess self-care behaviors among diabetic patients.

Methods: A cross-sectional descriptive study was conducted among 205 adult clients with diabetics attending the outpatient departments at two public university hospitals located at Kathmandu . Data were collected through structured interviews using a five-point Likert scale. Descriptive and inferential statistics were used for analysis. The self-care was assessed in terms of diet, physical exercise, medication adherence and self-monitoring of blood glucose level.

Results: In this study, nearly half (47.3%) of participants followed a calorie-counting diet, 64.4% ate meals on time, and 64.9% consumed dairy products. Over half of them regularly consumed cereals (53.2%) and green vegetables (52.7%). 76.1% ate lentils and 65.4% sometimes consumed beans. A majority of the respondents avoided high salt (68.3%), sugar (68.8%), and cold drinks (85.4%). Regarding physical activity, 66.8% engaged in 20–30 minutes of daily exercise; but, 83.9% did not perform brisk walking. Medication adherence was high, 99.5% taking prescribed doses and 92.6% did not change their medication without physician advice. Only 31.8% regularly monitored blood glucose, and 67.0% checked when needed without keeping records. Overall, 82.5% exhibited average self-care practices, with good medication adherence (92.7%) and an average dietary pattern (94.6%). A significant association was observed between age and self-care practices (p<0.028).

Conclusion: This study shows high medication adherence but highlights gaps in diet, exercise, and blood glucose monitoring practices. Regular structured education program for diabetes people in these areas could improve overall diabetes self-care thus potentially enhancing outcomes.

Keywords: Individual with diabetic, self-care, self-care practice.

INTRODUCTION

Diabetes is a major global health problem and up to 90% of cases attributed to type 2 diabetes[1]. According to the International Diabetes Federation (IDF), 463 million adults currently living with diabetes, projected number to reach 700 million by 2045, while 374 million are at high risk of developing type 2 diabetes. In the South-East Asian Region (SEAR), 88 million people are affected[2]. According to the World Health Organization (WHO), diabetes is the 7th leading cause of death among non-communicable

diseases globally, ranking 10th in high-income countries, 9th in lower-middle-income countries, and 6th in upper-middle-income countries[3]. In 2017, diabetes was the 11th most common cause of disability-adjusted life years (DALYs), with 1,226 DALYs per 10,000 people in Nepal.[4]

Several studies highlight poor self-care among diabetic patients. In India, one study found that 53.75% of diabetic patients had average self-care scores, 46% had poor scores, and only 0.25% had good scores, with significant positive correlations to socio-demographic factors such as age, income, and education.[5] Another study reported only 5.6% of patients exhibited good self-care, with the best adherence in glucose monitoring and the lowest in physical activity.[6] A study in Tamil Nadu found that 50% of participants engaged in regular exercise and 70% regularly monitored blood glucose. The overall self-care activity score was 47.9%, with age significantly associated with self-care activities ($p<0.05$).[7]

Diabetes is often considered a "whole life disease," requiring continuous self-care for optimal glycemic control.[8] Effective self-care includes daily physical activity, a healthy diet, smoking cessation, foot care, dental and eye care, stress management, and adequate fiber intake [9,10,11]. Improved adherence can be achieved through diabetes education and self-management support programs.[12] A study in Ethiopia showed that combining medication with a diabetic diet significantly reduced HbA1c levels.[13]

In Nepal, studies on diabetes self-care are limited. A study in Biratnagar reported that 50.4% of patients had poor self-care, with significant associations to demographic factors.[14] Similarly, a study in Kathmandu found inadequate self-care practices linked to low disease knowledge.[15] The prevalence of diabetes in Nepal increased from 7.75% (CI: 3.67–15.61) in 2010–2015 to 11.24% (CI: 7.89–15.77) in 2015–2020.[16] Improving self-care is a cost-effective and sustainable approach to addressing this growing burden, but remaining barriers are limited knowledge, cultural practice, inadequate counseling, financial constraints, low motivation, and limited support from families and healthcare providers [10,16,17]. Therefore, this study aims to assess the level of self-care practices and their association with selected variables.

METHODS

A cross-sectional descriptive study was conducted among 205 individuals with type 2 diabetes at the outpatient departments of Tribhuvan University Teaching Hospital (TUTH) and Manmohan Cardiothoracic Vascular and Transplant Centre (MCVTC). Participants were selected using purposive sampling based on the following criteria: aged 20 years or older, diagnosed with type 2 diabetes for at least six months, able to communicate in Nepali, and willing to participate.

Data were collected from February 3 to March 5, 2021, through face-to-face interviews using a structured Nepali-language questionnaire. The instrument consisted of two parts:

Part I covered 23 items on socio-demographic, behavioral, and disease-related characteristics.

Part II assessed self-care practices over the past 30 days across four domains—dietary pattern (14 items), physical activity (5 items), medication adherence (5 items), and self-monitoring of blood glucose (5 items)—using a five-point Likert scale (Always to Never). Responses were scored from 5 to 1 for positive items and reverse for negative ones.

Ethical approval was obtained from the Institutional Review Committee of the Institute of Medicine, Tribhuvan University. Informed consent was obtained, and confidentiality was maintained using coded identifiers. Only the Nepali version of the questionnaire was used.

Self-care scores were categorized as good (≥75%), average (50–74%), or poor (≤50%). Data were analyzed using SPSS version 20 with descriptive and inferential statistics; associations were tested using the chi-square test, with significance set at $p < 0.05$.

RESULTS

The demographic data shows that 33.7% of respondents were aged 51-60, with a mean age of 56.68 ± 11.4 years. The gender ratio was nearly equal, with 50.2% male and 49.8% female. Most respondents (86.8%) were married, and 54.1% belonged to the Brahmin/Chhetri caste. Regarding religion, 80.5% followed Hinduism. The majority (86.8%) lived in municipalities, and 64.4% were in joint families. Over half (50.7%) had a family history of diabetes, with 58.7% having a diabetic sibling. Nearly all (93.2%) received family support during treatment. Smoking/tobacco and alcohol use were low, at 13.2% and 11.7% respectively. Most respondents (83.9%) were literate, with 41.9% having a high school education. In terms of employment, 60.5% were employed, and 33.0% worked in agriculture.

The disease related information shows that 52.7% of respondents had diabetes for up to 5 years. Most (82.0%) had a comorbidity, with 72.6% having hypertension. A history of hospitalization was reported by 21.5%, and 42.9% had a glucometer at home. Nearly all (97.6%) received counseling, mostly from doctors (96.0%). The majority (79.5%) used oral hypoglycemic agents (OHA), and 58.5% visited the hospital for follow-up within three months.

Tables 1 to 4 present descriptive data on respondents' self-care practices across four domains: dietary pattern, physical activity, medication adherence, and self-monitoring of blood glucose. Tables 5 to 9 detail the overall levels of self-care practice and their associations with selected socio-demographic and disease-related variables.

Table 1: Response on Dietary Pattern among Diabetic Patients (n=205)

Items	Responses				
	5 No. (%)	4 No. (%)	3 No. (%)	2 No. (%)	1 No. (%)
Calorie count diet recommended by dietitian	39 (19.0)	97 (47.3)	53 (25.9)	12 (5.9)	4 (2.0)
Meals/Snacks on time	132 (64.4)	42 (20.5)	19 (9.3)	6 (2.9)	6 (2.9)
Cereal diet: wheat, barley, millet, maize, buck wheat	109 (53.2)	38 (18.5)	41 (20.0)	14 (6.8)	3 (1.5)
Protein diet beans and lentils	160 (78.0)	36 (17.6)	154 (75..2)	43 (20.6)	17 (8.3)
Protein diet meat and eggs	6 (2.9)	31 (15.1)	78 (38.0)	45 (22.0)	45 (22.0)
Fried foods*	1 (0.5)	-	4 (2.0)	83 (40.5)	117 (57.1)
Eating green vegetables	108 (52.7)	90 (43.9)	6 (2.9)	1 (0.5)	-
Eating select fruits as advice	90 (43.9)	43 (21.0)	57 (27.8)	10 (4.9)	5 (2.4)
Milk and milk product	133 (64.9)	15 (7.3)	24 (11.7)	13 (6.3)	20 (9.8)
High and added salt*	-	4 (2.0)	12 (5.9)	49 (23.9)	140 (68.3)
Using cold drinks*	-	-	1 (0.5)	29 (14.1)	175 (85.4)
Sugar, cake, chocolate, jam, honey*	4 (2.0)	2 (1.0)	6 (2.9)	52 (25.4)	141 (68.8)
Remember count calorie during festive/travelling	22 (10.7)	84 (41.0)	56 (27.3)	15 (7.3)	28 (13.7)

*Negative statement * Always=5, Often=4, Sometimes=3, rarely=2, Never=1*

Table 1 represents that less than half (47.3%) of the respondents often followed calorie count diet as recommended by dietitian. They always took meal and snacks on time, used milk and milk product, ate cereals diet took green vegetable, used lentils (64.4% always 64.9 %, 53.2%, 52.7%, 76.1%) respectively and 65.4% sometimes used beans. They never used fried foods, high and added salt, sugar, cold drinks (51 .7%, 68.3%, 68.8%, 85.4%) respectively.

Table 2: Response on Physical Activity among Diabetic Patients (n=205)

Items	Responses				
	5 No. (%)	4 No. (%)	3 No. (%)	2 No. (%)	1 No. (%)
Performed 20-30 minutes yoga/ meditation, walk daily	137 (66.8)	12 (5.9)	22 (10.7)	3 (1.5)	31 (15.1)
Performed 20-30 minutes brisk walk daily	8 (3.9)	4 (2.0)	8 (3.9)	13 (6.3)	172 (83.9)
Performed varieties types of exercise.	85 (41.5)	20(9.8)	42 (20.5)	9(4.4)	49 (23.9)
Took light breakfast before exercising	43 (21.0)	6 (2.9)	23 (11.2)	6 (2.9)	127(62.0)
Carried sweet or candy while walking/exercising	17(8.3)	1 (0.5)	7 (3.4)	4 (2.0)	176 85.9)

Always=5, Often=4, Sometimes=3, rarely=2, Never=1

Table 2 shows that majority (66.8%) of the respondents always performed 20 to 30 minutes' exercise. Most (83.9%) of the respondents never performed brisk walks. 41.5 % of the respondents always performed varieties types of exercise (e.g. labor work, carry luggage, household work etc.). 62.0% of the respondents never took breakfast before exercising. Most (85.9%) of the respondents never carried sweets or candy while walking/exercising.

Table 3: Response on Medication Adherence among Diabetic Patients (n=190)

Items	Responses				
	5 No. (%)	4 No. (%)	3 No. (%)	2 No. (%)	1 No. (%)
Took recommended prescribed dose of medications.	189(99.51)	1(0.5)	-	-	-
Changed the dose of medicine without advise by physician.*	-	-	1(0.5)	13 (6.3)	176 (92.6)
Stopped medicine without advised by physician.*	-	-	-	8 (3.9)	182 (95.8)
Remembered difficult to take medicine.*	-	-	1(0.5)	55 28.9)	134 (70.5)
Forgot to carry medicine while travelling.*	-	-	-	17 (8.9)	173(91.1)

*Negative statement * Always=5, Often=4, Sometimes=3, rarely=2, Never=1 for positive response and in vice versa there is negative response*

Table 3 depicts that almost all of the respondents always took recommended prescribed dose of medicine (99.5%), never changed the dose of medicine without advised by physician (92.6%) of the respondents, never stopped medicine without advised by physician (95.8%) and never forgot to carry medicine while travelling (91.1%). Majority (70.5%) of the respondents never difficulty remembered to take medicine.

Table 4: Response on Self-Monitoring Blood Glucose among Diabetic Patients   (n=88)

	Responses				
Items	**5** No. (%)	**4** No. (%)	**3** No. (%)	**2** No. (%)	**1** No. (%)
Measured blood glucose level	6(6.8)	6(6.8)	28 (31.8)	30 (34.1)	18(20.5)
Remembered to measure blood glucose level when necessary	59(67.0)	3(3.4)	3(3.4)	2(2.3)	21(23.9)
Kept record blood glucose results	28 28(31.8)	-	2 (2.3)	-	58(65.9)
Report to the health personnel if blood glucose level changed	25(28.4)	1(1.1)	4 (4.5)	-	58(65.9)

Always=5, Often=4, Sometimes=3, rarely=2, Never=1

Table 4 represents that around one third (31.8%) of the respondents sometimes measured blood glucose level. Around two third of the respondents always remembered to measure blood glucose level when necessary, never kept record of blood glucose level, and never reported to doctor if blood glucose level changed respectively 67.0%, 65.9% and 65.9%.

Table 5: Overall Level of Self-Care Practice among Respondents

Level	Number	Percent	CI (95%)	
			Lower Limit	**Upper Limit**
Good (≥75%)	13	6.3	2.98	9.62
Average (50-75%)	169	82.5	77.29	87.71
Poor (≤50%)	23	11.2	6.88	15.52
Total	205	100		

Table 5 showed that 82.5 % respondents had average level of self-care practices.

Table 6: Level of Self-Care Practice among Respondents (n=205)

Variables	Level of Self-Care Practice		
	Good No. %	**Average** No. %	**Poor** No. %
Dietary Pattern	-	194 (94.6)	11 (5.4)
Physical Activities	4 (2.0)	41 (20.0)	160 (78.0)
Medication Adherence	190 (92.7)	-	15 (7.3)
SMBG	8 (3.9)	24 (11.7)	173 (84.4)

Table 6 Shows that most (92.7%) of the respondents had good in medication adherence and 94. 6% had average dietary pattern.

Table 7: Association between Level of Self-Care Practice and selected Socio-demographic Variables (n=205)

Variables	Level of Self-Care Practice				
	Good No. (%)	Average No. (%)	Poor No. (%)	χ^2 value	P value
Age in Years					
≤20-50	8(13.3)	45(75)	7(11.7)	7.124	0.028
≥51	5(3.4)	124(85.5)	16(11)		
Sex					
Male	7(6.8)	84(81.6)	12(11.7)	0.121	0.941
Female	6(5.9)	85(83.3)	11(10.8)		
Type of Family					
Nuclear	5(6.8)	58(79.5)	10(13.7)	0.790	0.674
Joint	8(6.1)	111(84.1)	13(9.8)		
Employment Status					
Unemployment	4(4.9)	68(84.0)	9(11.1)	0.454	0.797
Employment	9(7.3)	101(81.5)	14(11.3)		

Others =Janajati, Madeshi, Dalit and Muslim*

Table 7 shows there is only association between age and level of self-care practice (<0.028)

DISCUSSION

Result of this study displayed that dietary adherence was average among 94.6%, and poor 5.4%. The adherence in this study was higher in among people of Ethiopia where only 24% had adherence to the diet.[18] On the contrary 45.9% respondents were found adhere to diet management in Mangalore, India.[19] Similarly, a study among Nepalese population in Nepalgunj in 2014 showed poor adherence to the dietary pattern of 12.5%.[20] Similar finding manifested in same setting in 2020 with 16.1 % respondents were good adherence and 66.8% were average adherence.[14]

In the context of physical activity, 20% respondents had average adhered to the physical activity and only 2% respondents had well adherence. Alike, 15.2% were found to be adhered to physical activity among respondents

from Yeman.[18] In different to this, there was 67.7% respondents adherence in physical activity. [8] 74.0% respondents found adherence in physical activity in Mekelle Hospital and Ayder Referral Hospital.[21] A study conducted in Delhi, India result found 67.7% adherence in physical activity. [8] The similar study conducted in same setting TUTH result found that 86.4% respondent's adherent in physical activities.[22] The study conducted in Tanahu, Nepal revealed 89.9% of respondents adhere to physical activity.[23] These study result were contradicting in present study . The difference in result may be due to difference in residential area of respondents in terms of being rural and urban.

The most of the respondents were adhered to medication adherence. Similar finding in study conducted in Ethiopia with the adherence of 95.7%.[18] Another study conducted in Gauteng, South Africa showed 67% in medication adherence.[24] This result was consistent with other study conducted in secondary hospital,

Karnataka, India which found medication adherence of 92.75%. [5] Another study conducted on Ethiopia result found medication adherence 95.7 %.[18] Similar study conducted in Gujarat, India found 88.10% in medication adherence.[11] A study conducted in same setting >98.0% adherence in oral hypoglycemic agent and cent percent in insulin.[22] A study conducted in Kanchanpuran, India result found 70.4% respondents in medication adherence.[6] Another study conducted in, South Africa resulted 67% in medication adherence .[24]

Self-Monitoring Blood Glucose (SMBG) is important domain of diabetes self-care practice. In this study SMBG adherence was good 9.1%, average 27.3%, and poor 63.6% respondents. This findings was opposing to finding in Africa which showed 92% adherence to SMBG. [24]

Study showed that average score of self-care practice were average 82.5%, poor 11.2%, and good 6.3%. Findings were contradictory from study in India where scored were average 53.75%, poor 46%, and good 0.25%. [5] Study conducted at diabetic clinic of South West Ethiopia revealed that 50.8% had poor self-care practice.[25] Another study conducted in Tanahu, Nepal result found 46% self-care practice.[23] Study carried out in Northwest Iran result found 15.1% good in self-care practice.[26] In contradictory, good self-care practice was 46.7 % in Ethiopia. [27] This study revealed significant association between self-care practice with age (p<0.028) among the respondents between the age 20 to 50 years. This association was similar with that of study conducted in Tamil-Nadu, India. [7]

CONCLUSION

This study highlights high medication adherence and average level of dietary adherence however, physical activity, and blood glucose monitoring remains inadequate. But, overall self- care practice was average and significant association was observed between self-care and age. So, age-specific educational interventions regarding lifestyle modification are recommended to improve self-care practice in all dimension.

CONFLICT OF INTEREST: None

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Status of Anxiety and Depression among Caregivers of Mentally Ill Patients in a Tertiary Hospital

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ABSTRACT

Introduction: The main source of support for mentally ill patients is family, and they take the role of caregivers. Caregivers of mentally ill patients are at great risk of developing anxiety and depression. The main objective of the study was to find out the status of anxiety and depression among caregivers of mentally ill patients in a tertiary hospital.

Methods: A descriptive cross-sectional research design was adopted. A purposive sampling technique was used to select 263 caregivers of mentally ill patients at the psychiatric department of Tribhuvan University Teaching Hospital. Data was collected through an interview technique with a semi-structured questionnaire, along with a pretested and validated Nepali version of the General Anxiety Disorder and Patient Health Questionnaire scale to assess anxiety and depression, respectively. SPSS version 16 was used to analyze the data using descriptive and inferential statistics (chi-square tests). Ethical consideration was maintained throughout the study.

Results: Anxiety and depression among caregivers of mentally ill patients were 19.8% and 18.2%, respectively. Risk factors significantly associated with anxiety and depression were sex and health problems of caregivers, social support received by caregivers, and sex of the patient. The type of mental illness of the patient was significantly associated with anxiety, while ethnicity and educational level were significantly associated with depression among caregivers.

Conclusion: Minimal anxiety and mild depression were seen among caregivers of mentally ill patients. Thus, there is a need for a screening test and regular psychological counseling for the caregivers of mentally ill patients to prevent mental illness.

Keywords: Anxiety, caregiver, depression, mentally ill patients

INTRODUCTION

Caregivers are those who can be family member, near neighbor or close friend and they provide care to the mentally ill patients.[1] Caregivers have to face significant amount of strain and difficulties during the care of mentally ill patients and include a range of psychological, emotional, social, physical, and financial problems. They are at great risk to develop mental health problems like anxiety and depression. Anxiety and depression among caregivers had an impact on both caregivers and patients.[2]

A study conducted in Brazil in 2020 shown, the prevalence of anxiety and depression among caregivers was 32.5% and 40% respectively.[4] Similar study conducted in Nepal depicts-in 2021, the prevalence of anxiety and depression among caregivers of mentally ill patients was 24.5% and 19.6% respectively. [12] Such studies are limited in the context of Nepal. This study aimed

to find out the status of anxiety and depression among caregivers of mentally ill patient at a Tertiary Hospital, Kathmandu, Nepal.

METHODS

Quantitative approach of descriptive cross-sectional research design was used to assess anxiety and depression among the caregivers of mentally ill patients attending the outpatient and inpatient department of T. U. Teaching Hospital, Maharajgunj, Kathmandu. A purposive sampling technique was used to select the samples. Sample size was determined by taking the prevalence of anxiety and depression of Mishra & Shakya (2021)[12], and using Cochran's formula. A total of 263 caregivers, who gave written consent and met the inclusion criteria, were interviewed face-to-face by the researcher from 7th August to 2nd September 2022.

The family members of patients diagnosed with psychiatric problems who were directly involved in the care of the patients for a minimum period of six months and were willing to participate in this study were included. Data was collected after the interview schedule had been pretested with 10% of the total sample size attending the inpatient and outpatient departments of the Mental Hospital, Lalitpur.

The pre-tested Nepali version of the semi-structured interview schedule was used to assess the socio-demographic characteristics of caregivers and patients. Anxiety and depression status in caregivers were measured using the validated Nepali translated version of Generalized Anxiety Disorder (GAD-7) and Patient Health Questionnaire (PHQ-9), respectively.

The GAD-7, having 7 items with 4 domains, was used to assess anxiety. On a 4-point Likert scale, the item received ratings ranging from 0 (not at all) to 3 (always). The total score range for the GAD-7 was 0-21, and each item was scored on a scale of 0-3. Cut-off scores greater than 10 were applied. This instrument's sensitivity and specificity were 89% and 82%, respectively. GAD-7's internal consistency was high (Cronbach's alpha=0.89).[8]

The PHQ-9 instrument, having 9 items, was used to identify depression. Scores for each item range from 0 (Not at all) to 3 (Always). Cut-off scores greater than 10 were applied, as reported in other studies, to determine who had depression. It is a valid and reliable instrument for screening depression in the primary care setting in Nepal because it has been validated in terms of criterion validity, convergent validity, and reliability. PHQ-9's internal consistency was high (Cronbach's alpha=0.84).[10]

Ethical approval was obtained from the Institutional Review Committee (IRC) of T.U., I.O.M., Maharajgunj, and permission from T.U. Teaching Hospital, Kathmandu. The purpose and procedure of the study were clearly explained to the study respondents to meet the inclusion criteria for participating in the study. Data was collected after getting informed written consent from each participant. Respondents had been informed that they can leave the study at any time they want. Privacy was maintained by interviewing respondents in a separate corner/room of the hospital (even without a patient), by keeping all the collected information confidential and using it only for study purposes. Data was gathered by the researcher using an in-person interviewing method with a semi-structured interview schedule in Nepali.

Data was collected from 2079/4/22 to 079/5/18 B.S. (2022/08/07 to 2022/09/02 A.D.). Each day, 8-10 respondents were interviewed from 8 am to 4 pm, and the time required to complete the interview was 20-25 minutes for each respondent. Data collection has been done 7 days per week, even on public holidays. Data was collected at the time while they were waiting for their turn for a checkup, and after finishing their checkup in the outpatient department, and before and after rounds in inpatient departments. Collected data were stored in a safe place that was only accessible to the researcher.

The collected data were entered into an Excel spreadsheet and transferred to Statistical Package for Social Sciences (SPSS) version 16 for analysis. Under descriptive statistics, frequency distribution, percentage, mean, and standard

deviation were calculated. Descriptive statistics were also used to assess the level of anxiety and depression among caregivers. Under inferential statistics, the chi-square test (at 5% level of significance and 95% CI) and Spearman's rank correlation coefficient test were calculated. The association between anxiety and depression and a few selected variables was investigated using chi-square and Fisher's exact tests. Spearman's rank correlation coefficient test was used to examine the relationship between anxiety and depression.

In this study, those who were family members or relatives taking care of the mentally ill patient for at least six months uninterrupted and accompanying the patient at the time of data collection were considered caregivers. Diagnosis of the patients was obtained from the patients' record card or self-reported by caregivers. The mental illness of the patients is further classified according to WHO International Classification of Diseases (ICD-10) code.

RESULTS

Table 1: Socio-demographic Characteristics of Respondents (n=263)

Characteristics	Number	Percentage
Age in completed years		
18-25	52	19.8
26-35	55	20.9
36-45	67	25.5
46-55	89	33.8
Mean: 38.3±1.12 years		
Gender		
Male	160	60.8
Female	103	39.2
Ethnicity		
Janajati/Aadibasi	117	44.5
Brahmin/Chhetri	93	35.4
Dalit	36	13.7
Madhesi	17	6.5
Religion		
Hinduism	225	85.6
Buddhism	21	8.0
Islam	12	4.6
Christianity	5	1.9
Residence		
Urban	168	63.9
Rural	95	36.1
Marital Status		
Married	200	76.0
Unmarried	58	22.1
Divorce	5	1.9
Educational status		
Can read and write	234	89.0
Cannot read and write	29	11.0
Educational level (234)		
Below secondary level	83	35.47
Secondary and above	151	64.53
Type of Family		
Nuclear family	135	51.3
Joint family	128	48.7

Table 2: Respondents' Level of Anxiety and Depression (n=263)

Characteristics	Number	Percentage
Level of Anxiety		
Minimal anxiety (0-4)	111	42.2
Mild anxiety (5-9)	100	38.0
Moderate anxiety (10-15)	50	19.0
Severe anxiety (16-21)	2	0.8
Level of Depression		
No Depression	28	10.6
Minimal depression (1-4)	89	33.8
Mild depression (5-9)	98	37.2
Moderate depression (10-14)	37	14.0
Moderately severe depression (15-19)	10	3.8
Severe depression (20-27)	1	0.4

Possible score for level of anxiety: 0-21
Possible score for level of depression: 1-27

Table 1 reveals that the majority (60.8%) of the respondents were male. Most respondents (85.6%) were Hindu, and only 1.9% of respondents were Christian. Regarding marital status, a majority (75.3%) of the respondents were married, whereas 1.9% of the respondents were divorced. Most respondents (89.0%) were able to read and write.

Table 2 shows the respondents' anxiety and depression levels. The anxiety of respondents was 19.8% (cut-off point 10), and the depression of the respondents was 18.2% (cut-off point 10). About 42.2% of the respondents experienced minimal anxiety, whereas 37.2% respondents experienced mild depression.

Table 3: Association between Respondents' Anxiety Level with Socio-demographic Variables (n=263)

Variables	Minimal to mild anxiety No. (%)	Moderate to severe anxiety No. (%)	χ^2 value	*p*-value
Age				
18-39	110(82.1)	24(17.9)	.597	.536
40-55	101(78.3)	28(21.7)		
Sex				
Female	120(75.0)	40(25.0)	7.040	**.011**
Male	91(88.3)	12(11.7)		
Ethnicity				
Brahmin/Chhetri	77(84.6)	14(15.4)	1.688	.254
Janajat/Aadibasi/Dalit	134(77.9)	38(22.1)		
Residence				
Urban	137(81.5)	31(18.5)	.510	.520
Rural	74(77.9)	21(22.1)		
Marital status				
Married	162(81.8)	36(18.2)	1.277	.283
Single	49(75.4)	16(24.6)		
Educational level(n=234)				
Below secondary level	73(88.0)	10(12.0)	4.272	.056
Secondary and above level	116(76.8)	35(23.2)		
Type of family				
Nuclear family	102(75.6)	33(24.4)	3.818	.063
Joint family	109(85.2)	19(14.8)		
Past Experience				
Yes	24(72.7)	9(27.3)	1.338	.349
No	187(81.3)	43(18.7)		
Social support received				
Yes	129(88.4)	17(11.6)	13.668	**<.001**
No	82(70.1)	35(29.9)		
Health problem				
Yes	69(71.9)	27(18.1)	6.650	**.011**
No	142(85.0)	25(15.0)		

Table 4: Association between Respondents' Depression Status and Socio-demographic Variables (n=263)

Variables	No depression No. (%)	Minimal to mild depression No. (%)	Moderate to severe depression No. (%)	χ^2 value	p-value
Age of the respondents					
18-39	16(11.9)	95(70.9)	23(17.2)	.608	.752
40-55	12(9.3)	92(71.3)	25(19.4)		
Sex					
Female	14(8.8)	108(67.5)	38(23.8)	8.895	**.011**
Male	14(13.6)	79(76.7)	10(9.7)		
Ethnicity					
Brahmin/chhetri	18(19.8)	61(67.0)	12(13.2)	13.183	**.001**
Janajati/Aadibasi/Dalit	10(5.8)	126(73.3)	36(20.9)		
Marital status					
Married	20(10.1)	146(73.7)	32(16.2)	2.922	.230
Single	8(12.3)	41(63.1)	16(24.6)		
Educational level(n=234)					
Below secondary level	13(15.7)	62(74.7)	8(9.6)	7.164	**.027**
Secondary and above level	14(9.3)	103(68.2)	34(22.5)		
Type of family					
Nuclear family	17(12.6)	88(65.2)	30(22.2)	4.750	.096
Joint family	11(8.6)	99(77.3)	18(14.1)		
Past Experience					
Yes	5(15.2)	20(60.6)	8(24.2)	2.046	.301 *
No	23(10)	167(72.6)	40(17.4)		
Social support received					
Yes	22(15.1)	113(77.4)	11(7.5)	28.509	**.001**
No	6(5.1)	74(63.2)	37(31.6)		
Health problems of caregivers					
Yes	4(4.2)	68(70.8)	24(25.0)	9.737	**.007**
No	24(14.4)	119(71.3)	24(14.4)		

*P-value significant at <0.05 level, **-Fisher's Exact Test*

Table 3 and 4 shows the association between respondents' anxiety and depression levels with sociodemographic characteristics. There was a significant association between anxiety and sex (p=<.001), social support (p=.000), and health problems (p=.011) of the respondents. At the same time, there was a strong association between depression and sex (p=.011), ethnicity (p=.001), social support (p=.001), and health problems of caregivers (p=.007) of the respondents.

Table 5: Relationship between Anxiety and Depression

Variables	Depression	
	Correlation Coefficient(r)	p-value
Anxiety	0.849	<.001

Test: Spearman's rank correlation coefficient

Table 5 illustrates the relationship between anxiety and depression. There was strong positive correlation between depression and anxiety with correlation coefficient 0.849 and $p<.001$.

DISCUSSION

In the present study, the presence of anxiety symptoms according to Generalized Anxiety Disorder (GAD-7 cutoff point 10) was 19.8%. The finding was supported by the study conducted in Pakistan where prevalence of anxiety was 12.7% among caregivers of mentally ill patients.[8] This result differs from that of a related study carried out in Pakistan, where it was revealed that more caregivers of mental patients (40.6%) had clinically significant levels of anxiety and depression.[6] The present finding was **lower** than the findings of another similar study conducted in Ethiopia, where the prevalence of anxiety and depression was found to be 56.7%.[13] Similarly, the present finding was **lower** than the finding of another similar study was conducted in Brazil where the prevalence of anxiety was 32.5%.[4] A study conducted in New Delhi, India had higher prevalence of anxiety (76%) than the finding of the present study.[14] The difference in findings might be because of difference in setting, instrumentation, ethnicity and education level of respondents.

In this study, the presence of depression symptoms according to PHQ-9 (cut of point 10) was 18.2%. This finding was supported by the study conducted in Pakistan where prevalence of depression was 18.3% among caregivers of mentally ill patients.[8] This finding supported by another study conducted in Southwest, Ethiopia, where prevalence of depression among caregivers of mentally ill patient was 19%.[3] The present finding was lower than the

similar study conducted in India, which depicted 47.5% caregivers of psychiatric patients had depression.[7] Similarly, the present finding was lower than the similar study conducted in Brazil where the prevalence of depression was 40%.[4] The difference in findings might be because of difference in setting, instrumentation, data collection time/period, understanding level of caregivers and the respondents might have been treated earlier than the study time.

A correlation between respondents' stress levels and sex ($p=.011$), social support ($p=.001$), health condition ($p=.011$), and patient diagnosis ($p=0.04$) was discovered in the present study. It was found that female respondents were more likely to have symptoms of anxiety ($p=.011$), in comparison to male respondents. A study among caregivers of mentally ill patients at Mental Hospital, Lalitpur found a similar result, where female respondents were more likely to suffer from anxiety and depression than male respondents.[12] This gap might be result from the study participants' gender-related variations in characteristics and differences in emotional state of male and female.

The present study also found that association between the respondents' depression level and sex ($p=.011$), ethnicity ($p=.001$), education level ($p=.027$), social support ($p=<.001$), health problems ($p=.007$) and perceived benefit of treatment ($p=.013$). In this study, it was found that female respondents were more likely to have symptoms of depression ($p=.011$) in comparison to male respondents. A study of caregivers of mentally ill patients at Mental Hospital, Lalitpur revealed a similar finding, with female respondents more likely to experience depression than male respondents.[12] Similarly, in Southwest Ethiopia, a study of primary caregivers of patients with serious mental illness also found that female respondents had higher rates of depression than male respondents.[3] This gap also might be result from the study participants' gender-related variations in characteristics and differences in emotional state of male and female.

In the current study, it was revealed that respondents who had reported receiving

social support were less likely to experience anxiety (p=.001) and depression (p=.001) than respondents who did not have reported receiving such support. Similar finding was present in a study was conducted in Ethiopia which has reported that the respondents who had social support were less likely to have anxiety and depression.[13]

The current study shows that the respondents who had health problems were more likely to have anxiety (p=.011) and depression (p=.007) comparison to the respondents who did not have health problems. The finding supported by the study was done in Pakistan which showed that the caregivers, who had health problems, had more anxiety and depression compared to who did not have health problems.[7]

According to the results of the current study, respondents who indicated they had received social support were less likely than those who did not have to report such support to experience anxiety or depression (p=.001).[9] It was also revealed that there was significant association of education level (p=.027) to the respondents' depression level. Higher anxiety and depressive symptoms were associated with lower educational attainment. A similar study done in Portugal discovered that females had greater rates of anxiety and depression (p=0.05). Participants with lower levels of education experienced greater levels of anxiety than those with higher levels of education (p=.001).[1]

This study demonstrated a significant correlation between caregiver anxiety symptoms and patient diagnoses (p=.040) was found that mild to moderate anxiety is more common among the caregivers of mood disorder and anxiety disorder, and moderate to severe anxiety is more common among the caregivers of the psychotic disorder and substance abuse. Similar finding was presented by the study done by Imtiaz et al., in 2021 from Pakistan where there was significant association between depression and types of psychiatric illness of the patient (p=0.023).[7]

Among the most common psychiatric illnesses are anxiety and depressive disorders. These

two conditions are highly comorbid and are collectively referred to as internalizing disorders. In this study there was a strong correlation (p=0.849) between anxiety and depression and significantly associated (p=<0.001) with each other. Similar finding was presented on the study conducted in Singapore on relationship of anxiety and depression among smokers. Anxiety symptoms had positive correlation with depressive symptoms (β = 0.22), (p=< 0.001).[5] The results of a similar study carried out in Brazil, which used Spearman's rank correlation coefficient test to analyze the relationship between anxiety and depression, revealed that high anxiety indexes were related to low levels of depression. In other words, higher anxiety rates were linked to higher depression rates.[4]

CONCLUSION

Most caregivers of patients with mental illness had minimal anxiety and mild depression. Anxiety is founded to be associated with sex, perceived social support and caregivers' health status. Similarly, depression is associated with sex, ethnicity, education level, social support, and health problems of caregivers. There is a strong relationship between anxiety and depression among caregivers.

It is recommended to provide routine health screening, monitor their physical and mental well-being and provide regular psychological counseling. Community-based programs and support groups should be established to strengthen social connections and reduce isolation.

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Stress and Coping Strategies among Parents of Hospitalized Children in Selected Tertiary Hospitals, Kathmandu

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ABSTRACT

Introduction: Hospitalization for a child can lead to anxiety, depression, and stress for parents, impacting their psychological health and treatment adherence, ultimately affecting the child's health outcomes. This study aimed to find out stress and coping strategies among parents of hospitalized children in selected tertiary hospitals in Kathmandu.

Methods: A cross-sectional descriptive study was conducted among 200 parents of hospitalized children in two tertiary hospitals in Kathmandu. Non-probability purposive sampling technique was used. Data were collected using Depression, Anxiety, and Stress Scale and the Coping Health Inventory for Parents. In-person interview method was used to collect data. Data analysis was done using SPSS Version 20.0. Ethical approval was obtained from the Ethical Review Board, Nepal Health Research Council.

Results: Among the parents studied, 53.0% were mothers of hospitalized children. Regarding parental stress, 71.5% had a normal level of stress; 12.0%, 9.0%, 5.0%, and 2.5% of the parents had mild, moderate, severe, and extremely severe level of symptoms of stress respectively. There is a significant association of parental stress with their education level (p = 0.029), family income (p=0.032), adequate number of toilets and bathrooms (p=0.27), supply of medicine (p=0.040), and the crowded and noisy environment of the hospital (p = 0.009). Parents used various coping strategies to reduce stress: maintaining family unity, cooperation, and optimism (mean score± SD 23.94± 4.60); seeking social support and emotional stability (mean score± SD: 25.80± 5.38); and understanding their child's medical situation through communication with other parents and healthcare professionals (mean score± SD 12.65±2.95).

Conclusions: Parents experience stress during hospitalizations, influenced by education, income, toilet availability, medicine supply, and noise. They employ various coping strategies. Hospitals should enhance their facilities and communication, reduce environmental stressors, and promote coping strategies for parents of children in the hospital, especially for those with lower education or income.

Keywords: Hospitalized children, CHIP, DASS 21, stress, coping strategy

INTRODUCTION

Stress, a non-specific response to stimuli, can lead to adverse health and psychological consequences, particularly for parents during a child's hospitalization.[1,2] Parents play a significant role in their children's health, providing direct care, facilitating access to health services, and molding attitudes and behaviors.[3] Parental psychological health is crucial for a child's care, treatment adherence, and overall health, especially during hospitalization.[4] Studies show that parents with children with health

problems are twice as likely to report chronic health conditions, depressive symptoms, and poorer general health that parents of healthy children.[5-9] Parental stress and anxiety can negatively impact a child, affecting the mother's ability to care for the child.[5] Screening for high-risk individuals and implementing interventions to reduce maladaptive coping strategies may be beneficial.[10-11] Coping is a conscious effort to reduce physical, psychological, or social harm and facilitate interaction with the ill child.[12] Despite the recognition of the importance of support for parental mental health during pediatric hospitalization, very few studies can be found particularly related to parental stress and coping strategies during the hospitalization of their children in Kathmandu. Therefore, understanding parental stress and coping during pediatric hospitalization is important to develop targeted interventions and improve parental mental health well-being, benefiting child health and well-being, and the ability to care. This study aimed to find out stress and coping strategies among parents of hospitalized children in selected tertiary hospitals in Kathmandu.

METHODS

A descriptive, cross-sectional study design was conducted in two tertiary level, referral hospitals in Kathmandu. The study was conducted among parents of children admitted to the Paediatric and Neonatal wards of Tribhuvan University Teaching Hospital (TUTH); and the medical, surgical, and oncology wards of Kanti Children Hospital (KCH). These settings were purposively selected. The duration of the study was from January to September 2020. Ethical approval for this study was obtained from the Institutional Review Committee (IRC) of IOM, TU; IRC of KCH, and the Ethical Review Board (ERB) of NHRC. Prior to starting the survey, informed consent was obtained from all the parents. Parents were informed about the purpose of the study and no identifying information was asked from any of the parents. They were informed that they could withdraw from the study at any time if they did not wish to participate. Either the father or mother of a child hospitalized for at least seven

days and present at the time of data collection were included. The sample size of this study was 200, calculated using the Cochrane formula[14]: $n = Z^2 pq / e^2$ with a 47.1% prevalence (p) of stress level,[8] 7.0% allowable error (e), and a 5.0% non-response rate. Among those, 115 were from TUTH and 85 from KCH. Non-probability purposive sampling technique was used.

A structured interview schedule was used as an instrument to collect data. The instruments consisted of three parts. Part one included the socio-demographic information of parents and children, information on the hospital environment, and hospital personnel related to communication and behavior. This part was developed by the researchers. Part two included the Depression, Anxiety, and Stress Scale (DASS-21)[15] to assess the stress perceived by parents of hospitalized children. The DASS-21 has been validated and used in the Nepalese population to identify the symptoms of Depression, Anxiety, and Stress.[16-18] Cronbach's alpha coefficient for DASS-21 has been found to range from 0.78 to 0.91.[17-20] Scores for depression, anxiety, and stress were calculated by summing the scores for the relevant items.[21]

Part three included the Coping Health Inventory for Parents (CHIP) to assess parental coping. The CHIP categorization has three sub-scales developed through factor analysis: (1) Maintaining family integration, cooperation, and an optimistic definition of the situation; (2) Maintaining social support, self-esteem, and psychological stability; and (3) Understanding the medical situation through communication with other parents and consultation with medical staff, which may be used in handling stressful situations. It was developed in 1983 and demonstrated good internal consistency with Cronbach's alpha coefficients ranging from 0.71 to 0.86 for the three sub-scales.[22] CHIP is also a validated and standard scale used in the Nepalese population[23]. Both DASS 21 and CHIP scales were already translated into the Nepali language and available in the Department of Psychiatry of TUTH. Pretesting was done among 10.0% of the sample size i.e. 20 parents in different wards of

KCH, who were excluded from the final study. After pre-testing, the researchers modified the CHIP from 45 items to 30 items.

Data were collected by researchers themselves through in-person interviews with a structured interview schedule while applying preventive measures against COVID-19. Coded data were entered and cleaned in SPSS version 16 for statistical analysis. Categorical variables were presented as frequency, percentage, mean, and standard deviation. The chi-square test was applied to measure the association of the level of stress with selected socio-demographic variables.

RESULTS

Regarding the socio-demographic characteristics, 45.5 % of parents belonged to the 31-40 years age group and more than half (57.0%) were female (mothers). Similarly, the majority (77.5%) of parents followed Hinduism, 47.0% were Janajati, and about half (49.0%) had a secondary level education. Concerning the socio-economic status of the parents, 47.0% of parents' occupation was home based work, and 45.0% of parents' earnings were only enough for less than 6 months. Likewise, parents lived in joint (48.0%) and single (48.0%) family households (Table 1).

Regarding the demographic characteristics of the hospitalized children, the majority of children were male (64%) and 37.5% were infants (Table 2).

**Table 1: Socio-demographic Characteristics of Parents (n=200)**

Characteristics	Number	Percentage
Age (in completed years)		
Below 20	7	3.5
20-30	87	43.5
31-40	91	45.5
41-50	13	6.5
Above 50	2	1.0
Mean ± =		
Sex		
Male	86	43.0
Female	114	57.0
Ethnicity		
Dalit	11	5.5
Janajati	94	47.0
Madhesi	17	8.5
Chettri/Brahmin	76	38.0
Others	2	1.0
Educational Level		
Not able to read and write	16	8.0
Informal education	36	18.0
Basic Level (1-8 grade)	26	13.0
Secondary (9-12)	88	49.0
Graduate and above	34	17.0
Occupation		
Service (Government / non-government)	43	21.5.
Self employed	20	10.0
Home based work	94	47.0
Farming and business	43	21.5
Types of Family		
Nuclear	96	48.0
Joint	96	48.0
Extended	8	4.0
Economic Status		
Enough for less than 6 months	90	45.0
Enough for more than 6 months	81	40.5
Enough for more than 12 months	29	14.5
Residence		
Within Kathmandu valley	83	41.5
Outside Kathmandu valley	117	58.5

Table 2: Demographic Characteristics of Children of Parents (n=200)

Characteristics	Number	Percentage
Age in years		
Infant (under 1)	75	37.5
Toddler(1-3)	36	18.0
Pre-school age (3-5)	17	8.5
School age (6-12)	47	23.5
Adolescent (12-18)	25	12.5
Sex		
Male	128	64.0
Female	72	36.0

Stress and Stressors among Parents of Hospitalized Children

The stress of the parents was assessed using the stress sub-scale of the DASS 21, which consists of seven items rated on a four point Likert scale. The level of stress was also scored. Among the parents, the majority (71.5%) had a normal level of stress, while 12.0%, 9.0%, 5,0%, and 2.5% had mild moderate, severe and extremely severe levels of stress respectively (Figure 1).
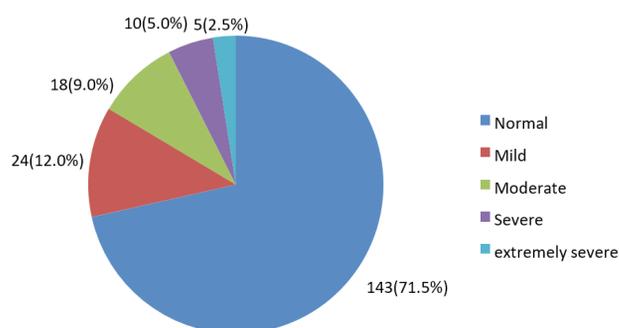
Figure 1: Level of Stress among the Parents

Parents were asked about perceived stressors, which included communication and behaviors of care providers, hospital environments, hospital facilities, and perceived severity of illness of their children. Only 14% - 17% of parents mentioned that health professionals did not explain medical procedures to parents, and 14% -15 % of parents have experienced less empathetic behavior from health workers. Regarding stressors related to the hospital environment, 18.0% reported having a crowded and noisy environment, followed by the experience of unpleasant/ bad odors, and very hot and cold temperatures (3.0%). In terms of facilities

available in hospitals, 61.0% were satisfied with available facilities such as safe drinking water, 79.0% were satisfied with an adequate number of toilets and bathrooms in hospitals and 74% were satisfied with lab investigations, but only 43.5% were satisfied with food for children. Parents were asked about the perceived severity of illness, with 35.0% reporting severe and 16.5% reporting very severe illness in their hospitalized child. Additionally, 38.5% perceived the illness as moderately severe (Table 3).

Table 3: Perceived Stressors among the Parents of Hospitalized Children (n=200)

Variables	Number	Percentage
Explanation about medical procedure		
Always	90	45.0
Very often	47	23.5
Often	28	14.0
Seldom	35	17.5
Experience of empathetic behaviour from health-workers		
Always	83	41.5
Very often	58	29.0
Often	31	15.5
Seldom	28	14.0
Hospital environments *		
Crowded and noisy	36	18.0
Peaceful	133	66.5
With bad odours	10	5.0
Without bad odours	72	36.0
With very hot /cold temperature	6	3.0
With normal/usual temperature	125	62.5
Satisfaction with available facilities *		
Safe drinking water	122	61.0
Toilets and bathrooms	139	79.5
Foods for children	87	43.5
Laboratories investigations/ services	148	74.0
Supply of medicine	114	57.0
Perceived severity of illness		
Mild	20	10.0
Moderate	77	38.5
Severe	70	35.0
Very severe	33	16.5

*Multiple responses

The study found significant associations between stress levels and socio-demographic variables, with parents' educational qualifications (p=0.029) and income (p=0.032) being significant. Stress was also linked to satisfaction with hospital facilities such as an adequate number of toilets and bathrooms (p=0.027) and the supply of medicine (p=0.040), as well as hospital environmental factors like crowded and noisy environments (p-value 0.009) (Table 4).

Table 4. Association between Level of Stress and Selected Variables related to Parents   (n= 200)

Variables	Level of Stress			Chi-square	*p*-value
	Low	Medium	High		
	No.(%)	No.(%)	No.(%)		
Sociodemographic variables					
Gender					
Male	41(47.1)	26(29.9)	20(23.0)		
Female	59(52.2)	34 (30.1)	20(17.7)	.943	.624
Age					
Below 35	76(51.4)	44 (29.7)	28(18.9)		
Above 35	24(46.2)	16 (30.8)	12(23.1)	.554	.758
Educational Qualification					
Able to read and write	96(52.2)	55 (29.9)	33(17.9)		
Not able to read and write	4 (25.0)	5 (31.3)	7 (43.8)	7.088	0.029
Family income					
Up to 6 months	36(40.0)	31(34.4)	23(25.6)		
Above 6 months	64(58.2)	29(26.4)	17(15.5)	6.875	.032
Explanation of medical procedure					
Very often	70(51.1)	38(27.7)	29(21.2)		
Less often	30(47.6)	22(34.9)	11(17.5)	1.143	.565
Experience of empathetic behaviors from health care team					
Very often	73(51.8)	40(28.4)	28(19.9)		
Less often	27(45.8)	20(33.9)	12(20.3)	.729	.694
Avaibility of Safe drinking water					
Yes	65(53.3)	35(28.7)	22(18.0)		
No	35(44.9)	25(32.1)	18(23.1)	1.457	.483
Adequate number of toilet and bathrooms					
Yes	72(51.8)	46(33.1)	21(15.1)		
No	28(45.9)	14(23.0	19(31.1)	7.202	.027
Adequate facilities for lab investigations					
Yes	80(54.1)	42(28.4)	26(17.6)		
No	20(38.5)	18(34.6)	14(26.9)	4.054	.132
Adequate facilities for medicine supply					
Yes	59(51.8)	27(23.7)	28(24.6)		
No	41(47.7)	33(38.7)	12(14.0)	6.446	.040
Environmental factors					
Crowded and noisy					
Yes	14(38.9)	10(27.8)	12(33.3)	9.395	.009
No	90(54.9)	46(28.0)	28(17.1)		
Bad odour					
Yes	5 (50.0)	3(30.0)	2(20.0)		
No	95(50.0)	57(30.0)	38(20.0)	.000	1.00

p-value significant at ≤0.05 level (chi-square)

Parents used various coping strategies to manage their stress during the hospitalization of their children. The 'adopted strategies are summarized and categorized as maintaining family integration, cooperation, and optimistic towards the situation; and understanding the medical situation through communication with other parents and consultation with medical staff (Table 5).

Table 5: Coping Strategies of Parents of Hospitalized Children

Variables	Items	Mean score	Standard deviation
Maintaining family integration, cooperation and an optimistic towards the situation	11	23.94	4.60
Maintaining social support, self-esteem and psychological stability	13	25.80	5.38
Understanding the medical situation through communication with other parents and consultation with medical staff	6	12.65	**2.95**
Total	30		

DISCUSSION

The objective of this study is to investigate stress and coping strategies among parents of hospitalized children in a tertiary hospital. Among the parents, 45.5% belonged to the 31-40 years' age group, and majority (49.0%) having secondary level education. Moreover, 45.0% of parents reported that their family income was only enough for less than 6 months. Most parents lived in joint or single households (48.0%), and the majority of hospitalized children were male.

Among the parents, the majority (71.5%) had a normal level of stress, while 12.0%, 9.0%, 5.0%, and 2.5% had mild, moderate, severe, and extremely severe levels of stress, respectively. Contrary to the findings in the current study, various studies have reported that many parents experience high levels of stress when their child is hospitalized.[24-27] A study involving mothers of hospitalized children found that 46.7% experienced extremely severe stress, while 21.1% reported severe stress levels.[27] Similarly, another study reported that 66% of parents had a moderate level of stress, while 32% had mild stress and 2% had severe stress.[28] These differences might be due to variations in the studied population characteristics, study settings, and the severity of the child's illness. There is a significant association of parental stress with their education level (p = 0.029), and family income (p=0.032).

The illness and hospitalization of a child are significant stressors for parents, impacting their mental health and overall family dynamics. Therefore, parents were asked about perceived stressors. The findings of this study show that a significant percentage of parents perceive various stressors during their child's hospital stay.

Forty five percent of the parents mentioned that health care professionals always explain medical procedures to parents. Effective communication is crucial in alleviating parental anxiety, as it fosters trust and understanding between healthcare providers and families. Research has shown that parents often experience heightened stress due to a lack of information regarding their child's condition and treatment.[29,30] When healthcare professionals take the time to explain procedures clearly, it can significantly reduce feelings of uncertainty and fear among parents, which are common during hospitalizations.[24,31] Moreover, 41.0% of parents experienced empathetic behavior from healthcare workers. Empathy from healthcare providers has been linked to improved parental satisfaction and reduced stress levels.[30]

Regarding the stress factors related to the hospital environment, 66.5% of parents answered that they experienced a peaceful environment. A calm atmosphere can help parents feel more secure and less anxious while their child is hospitalized. Conversely, only 18.0% reported a crowded and noisy environment which aligns with previous studies indicating that such conditions can exacerbate parental stress.[29,32] In the current study, five percent of parents reported that the presence of unpleasant odors also contributed to negative perceptions of the hospital environment, reinforcing the need for hospitals to maintain cleanliness and comfort. There is a significant association of parental stress with crowded and noisy environment in the hospital (p = 0.009).

The availability of adequate facilities plays a critical role in shaping parental experiences during hospitalization. Concerning the facilities available in hospitals, 79.5% responded that there is an adequate number of toilets and bathrooms followed by lab investigations by more than seventy percent (74.0%), having safe drinking water by 61.0%, and the supply of medicine by 57.0%. There is a significant association of parental stress with the adequate number of toilets and bathrooms (p=0.27) and supply of medicine (p=0.040). Various studies have reported that access to proper facilities is crucial as it directly affects parental stress levels.[30,33]

Parents were asked about the perceived severity of illness , with 35.0% reporting severe and 16.5% reporting very severe illness in their hospitalized child. Among them, 38.5% perceived the illness as moderate in severity. This perception can significantly influence parental stress levels, as higher perceived severity correlates with increased anxiety and emotional distress.[30,32]

Parents had different coping strategies to reduce stress such as maintaining family integration, cooperation, and optimistic towards the situation, with a mean score of 23.94 (SD=4.60); maintaining social support, self-esteem, and psychological stability with a mean score of 25.80 (SD=5.38); and understanding the medical situation through communication with other parents and consultation with medical staff with a mean score of 12.65 (SD= 2.95.) Various studies support these findings. A study highlighted that family support positively correlates with mental health outcomes, indicating that cooperative family dynamics can serve as a buffer against stressors.[34] Parents who engage in supportive relationships tend to experience lower stress levels and improved well-being.[34]

Engaging with medical staff not only provides necessary information but also fosters a sense of community among parents facing similar challenges. Clear communication is essential for effective coping in stressful situations involving health concerns.[35]

CONCLUSIONS

Hospitalization of children is a significant source of stress for parents and the level of stress is influenced by a number of factors. A significant proportion of parents reported mild to extremely severe stress, even though the majority indicated normal stress levels. Lower family income, lower educational attainment, inadequate hospital amenities (such as a lack of restrooms and medication supplies), and a busy, noisy hospital setting were all significant factors in increased parental stress. It was discovered that healthcare providers' sympathetic demeanor and effective communication were essential in reducing parental stress. Parents used a variety of coping mechanisms, but they mostly concentrated on preserving family unity and optimism, seeking social support, and communicating with other parents and medical professionals to understand the medical situation. It is recommended that hospitals should improve facilities, enhance communication among healthcare workers, provide targeted psychological support, and continuously monitor parental stress and coping to support parents and minimize stress during their children's hospitalization.

This study was limited to only two tertiary hospitals in Kathmandu with purposive sampling technique. Therefore, it cannot be generalized to other settings.

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Utilization of Antenatal Care Services and Pregnancy Outcomes among Mothers in a Hospital of Banke

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ABSTRACT

Introduction: Antenatal care is essential care package providing to women during pregnancy. Adequate and effective antenatal care service utilization helps in increasing good maternal and newborn outcomes. The objective of the study was to find out the utilization of antenatal care services and pregnancy outcomes among mothers.

Methods: A cross-sectional study design was used among 196 mothers attended at postnatal ward in Bheri hospital. Non-probability purposive sampling technique was used to select sample for the study. The data were collected using face to face interview technique by using structured schedule and antenatal record review. The collected data were analyzed by using descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (chi square test).

Results: Findings showed that 5.1% of mothers had complete utilization of antenatal care services. More than half (63.8%) had good maternal outcomes (no hypertension, no pre-eclampsia etc.) and 54.1% had good neonatal outcomes (well breathing, APGAR score more than seven within one minute and normal birth weight). There was a statistically significant association of utilization of antenatal care services with respondents' occupation (p=0.001). There was a statistically significant association between respondents' occupation and maternal outcomes (p=0.015). There was statistically significant association between respondents' education and newborn outcomes (p=0.042).

Conclusions: The majority of respondents had incomplete utilization of antenatal care services. The majority of respondents have good maternal outcomes, and more than half respondents have good newborn outcomes. Activities to encourage public for utilization of complete antenatal care services by concerned health authorities might increase utilization of antenatal care services.

Keywords: Mother, pregnancy outcomes; utilization of antenatal care services

NTRODUCTION

Antenatal care (ANC) is the term for medical attention that skilled healthcare providers provide to pregnant mothers during their pregnancy with the goal of achieving the greatest possible health outcomes for both the mother and the unborn child. Antenatal care includes risk assessment, health promotion, health education, and management of pregnancy-related illnesses.[1]

Globally, 287,000 women died during and following pregnancy and childbirth. Almost 95% deaths occurred in low and lower middle-income countries.[2] Most of these complications develop during pregnancy and most are preventable or treatable. The major complications (nearly 75%) of all maternal deaths are: severe bleeding and infections mostly occur after childbirth, high blood pressure during pregnancy may cause pre-eclampsia and eclampsia as well as delivery

complications and abortion.[1] Antenatal care services provide health promotion, screening and diagnosis, and disease prevention. It is vital health care services to reduce the risk of stillbirths, preterm labor and pregnancy complications. Maternal deaths occur in developing countries due to lack of health care service utilization during pregnancy and childbirth. According to WHO recommendations, pregnant women should make their initial visit within the first 12 weeks of pregnancy, and then again at 20, 26, 30, 34, 36, 38, and 40 weeks. Improved maternal and fetal health is one way that timely and adequate prenatal care lowers perinatal mortality.[3] This is also one of the key components to achieve the Sustainable Development goals by 2030. Therefore, the researchers were interested to find out the utilization of antenatal care services and pregnancy outcomes among mothers.

METHODS

A descriptive cross-sectional study was conducted in the Bheri hospital of Banke from September to October 2023. A sample size of 196 postnatal mothers was calculated from data of delivered cases in the study setting. Postnatal mothers aged 19-49 years who had delivered by vaginal or caesarean section admitted in postnatal ward in Bheri hospital and stay at least 24 hours were included in the study. Non-probability purposive sampling technique and record review was used to select sample for the study. Mothers who were unwilling to participate and who were diagnosed with mentally ill were excluded in the study.

Ethical approval was obtained from Universal College of Medical Sciences' Institutional Review Committee to conduct the study. Written informed consent was obtained voluntarily from each mother by explaining about the purpose, risk and benefits of the study. Brief history was taken through interview and pregnancy outcome was filled from patient admission chart.

In this study, complete utilization: utilization of antenatal care services completely (≥8 times) and incomplete utilization: partial utilization of antenatal care services (<8 times). Maternal outcomes refer to good maternal outcomes (without complication) and poor maternal outcomes (experienced complications e.g. pregnancy related problems like pregnancy induced hypertension, pre-eclampsia, eclampsia, postpartum hemorrhage etc.). Regarding newborn outcomes, good outcomes: breathing well, normal birth weight, APGAR more than 7 within one minute and poor outcomes: e.g. Low birth weight, preterm birth, poor feeding, stillbirth, early neonatal death, meconium aspiration, congenital anomalies and others.

After getting administrative approval, the first author collected data using face to face interview method. A self-developed structured questionnaires was used to interview respondents. In addition, record reviews were used to gather data. The completeness of all the data was promptly reviewed and checked immediately. The gathered information was examined, coded, edited, and categorized and entered, cleared, and arranged in Microsoft office Excel worksheet. Then, using the Statistical Package for Social Sciences Software version 20, the acquired data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (Chi square test). Association of antenatal care services utilization, maternal, and neonatal outcomes with selected socio-demographic variables of women and her husband was assessed using Chi Square test. The p value of less than 0.05 was considered as significant.

RESULTS

Mothers' socio-demographic variables shows that 33.2% were 23-26 years age group. Mean age was 25.24±3.97. About 43.9% had secondary education and 10.2% had no education. The majority (73.5%) were homemakers, 39.3% belonged to joint families. In education, 43.9% of husbands had secondary education. Regarding occupation, 44.4% of husbands were service (Table 1).

Table 2 shows 39.3% of the mothers were first gravid. Cent percent had done antenatal visit. Almost all (95.9%) had done eight times visit

Only 14.8% had taken folic acid, 85.2% had taken iron tablets 96.9% had done deworming, 98.5% had taken tetanus diphtheria vaccine, 90.8% had done blood test, 98.5% had done urine test, 99.5% had done blood pressure check and ultrasound respectively. Majority (69.4%) had received counseling on PMTCT and HIV testing. About 27% had done height measurements and 99% had done weight measurements. Received education on diet 96.9%, on personal hygiene including genital hygiene 76.5%, on rest and sleep 91.5%, on smoking 79.5%, on alcohol 77.5%, on sexual intercourse 45.4%, on travel 83.6%, on danger signs 87.7% and heavy workload 92.8%. Clean clothes preparation for baby and mother 83.6%, money saving 83.0%, identify blood donor 55.6%, transportation 68.3% on identify the health centers 90.8%.

About the status of utilization of antenatal care services, it shows that only 5.1% had complete utilization of antenatal care services (Table 3).

Table 1: Socio-demographic Characteristics of Mother (n=196)

Variables	Number	Percentage
Age (in years)		
19-22	56	28.6
23-26	65	33.2
27-30	58	29.5
31-34	17	8.7
Mean age ± SD=25.24 ±3.97		
Education		
No education	20	10.2
Basic education	66	33.7
Secondary education	86	43.9
Above secondary	24	12.2
Occupation		
Homemaker	144	73.5
Daily wages	6	3.1
Agriculture	9	4.6
Services	19	9.7
Self employed	18	9.2
Family type		
Nuclear	51	26.0
Joint	77	39.3
Extended	68	34.7
Education of husband		
No education	8	4.1
Basic education	68	34.7
Secondary education	86	43.9
Above secondary	34	17.3
Occupation of husband		
Daily wages	14	7.1
Agriculture	40	20.4
Services	87	44.4
Self employed	55	28.1

Table 2: Antenatal related Characteristics of Mothers (n=196)

Variables	Number	Percentage
Gravid		
First	77	39.3
Second	72	36.7
Third	26	13.3
Four or more	21	10.7
Antenatal visit done	196	100
Number of antenatal visit		
One	3	1.5
Two	1	0.5
Three	4	2.0
Eight	188	95.9
Supplements intake		
Folic acid	29	14.8
Iron tablets	167	85.2
Deworming	190	96.9
Tetanus diphtheria vaccine	193	98.5
Investigations		
Blood test	178	90.8
Urine test	193	98.5
Ultrasound	195	99.5
HIV test	60	30.6
Measurements		
Blood pressure	195	99.5
Height	53	27.0
Weight	194	98.9
Women got health education		
Nutrition	190	96.9
Personal hygiene focus on genital	150	76.5
Rest and sleep	180	91.8
Avoidance of smoking	156	79.5
Avoidance of alcohol	152	77.5
Avoidance of sexual intercourse	89	45.4
Avoidance of long travel	164	83.6
Danger signs	172	87.7
Avoidance of heavy workload	182	92.8
Preparation of clean clothes	164	83.6
Saving money	163	83.0
Identify blood donors	109	55.6
Arrangement of transportation	134	68.3
Identify the health centers	178	90.8

Table 3: Respondents' Status of Utilization on Antenatal Care Services

Variables	Number	Percentage
Complete utilization (ANC visit ≥8)	10	5.1
Incomplete utilization (ANC visit < 8)	186	94.9
Total	**196**	**100.0**

Table 4 shows mothers' outcomes. The majority (63.8%) of mothers had no complications and 36.2% had poor outcomes. Poor outcomes among mothers included pregnancy induced hypertension 17.8%, preeclampsia 6.1%, eclampsia 1.02%, postpartum hemorrhage 16.3%, urinary tract infection 5.1%, wound infection 3.06% and shock 1.5%. Newborn related variables where in good outcomes, breathing well babies were 65.3%, APGAR score more than seven within one minute 63.8% and normal weight babies were 82.7%. Regarding poor outcomes, low birth weight 17.3 preterm birth 7.6%, poor feeding 30.6%, stillbirth 2%, neonatal death 1%, meconium aspiration 10.7 %, congenital anomalies 3.5 % and skin infections 1.5 %.

Table 5 shows the association of utilization of antenatal care services with mothers socio-demographic variables. There was statistically significant association of utilization of antenatal care services with occupation (p=<0.001).

Table 4: Pregnancy outcomes related characteristics (n=196)

Variables	Number	Percentage
Maternal Good outcomes	125	63.8
Poor outcome* (n=71)	71	36.2
Pregnancy induced hypertension	35	17.8
Preeclampsia	12	6.1
Eclampsia	2	1.02
Postpartum haemorrhage	32	16.3
Urinary tract infection	10	5.1
Infection	6	3.06
Shock	3	1.5
Neonatal good outcomes*		
Breathing well	128	65.3
APGAR score more than seven within one minute	125	63.8
Normal weight	162	82.7
Poor outcomes*(n=90)		
Low birth weight	34	17.3
Preterm birth	15	7.6
Poor feeding	60	30.6
Stillbirth	4	2
Neonatal death	2	1
Meconium aspiration	21	10.7
Congenital anomalies	7	3.5
Skin infection	3	1.5

Multiple responses

Table 5: Association Regarding Status of Utilization of Antenatal Care Services with Socio-demographic Variables of Mother (n=196)

Variables	Status of utilization		χ² value	p- Value
	Complete utilization No. (%)(n=10)	Incomplete utilization No. (%)(n=186)		
Age (in years)			0.013F	0.908
19-26	6(5.0)	115(95.0)		
25-29	4(5.3)	68(94.7)		
Education			7.020L	0.071
No education	0(0)	20(100)		
Basic education	1(1.5)	65(98.5)		
Secondary education	6(7)	80(93)		
Above secondary	3(12.5)	21(87.5)		
Occupation			0.000F	0.001
Earning	1(0.7)	143(99.3)		
Not earning	9(17.3)	43(82.7)		
Family type			0.238L	0.875
Nuclear	4(7.8)	47(92.2)		
Joint	4(5.2)	73(94.8)		
Extended	2(2.9)	66(97.1)		
Gravida			0.128L	0.988
First	4(5.2)	73(94.8)		
Second	4(5.6)	68(94.4)		
Third	1(3.8)	25(96.2)		
Fourth or above	1(4.8)	20(95.2)		
Husband Age			1.000F	0.619
20-32	8(5.2)	145(94.8)		
33-44	2(4.7)	41(95.3)		
Husband Education			5.73L	0.125
No education	0(0)	32(100)		
Basic education	2(4.5)	42(95.5)		
Secondary education	4(4.7)	82(95.3)		
Above secondary	4(11.8)	30(88.2)		
Husband Occupation			5.63L	0.131
Daily wages	0(0)	14(100)		
Agriculture	1(2.5)	39(97.5)		
Service	3(3.4)	84(96.6)		
Self employed	6(10.9)	49(89.1)		

Significant at p value <0.05   chi-square   Likelihood   Fisher test

Table 6: Association between Maternal Outcomes and Socio- demographic Variables of Respondents (n=196)

Variables	Good outcomes No. (%)	Poor outcomes No. (%)	p-value
Age (in years)			0.037
19-26	84 (69.4)	37 (30.6)	
27-34	41(54.7)	34 (45.3)	
Education			0.149
No education	8 (40)	12 (60.0)	
Basic education	20 (30.3)	46 (69.7)	
Secondary education	36 (41.9)	50 (58.1)	
Above secondary	7 (29.2)	17(70.8)	
Occupation			0.002
Earning	101 (70.1)	43 (29.9)	
Not earning	24 (46.2)	28 (53.8)	
Family Type			0.546
Nuclear	33(64.7)	18(35.3)	
Joint	52(67.5)	25(32.5)	
Extended	40(58.8)	28(41.2)	
Gravida			0.265
First	52(57.5)	25(32.5)	
Second	47(65.3)	25(34.7)	
Third	12(46.2)	14(53.8)	
Fourth or above four	14(66.7)	7(33.3)	
Husband age			0.836
20-32	97(63.4)	56(36.6)	
33-44	28(65.1)	15(34.9)	
Education			0.349
No education	21(65.6)	11(34.4)	
Basic education	23(52.3)	21(47.7)	
Secondary education	58(67.4)	28(32.6)	
Above secondary	23(67.6)	11(32.4)	
Occupation			0.290
Daily wages	9(64.3)	5(35.7)	
Agriculture	30(75.0)	10(25.0)	
Services	50(57.5)	37(42.5)	
Self-employed	36(65.5)	19(34.5)	

*Significant at p value <0.05 χ^2=chi-square L=Likelihood ratio

Table 6 shows the association between maternal outcomes and socio-demographic variables. There was a statistically significant association between maternal age (p=0.037) and occupation (p=0.002) with maternal outcomes.

Table 7 shows the association between neonatal outcomes and socio-demographic variables. There was a statistically significant association between maternal education (p=0.042) and neonatal outcomes.

Table 7: Association between Neonatal Outcomes and Socio-demographic Variables of Respondents and husband (n=196)

Variables	Neonatal outcomes		χ²–value	p-value
	Good outcome No (%) (n=106)	Poor outcome No (%) (n=90)		
Age (in years)			1.714	0.191
19-26	61(50.4)	60(49.6)		
27-34	45(60.0)	30(40.0)		
Education			8.205	0.042
No education	10(50)	10(50)		
Basic education	30(45.5)	36(54.5)		
Secondary education	47(54.7)	39(45.3)		
Above secondary	19(79.2)	5(20.8)		
Occupation			0.475	0.491
Earning	80(55.6)	64(44.4)		
Not earning	26(50.0)	26(50.0)		
Family type			0.711	0.701
Nuclear	29(56.9)	22(43.1)		
Joint	43(55.8)	34(44.2)		
Extended	34(50)	34(50)		
Gravida			0.830	0.980
First	41(53.2)	10(31.2)		
Second	39(54.2)	26(59.1)		
Third	15(57.7)	41(47.7)		
Fourth or above	21(61.8)	13(38.2)		
Age (in years)			0.904	0.342
20-32	80(52.3)	73(47.7)		
33-44	26(60.5)	17(39.5)		
Education			6.762	0.080
No education	22(68.8)	10(31.2)		
Basic education	18(40.9)	26(59.1)		
Secondary education	45(52.3)	41(47.7)		
Above secondary	21(61.8)	13(38.2)		
Occupation			4.457L	0.216
Daily wage earners	11(78.6)	3(21.4)		
Agriculture	20(50.0)	20(50.0)		
Services	44(50.6)	43(49.4)		
Self employed	31(56.4)	24(43.6)		

Significant at p value<0.05χ²=chi-square   L=Likelihood ratio

DISCUSSION

Regarding socio-demographic characteristics, 38.8% mothers were 20-24 years age group,43.9% 73.5% were homemakers. Regarding family type, 39.3% belonged to joint families. Regarding husbands, 36.2% were 25-29 years of age group, 43.9% had secondary education, and 28.1% were self-employed. There were 39.3% first gravid and 10.7 % were gravid four or more. Regarding type of delivery, more than half (51.5%) were normal vaginal delivery and only 6.6% were vaginal instrumental delivery. According to study findings of Kaski, Pokhara, 97.0% of women had done ANC visit during pregnancy which is similar in this study that is 100%.[4] The study findings of the Bhairahawa showed that antenatal visit 2times 2.67%; 3 times4%; 4 or more times 93.3% which is similar in this study that is one time 1.5%, two times 0.5%, three times visit 2% and four or more times visit 95.9%.[5] The study findings of the Rupandehi, Nepal 82% had taken folic acid supplementation during pregnancy which is inconsistent with the findings of this study that is 29%.[6] The inconsistence result might be due to variation in sampling technique that is purposive sampling technique and setting that is non-governmental hospital. The study findings in Gorkha, Nepal which showed 82% mothers had received iron supplementation which is similar 85.2% had taken iron supplementation during pregnancy.[7] The findings of the study in Bhairahawa showed that 98.0% mothers had received albendazole tablets during pregnancy which is similar in this study that is 96.9%.[5] The study findings in Jumla, Nepal showed 96.5% of mothers had received TD vaccine which is similar in this study that is 98.5%.[8] The findings of the study in Demographic health survey in Nepal showed 11% of women received PMTCT counseling and done HIV test during pregnancy which is contrast in this study that is 30.6% due to sampling technique and ecological variation.[9]The findings of the study in Kaski, Nepal showed 92.8% had done blood test which is similar in this study that is 90.8%.[10] The study findings showed in Bhairahawa, Nepal cent percent of women had done urine test and 98.6% of women had done ultrasound which is similar in this study that is

98.5% urine test and 99.5% done ultrasound.[5] The findings of the study in Demographic health survey in Nepal showed 91.8% women had checked their blood pressure which is similar in this study that is 99.5%.[9] The findings of the study in Jumla, Nepal which showed 86.9% of mothers had taken height measurement during antenatal visit which is contrast in this study that is 27.0%. The inconsistence result might be due to variation sampling technique that is simple random sampling technique.[8] The findings of the study in Jumla, Nepal which showed 98.6% of respondents had taken weight measurement in antenatal visit which is similar in this study that is 99.0%.[8] The findings of the study in Kaski, Nepal which showed 97.6% had received advice on diet which is similar in this study that is 96.6%.[10] The findings of the study in Bhairahawa showed that 90.54% of mothers had received education on avoidance of sexual intercourse and danger signs 39.86% which is contrast in this study that is 45.4% and 87.8%. This inconsistent result might be due to variation in settings that is non-governmental hospital.[11] The findings of the study showed that on personal hygiene 76.5%, on rest and sleep 91.8%, on smoking 79.6%, on alcohol 77.6%, on travelling 83.7%, and on heavy workload 92.9% had received counseling. The findings of the study in Demographic health survey in Nepal showed 79.2% respondents had counseled on complication readiness which is similar in this study that is 76.5%.[9] The findings of the study in Butwal, Nepal showed 81.1% of the women had done complete ANC which is contrast in this study that is full utilization 5.1% and partial utilization 94.9%. The inconsistence result might be due to variation in sampling technique that is cluster random sampling technique.[11] The findings of the study in Sri Lanka which showed maternal outcomes without complication 91.7% which is contrast in this study that is 63.8%. The inconsistence result might be due to variation in setting.[12] The findings of the study in Northen Ethiopia which showed 20.9% had hypertension and 8%of mother had pre-eclampsia which is similar in this study that is 17.9% had pregnancy induced hypertension and 6.1% had pre-eclampsia.[13] The findings of the study in Sri Lanka which showed eclampsia

had 0.5% and wound infection had 0.9% which is similar in this study that is eclampsia had 1.0% and wound infection had 3.0%.[12] The findings of the study in Ethiopia which showed 4.3% had postpartum hemorrhage which is contrast in this study that is 16.3%. The inconsistent result might be due to variation in sample size, sampling technique setting and duration of data collection period.[14] The findings of the study Sri Lanka which showed 58% had good outcomes in neonates which is similar in this study that is 54.1%.[12] The findings of the study in Sri Lanka which showed 0.9% meconium aspiration and 0.5% poor feeding which is contrast in this study that is meconium aspiration10.7% and poor feeding 30.6%, The inconsistence result might be due to variation in sampling technique non-probability consecutive sampling technique and population that is advanced age 35 years.[12] The findings of the study in Kathmandu which showed 15.3% low birth weight which is similar in this study that is 17.3%.[15] The findings of the study in Sri Lanka which showed still birth 0.5%, preterm birth 3.2%, congenital anomalies 0.5% and skin infection 2.3% which is similar in this study that is still birth 2%, preterm birth 7.7%, congenital anomalies 3.6% and skin infection had 1.5%.[12] The findings of the study in Ethiopia which showed 2.7% neonatal death which is similar in this study that is 1.0%.[14] The finding of the study in Chitwan which showed occupational status the respondents was significantly associated with antenatal care services utilization which is similar in this study that is association of utilization of antenatal care services with occupation (p=<0.001).[16] There was no statistically significant association of utilization of antenatal care services with respondent age, education, family and gravid. There was no statistically significant association of utilization of antenatal care services with spouse age, education and occupation. There was a statistically significant association between maternal age (p=0.037) and occupation (p=0.015) with maternal outcomes. Whereas, education, family type and gravid were not statistically significant association with maternal outcomes. There was no statistically significant association between respondents' spouse age, education and occupation with maternal outcomes. There

was statistically significant between maternal education and neonatal outcomes (p=0.042). Whereas, age, occupation, family type and gravid were not statistically significant association with neonatal outcomes. There was no statistically significant association between respondents' spouse age, education and occupation with neonatal outcomes.

CONCLUSIONS

Study concludes that all the mothers have done antenatal visit. Almost all mothers had completed four or more than four antenatal visit according to protocol of government of Nepal. Regarding maternal outcomes, the majority mothers have a good outcome and in neonatal outcomes, more than half has good outcome. The pregnancy induced hypertension was the commonest problem among mothers. Whereas, poor feeding was commonest problem among new borns. The occupation of mothers tends to be associated with utilization of antenatal care services. Age and occupation tends to be associated with maternal outcome. Likewise, education was associated with neonatal outcomes. Based on these findings, the availability and quality of antenatal care services needs further strengthening and increasing awareness regarding the antenatal services and its benefits among the general population.

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CONFLICT OF INTEREST: None

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Scrub Typhus a Re-emerging Disease in Children's Hospital

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ABSTRACT

Scrub typhus is a form of typhus caused by the intracellular parasite Orientia tsutsugamushi a gram-negative alpha protea bacterium of the family rickettsiaceae first isolated and identified in 1930 in Japan. It is frequently diagnosed in South Asian countries including Nepal. After the earthquake in Nepal, a sudden upsurge in scrub typhus cases was reported. it is a mild to life-threatening disease with a case fatality rate without treatment as high as 50%. Disease presentation consists of abrupt high fever, severe headache, lymphadenopathy, generalized myalgia, eschar, and rashes. Diagnosis is generally made on clinical grounds alone, the cheapest and most easily available serological test is the Weil- Felix test but this is notoriously unreliable. Without treatment, the disease is often fatal since the use of antibiotics case fatalities have decreased from 4-40% to less than 2%. Commonly used is doxycycline or tetracycline but chloramphenicol is an alternative. No known vaccine is available to date.

INTRODUCTION

Scrub typhus also known as bush typhus is a form of typhus caused by the intracellular parasite Orientia tsutsugamushi a gram-negative alpha protea bacterium of the family Rickettsiaceae first isolated and identified in 1930 in Japan[1]. Scrub typhus is an ignored tropical disease and a leading cause of undifferentiated febrile illness in the Tsutsugamushi triangle. It is frequently diagnosed in South Asian countries including Nepal. After the earthquake in Nepal, a sudden upsurge in scrub typhus cases was reported[2].

Disease Prevalence: Scrub typhus is today's most important rickettsia disease worldwide, approximately one million cases occur each year and over one billion people are at risk of the disease, it is a mild to life-threatening disease with a case fatality rate without treatment as high as 50%. Disease presentation consists of abrupt high fever, severe headache, lymphadenopathy, generalized myalgia, eschar, and rash seen a few days after the chigger bite but before disease presentation and is, therefore, an important early sign associated with scrub typhus. The ultimate target cells are the endothelial cells so all tissues and organs of the body can be infected thus the presentation of various manifestations of scrub typhus including pneumonitis, mild hepatitis, tinnitus, rashes, disseminated intravascular coagulation, and meningoencephalitis can occur [3].

Diagnosis is generally made on clinical grounds alone, overshadowing of the diagnosis is quite often as the clinical symptoms overlap with other infectious diseases such as dengue fever, paratyphoid, and pyrexia of unknown origin. If the eschar can be identified it is quite diagnostic of scrub typhus but this can be unreliable on dark skin. Where doubt exists the diagnosis may be confirmed by a laboratory test such as serology. The cheapest and most easily available serological test is the Weil- Felix test but this is notoriously unreliable. Other methods include culture and polymerase chain reaction, which are not routinely available. Without treatment, the disease is often fatal since the use of antibiotics case fatalities have decreased from 4-40% to less than 2%. The drug most commonly used is doxycycline or tetracycline but chloramphenicol is an alternative, azithromycin is an alternative in children, and ciprofloxacin is also used except in pregnancy. No known vaccine is available to date[1].

Objective of the case report: The objective was to investigate on reemerging of the scrub typhus disease among children.

Case Report: A 12-year-old female child from Chaudhary family was admitted to PICU on 2077/08/18 in Children's Hospital of Kathmandu with a diagnosis of SCRUB TYPHUS. She was referred from one of the Medical College from western Nepal with a history of fever for 9 days, pain abdomen, loose bowel movement, and decreased appetite for 5 days with rashes in the chest and abdomen. She was well 10 days ago and later developed a fever during the nighttime associated with chills. There she was managed with antipyretics for around 5 days, later she complained of abdominal pain associated with loose motion and non-projectile non-bilious vomiting after each feed. She had no significant known history of past childhood illness and hospital admission. She had completed all the immunizations as per the National Immunization Schedule and has no known allergy to medications and food. Regarding birth history, she was born at full term at home and no complication was encountered during birth and later on. Her growth and development followed the normal pattern, was breastfed for 3 years, and also showed normal social and intellectual development.

Assessment Findings: On assessment, her general appearance was normal, had rashes over the chest and abdomen, had a fever, and complained of malaise & dyspnea on activity. She had a loss of appetite and constipation too. She also had pitting edema on her lower limbs and periorbital edema along with fatigue and headache. Diagnostic evaluations were carried out; routine investigations which include total blood counts, blood culture, renal function test, urine routine and culture, chest X-ray, scrub typhus IgM ELISA including serological test were done. The reports showed increased WBC counts, ESR elevated, other hemoglobin, differential counts, blood urea, creatinine, sodium potassium were within normal range, and HIV. HbsAG and HCV tests were found to be negative, blood ANA was negative but scrub typhus IgM ELISA was positive. Urine and blood culture showed no growth. Based on the laboratory findings and clinical features presented diagnosis made was scrub typhus. Although IgM IFA is considered the gold standard test for the diagnosis of scrub typhus, it is relatively expensive, and requires trained personal and a microscope with fluorescence filters, scrub typhus IgM ELISA is the best alternative for resource limited endemic countries like Nepal.[4]

Therapeutic management included
- Antipyretics Tab Paracetamol 500mg QID
- Tab Ranitidine 150 mg BD
- Antibiotics included: Injection of Meropenum 800mg IV TDS
- Injection Doxycycline 90mg IV BD
- Injection Linezolid 400mg IV TDS

Nursing Management

Assessment: Complete history taking and physical examination was carried out, review of investigation was done, and nursing diagnosis were made and care was provided.

Nursing Diagnosis

- Fever due to infection, as evidenced by increased temperature, flushed face, and dry mouth.

- Irritability due to pain, as evidenced by frequently changing position and complaining of body aches.

- Risk of dehydration due to less fluid intake, evidenced by dry mouth and decreased urine output.

- Risk of malnutrition due to less intake of food, as evidenced by decreased appetite.

- Risk of infection due to low immunity, as evidenced by prolonged illness and hospitalization.

- Lack of knowledge regarding the disease process, as evidenced by frequently asking questions.

Interventions

Fever management: Regular monitoring of vitals, provided acetaminophen for fever, and encouraged adequate hydration.

Comfort management: Ensure the child is comfortable with supportive care, including cool compresses for fever and rashes. Administered pain medication as needed for headaches and muscle aches, provided comfort measures, including hydration and a quiet environment. Collaborated with other health care professionals to ensure optimal care.

Fluid management: Offered fluids to drink by explaining the importance of fluid intake. Encouraged to take soups of preferred flavors. Urine output was measured, and it was approximately 1500 mL per 24 hours; later, it increased up to 2000 mL per 24 hours.

Nutrition Management: Provided nutritious, soft, and easily digestible foods: rice porridge, vegetable soups, coconut water, and yogurt. Spicy, oily, and junk foods were avoided.

Complication management: Monitored for signs of complications like ARDS, and organ failure: vitals monitored regularly, intake and output maintained daily, and was monitored closely. Prescribed medications were administered timely.

Stress management: Explained about the disease, treatment plan, importance of medication adherence, and preventive measures to the family members and the child as well. Explained about the complications and features of complications, as well as disease prognosis and signs of improvement.

Daily Progress: On day one of admission the patient had a fever and difficulty in breathing. All the investigations were sent. Antipyretic Paracetamol was given, IV antibiotics started and oxygen saturation was maintained with O2 inhalation through a nasal cannula at oxygen 2 liters per minute. Nebulization with salbutamol was also given. The patient was given a diet as tolerated and all routine nursing care was provided. On day two also patient had a fever but the difficulty in breathing was minimal and Spo2 was maintained in room air, no need to have oxygen supplementation, and continued the same treatment. On the third day patient's general condition was improved had no fever and

was feeling good. All the reports were collected, showed no growth in urine and blood culture. Blood for scrub typhus ELISA was reactive.

Convalesce period: The patient's general condition was improving so IV antibiotics were continued for 5 days other conservative management was done and the patient was discharged on the seventh day of admission. On discharge Tab. Ranitidine 150 mg BD for 2 more days and Tab. Paracetamol 500 mg SOS was prescribed. Other needed health teaching on follow-up visits, maintaining personal hygiene and environment sanitation, and proper nutrition was given.

Conclusion: Scrub typhus is one of the most widespread rickettsial diseases. It is endemic in Northern Japan, Southeast Asia, the Western Pacific Islands, and eastern Australia. The outbreak has been reported among the soldiers in Assam during World War II in India. It has re-emerged in India. In Nepal, there was an Outbreak in 2015, and it is a reemerging infectious disease of Nepal that often poses a threat to children. Difficulty in clinical diagnosis, as the early signs and symptoms of the disease mimic other viral illnesses, lack of laboratory methods, and under diagnosis of the disease, is a challenging situation.

Going through this case study helped to get knowledge regarding scrub typhus as a reemerging disease as a rickettsial disease that is often confused with other viral illnesses. The symptoms are minor, but if left undiagnosed or untreated, they may lead to major complications, including mortality. Minor activities like environmental sanitation and maintaining personal hygiene can prevent the disease. Nurses need to collaborate and coordinate with other members of the health care team to meet the needs of the patients.

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JOURNAL OF NURSING EDUCATION OF NEPAL (JONEN)

INTRODUCTION

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The journal publishes original articles, review articles, editorials, and viewpoints related to nursing and health science related to aspects like medical education, public health, and health policy, and healthcare management. It aims to provide a platform for publishing scientific papers related to the nursing profession (Adult/Midwifery/Child/Psychiatric/Community) education, clinical/field practice, and administration and management.

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Manuscript Preparation

General Instructions

1. Types of the manuscript should be one of the following areas: Research article/Review article/ Case reports.

2. Write manuscript in simple, clear and standard English

3. The manuscript should be typed in Times New Roman, double-spaced with Font size of 12.

4. Keep margins 1.5 cm at top, right and bottom sides and 2 cm at left hand side.

5. Insert page number at the bottom center and keep page numbers consecutively, beginning with the title page.

6. Spell out the numbers when it comes in the starting of the sentence and one to nine cardinal numbers unless they are followed by a unit or percentage or when they represent date or time

7. Spell out numerals from one to nine (1-9), for ordinals (first, third, tenth, etc.) and numerals at the beginning of the sentence.

8. Use only standard abbreviations. Use full forms of the abbreviations for its first use in the text unless it is a standard unit of measurement. Avoid use of abbreviations in title as far as possible

9. Each section of the manuscript should commence in the following sequence: title page, structured abstract, keywords, introduction, methods, results, tables and graphs (not more than 6) with caption, discussion, conclusion, acknowledgement if any and references.

10. For case report: Abstract, Keywords, Introduction, Case Report, Tables and Figure Legends, Discussion, References.

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