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Original Article

Effect of Educational Intervention on the Knowledge of Nursing Students Regarding Dengue Fever

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ABSTRACT

Dengue (DEN-gee) fever is a tropical disease caused by a virus carried by mosquitoes. The virus can cause fever, headaches, rashes, and pain throughout the body. **Objective:** To determine the effect of educational program regarding dengue fever among 4th year nursing students in Peshawar Pakistan. **Methods:** This quasi-experimental study was conducted in Peshawar from October 2020 to March 2021. The study duration was six months. It was one group pre and post study design. The sample was collected through simple random sampling from 4th November 2020 to 4th December 2020. The sample size was 65; while the target population was fourth year nursing students in five different nursing colleges in Peshawar. Data analysis was performed through SPSS version 20. **Results:** In the pre-test, majority of the participant's knowledge was average 72.3%, while the remaining participant's knowledge were poor 27.7% regarding dengue fever. In post-test the level of knowledge of all the participants were good 100%. The mean knowledge score of pre-intervention was 16.98 with the SD of 2.88 whereas; the mean knowledge score of the post-intervention was 27.16 with the SD of 1.13. Similarly, the p-value was found statistically highly significant (p=0.001, t (64) = -27.914, CI 95%). **Conclusion:** The study concluded that interventional study may help to convey the knowledge from classroom to other nursing students, patients, homes, and friends.

INTRODUCTION

Dengue fever (DF) became one of the major causes of high morbidity and mortality in adults across the globe. According to WHO before 1970 only nine countries were affected from DF epidemic but, now the disease became endemic more than 100 countries of the world. 400 million people get infected globally each year due to DF and 5 million people were hospitalized because of severe signs and symptoms; moreover, the estimated mortality rate is 2.5% which may increase to 20%. Thousands of people are dying each due to DF. DF has putted almost half of global population at risk approximately 2.5 billion people which become 40% of the entire population [1, 2]. The incidence of DF has raised 30 folds from the last 5 decades [3]. DF is a communicable mosquito-borne infection [4]. Aedes Aegypti Mosquito is the prominent carrier of Dengue virus (DV). This infection is common in all age groups and sexes including male and female. Severe dengue causes serious illness among adults and young children [5, 6]. The dengue virus infection also classified into different categories; dengue fever, dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) undifferentiated fever (UF) extended dengue syndrome (EDS) [7, 8]. DF has shown the

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regular occurrence in all over Pakistan. The first epidemic of dengue was occurred in Pakistan in 1994, but burden of dengue was sudden raised in Karachi in 2005[9]. 21,685 new cases and 350 deaths were reported from Pakistan in 2011 while, 71649 cases and more than 757 deaths were reported in 2016 [7]. Almost 8343 DF cases included 57 deaths were reported from swat in 2013 [10]. In 2019 the first dengue case was reported from Khyber teaching hospital, Peshawar. Almost 47,120 DF cases along with 75 deaths were reported from Pakistan in 2019. Region wise 3,075 dengue cases and 3 deaths were reported from Baluchistan, 12,053 cases and 33 deaths from Sindh, 9,676 cases and 16 deaths from Punjab, 12,986 cases and 22 deaths from Islamabad, 1,689 cases and 1 death from Azad Kashmir, while 7,641 cases from Khyber Pakhtunkhwa in 2019 [11]. The burden of DF has been increased dramatically worldwide from the last 20 years. This is mainly due to the spread of DV and uncontrollability of Aedes Aegypti mosquitoes which cause high morbidity and mortality not only in Pakistan, but all over the world. DF is considered as one of the emergent diseases in Pakistan and outbreaks occur every year which lead to great socio-economic impact. Asian countries are expensing 950 million dollars on DF each year [12]. This is because of unplanned and uncontrolled urbanization and no proper sewage system. No effective control and preventive measures for Aedes aegypti in addition; lack of knowledge and awareness not only in health care provider as well as in public on community level regarding DF. If the DF is not controlled then more 2 billion people will affect until 2080 [13, 14]. The purpose of this study was to assess the knowledge of nursing students regarding DF after that provide the knowledge of DF and its prevention to the nursing students through an educational intervention program in different nursing colleges across the province in KPK.

METHODS

Study design, study setting and sampling: A quasi experimental study (pre-test post-test) design was used for the current study without control group. The study was conducted in the five selected nursing colleges such as Institute of Nursing Science (INS), Post Graduate College of Nursing (PGCN), Rehman Nursing College (RCN), Northwest Nursing College (NNC), Ruphida College of Nursing (RNC) in Peshawar, Khyber Pakhtunkhwa (KPK). The study target population was composed of both gender male and female 4th year nursing students including semester 7th & 8th in five selected nursing colleges at Peshawar, KPK, while those students who were absent or received training on dengue in last six months were excluded from the study. Simple random sampling technique was used for data collection. Sample size was 65, final year nursing students of generic BSCN. The sample was calculated through OpenEpi with 95% confidence level and 5% margin of error. Lottery method was used for sample size selection. The paper was labelled with yes and no (yes for inclusion and no for exclusion) everyone drawn their lottery paper by themselves randomly and allocated to the group accordingly. Study Instrument: Validated adopted self-administered questionnaire (SAQ) was used for data collection. The reliability was checked through spearman brown split half technique. It was found r= 0.437 which showed the tool validity and reliability. The Questionnaire consists of two sections. Section 1**:** It was included of demographic characteristics such as age, gender, father occupation, family income, religion, residence area and source of information regarding DF etc. Section 2**:** It was consisted of 30 items regarding the knowledge of DF, each question was four options, and each correct answer was one score. If the answer was incorrect the score was considered zero. The highest score was 30 and the participants were categorized according to their score percentage. Therefore, cutoff values were set for interpretation that are: The score for adequate knowledge was 76% - 100%. The score for moderate knowledge was 51% - 75%. The score for inadequate knowledge was 0% - 50% [8]. Study Intervention and Data collection Procedure*:* The intervention for the study was developed through books, and from interventional studies which was validated from my supervisor and 5 more nursing education specialists. The study intervention was divided into 2 sessions each of half hour (Table 1).

	Contents	Duration
Session 1	Explanation of Dengue fever, its types and Epidemiological features and Mode of transmission.	30 mins
Session 2	Clinical manifestation, diagnostic procedure, risk factors, prevention, management, and complication of dengue	30 mins

Table 1: Contents of educational intervention of this study

Data were collected from 4th November 2020 to 4th December 2020. The data collection was divided into three phases, pre intervention, intervention, and post intervention (Figure 1).

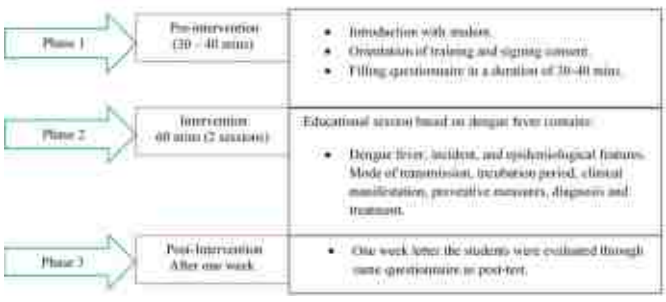

Figure 1: Data collection steps

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The data were put and analyzed through SPSS version 25.0. Frequencies, percentages, and proportion were calculated for categorical variables. Mean and standard deviation were calculated for continuous variables. The pair t-test was applied for mean score difference. Data collection permission was taken after approval of Advance Study and Research Board (AS&RB), Ethical Review Board (ERB) of Khyber Medical University (KMU). Permission was also taken from the authority of concerned nursing educational department as well as from the participants. Before data collection they were informed about the purpose of the study in written and verbal form. Informed consent was also taken in written form. The participants were ensured about their anonymity and confidentiality after data collection.

RESULTS

The number of study participants was 65. The number of female participants was in majority (72%) compared to male participants (28%), while the mean score of age were 22.2 ± 1.1. The number of students from Ruphida College of nursing were in majority (23%), followed by Rehman College of nursing, northwest institute of nursing, institute of nursing sciences (20%), and post-graduate college of nursing (17%) (Table 2).

Characteristics	Variables	Frequency (%) (n=65)
Gender	Male	18 (28%)
	Female	47 (72%)
Age	Mean ± SD	22.2 ± 1.1
	Single	60 (8%)
Marital status	Married	5 (92%)
	Institute of Nursing Science	13 (20%)
	Post Graduate College of Nursing	11 (17%)
Institutes	Rehman Nursing College	13 (20%)
	Northwest Institute of Health Science	13 (20%)
	Ruphida College of Nursing	15 (23%)
Religion	Islam	61 (93.8%)
	Christian	4 (6.2%)
Semester	7th semester	42 (64.6%)
	8th semester	23 (35.4%)
Have information about dengue fever?	Yes	42 (64.6%)
	No	23 (35.4%)

Table 2: Demographic characteristics of the participants

The level of knowledge of pre-test was categorized as poor, average and good score. In pre-test majority of the participants score was average (72.3%), while in post-test the level of knowledge of all the participants was good (100%) (Table 3).

	Poor knowledge	Average knowledge	Good knowledge	Mean score	Standard error	p-value
Pre-test	18 (27.7%)	47 (72.3%)	0	16.98 ± 2.88	.35727	.001
Post test	0	0	65 (100)	27.16 ± 1.13	.14137	

Table 3: Pre-test and post-test with level of knowledge

Table 4 shows that gender is not associated with level of knowledge, while there is significant association between knowledge and semester.

Variables	Pre-intervention Knowledge	
	t-value	p-value
Gender	-.741	.462
Semester	-2.163	0.034

Table 4: Association of pre-test knowledge with selected variables

DISCUSSION

The pre interventional mean knowledge score of this study regarding DF was 16.98 whereas, the mean knowledge score of the post intervention was improved to 27.16 and the p-value 0.0001 which was found highly significant. Similarly, the research study which was conducted in India resembles to this study because the pre-education interventional mean knowledge score was 12.92 and post intervention knowledge score was 21.52 while p-value was 0.0001. (The poor knowledge was 84% which was improved to 100% of adequate knowledge after the educational intervention). The study showed, highly significant association between the educational intervention and post intervention knowledge score [15]. Comparably, finding of this study are similar with the study which was conducted in Malaysia, as the pre intervention mean knowledge score of that study was 60.44 with SD 23.087 whereas, the post intervention mean score was 76.55 with SD 15.50 with p-value less than 0.05%. There was highly significant difference between pre and post intervention knowledge score. Therefore, the relationship was found between knowledge score and educational intervention as evidence by improvement in the knowledge of students regarding DF [4]. The result of another study is matching with this study which was conducted in India, the pre intervention mean score was 36.4 and SD 11.3 improved to the post intervention mean knowledge score 82.6 and SD 9.6. The study concluded that effective educational session boosts up the knowledge level of nursing students [16]. The aim of this study same as the study that was conducted in India, the pretest poor level of knowledge was 44.1% improved to adequate level of knowledge 72.1 % after educational intervention and the p-value was 0.001 which was highly significant. Its mean the relationship was present between level of knowledge and educational session [17]. The purpose of this study is same as the study was conducted in

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India. The pre intervention mean knowledge score of that study was 19.7 with SD 5.01 whereas, the post intervention mean score was 31.93 with SD 3.98 and the p-value less was than 0.05%. There was highly significant difference between pre and post intervention knowledge scores [18]. Another such study like this study conducted in Sri Lanka among students regarding DF, the pre-education interventional session poor knowledge level was 46.31%, moderate knowledge was 42.62% and excellent knowledge was only 2.92% which was researched to excellent knowledge 41.84%. Overall, the adequate knowledge was improved up to 38.92% after intervention. There was significant difference between pre and post intervention educational score so; it showed that college based educational intervention has important role to enhanced the education of nursing students regarding DF and able them to put the adequate knowledge into their daily nursing and clinical practices [19]. The findings of this study are much closed to the study which was conducted in India among students. The pretest mean knowledge score was 28.25% and the post intervention mean knowledge score was 70.83% so that the differentiation between pre and post session was 42.28%. It revealed that the educational session is playing a key component role for improvement of knowledge regarding infectious diseases especial for DF [14]. As to demographic variables such as age was associated with pre-intervention knowledge score of DF; the mean age of participants was 22.27 years with SD 1.17. These finding are related with the study which was conducted in Nepal, showed no statistically significant associations between age and the pretest knowledge scores [20]. However, demographic variables; the female gender was approximately more than half of the study sample (72.3%) and male was (27.7%) while the p-value was 0.462; the same study was conducted in Baghdad which showed that the female was 58.8% and male was 41.2% while the p-value was more than the level of significance. Based on the enough evidence that the insignificant relationship was found between gender and participants pre intervention knowledge [21].

CONCLUSIONS

The study concluded that the educational program based on self-administered questionnaire for DF had a significant effect on the knowledge of final year nursing students. Thus, the methodology and study findings clearly signify the importance of these sorts of educational intervention and training programs for the betterment to keep prevent oneself as well as others from this infection. This study also revealed that there was not a significant relationship between pre-intervention level of knowledge and some demographic variable for example age and gender.

Conflicts of Interest

The authors declare no conflict of interest.

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