Knowledge and Attitudes towards Suicide among Nurses of National Referral Hospital in Bhutan

นิพนธ์ต้นฉบับ

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Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อวิเคราะห์ 1) ความรู้และทัศนคติของพยาบาลภูฏานเกี่ยวกับการฆ่าตัวตาย 2) ความสัมพันธ์ระหว่างคุณลักษณะของพยาบาลกับความรู้และทัศนคติเกี่ยวกับการฆ่าตัวตาย และ 3) ความสัมพันธ์ระหว่างความรู้กับทัศนคติเกี่ยวกับการฆ่าตัวตายของพยาบาล **วิธีการศึกษา:** การศึกษาเชิงพรรณนาเพื่อหาความสัมพันธ์ในกลุ่มตัวอย่างที่เป็นพยาบาลจำนวน 216 คนในหน่วยและแผนกต่างๆ ของโรงพยาบาลศูนย์แห่งชาติในเมืองทิมพู ประเทศภูฏาน เก็บข้อมูลในเดือนมีนาคม 2560 โดยใช้แบบสอบถามที่มีโครงสร้างซึ่งประกอบด้วยคุณลักษณะของพยาบาล ความรู้และทัศนคติเกี่ยวกับการฆ่าตัวตาย แบบสอบถามในส่วนความรู้มีความเที่ยงเชิงความสอดคล้องภายในที่ยอมรับได้ (ค่าสัมประสิทธิ์ของ KR 20 = 0.70) และในส่วนทัศนคติต่อการฆ่าตัวตายมีความเที่ยงระดับสูง (ค่าสัมประสิทธิครอนบาคแอลฟา = 0.80) ใช้สถิติเชิงพรรณนา สถิติสหสัมพันธ์ของเปียร์สันและพอยท์ไบซีเรียลในการวิเคราะห์ข้อมูล **ผลการศึกษา:** พยาบาลมีความรู้ (mean = 14.31; SD = 2.88) และทัศนคติ (mean = 53.86; SD = 6.36) เกี่ยวกับการฆ่าตัวตายในระดับปานกลาง คุณลักษณะของพยาบาล (อายุ ระดับการศึกษา ระยะเวลาการประกอบวิชาชีพพยาบาลและประวัติการพยายามหรือคิดฆ่าตัวตายของพยาบาล) มีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับความรู้เกี่ยวกับการฆ่าตัวตาย นอกจากนี้ในด้านเพศ ระยะเวลาการประกอบวิชาชีพพยาบาล ประสบการณ์การให้การพยาบาลผู้ที่คิดฆ่าตัวตายและการศึกษาและฝึกอบรมในเรื่องการฆ่าตัวตายมีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับทัศนคติต่อการฆ่าตัวตาย ความรู้และทัศนคติเกี่ยวกับการฆ่าตัวตายของพยาบาลมีความสัมพันธ์กันเชิงบวก (r = 0.25, P < 0.01) **สรุป:** ผลการวิจัยนี้สามารถใช้เป็นข้อมูลพื้นฐานเพื่อพัฒนาการดูแลและรูปแบบการพยาบาลที่มีประสิทธิภาพเกี่ยวกับการฆ่าตัวตาย ทั้งนี้ควรจัดให้พยาบาลได้รับการศึกษาและฝึกอบรมเพื่อเพิ่มพูนความรู้และทัศนคติเกี่ยวกับการฆ่าตัวตาย

คำสำคัญ: การฆ่าตัวตาย, ความรู้, ทัศนคติ, พยาบาล, ประเทศภูฏาน

Abstract

Objective: To explore Bhutanese nurse's knowledge about and attitudes towards suicide, to determine the association between nurse's characteristics and their knowledge about and attitudes towards suicide, and to test the relationship between knowledge about and attitudes towards suicide. **Method:** A descriptive study with the correlational method was conducted in 216 nurses working in various units and departments of the National Referral hospital in Thimphu city of Bhutan. Data collection was performed in March, 2017 using structured questionnaires, i.e. nurses' characteristics, suicidal knowledge questionnaire and suicidal attitude questionnaire. The internal consistency reliability of the knowledge questionnaire was acceptable (Kuder-Richardson 20 coefficient = 0.70), whereas that of the attitude questionnaire was high (Cronbach's alpha coefficient = 0.80). Descriptive statistics, Pearson's product moment and point biserial correlation were used for data analyses. **Results:** Knowledge about (mean = 14.31; SD = 2.88) and attitudes towards (mean = 53.86; SD = 6.36) suicide among nurses were in moderate levels. Nurse's characteristics including age, level of education, years of experience, and nurses' history of attempted or contemplated suicide were significantly associated with knowledge about suicide. Nurse's gender, years of experience, past caring experience, and previous training and education were significantly associated with nurse's attitudes towards suicide. There was also a significant positive correlation between nurse's knowledge about and attitudes towards suicide (r = 0.25, P < 0.01). **Conclusion:** The study results can be used as baseline data to develop effective nursing care and interventions pertinent to suicide. Training and education are needed for nurses to improve their knowledge about and attitudes towards suicide.

Keywords: suicide, knowledge, attitude, nurses, Bhutan

Introduction

Bhutan is a small Himalayan kingdom situated between two giants of the world, China and India. With merely a population of about seven hundred thousands, the country is seeing increasing number of suicide and attempted suicide cases over a last few decades.[1] In Bhutan, suicide death ranks among the top six leading causes of death after alcoholic liver disease, other circulatory diseases, cancers,

respiratory diseases, and road accident deaths.[1] The Gross National Happiness survey (2010) reported high suicide rates from rural areas and higher numbers of cases of attempted suicide from urban society. In a five-year review of suicide cases from 2009 to 2013 in Bhutan, a total of 361 suicide deaths were documented by the Royal Bhutan Police which was an average of six suicide deaths per month.

Cases of intentional self-harm reported in the health facilities ranged from 502 to 682 cases while only 3 to 5 deaths due to intentional self-harm which were likely to be suicide deaths were recorded in health facilities during 2009 to 2013.[1] This shows that attempted suicide cases and intentional self-harm ended up in health care facility and it is therefore a big responsibility of healthcare providers especially nurses to care and manage the patient.

Evidences suggest that lack of knowledge, lack of training and poor attitudes among nurses towards the suicide patients often unfavorably impact health care delivery and patients safety.[2,3] In the UK, young people are involved in more hospital presentations for self-harm than any other age groups, with females in the 15 – 19 years of age being most vulnerable.[4] Acts of self-harm in young people include cutting of skin, hitting, hair pulling and the ingestion of toxic substances, particularly paracetemol.[5] The attitudes held by clinical staff towards people who harm themselves, together with their knowledge about suicide, are likely to be crucial influences on their clinical practice and hence on the experiences and outcomes of those they treat.[6] The standard of management and outcome of the care is directly related with the knowledge and attitudes held by the nurses while working with attempted suicide patients.

It is very important to know that nurses' knowledge and attitudes towards suicide is essential as they are the front line health care providers. In the majority of studies which examined attitudes of staff towards people who self-harm, general hospital staff expressed negative attitudes[7] with feelings of irritation and anger being most pronounced in general medical settings.[8] In contrast, McCann et al.[9] found that nurses working in emergency departments had sympathetic attitudes towards patients who self-harm, including both professional and lay conceptualizations of deliberate self-harm. In addition, they found no discriminatory attitudes towards deliberately self-harming patients in nurses' triage and care decisions.

Caring for people who present to emergency department because of deliberate self-harm often evokes strong emotions and negative attitudes in staff.[10] However, the study carried out by Ouzouni and Nakakis[11] found that overall nurses showed relatively negative attitudes towards suicide. Nurses reported a variety of mixed feelings (negative and positive) when caring for attempted suicide patients. With various range of attitudes of the nurses,

hostile attitudes of clinical staff towards people who self-harm compared to patients with physical illness was also reported.[12] In line with the above finding, it can be concluded that nurses' attitudes towards suicidal patients are worthy of exploration due to the fact that this type of research could have an impact on nurses' self-awareness of the important role they play in the provision of effective care.[13]

In addition, other nurses' characteristics like age, clinical experience and previous exposure to suicide within the family of nurses could determine the attitudes towards suicidal behavior. Studies carried out to explore the attitudes of emergency nurses found that older and more experienced nurses held more favorable attitudes than younger and less experienced ones.[14] Several studies have reported attempts to improve nurses' attitudes towards self-harm, as negative attitudes towards attempted suicide patients may affect the quality of care they provide.[9] Also, a study shows that prior exposure to suicide or attempted suicide in the nurse's family member was associated with more positive attitudes.[15] In particular, education has been found to improve negative attitudes as well as improve the standards of psychosocial assessment of patients presenting to emergency departments with deliberate self-harm actions. It is worth to note that nurses who have a history of attempted and contemplated suicide or have a relationship with someone who committed suicide have a significant positive attitudes towards patient with suicidal behavior.[11] A study done in Hong Kong revealed that after the education program on suicide prevention, nurses had applied the new knowledge they acquired in clinical practice and they perceived themselves as being more aware of the problem of suicide and more competent in managing suicide risk.[16] A preliminary study on knowledge and attitudes towards suicide among medical students found that the Japanese medical students had insufficient knowledge about frequency and characteristics of suicide in Japan.[17] It is therefore important to note that knowledge also has a significant effect on the care for patients with suicidal behavior.

Evidence showed that some nurse's characteristics served as determinants of nurses' knowledge and attitudes toward patients with suicide behavior. These characteristics included age, gender, years of experience, level of education, past experience of caring suicidal patients, any special training and education, nurses family history of suicide, and the nurse own experience of attempted or

contemplated suicide Based on our knowledge and experience, no such studies to assess suicide knowledge and attitudes of nurses have been conducted apart from a study on reported suicide cases in Bhutan by Ministry of Health in 2014 despite proliferating suicidal cases seen in most health care settings. Considering the above mentioned significance and background of the suicide in Bhutan and very scarce or no study done on this very topic made it very crucial to assess the knowledge and attitudes towards suicide among nurses. Nurses reflects a group of future gatekeepers, insofar as they will be the first line of contact as well as one of the key resource to manage the patient with suicidal behavior. Knowing to what extent these nurses had regarding knowledge and attitudes would lead to better equipping this budding health professional at the earliest opportunity.

Therefore, this study would help generate a better understanding about knowledge and attitudes towards suicide among nurses in Bhutan and its relationship with each other. The study also described the associations between the nurses' characteristics (age, gender, years of experience, level of education, past experience of caring suicidal patient, any special training and education, nurse's family history of suicide, and nurse's history of attempted or contemplated suicide) and knowledge about and attitudes towards suicide among nurses in Bhutan.

With such objectives, three hypotheses were as follows. First, nurse's characteristics (age, gender, years of experience, level of education, past experience of caring suicidal patient, any special training and education, nurse's family history of suicide, and nurse' history of attempted or contemplated suicide) were positively associated with knowledge about suicide among nurses in Bhutan. Second, nurse's characteristics as mentioned above were positively associated with attitudes towards suicide. Third, knowledge about suicide was positively associated with the attitudes of nurses towards suicide.

Methods

Descriptive correlational design was employed for this study. The study was conducted in Jigme Dorji Wangchuk National Referral Hospital (JDWNRH), a 350-bed hospital in Thimphu, the capital district which is situated in the Western Central part of Bhutan. As the national referral hospital,

JDWNRH was purposely selected for this study due to the fact that it had highest number of nurses. The nurses working in various units and departments, fulfilling the inclusion criteria were employed for the study. Convenience sampling method was used to recruit the nurses.

Population and sample

The target population of the study was all nurses working in JDWNRH, Bhutan. With 412 nurses working in this hospital, the study sample consisted of 216 nurses. They were practicing in various departments including psychiatrics, emergency, critical care, medical/surgical, orthopedics, pediatrics, obstetrics and gynecology, dialysis, oncology and Eyes, Ears, Nose and Throat (EENT). The inclusion criteria for these participants were Bhutanese nationality, having roles and responsibilities with direct patient care, and being registered with Bhutan Medical and Health Council. All nurses who met the inclusion criteria and voluntarily participated were recruited for the study.

The sample size in this study was calculated using Krejcie and Morgan formula[18] to determine the sample size for finite population. Based on the formula, the required sample size for this study was at least 207 participants. In this study 216 participants were recruited.

Research instruments

All the research instruments were self-administered questionnaires using English language. A set of three questionnaires was used.

Demographic questionnaire

This questionnaire was developed by the researcher and had 10 items which included nurse's characteristics such as age, gender, area of specialty, level of education, years of experience, and previous experience of caring patient with suicidal behavior, previous special training/education acquired on suicidality, nurse's family history of suicide, and nurse's history of attempted suicide or contemplated suicide.

Knowledge about suicide questionnaire

The knowledge questionnaire was developed by the researcher which suited with the information related to suicidal issues in the Bhutanese context. The questionnaire had 24 items which were divided into four components consisting of incidence, risk factors, management, and

suicide prevention with 5, 6, 6 and 7 items respectively. A point of 0 was scored for the incorrect answers while 1 for the correct ones. The possible score ranged from 0 to 24 with higher scores indicating higher knowledge. The levels of knowledge were classified into low (0 - 8), moderate (9 - 16), and high (17 - 24) based on the method postulated by Polit and Beck.[19] The content validity of the questionnaire was assessed by the panel of five experts comprising of two psychiatrists, two nursing professors and a psychiatric nurse. The experts' comments were used to revise each questionnaire for its appropriateness. The Content Validity Index (CVI) was used to measure the content validity and the overall four-point CVI yielded a value of 0.85. The difficulty index of each item in this questionnaire ranged from 0.2 to 0.8 indicating a wide range of difficulty. Based on a Kuder-Richardson 20 (KR 20) coefficient of 0.70, the internal consistency reliability of the knowledge questionnaire was acceptable.

The Suicidal Behavior Attitude Questionnaire (SBAQ)

SBAQ was developed by Botega et al.[20] and it measures attitudes of nursing personnel towards patients with suicidal behavior. It contains 16 items with a Likert-type rating scale ranging from strongly disagree "1" to strongly agree "5." The questionnaire has three components to assess the attitudes of nurse towards patients presenting with suicidal behavior. These include feelings when caring for the patient (affective), professional capacity (behavioral) and right to suicide (cognitive) with 7, 4 and 5 items, respectively. The scores of negative items were reversed. The possible total score ranged from 16 to 80. In the feelings (affective) towards the patient and the professional capacity (behavioral) subscales, higher scores correspond to more positive attitudes. On the other hand, in the right to suicide (cognitive) subscale, higher scores are less condemnatory, representing the belief that a person does not have right to take away their own life. The levels of attitudes were classified into low (16 – 37), moderate (38 – 59), and high (60 – 80) based on the method postulated by Polit and Beck.[19] For attitude questionnaire, a Cronbach's alpha coefficient value of 0.80 was obtained.

Data collection procedure

The research was approved by the Institutional Review Board for Graduates Studies, Faculty of Nursing, Burapha University, Thailand. (Approval number: 09-01-2560) It was further reviewed and approved by the Research Ethics Board of Health (REBH), Ministry of Health, Bhutan. The permission to conduct study in JDWNRH was obtained from the Medical Superintendent. Finally, a letter seeking permission for data collection along with the purpose of the study was presented to the nursing superintendent. Support from chief nurses of various departments and units were obtained to collect data from the participants.

The participants were recruited solely on a voluntary basis. Participants information sheet were provided and consent were obtained. Data were collected in suitable private rooms in the hospital wards. It took approximately 30 minutes to complete the questionnaires.

Data analyses

Data were coded and entered into a statistical software for analysis. The statistical significance with an alpha level of 0.05 was set. Data were tested for normality and assumptions applicable for Pearson's product moment correlation coefficient. Descriptive statistics, and Pearson's product moment or point biserial correlation coefficients, as appropriate, were used for data analyses.

Results

Demographic characteristics of participants

A total of 216 nurses working in JDWNRH who met the inclusion criteria were recruited for the study. Table 1 shows demographic characteristics of the participants. A majority of the respondents were female (61.6%). The mean age of the nurses was 29.11 years (SD = 5.82) with a minimum and maximum age of 22 and 54 years, respectively. The age range of most nurses was between 26 and 33 years (53.7%). Most of them (64.8%) had a diploma in nursing followed by Bachelor's of Science in Nursing degree or higher (19.4%). The average length of nursing experience of the nurses was 5.20 years (SD = 6.26) and 101 nurses had an experience of less than 2 years (46.8%). It also revealed that 121 nurses (56.0%) had no past caring experience of suicidal patients. Most of them had not received any suicide related training or education (89.8%). When it comes to family history of suicide, most of the nurses had no family history of suicide (93.1%). It is worth to note that 16 out of 216 nurses had a history of attempted/contemplated suicide

(7.4%), whilst most of them reported that they never had one in their lifetime (92.6%).

Table 1 Demographic and nursing characteristics of the participants (N = 216).

Characteristics	N	%
Gender		
Female	133	61.6
Male	83	38.4
Age (years) (mean = 29.11; SD = 5.82)		
18 – 25	60	27.8
26 – 33	116	53.7
≥ 34	40	18.5
Level of education		
Certificate	34	15.7
Diploma	140	64.8
BSN and higher	42	19.4
Years of experience (mean = 5.20; SD = 6.26)		
< 2	101	46.8
3 – 10	72	33.3
> 10	43	19.9
Past caring experience		
Yes	95	44.0
No	121	56.0
Previous training		
Yes	22	10.2
No	194	89.8
Family suicide history		
Yes	15	6.9
No	201	93.1
Attempted suicide/suicidal thoughts		
Yes	16	7.4
No	200	92.6

Knowledge about suicide

Overall, the nurses' knowledge about suicide was at a moderate level (mean = 14.31; SD = 2.88) with minimum and maximum scores of 7 and 24, respectively (Table 2). The component of prevention was with the highest mean knowledge score (4.80), followed by incidence (3.52), management (3.02) and risk factors (2.96).

It was found that 77.3% of nurses possessed a moderate level of knowledge about suicide with the mean score of 13.99 (SD = 1.88). Very few nurses (1.9%) had a low level of knowledge (mean = 7.25; SD = 0.50) and 20.8% nurses had a high level of knowledge (mean = 18.33; SD = 1.65) about suicide.

Table 2 Mean, standard deviation, actual and possible score of knowledge about suicide by each component (N = 216).

Nurse's knowledge	M	SD	Actual score	Possible score
Total score	14.31	2.88	7 – 24	0 – 24
Incidence	3.52	0.74	2 – 5	0 – 5
Risk factors	2.96	1.24	0 – 6	0 – 6
Management	3.02	1.30	0 – 6	0 – 6
Prevention	4.80	1.43	1 – 7	0 – 7

Table 3 Frequency and percentage of nurses in each level of knowledge about suicide (N = 216).

Knowledge level	M	SD	n	%
Low (0 – 8)	7.25	0.50	4	1.9
Moderate (9 – 16)	13.39	1.88	167	77.3
High (17 – 24)	18.33	1.65	45	20.8
Total	14.31	2.88	216	100.0

Correlations between nurses' characteristics and knowledge about suicide

Correlational analysis revealed that four out of eight nurses' characteristics were significantly associated with the nurses' knowledge about suicide (Table 4). Of these four characteristics, level of education (r = 0.26, P-value < 0.01) and having a history of attempted or contemplated suicide (r_{pb} = 0.18, P-value = 0.01) were positively correlated with the nurse's knowledge. On the other hand, age (r = -0.17, P-value = 0.01) and years of experience (r = -0.15, P-value = 0.03) were negatively correlated with the nurse's knowledge.

Table 4 Relationships between nurse's characteristics and knowledge about suicide (N = 216).

Nurse's characteristics	Correlational coefficients (r)
Age	-0.17*
Level of education	0.26**
Years of experience	-0.15*
Gender	0.11 (r_{pb})
Past caring experience	0.08 (r_{pb})
Previous training or education	0.13 (r_{pb})
Family history of suicide	0.02 (r_{pb})
History of attempted or contemplated suicide	0.18* (r_{pb})

* P < 0.05, **p < 0.01, r = Pearson's correlation coefficients, r_{pb} = point biserial correlational coefficients.

Attitudes towards suicide

Overall, the nurse's attitudes towards patients' presenting with suicidal behavior was at a moderate level (mean = 53.86; SD = 6.36) with minimum and maximum scores of 35 and 69, respectively (Table 5). Of a possible highest score of 25, the mean score of cognitive component was 17.34.

Mean scores of behavioral and affective components were 12.66 (out of 20) and 23.86 (out of 35), respectively.

Table 5 Score of nurse's attitudes towards suicide by components (N = 216).

Nurse's attitudes	*M*	*SD*	Actual score	Possible score
Total score	53.86	6.36	35 – 69	16 – 80
Affective component	23.86	3.74	12 – 34	7 – 35
Behavioral component	12.66	2.76	5 – 20	4 – 20
Cognitive component	17.34	2.67	9 – 23	5 – 25

Table 6 shows the number and frequency of nurses in each attitude level. It was found that 71.8% of nurses possessed a moderate level of attitudes, 14.8% nurses with a low attitude level and 13.4% nurses exhibited high-level attitudes towards patients' presenting suicidal behavior.

Table 6 Frequency and percentage of nurses in each level of attitudes about suicide (N = 216).

Attitude level	*M*	*SD*	n	%
Low (16 – 37)	43.69	3.29	32	14.8
Moderate (38 – 59)	54.10	3.61	155	71.8
High (60 – 80)	63.79	2.54	29	13.4
Total	53.86	6.36	216	100

Correlations of nurses' characteristics and attitudes

Correlational analysis revealed that four out of eight nurse's characteristics were individually significantly associated with the nurse's attitudes towards suicide (Table 7). The nurse's attitudes towards patients presenting suicidal behavior was positively associated with gender (r_{pb} = 0.24, *P*-value < 0.01), past caring experience (r_{pb} = 0.20, *P*–value < 0.01), and previous suicide-related training and education (r_{pb} = 0.23, *P*–value < 0.01), and negatively associated with years of experience (*r* = -0.14, *P*–value = 0.04).

Table 7 Relationships between nurses' characteristics and attitudes (N = 216).

Nurse's characteristics	Correlational coefficients (r)
Age	-0.13
Level of education	0.08
Years of experience	-0.14*
Gender	0.24** (r_{pb})
Past caring experience	0.20** (r_{pb})
Previous training or education	0.23** (r_{pb})
Family history of suicide	0.02 (r_{pb})
History of attempted or contemplated suicide	-0.08 (r_{pb})

* *P* < 0.05, **P < 0.01, *r* = Pearson correlation coefficients, r_{pb} = point biserial correlational coefficients.

Relationship between nurses' knowledge about and attitudes towards suicide

Pearson's correlation analysis revealed that nurse's knowledge about suicide was significantly associated with the nurse's attitudes towards suicide (*r* = 0.25, *P*–value < 0.001).

Discussions and Conclusion

In this study, relationships between various nurse's characteristics, knowledge about and attitudes towards suicide in a tertiary level hospital located in Thimphu district, Bhutan were examined.

The findings revealed that nurses had a moderate level of both knowledge about and attitudes towards suicide. Nurse's characteristics including age, level of education, years of experience, and nurse's history of attempted or contemplated suicide were significantly associated with the knowledge about suicide. Whereas, gender, years of experience, past caring experience, and previous training and education about suicide were significantly associated with attitudes towards patients presenting suicidal behavior. The only characteristic that was not associated with either knowledge about or attitudes towards suicide was the nurse's family history of suicide. This means that having a family history of suicide did not affect the nurses' knowledge about and attitudes towards suicide. Furthermore, there was also a significant association between knowledge about and attitudes towards suicide among nurses.

The findings are discussed in three parts, specifically, nurses' knowledge about suicide and its relationship with selected nurse's characteristics, nurse's attitudes towards suicide and its relationship with selected nurse's characteristics, and relationship between knowledge and attitudes towards suicide among nurses.

Nurse's knowledge about suicide

The findings showed that nurses who participated in this study had a moderate level of knowledge score regarding suicide (mean = 14.31). The knowledge questionnaire consisted of four components including incidence, risk factors, management and prevention of suicide. Similar kind of study was also done in Japan, one of the countries with the highest suicide death rate in the world. It was found that nursing students and even nurses at a mental hospital and

psychiatric social workers showed a knowledge deficit concerning suicide and the current problem of increasing suicide.[21] Similarly, in this study the nurses showed a moderate level of knowledge about suicide. For instance, 82.4% of nurses believed that the prevalence of suicidal death in urban areas of Bhutan was higher than those in rural areas. This belief was incorrect since a study on reported suicide cases in Bhutan done by the Ministry of Health in 2014 showed that more completed suicides were from rural areas while the attempted suicide cases were mostly from the urban areas. This kind of gap of knowledge exists among nurses in Bhutan. Among eight nurse's characteristics examined in this study, only four of them were significantly associated with the knowledge about suicide. These included age, level of education, years of experience, and nurse's history of attempted or contemplated suicide.

Not many previous studies have examined the relationship between age and knowledge. A study done in Canada showed that age was not associated with knowledge.[22] In this study, age of the nurses was significantly negatively associated with the knowledge about suicide. Among the age groups, nurses who were between 18 and 25 years old had a higher mean knowledge score (man = 14.63; SD = 2.79) compared to those who were older. This indicated that young nurses had better knowledge about suicide as compared to older nurses in JDWNRH. This finding might suggest that recent nursing curriculum in Bhutan and elsewhere had been updated for more current knowledge regarding mental health, suicide in particular. In addition, younger nurses were somehow more familiar with social media and recent technology to obtain more knowledge which may include suicide as well.

Secondly, level of education was also significantly associated with the knowledge about suicide. The formal educational background may be related to moderate level of education as most of the nurses graduated with a diploma (64.8%) followed by a bachelor's degree (19.4%) and certificate level of nursing education (15.7%). The results showed that those nurses who had educational level of bachelor's degree or higher had a higher mean score (mean = 15.10) as compared to those with diploma and certificate level. This could be attributable to the fact that there were a larger number of credits in mental health and psychiatric nursing in the bachelor's degree curriculum than in the other

two programs. This is in line with the words as commented by Sun et al. that greater education was associated with higher level of knowledge.[13] Training and education are clearly important, as most of the recent studies reached the same conclusion.[23]

As expected that the number of years of experience as a professional nurse would be associated with knowledge, it fulfilled the hypothesis. However, it was found that the nurses who had less experience had a higher level of knowledge (negative correlation) compared to their counterparts. Three groups were made depending upon the years of experience as a registered nurse, namely "less than 2 years," "3 - 10 years," and "over 10 years" with 101, 72, and 43 nurses in each group, respectively. Of these three groups, nurses who had experience of less than 2 years presented with a higher mean score (mean = 14.75; SD = 2.82) thereby indicating that junior nurses had a higher level of knowledge compared to their senior counterparts. This may be because the junior nurses would have more direct patient care whereas senior nurses were more likely to spend time in management tasks. It also seemed that younger nurses who were directly involved with attempted suicide care were more empathetic, and potentially more enthusiastic with their work, feeling less tired or burnt out compared to older nurses who had been repeatedly caring for attempted suicide patients in busy nursing wards for many years.[11] Agreeably, this present study also found that nurses with the most years of clinical experience (over 10 years) had lower mean score (mean = 13.42; SD = 3.12) of knowledge about suicide in JDWNRH.

Another interesting finding of this study is that 16 of a total of 206 responded that they had a history of attempted or contemplated suicide in their lifetime. This nurse characteristic was significantly associated with knowledge about suicide in Bhutan (r = 0.18, P-value = 0.01). The mean score of these 16 nurses (mean = 16.00; SD = 2.94) who had a history of attempted or contemplated suicide was higher than those who did not (mean = 14.17; SD = 2.83). This may be due to the awareness of and familiarity with suicide if one has an attempted suicide in their life time. It is also obvious that nurses who had a history of attempted suicide understand the pain and suffering it brings to them and the people around them. To alleviate this pain of how they come out of the problem, they might have found the solution which can be acquired by gaining the knowledge. A

better understanding in this area will provide and equip nurses to be more aware of the consequences and can provide a quality care to the patient.

Nurse's attitudes towards suicide

The results indicated that the majority of nurses showed a moderate level of attitudes towards patients presenting suicidal behavior (mean = 53.86; SD = 6.36). The current study also demonstrated the relationship between nurse's characteristics and attitudes towards suicide. It was found that 71.8% of nurses possessed a moderate level of attitudes towards suicide while 14.8% nurses showed a low level and 13.4% nurses exhibited a high level of attitudes towards suicide.

There are several studies exploring nurse's attitudes towards suicide, attempted suicide, and self-harm, which showed both negative and positive attitudes of nurses. These studies showed that nurses experienced a range of positive emotions when caring for patients with self-harm, such as understanding, engagement and hopefulness.[24-26] Despite the overall positive self-reported attitudes of the nurses from the study by Conlon and O'Tuathail[27], the participants experienced feelings of frustration and powerlessness when working with people who were hospitalized repeatedly after incidents of self-harm. Some nurses felt that these people were manipulative and a waste of time. Since this present study was descriptive and correlational in design, apart from exploring attitudes in detail, more was focused in exploring the relationship between nurse's characteristics and attitudes towards suicide. This study found that nurse's gender, years of experience, past caring experience, and previous training and education were significantly associated with nurses' attitudes towards patient presenting with suicidal behavior.

In several studies, gender was found to relate to nurse's attitudes towards suicide. Female nurses working in an inpatient setting reported slightly lower effectiveness, more negativity, and more anxiety than male nurses in their care for people with self-harm.[28] In contrast, Dickinson et al.[29] found that male staff working in secure environments had a more negative attitudes towards self-harm than female staff. In the view of above findings, this study showed that male nurses (mean = 55.82; SD = 6.57) held a greater level (more positive) of attitudes as compared to female nurses (mean = 52.63; SD = 5.93) in JDWNRH. This finding of why male

nurses had a higher level of attitudes than their female counterparts calls for further research because of contradictory findings between the present and previous studies.

Studies that addressed the relationship between years of experience and nurse's attitudes towards suicide also produced contradictory results. According to McAllister et al.[10] and Wheatley and Austin-Payne[28], no significant correlation existed between years of nursing experience and nurses' attitudes. On the contrary, McCarthy and Gijbels[30] and Conlon and O'Tuathail[27] found that nurse's attitudes became more positive as years of accident and emergency department experience increased. In contrast to above cited findings, Dickinson et al.[29] found that attitudes became more negative the longer they worked with people with self-harm. This is consistent with the finding in this present study that junior nurses (less than 2 years of experience) held more positive attitudes as compared to nurses who had worked a greater number of year (3 to 10 years) and the least being nurses having experience of over 10 years as a registered nurse. The reason may be because most junior nurses starts working with fresh knowledge and they care for the patient with utmost dedication and sincerity as compared to senior nurses who have been working with such kind of patient for longer period of time. And in most of the healthcare settings, senior nurses usually work as a supervisor but junior nurses are involved more with direct patient care. This allows junior nurses to be emotionally attached with the patient and better understand the needs of the patient.

There was a significant positive association between nurse's past caring experience of suicidal patient and attitudes towards suicide. It was found that 44% (95 out of 216 nurses) reported having past caring experience of suicidal patients. Subsequently they obtained a higher mean score as compared to those who never had such experience. Therefore, this result suggests that educating nurses who never had past caring experience would be very crucial since these nurses may be less competent or may not be sure on how to approach the suicidal patient in their first encounter. First time working with suicide patients might provoke anxiety, confusion and hostility towards the patient. This could cause undesirable effects. Previous studies have clearly revealed that nurse's response of rejection or hostility may prompt the patient's further suicidal behavior.[31,11] Thus it is better to prevent at the first place than inducing patient to

repeat suicidal attempt which may be more intense, serious and even fatal.

The last and yet very important nurse's characteristic which showed a significant association with attitudes towards suicide was the nurse's previous training and education. In this study only 10.2% of nurses had a training and education related to suicidal issues, counseling and mental health workshop. In this study, it was also affirmed that these nurses who received previous training and education had a much higher mean attitude score (mean = 58.09; SD = 6.03) as compared to those who did not (mean = 53.38; SD = 6.24). Two studies commented on the impact of previous training and found that greater education was associated with more positive attitudes.[32,13] Therefore it is very important to train and educate nurses in order to develop more positive attitudes which would lead to effective management and nursing care and ultimately this step would also lead to the prevention of suicide in the country.

The relationship between nurse's knowledge about and attitudes towards suicide

The study revealed that knowledge about suicide was significantly associated with attitudes towards suicide (r = 0.25, P–value < 0.01) among nurses in JDWNRH. This means that the higher the nurses possess the knowledge about suicide, the better the attitudes towards suicide. The established positive link between education/knowledge and attitudes indicated that education is fundamental in changing nurse's attitudes towards self-harm.[10,28] On the basis of the results, it is suggested that nurses who are considered a key and frontline healthcare worker to deal with suicidal patients, special focus and attention should be given to promote better knowledge about and positive attitudes towards suicide to make a better care to benefit patients, families and community as a whole.

Strengths and limitations

This descriptive correlational study was the first of its kind in Bhutan. The study was conducted in the national referral hospital (tertiary level) in the country which has the highest human workforce and nurses. This exploration of the current situation of nurse's knowledge and attitudes towards suicide could provide baseline data for further improvement of nursing care in this field. The limitation was sample representativeness where the findings of this may not be generalized to all nurses in Bhutan.

The research development recommendations arising from this study lay the ground work needed to improve the care and health outcomes of individuals who enter our health care system encountering suicidal behavior. A nurse possessing a high knowledge about and positive attitudes towards suicide will benefit an individual, community and the entire human race.

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