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# The use of physical restraints- knowledge and attitude of nurses of a tertiary care institute, Uttarakhand, India

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## Abstract:

**BACKGROUND:** The use of physical restraint in health-care settings is common and complex practice as it has physical, psychological, judicial, ethical, and moral issues. Nurses are the key persons regarding physical restraint use in hospitals as they are managing the whole process beginning with decision-making, application, caring the restrained patients. Lack of understanding and negative attitude of nurses in the use of physical restraints will hamper patient safety.

**MATERIALS AND METHODS:** A descriptive cross-sectional survey was carried out among 110 randomly selected nurses working in various departments at a tertiary care center Uttarakhand, India, in 2019. The data were collected using self-reported questionnaires consisting of three parts: demographic information, knowledge assessment questionnaire, and attitude rating scale regarding the use of restraints. Data were analyzed using the SPSS version 23 descriptive (frequency, percentage, mean, mean percentage, and standard deviation) and inferential statistics (Mann–Whitney and independent *t*-test).

**RESULTS:** The findings indicated that the mean knowledge and attitude of the nurses for physical restraints were  $13.9 \pm 1.9$  (0–20 points),  $35.2 \pm 4.7$  (28–55 points), respectively. The study revealed that there was no relationship found between knowledge and attitude of nurses regarding the use of physical restraints ( $r = 0.084$ ).

**CONCLUSION:** The knowledge and attitude regarding the use of restraints among nurses were found to be moderate. In-service training is highly recommended for nurses to improve the knowledge and practices related to the use of physical restraint.

## Keywords:

Attitudes, health knowledge, nurses, physical, restraints

## Introduction

Physical restraint is any manual method attached to the patient's body that restricts freedom of movement.<sup>[1]</sup> In hospital settings, physical restraints were used largely to avoid falls and stop confused patients from harming themselves and others.<sup>[2]</sup> Confused patients often remove their therapeutic devices their restraints act as a safety device. This will avoid harming themselves to promote the practice of

medical modalities.<sup>[3]</sup> However, in today's health care settings use of physical restraints is a controversial issue as it has dubious ethical and legal issues concerning the autonomy and dignity of patients.<sup>[1]</sup> It was reported that the use of physical restraints causes physical injuries and has many psychological and sociological effects. On the other hand, hospital personnel argue that physical restraints are helpful in older patients for the prevention of falls and for keeping the medical devices applied in place.<sup>[4]</sup>

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Despite the lack of evidence to approve the efficacy and safety of physical restraints and its possible risks, the use of physical restraints continues. The overall incidence of physical restraining has been reported to vary from 6% to 13% in various hospitals in India as well as worldwide.<sup>[5]</sup>

Nursing ethics bound a nurse to ensure patients' safety and their fundamental rights. Nurses are the ones who initiate restraint use for ensuring safety of the patients. Nurses' attitude toward physical restraints for maintaining patient safety can lead to conflicts with patients' rights, along with their autonomy. Many studies proved that nurses' knowledge toward physical restraint was average and their attitudes were either negative or ambivalent.<sup>[6]</sup> A study by Sujata and Kaur from India reported that majority of (76.66%) nurses were found to have an average level of knowledge, (21.66%) were having poor knowledge, and only 1.66% were having a good knowledge regarding physical restraints.<sup>[7]</sup>

A study carried out by Sequeira and Halstead mentioned that nurses from a psychiatric ward did not have any emotional reaction, and majority of them verbalized that they had automatic responding during restraint application without any emotion.<sup>[8]</sup>

Nurses are the key decision-makers in the application of physical restraints to patients. Their major role to select the appropriate type of restraints, applying it safely to the patients, and providing care based on the frequent assessment of patients condition and response.<sup>[9]</sup> The maintaining a positive attitude can affect nurses' practice regarding restraints.<sup>[10]</sup> However, many nurses have various doubts and misconceptions about their proper use which was found by a study by Huang *et al.*, in 2003.<sup>[11]</sup>

Physical restraints are often a debatable issue among health care professionals who are involved in the care of patients in critical care and emergency units. Continuous use of restraints can cause lead long-term use of physical restraints can lead to numerous physical, psychological, social and functional problems in patients. Thus, the nurses need to be knowledgeable enough so that they can anticipate and prevent complications related to restraints such as abrasions, functional level, stress, fecal and urine incontinence, suffocation and dehydration.<sup>[12]</sup> There is huge literature available that reflects that nurses have little knowledge about the application of restraints, for instance, a recent cross-sectional study conducted by Eskandari *et al.* showed that nurses have modest level of knowledge regarding the use of physical restraints. Most of the nurses were not knowing the exact reason of restraints<sup>[1]</sup> Similarly, another study done in Hong Kong revealed that nurses have insufficient knowledge and unfavorable attitude toward restraint.<sup>[6]</sup> Furthermore, a

study from Turkish hospital reported nine deaths which occurred due to improper use of chest restraints.<sup>[13]</sup>

In order to decrease the mishappenings related to restraints, nurses need to be educated and properly trained beforehand The educational needs of nurses can be best understood by checking their knowledge and attitude toward restraints.<sup>[14]</sup> It is imperative for the nurses to understand the reason and rationale behind the use of physical restraint, consideration of other measures and adverse consequences, polices regarding ethical issues, and document of restraint use.<sup>[15]</sup>

Since nurses' knowledge and attitude toward physical restraints is directly linked to their practice, it is crucial to assess nurses' knowledge, attitude regarding the use of physical restraints to develop standardized guidelines and initiate training programs in health-care settings.<sup>[16]</sup>

Although the use of physical restraints is well studied in western and many parts of Asian countries this study is rare in Uttarakhand. In addition, there is no relevant nursing guidelines for physical restraints have been published in India. Hence, this study intended to assess the knowledge and attitudes of nurses working in AIIMS, Rishikesh, regarding the use of physical restraints.

### Aim of the study

The present study aimed to assess nurses' knowledge and attitude regarding physical restraint use in a tertiary care institute. Key factors that affect them were also studied.

## Materials and Methods

### Instrument

The present study is a descriptive cross-sectional survey. Pretested, self-administered questionnaire items were used. The questionnaire has three sections. The first section included questions related to the nurses' sociodemographic characteristics. Section 2 contained 20 items evaluating the extent of the nurses' knowledge about physical restraints. Section 3 is about 15 items finding the nurses' attitudes toward physical restraints.

In the present study, the questionnaire was used in a tertiary care center and tested for reliability using split-half method with Cronbach's alpha coefficient for section 2 and 3 were  $r = 0.86$  and  $r = 0.85$ , respectively. The tools were also validated by five experts.

### Sample selection

The included participants fulfilled the following criteria

1. The registered nurses who are directly involved in patient care
2. Those with a minimum 1 year of clinical experience

3. Nurses who were full-time employees of the hospital and
4. Those who were willing to participate in the study.

### Exclusion criteria

1. The registered nurses who were not willing to participate in the study
2. The registered nurses who are not involved in direct patient care like nurses working in OPD and nurses who are working in teaching institute.

The required sample size was estimated using

$$n = \frac{([1 - n/N] \times t^2 [p \times q])}{d^2}$$

where

$n$  = Sample size.

$(1 - n/N)$  = Not taking in consideration as it has very little effect on sample size estimation.

$t$  = Standard deviation value is 1.96 at 0.05 level of significance.

$p$  = Assumed prevalence 7.83.<sup>[17]</sup>

$q = 1 - p$ .

$d$  = Confidence interval 5%=0.05.

The calculated sample size is = 110.

The study population consists of 110 nurses randomly selected from various wards of the selected hospital who agreed to participate in the study. Nurses working in intensive care units, recovery unit, general wards (psychiatric ward, geriatric ward, medicine ward, neuro ward, and oncology ward) of the selected hospital were involved.

### Ethical approval and informed consent

Permission was obtained from the Institutional Ethical Committee (IEC) of AIIMS, Rishikesh, to carry out the study. The study protocol was approved by the IEC of AIIMS, Rishikesh (No. 19/IEC/STS/2019). A written consent form was also obtained from all the participants.

### Data collection and analysis

This study was conducted from March 2019 to May 2019 among 110 nurses working in AIIMS, Rishikesh, to investigate the knowledge and attitude regarding the use of physical restraints. Both descriptive (frequency, percentage, mean, mean percentage, and Standard deviation) and inferential statistics (Mann–Whitney

U-test and independent  $t$ -test) were applied to analyze and interpret the raw data. The data were then transferred into SPSS 23. Evaluation Version (IBM corporation, US) and were analyzed using descriptive and inferential statistics.

## Results

Majority of the nurses participated in the study were between 21 and 25 years (55%,  $n = 61$ ) old, males (54%,  $n = 59$ ), graduates (87%,  $n = 96$ ), married (69%,  $n = 76$ ), participants had work experience of 1–2 years (64%,  $n = 70$ ), and working in intensive care units (25%,  $n = 27$ ). About 63% ( $n = 69$ ) of them reported that they did not undergo any in-service education regarding the use of physical restraints [Table 1].

### Knowledge regarding restraints

Table 2 highlights that the knowledge scores of 110 participants were ranged from 7 to 20 points (mean  $13.7 \pm 1.9$ ; mean percentage 46%). Majority 87 (79%) of the nurses had a moderate level of knowledge while 21 (19%) of them have adequate knowledge regarding the use of physical restraints. Only a handful of participants 2 (2%) had a low level of knowledge.

### Attitude regarding restraints

Tables 3 and 4 depict that the nurse's attitude scores ranged from 28 to 55 points (mean  $35.2 \pm 4.7$ ; mean percentage 47%). Equal proportion of the nurses has both favorable and unfavorable attitude toward the use of physical restraints 49% and 51%, respectively.

### Relationship between knowledge and attitude

Data presented in Table 5 illustrates that there is no relationship between knowledge and attitude of staff nurses regarding the use of physical restraints ( $r = 0.084$ ).

Comparison of knowledge and attitude regarding the use of restraints with selected sociodemographic variables.

As the data were nonnormally distributed Mann–Whitney U-test and Kruskal–Wallis H-test was used to find the association between knowledge score and selected demographic variables. However, the findings revealed that there is no significant association found between the knowledge and sociodemographic variables. The attitudes score and the age group of subjects had a significant association ( $P < 0.05$ ) and analyzed by independent  $t$ -test. No other variables had a significant association with attitude scores [Table 1].

## Discussion

This study is performed on 110 nurses working in a tertiary institute of Uttarakhand to investigate the

**Table 1: Comparison of sociodemographic factors and the mean scores of nurse's knowledge and attitude on the use of physical restraints (n=110)**

Variable	Frequency (%)	Knowledge				Attitude		
		Median	Mean rank	Test-value	P	Mean±SD	F/t	P
Age (years)								
21-25	61 (55)	13	51.61	-1.453 <sup>a</sup>	0.147	34.06±4.92	-3.099	0.002*
>25	49 (45)		60.35			36.79±4.13		
Gender								
Male	59 (54)	14	60.16	-1.677 <sup>a</sup>	0.094	35.25±5.12	-0.65	0.948
Female	51 (46)		50.11			35.31±4.37		
Qualification								
GNM	14 (13)	13	55.11	-0.050 <sup>a</sup>	0.962	36.35±4.04	0.90	0.369
Graduation and above	96 (87)		55.56			35.10±4.86		
Work experience (years)								
1-2	70 (64)	13	53.65	-0.819 <sup>a</sup>	0.416	34.71±4.69	-1.664	0.099
>2	40 (46)		58.74			36.27±4.79		
Type of working area								
ICU's	27 (25)	13	62.20	-1.279 <sup>a</sup>	0.203	34.74±5.05	-0.677	0.500
Non-ICU	83 (75)		53.32			35.45±4.69		
Ever restrained a person								
Yes	56 (51)	13.5	60.46	-1.883 <sup>a</sup>	0.060	34.98±4.50	-0.681	0.497
No	53 (49)		49.24			35.60±5.05		
In-service education on restraints								
Yes	40 (37)	14	61.15	-1.572 <sup>a</sup>	0.116	35.22±4.75	-0.094	0.925
No	69 (63)		51.43			35.31±4.81		

<sup>a</sup>Mann-Whitney U-Test, <sup>b</sup>Independent t-test; \*Significant at P<0.05. SD=Standard deviation, ICU=Intensive care units, \*GNM=General Nursing and Midwifery

**Table 2: Knowledge regarding restraints (n=110)**

Knowledge	Frequency (%)	Mean (%)	Total mean score	SD
Low (≤7)	2 (2)	46	13.7	1.9
Moderate (8-14)	87 (79)			
Adequate (15-20)	21 (19)			

SD=Standard Deviation

**Table 3: Attitude Regarding Restraints (n=110)**

Attitude	Frequency (%)	Mean (%)	Total mean score	SD
Favorable attitude	54 (49)	47	35.2	4.7
Unfavorable attitude	56 (51)			

SD=Standard Deviation

**Table 4: Relationship between knowledge and attitude (n=110)**

Variables	r	P
Knowledge regarding restraints	0.084	0.381
Attitude toward restraints		

knowledge and attitude regarding the use of physical restraints. Majority of them were younger than 25 years of age, have completed a degree course in nursing, and professional experience of 1–2 years. These findings were similar to other findings of a study conducted among nurses from Turkey and mentioned that young and inexperienced nurses are working in specialized medical units.<sup>[17]</sup>

In the present study majority 87 (79%) of the nurses had a moderate level of knowledge toward the use of physical

restraints. It is surprising to know that the majority of the nurses did not undergo any training concerning the use of physical restraints. This could be one of the reasons in which their knowledge was at a moderate level. The findings of the study were similar with the findings of Chien and Lee which revealed that about two-thirds of nurses had modest level of knowledge of restraint use.<sup>[18]</sup> Nuhu *et al.* in his study found that staff nurse knowledge on some aspects of restraints was poor and this may be due to lack of training.<sup>[19]</sup> Another study done by Weiner *et al.* found that nurses working in geriatric wards of various nursing homes had more knowledge about the guidelines on restraints.<sup>[20]</sup>

One of the elements that play on a significant role in turning information into practice is the attitude of the individual.<sup>[21]</sup> Attitude is a vibrant and guiding predisposition. Nurses' attitudes toward physical restraints were assessed in this research so that they are not at the level anticipated. Overall the present study proved the nurses' attitudes toward physical restraint tended to be neutral. Contradictory results were shown by Chien and Lee who reported that nurses reported a negative attitude toward the use of physical restraints.<sup>[18]</sup> These results are comparable to the study results of Eskandari *et al.* where nurses had some negative attitude toward the use of physical restraints.<sup>[1]</sup>

The current study revealed that there is no significant relationship between knowledge and attitude of nurses

**Table 5: Item Wise Mean Scores of Attitude Toward Restraints (n=110)**

Items	Mean±SD
If I were the patient, I would feel that I should have the right to refuse or resist the placing of restraints on me	1.80±0.94
I think that the patient's family members have the right to refuse the use of restraints	1.90±0.94
I think that the nurses have the right to refuse the application of patient restraints	2.92±1.08
I think that communication with patients during restraining is of no value	2.02±1.05
I think that the main cause of restraint application in the hospital is a staff shortage	1.75±1.05
I think that every patient on a ventilator should be restrained	2.27±1.04
It makes me feel terrible if the patient gets more upset after restraints are applied	2.30±0.87
I feel embarrassed when a patient's family members enter the room of a patient who is restrained	2.83±1.09
I feel guilty about placing a patient on restraints	2.76±1.06
I feel that a patient who is noisy deserve physical restraint	2.16±1.00
I think that a patient suffers a loss of dignity when placed on restraints	2.67±1.20
I think that restraints protect elderly from sustaining harm and injury	2.28±1.01
I think that aggressive or homicidal patients can be controlled by physical restraints only	2.91±1.10
I believe that restraints increase the risk of strangulation	2.50±0.91
I believe that restraints lead to a reduction in the number of fall injuries	2.15±0.95

SD=Standard deviation

regarding the use of physical restraints ( $r = 0.084$ ). These findings are in contradiction with the findings of Eskandari *et al.*,<sup>[1]</sup> Azab *et al.*,<sup>[2]</sup> where a positive correlation was found between knowledge and attitude scores. Similarly, there was no significant relationship found between knowledge and other sociodemographic variables such as qualification, work experience, and type of working area. In general, nurses with bachelor's degree are expected to have higher scores in knowledge in comparison to diploma holders.<sup>[22]</sup> Keeping this in mind, continuing nursing education on the use of physical restraints is the need of the hour for nurses working in clinical areas.

Health professionals are using restraints in the view that it helps to manage the violent behavior of patients, but it has been seen that they are often using it along with pharmacological agents to control the patients. Hence, there is a need to educate professionals and develop guidelines for the use of physical restraints.

## Conclusion

The results of the present study indicated a moderate knowledge and attitude among nurses regarding restraint use. Underpinning the awareness and understanding about proper use of physical restraints

among nurses is the key measure to improve the quality of patient care. Once the knowledge gaps are filled, a favorable and positive attitudes toward restraints can be developed in nurses which ultimately will affect their practice, and patient safety can be better ensured. Research emphasizes the development of proper nursing guidelines and training of nursing personnel regarding proper use of physical restraints.

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## Conflicts of interest

There are no conflicts of interest.

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