

Effectiveness of Educational Campaign in Promoting Knowledge and Attitude of Pressure Ulcer among Physical Therapists working in Tertiary Care Hospitals

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ABSTRACT

OBJECTIVE: This study aimed to evaluate the effectiveness of an educational campaign in promoting knowledge and attitudes concerning pressure ulcers among physical therapists working in tertiary care hospitals.

METHODOLOGY: This study quasi-trial was conducted from January to October 2021 in which 45 PTs who worked in Neuro-spinal units were selected by purposive sampling from five randomly selected tertiary care hospitals in Faisalabad. The participants completed a questionnaire regarding their knowledge and attitude regarding pressure ulcer prevention and treatment, and their pre-test scores were recorded. After the pre-test, the primary researcher reviewed the incorrect responses of participants to develop and offer educational materials about the prevention and care of pressure ulcers. The "Pieper Pressure Ulcer Test" was used to evaluate changes in physical therapists' knowledge and attitudes toward pressure ulcer. SPSS 21 was used for the data analysis.

RESULTS: The educational campaign had a significant effect on the knowledge and attitudes of PTs, with the mean of the pre-test true response of 31.65, the mean of the post-true response of 39.00, and the mean of the pre and post-incorrect response of 8.19, and 4.62 and don't know answers of 5.04, and 1.38, respectively. Based on one sample t-test, pre-true responses showed a 95% CI difference between 28.99 to 35.53 with a significant p-value <.001 and post-true responses showed 36.63 to 41.36 with a significant p-value <.001.

CONCLUSION: This study concluded that the educational campaign improved physical therapists' knowledge and attitudes regarding pressure ulcers.

KEY WORDS: Pressure Ulcers, Knowledge, Attitude, Tertiary Care Hospitals, Physical Therapist, Educational campaign

INTRODUCTION

Bedridden patients primarily develop pressure sores over the iliac crest, femoral trochanters, and the cartilaginous part of the external ear when they lay in a side-lying position¹. Pressure ulcers (PrUs) constitute a common and serious health problem; they are associated with high costs at the economic level and can have a tremendous effect on a patient's quality of life^{2,3}. Globally, most studies are conducted to estimate the prevalence and incidence of PrUs. Several studies have shown a prevalence rate ranging

from 0.78% to 39.3% of PrUs, with many international studies reporting prevalence rates ranging from 4.3% to 25%, namely in Germany 4.3%, Ireland 9%, the United States 9.5%, Sweden 17.6%, and the United Arab Emirates 25%. There are no data on how many Pakistani patients have PrUs⁴.

PrUs can affect the physical, mental, social, and emotional aspects of life, and these factors, together or in isolation, affect the quality of life of the bedridden/wheelchair user patients⁵. The patients describe this as troubling, nagging, bothering, and concerning, and this condition affects their confidence. The physical impact leads to difficulty using the washroom for personal care and transfers limitations. The condition becomes further misfortunate when the ulcer involves the deep structure, and infective organisms make the ulcers a habitat for their growth⁶. Risk factors for developing PrUs include external pressure accompanied by shear and friction. The development of PrUs starts when the skin's surface encounters pressure greater than the pressure exerted on the capillary vessel wall, causing the closure of the capillary lumen. When this pressure is

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exerted for a prolonged period, it starts causing ischemic necrosis of the skin tissue⁷.

The degree of knowledge acquired by the physical therapist regarding PrUs treatment and prevention denotes that the physical therapist can identify the patients at risk. Assessments of the patient's general health, skin structure, degree of mobility, degree of skin moisture, and level of incontinence fall under the umbrella term of knowledge. The physical therapist must also know the recommended positional protocols for PrUs management, and a physical therapist must also know the incidence, prevalence, and preventative strategies⁸.

Kaddourah and colleagues conducted a study examining the knowledge and attitudes of physical therapists, nurses, occupational therapists, and physicians in the acute care setting about pressure ulcer prevention and treatment⁹. Physical therapists (PTs) play an essential role in preventing PrUs and when developed, in their management in liaison with other members of the healthcare delivery system. The other members of the healthcare delivery system include nursing staff, wound care teams, nutritionists, and physicians. Knowledge of the integumentary system and PrUs formation, progression, prevention, and management is an essential constituent part of the curriculum of PTs⁸. Physical therapists are crucial in preventing and treating pressure ulcers, and their knowledge and skills can significantly impact the health and quality of life of individuals at risk. The knowledge and practice of PTs in Pakistan regarding pressure ulcer prevention are lacking. Therefore, this study set out to assess the level of PTs' knowledge and practice on prevention of pressure ulcer and to determine the effect of educational intervention on the knowledge and attitude regarding PrUs prevention and treatment among PTs of Neuro-spinal units of tertiary care hospitals in Faisalabad. Thus, we hypothesized that educational interventions would influence the knowledge and attitude of PTs regarding the prevention and treatment of pressure ulcers.

METHODOLOGY

This study quasi-trial was conducted from January to October 2021 in which 45 PTs who worked in neuro-spinal units were selected by purposive sampling from five randomly selected tertiary care hospitals (Allied Hospital, District Headquarters Hospital, Independent Teaching Hospital, Madina Teaching Hospital, and Children's Hospital) in Faisalabad. After approval from the ethics review committee at Riphah International University, the sample size was based on a 5% margin of error, 80% power, and an effect size of 1.059 using the G*Power calculator¹⁰.

PTs who had completed at least five years of Doctor of Physical Therapy degree, those working in Neuro-spinal units, and those willing to participate in this study were included. Therapists on vacation during the data collection period, those doing observer-ship,

and students in the final year of DPT were excluded from the study.

Data collection

The current study was designed to evaluate the level of knowledge and attitude of PTs in preventing PrUs and treating them if they develop. A valid and reliable questionnaire called the PIPER Pressure Ulcer Questionnaire was used to collect the data; it consisted of 47 questions, of which 20 assessed the level of knowledge and 27 questions assessed the attitude and behavior of PTs regarding PrUs prevention and treatment¹¹.

Before the pre-test, approval was obtained from the head of a department, and therapists were approached. The objectives of the study were explained, and informed consent was obtained. Using the "Pieper Pressure Ulcer Test," the primary researcher conducted the pre-test on the spot. In 1995, Pieper and Mott developed a 47-item test to assess nurses' knowledge of pressure ulcer prevention, staging, and wound care; this valid tool was used to assess knowledge and attitude regarding PrU prevention and treatment¹¹. After the pre-test, the researcher determined the areas of improvement by reviewing incorrect responses to design and offer educational materials about the prevention and care of PrUs. In the second phase, the therapists were provided with structured written material that provided the core knowledge and influenced the therapists' attitudes. Again, the "Pieper Pressure Ulcer Test" was applied to measure the changes in the PTs' knowledge and attitude about PrUs care. A comparison was made between the pre-test and post-test scores to assess whether there was any improvement.

Data Analysis

SPSS version 21 was used for the data analysis. For continuous data, mean and standard deviation were calculated. For categorical variables, such as gender, education level, frequency, and percentage, graphs were used. A sample *t*-test was applied to measure the difference between the mean scores of the pre-test and the post-test. A chi-square test was used to measure the significant changes in attitude regarding PrUs prevention.

RESULTS

In the study, 71% of participants were in the age group of 22–30 years, 14% were in the age group of 30–40 years, and 13% were in the age group of 40–45 years. Furthermore, 27% of the respondents were male, while 73% were female. In the current study, 69% of respondents had a five-year Doctor of Physical Therapy degree, while 31% held a Master's degree. In this study, 62% of the respondents had 1–3 years of professional experience, 18% had 3–5 years of experience, and 20% had more than five years of experience (**Table I**).

Table I: Demographic Details of Participants

Hospitals	Age(years)			Gender		Exp.(years)			Education		Total
	22–30	30-40	40–45	Male	Female	1–3	3–5	>5	DPT	Master's	
Allied Hospital	12	2	1	2	13	10	3	2	12	3	15
DHQ Hospital	11	1	1	4	10	12	1	1	11	3	14
Independent Hospital	2	2	2	2	4	2	2	2	3	3	6
Madina Teaching Hospital	6	1	1	2	6	4	1	3	5	3	8
Children Hospital	1	0	1	2	0	0	1	1	0	2	2

Before the educational campaign, 33.34% of PTs knew about stage I pressure ulcers; after the campaign, 66.66% knew about it. PTs knew 75.5% of the risk factors for developing pressure ulcers before an educational campaign and 88.88% after the campaign. The knowledge about incontinence as a

significant risk factor for developing pressure ulcers among PT's was excellent, which was 97.77% even before the educational campaign. Before the educational campaign, PTs knew how to care for bony prominences in bedridden patients, which was 93.33%, but after the campaign, it was 100%. Out of the 45 PTs, ten therapists did not know about the slough, which is yellow or creamy necrotic tissue, on a wound bed. After an effective educational campaign, 78% of therapists were knowledgeable about the slough and its relation to the wound bed. Before the campaign, 37.7% of people were aware of the message of bony prominence area for preventing pressure ulcers, but after it, knowledge increased to

Table II: Pre-test and post-test correct answers of Physical Therapists on Pieper Pressure Ulcer test on knowledge of pressure ulcers

Questions on Pieper Pressure Ulcer test	Pre-test		Post-test						
	Number of correct answers	Percentage of correct answers	Number of correct answers	Percentage of correct answers					
1	15	33.34	30	66.66	25	45	100	45	100
2	34	75.5	40	88.88	26	10	22.22	35	77.77
3	32	71.1	40	88.88	27	30	66.66	39	86.66
4	35	77.7	42	93.33	28	42	93.33	45	100
5	17	37.7	30	66.66	29	45	100	45	100
6	15	33.34	25	55.55	30	45	100	45	100
7	45	100	45	100	31	20	44.44	28	62.22
8	33	73.3	39	86.66	32	32	71.1	39	86.66
9	10	22.22	30	66.66	33	5	11.11	25	55.55
10	35	77.77	45	100	34	40	88.88	45	100
11	25	55.55	35	77.77	35	35	77.77	40	88.88
12	45	100	45	100	36	40	88.88	45	100
13	25	55.55	37	82.22	37	25	55.55	37	82.22
14	10	22.22	15	33.33	38	15	33.33	45	100
15	15	33.33	35	77.77	39	45	100	45	100
16	20	44.44	38	84.44	40	41	91.1	44	97.77
17	40	88.88	42	93.33	41	42	93.33	43	95.55
18	30	66.66	39	86.66	42	45	100	45	100
19	42	93.33	43	95.55	43	30	66.66	41	91.11
20	35	77.77	38	84.44	44	45	100	45	100
21	44	97.7	45	100	45	33	73.33	44	97.77
22	0	0	10	22.22	46	44	97.77	45	100
23	42	93.33	45	100	47	45	100	45	100
24	45	100	45	100	Means values		31.76±12.83	39.00±8.05	

One sample t-test was applied to compare the effect of the educational campaign on the knowledge and attitude of PTs in which pre true sample showed a 95% CI of difference (27.99- 35.53) with a significant p-value <.001 and post true sample showed (36.63-41.36) with significant p-value <.001. (**Table III**)

One sample t-test was applied to compare the effect of the educational campaign on the knowledge and attitude of PTs in which pre false sample showed a 95% CI of difference (5.74- 10.64) with a significant p-value <.001 and post false sample showed (2.71-6.51) with significant p-value <.00. (**Table IV**)

One sample t-test was applied to compare the effect of the educational campaign on the knowledge and attitude of PTs in which pre false sample showed a 95% CI of difference (2.85- 7.23) with a significant p-value <.001 and post false sample showed (.600-2.16) with significant p-value <.001. (**Table V**)

in terms of better health outcomes. The distribution of health benefits to people depends on the health practitioner's knowledge, attitude, and skills. Moreover, the behavior is essential to impart the skill to real-life patients¹³. The baseline knowledge regarding early detection, prevention, and management and PrUs control plays an essential role in the healthcare system, although this important role is not well documented¹⁴⁻¹⁶. The literature has revealed that inadequate knowledge is significantly linked to poor patient care and, ultimately, the development of PrUs. Increasing expertise with experience and educational campaigns positively affects the healthcare system. Many studies have been conducted to assess the relationship between healthcare professionals' knowledge and attitude regarding PrUs¹⁷⁻¹⁹. However, there is a shortage of literature regarding the knowledge of pressure ulcers

Table III: Pre-Test and Post-test true Response on Educational Campaign on Knowledge and Attitude of Physical Therapists

One-Sample Test						
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pre-test -True	16.967	46	.000	31.76	27.99	35.53
Post-test -True	33.185	46	.000	39.00	36.63	41.36

Conclusion: * = significant ($p < 0.05$), ** = highly significant ($p < 0.01$)

Table IV: Pre-Test and Post-test False Response on Educational Campaign on Knowledge and Attitude of Physical Therapists

One-Sample Test						
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pre-test -False	6.732	46	.000	8.191	5.742	10.64
Post-test -False	4.898	46	.000	4.617	2.719	6.51

Conclusion: * = significant ($p < 0.05$), ** = highly significant ($p < 0.01$)

Table V: Pre-Test and Post-test Don't Know Response on Educational Campaign on Knowledge and Attitude of Physical Therapists

One-Sample Test						
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pre-test -Don't Know	4.640	46	.000	5.04255	2.8548	7.2303
Post-test Don't Know	3.555	46	.001	1.38298	.6000	2.1659

Conclusion: * = significant ($p < 0.05$), ** = highly significant ($p < 0.01$)

DISCUSSION

PrUs influence the patient's life from different dimensions (i.e., physical, psychological, emotional, financial, spiritual, and social)¹². Human resources play an essential role in the delivery of the benefits of the public healthcare system to the target population

among Physical therapists.

Few studies have also highlighted that the poor knowledge of the members of the healthcare delivery system can lead to the development of PrUs among bedridden or wheelchair-using patients^{7,20}. Mockridge reported that more than 73% of nurses correctly

answered up to 50% of the questions asked to assess their level of knowledge. In Mockridge J 1999²¹ study the researchers found that 40% of the PTs correctly answered more than 50% of the questions that measured their knowledge about the prevention and treatment of PrUs. In the current study, PTs' knowledge level was significantly improved after the educational campaign, as highlighted by the fact that 70% of the PTs correctly answered more than 50% of questions about knowledge²².

In the current study, questions were used to assess the knowledge of PTs about the risk factors for PrUs development, and 75.5% of PTs marked the correct answers, which improved to 88.88% after the educational campaign. Another study conducted in Bangladesh revealed poor knowledge about risk factor identification among the nursing population, but in the current study, the level of expertise was good²³.

This study reported that educational campaigns significantly improved the knowledge of slough among PTs. Slough refers to dead tissue that has separated from living tissue in a wound. Literature reported that it is essential for therapists to know the different types of wound exudates, including slough, and how they can impact the healing process. They should understand how to properly assess the wound bed, including the presence and quantity of slough, and use that information to develop an appropriate treatment plan, and this may include debridement (the removal of necrotic tissue) to clear the wound bed and prepare it for healing, as well as addressing any underlying issues that may be delaying healing²⁴.

The current study assessed the knowledge about the stages of PrUs among PTs. It showed poor knowledge, as only 22% knew about stage IV, 33.34% knew about stages I and III & 22.22% of PTs knew about stage IV pressure ulcers before the educational training. This was significantly improved after training. The accuracy of staging is crucial to the planning and communication of care. Staging is used to describe what can be seen, but it cannot define history or describe healing (reversed staging). Patients' wound histories, including past stages of pressure ulcers, should continue to be discussed by clinicians in all settings²⁵. It's important to note that preventing the development of pressure ulcers is always the best outcome, preventing them from reaching more advanced stages. However, early detection and timely interventions may prevent pressure ulcers from worsening, and PTs will be critical players in this process²⁶.

Head elevation is one of the essential methods to prevent pressure ulcers. Elevating the head of the bed can help to reduce pressure on the back of the head, ears, and shoulders, which can be particularly vulnerable to pressure ulcers. Head elevation may be accomplished by adjusting the angle of the bed or using specialized equipment such as a pressure redistribution mattress or a head elevation pillow. It's

important to note that elevating the head of the bed alone may not be sufficient to prevent pressure ulcers; it should be combined with other preventive strategies such as turning and repositioning, use of specialized support surfaces, and appropriate skin care^{27, 28}. Similarly, an educational campaign was effective in the current study to improve the knowledge about head elevation and Turning schedules to prevent the PrUs among PTs.

Furthermore, educational training improved the therapists' 37.7 knowledge about massaging bony prominences, which is essential in preventing PrUs from 37.7% to 66.66%. It was found in a 2017 study by Donna Martin that family physicians were unprepared to manage pressure ulcers. As a result, recommendations were provided at the end of the study to increase physician education about ulcer prevention and management²⁹. When one considers the attitude of a physical therapist about the PrUs, they are looking at the anticipation of the professional regarding the assessment of risk on a routine basis and how much attention is given to the prevention strategies³⁰. Few studies have recommended an educational campaign to upgrade knowledge, but this training has a minimal effect on the change of attitude; thus, it is considered a difficult task to change anyone's attitude³¹. The PTs' knowledge of the recommended positioning of bedridden patients in side-lying positions before the educational campaign was 33.33% for both positions; it improved significantly after the campaign to 77.7%. A study also reported that physical therapists' knowledge and attitudes towards pressure ulcers were satisfactory⁸. Furthermore, massaging bony prominences is an effective technique physiotherapists can use to help prevent pressure ulcers. The increased blood flow helps to redistribute pressure, reducing the risk of damage to the skin and tissue. Massaging should be done using lubricant and should be part of a comprehensive plan that includes other interventions to prevent pressure ulcer⁴.

According to a study in Pakistan, guidelines and policies regarding pressure ulcer prevention can increase nurses' awareness of pressure ulcers and their attentiveness to daily nursing practice. Nevertheless, ensuring quality health care and preventing pressure ulcers requires updating your knowledge and maintaining a positive attitude. A lack of formal training, motivation, and proper supervision led to inadequate knowledge and attitude among nurses working in neurology units of tertiary care hospitals in Peshawar³². Moreover, PTs play an essential role in preventing PrUs and, when developed, in their management in liaison with other members of the healthcare delivery system³³. Similarly, in the current study, the level of knowledge and attitude toward PrUs management improved significantly; as a result, educational training about the PrUs.

CONCLUSION

The current study concluded that the educational campaign significantly improved the knowledge and attitude of PrUs among PTs. The knowledge of PTs working in the Neuro-spinal units of Faisalabad tertiary clinics about the measures taken to prevent pressure sores seemed modest. Their attitude was an essential indicator of the use of knowledge, but this also seemed average.

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AUTHOR CONTRIBUTIONS

Zafar M: Conception & design, interpretation of data, Drafting and revising it critically, Final approval

Kashif M: Interpretation of data, Drafting, Final approval of the version

Bunyard S: Data Acquisition, analysis and Drafting, Final approval of the version

Arshad F: Interpretation of data, revising it critically, Final approval of the version

Albalwi AA: Interpretation of data, Final approval of the version

Hussain N: Design, Drafting, Final approval of the version

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