Research Article

A Quasi-experimental Study to Assess the Effectiveness of Nurse Empowerment Educational Program on Patient Safety Culture among the Staff Nurses of Selected Hospital in Kochi

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Abstract

Aim: The aim of this study is to evaluate the effectiveness of nurse empowerment educational program on patient safety culture (SC) among the nurses of a selected hospital in Kochi.

Method: The researcher adopted the quantitative evaluatory research approach and quasi-experimental research design. The sample size was 500 nurses from selected hospitals in Kochi who participated in the Nurse Empowerment Educational Program. In this study probability, purposive sampling technique was used.

Result: In the pre-interventional patient SC (PSC) experimental group, 98 (39.2%) believe that PSC is average and 15 (6%) say excellent. In the control group, 101 (40.4%) answered that PSC is mediocre and 10 (4%) said good. In the post-interventional PSC experimental group, 110 (44%) reported an average culture and 14 (5.6%) reported a poor culture. In the control group, 104 (41.6%) thought that PSC is mediocre and 12 (4.8%) is good. In the experimental group, the nurse empowerment educational program significantly enhanced PSC among staff nurses ($P < 0.05$). This study found that the nurse empowerment program did not significantly enhance PSC among staff nurses in the control group ($P < 0.05$).

Conclusion: The conclusions of the research corroborate the notion that staff nurses' views regarding PSC are improved by the nurse empowerment educational program. The staff nurse's patient safety score has increased.

Keywords: Educational programs, nurse empowerment educational program, patient safety culture, Quasi-experimental study, safety score, staff nurses

Introduction

The unique corporate environment of a firm is determined by its organizational culture, which includes concepts, expectations, formal and informal procedures, and activities. A company's culture affects how it does business, manages productivity and performance, treats employees, evaluates executives, and serves clients.[1] Safety and health management-related organizational features are called safety culture (SC). According to its definition, individual and collective attitudes, perceptions, and beliefs skills, and behavioral patterns establish the administration of health and safety in an organization commitment, technique, and competency.[2] Patient SC (PSC) focuses on organizational culture components relevant to patient safety. It is a pattern of activity among people and organizations that try to reduce patient damage during treatment based on common values and goals.[3]

There have not been many significant systemic advancements in the security of medical treatment worldwide, and in some cases, efforts have been uncoordinated and unsustainable.[4]

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According to research, one of the key signs of a healthy PSC in health care is the existence of a non-punitive event and error reporting policy inside organizations, especially hospitals. Other crucial signs include trust-based communication, efficient information flow, a common appreciation for organizational learning, the importance of safety, and commitment from management and leadership. Examples of outcomes of the PSC include members' perceptions of safety, their propensity to report issues, the number of occurrences that are reported, and the overall PS rating they give their units. Because of their wide but individual perspective, nurses are crucial in enhancing care. They are a crucial part of the endeavor to create fresh approaches to improve PS.[5]

According to similar studies performed, hospitals need to become more conscious of the importance of PSC and educational training programs may help to improve nurses' self-efficacy in PSC. Therefore, to evaluate how a nurse empowerment educational course affected the PSC of the nurses, the researcher decided to carry out this quasi-experimental study.

Materials and Methods

Research approach

The study adopted the quantitative evaluatory research approach.

Research design

The research design used is the quasi-experimental research design.

Table 1: Distribution of respondents in relation to selected demographic (*n*=500 [250+250])

S. No.	Demographic variables	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
1.	Age in years				
	a. 22–27 years	77	30.8	88	35.2
	b. 28–32 years	80	32	97	38.8
	c. 33–37 years	62	24.8	41	16.4
	d. 38 and above	31	12.4	24	9.6
2.	Gender				
	a. Male	109	43.6	98	39.2
	b. Female	141	56.4	152	60.8
3.	Education Qualification				
	a. GNM	136	54.4	141	56.4
	b. BSN.	89	35.6	90	36
	c. MSN.	08	3.2	09	3.6
	d. Other post-graduation courses	17	6.8	10	4
4.	Years of experience				
	a. <1 year	53	21.2	55	22
	b. 1–5 years	109	43.6	115	46
	c. 6–10 years	78	31.2	62	24.8
	d. 11 or more year	10	4	18	7.2
5.	Area of working				
	a. General ward	82	32.8	89	35.6
	b. ICU	48	19.2	50	20
	c. Casualty and ED	51	20.4	50	20
	d. Labor room	69	27.6	61	24.4
6.	What is your position in this hospital?				
	a. Staff nurse	108	43.2	110	44
	b. Team leader	91	36.4	97	38.8
	c. Head nurse	26	10.4	25	10
	d. Supervisor and other supervisory positions	25	10	18	7.2
7.	In this hospital, how long have you worked in your current unit/work area?				
	a. <1 year	53	21.2	55	22
	b. 1–3 years	115	46	120	48
	c. 4–6 years	78	31.2	67	26.8
	d. 7 or more years	4	1.6	8	3.2
8.	Typically, how many hours per week do you work in this hospital?				
	a. <30 h/week	00	00	00	00
	b. 30–40 h/week	51	20.4	43	17.2
	c. More than 40 h/week	199	79.6	207	82.8
9.	In your position, do you typically have direct interaction or contact with patients?				
	a. Yes	200	80	210	84
	b. No	50	20	40	16

Setting of study
The intended study will be carried out at a selected Kochi hospital.

Population of study
The population for the study consisted of nursing staff who working in the hospital.

Sample technique
For this study probability, purposive sampling technique was used.

Sample size
500 nurses who met the inclusion criteria were selected as the sample size.

Description of the tool
Two standard rating scales were formulated and administered to assess the physical and psychological health status within the sampling population.

- Section A: Sociodemographic variable
  - Part A: Demographic variable of children
- Section B: Patient's SC checklist.

Statistics
Descriptive statistical analysis
Frequency and percentage are to explain demographic variables of samples and all variables.

Mean and standard deviation are to explain variables and their dimensions.

Inferential statistical analysis
Inferential statistics were used to test the hypothesis formulated for the study. This includes

- T-test for paired data.
- The Chi-square test was used.

Results
Section A: Frequency of and percentage of the demographic variables of experimental group and control group
Table 1 shows that 80 (32%) of the experimental group is 28–32 years old. Of the control group, 97 (38.8%) are 28–32. The experimental group had 141 women (56.4%) and 109 men (43.6%). The control group had 152 (60.8%) women and 98 (39.2%) men. GNM is held by 136 (54.4%) experimental group responders and MSN by 8 (3.2%). 141 (56.4%) control group responses are GNM-qualified and 9 (3.6%) MSN-qualified. Most of 109 (43.6%) experimental group respondents have 1–5 years of experience. Most 115 (46%) control group respondents had 1–5 years of experience. The experimental group had 82 (32.8%) general ward. There are 89 (35.6%) ordinary ward workers. The experiment included 108 (43.2%) nurses. Most 110 (44%) control group respondents were nurses. Most of 115 (46%) experimental group responses have been employed by the present unit for 1-3 years. The control group contained 120 (48%) respondents with 1–3 years of unit experience. Most 199 (79.6%) experimental group respondents work more than 40 h each week. 207 (82.8%) control group workers work more than 40 h each week. In the experimental group, 200 (80%) see patients and 50 (20%) do not. 210 (84%) control group members having direct patient contact, 40 (16%) do not.

Section B: Assessment of pre and post-interventional patient's SC of experimental group and control group
Table 2 displays the respondents' distribution by pre-test PSC score in experimental and control groups. Most respondents (39.2%) suggest an average level of PSC and 15 (6%) excellent. In the control group, 101 (40.4%) respondents reported an average PSC and 10 (4%) excellent.

Table 2: Distribution of respondents according to the pre-test PSC score in experimental group and control group (*n*=500 [250+250])

Pre-test patient safety score	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
Excellent (121–140)	15	6	10	4
Very Good (98–120)	20	8	18	7.2
Good (75–97)	21	8.4	21	8.4
Average (52–74)	98	39.2	101	40.4
Poor (28–51)	96	38.4	100	40

PSC: Patients safety culture

Table 3: Distribution of respondents according to the post-test PSC score in experimental group and control group (*n*=500 [250+250])

Post-test patient safety score	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
Excellent (121–140)	20	8	12	4.8
Very Good (98–120)	28	11.2	20	8
Good (75–97)	78	31.2	21	8.4
Average (52–74)	110	44	104	41.6
Poor (28–51)	14	5.6	93	37.2

PSC: Patients safety culture

Table 4: Effectiveness of nurse empowerment educational program on patient safety culture among the nurses in experimental group (*n*=250)

Test	Mean	SD	T-test	DF	*P*-value	Result
Pre-test	62.91	26.22	7.72	249	<0.00001	S
Post-test	80.31	24.06				Significant

Table 5: Effectiveness of nurse empowerment educational program on patient safety culture among the nurses in control group (*n*=250)

Test	Mean	SD	T Test	DF	*P*-value	Result
Pre-test	60.87	24.02	0.613	249	0.26978	NS
Post-test	62.22	25.20			<0.05	Non-significant

Table 3 shows the distribution of respondents by post-test PSC score in experimental and control groups. Most 110 (44%) respondents suggest an average level of PSC and 14 (5.6%) poor. In the control group, 104 (41.6%) respondents reported an average PSC and 12 (4.8%) excellent.

Section C: Assessment the effectiveness of nurse empowerment educational program on PSC among the nurses in experimental group and control group

Table 4 illustrates the effectiveness of nurse empowerment education on PSC among experimental nurses. Pre-test mean was 62.91 and SD 26.22; post-test mean was 80.31 and SD 24.06. The 't' test value was 7.72, df=249, and P<0.00001. The study found considerable efficacy (P<0.05).

Table 6: Association between the PSC level of nurses in the experimental group with selected demographic variables (*n*=250)

Socio-demographic variables	Total no of samples	Level of PSC score					Df	*P* value	χ^2 value	Result
		Excellent	Very Good	Good	Average	Poor				
1. Age in years							12	0.0006	34.07	S
22–27 years	77	4	7	8	39	19				
28–32 years	80	7	9	6	36	22				
33–37 years	62	3	2	4	12	41				
38 and above years	31	1	2	3	11	14				
2. Gender							4	0.0061	14.37	S
Male	109	7	9	8	30	55				
Female	141	8	11	13	68	41				
3. Education qualification							12	0.022	23.69	S
GNM	136	7	9	12	59	49				
BSN	89	4	6	4	34	41				
MSN	08	1	1	1	2	3				
Other post-graduation courses	17	3	4	4	3	3				
4. Year of experience							12	0.096	18.66	NS
<1 year	53	4	5	7	17	20				
1–5 years	109	6	8	9	42	44				
6–10 years	78	3	4	4	38	29				
11 or more years	10	2	3	1	1	3				
5. Area of working							12	0.419	12.32	NS
General ward	82	3	6	4	31	38				
ICU	48	4	3	5	24	12				
Casualty and ED	51	3	3	6	22	17				
Labor Room	69	5	8	6	21	29				
6. What is your position in this hospital?							12	0.5355	10.92	NS
Staff Nurse	108	7	9	12	43	37				
Team leader	91	4	6	4	33	44				
Head nurse	26	2	4	3	10	7				
Supervisor and other supervisory positions	25	2	1	2	12	8				
7. In this hospital, how long have you worked in your current unit/work area?							12	0.0821	19.27	NS
<1 year	53	4	5	3	30	11				
1–3 years	115	6	10	12	34	53				
4–6 years	78	5	4	5	33	31				
7 or more years	4	0	1	1	1	1				
8. Typically, how many hours per week do you work in this hospital?							4	0.00040	20.46	S
<30 h/week	00	0	0	0	0	0				
30–40 h/week	51	4	7	11	17	12				
More than 40 h/week	199	11	13	10	81	84				
9. In your position, do you typically have direct interaction or contract with patients?							4	0.01118	13.02	S
Yes	200	11	13	12	81	83				
No	50	4	7	9	17	13				

PSC: Patients safety culture

Table 5 illustrates the effectiveness of nurse empowerment education on PSC among control group nurses. Pre-test mean was 60.87 and SD 24.02; post-test mean was 62.22 and SD was 25.20. The "t" test was 0.6139, df 249, and P-value 0.26978. Results indicate non-significant efficacy ($P < 0.05$).

Section D: Determine the association between the level of PSC of nurses with the demographic variables in the experimental group and control group.

In Table 6, the Chi-square value of demographic variables such as age in years (34.07), gender (14.37), education qualification (23.69), and how many hours per week do you work in this hospital is connected to the culture of patient safety score in experimental group (20.46) and in your position, do you typically have direct interaction or contact with patients (13.02) show a significant association between pre-test PSC score and selected demographic variables at 0.05 level of significance. The null hypothesis was rejected and the alternative hypothesis accepted.

Table 7 shows the association of PSC score with selected demographic variables in control group, Chi-square value of demographic variables such as education qualification (22.32), year of experience (29.01), area of working (31.72), how long you have worked in this unit/work area (40.48), and how many hours per week do you work (21.30) demonstrates a significant connection between pre-test PSC score and selected demographic characteristics at 0.05. The null hypothesis was rejected and the alternative hypothesis accepted.

Discussion

This study by Zeynep *et al.* on operating room nurses' PSC in Turkey found that the average age of the nurses in the study was 35.19 ± 6.83 (84). Just 1% of nurses held bachelor's degrees. 42.7% of nurses received quality training, while 58.5% of nurses received patient safety training over their 11.07 ± 7.44 years of employment at the same facility. The

Table 7: Association between the PSC level of nurses in the control group with selected demographic variables (*n*=250)

Socio-demographic variables	Total no of samples	Level of PSC score					Df	*P* value	χ^2 value	Result
		Excellent	Very Good	Good	Average	Poor				
1. Age in years							12	0.1806	16.23	NS
22–27 years	88	3	5	5	26	49				
28–32 years	97	4	9	8	45	31				
33–37 years	41	2	3	5	20	11				
38 and above years	24	1	1	3	10	9				
2. Gender							4	0.4365	3.78	NS
Male	98	4	7	5	37	45				
Female	152	6	11	16	64	55				
3. Education qualification							12	0.034	22.32	S
GNM	141	4	10	9	60	58				
BSN	90	3	4	8	37	38				
MSN	09	1	2	2	2	2				
Other post-graduation courses	10	2	2	2	2	2				
4. Year of experience							12	0.0039	29.01	S
<1 year	55	4	8	7	12	24				
1–5 years	115	2	4	7	62	40				
6–10 years	62	2	4	4	22	30				
11 or more year	18	2	2	3	5	6				
5. Area of working							12	0.0015	31.72	S
General ward	89	2	7	7	22	51				
ICU	50	3	4	5	16	22				
Casualty and ED	50	3	4	2	29	12				
Labor Room	61	2	3	7	34	15				
6. What is your position in this hospital?							12	0.437	12.09	NS
Staff Nurse	110	6	8	11	39	46				
Team leader	97	1	6	5	48	37				
Head nurse	25	2	2	3	6	12				
Supervisor and other supervisory positions	18	1	2	2	8	5				
7. In this hospital, how long have you worked in your current unit/work area?							12	0.00005	40.48	S
<1 year	55	3	5	5	20	22				
1–3 years	120	2	7	7	69	35				
4–6 years	67	4	5	7	10	41				
7 or more years	08	1	1	2	2	2				
8. Typically, how many hours per week do you work in this hospital?							4	0.0002	21.30	S
<30 h/week	00	0	0	0	0	0				
30–40 h/week	43	4	8	7	14	10				
More than 40 h/week	207	6	10	14	87	90				
9. In your position, do you typically have direct interaction or contract with patients?							4	0.56	2.93	NS
Yes	210	8	14	16	89	83				
No	40	2	4	5	12	17				

PSC: Patients safety culture

nurses had a mean PSCS score of 2.38 ± 0.36. The highest mean score was 2.53 ± 0.40 for staff behavior, while the lowest was 2.19 ± 0.49 for care atmosphere. Despite multiple training sessions, this study showed that PSC and its constituents were not yet at the desired level, although they were somewhat above moderate. Increasing their expertise and applying it to their work should help nurses maintain patient safety in operating rooms. Hospital in-service training should emphasize patient safety.[6]

In Tlili *et al.,* the Tunisian study on nurses' PSC in 30 basic health institutions had 87.3% participation. The highest score was 70.6% for "teamwork within units". Safety factors "frequency of event reporting" (27.6%), "staffing" (34.76%), and "non-punitive response to errors" (36.5%) scored low. PSC was impacted by involvement in primary care center districts and risk management committees. In Tunisian primary care centers, nurses' PSC needs improvement. Leadership that promotes PSC is largely dependent on open communication, blame-free surroundings, teamwork, and organizational learning.[7]

In a similar study conducted by Zhang *et al.*, the study examined the impact of operating room nurses' patient safety training. 84 nurses participated. Nurses' safety mindset, reasoning, and perspectives on reporting unfavorable events significantly improved after training ($P < 0.001$). The overall score, safety attitude, nurses' adverse event reporting attitudes, and their cognitive abilities all increased above modest levels with safety training. The KAP-based patient safety training program increases OR nurses' safety attitudes. Research is needed to create an interdisciplinary patient safety training program. Hospital managers must focus on workflow, management system, department culture, and other safety cultural factors in addition to strength training.[8]

Hanifi *et al.* conducted study on the effect of patient safety educational program on nurses' PSC and indicators and found that it improved a few safety metrics and the SC's overall assessment of patient safety composite ($P = 0.034$). The experimental group had significantly better patient safety indicators in pharmacological, personal information, and procedural implementation than the control group. Changing PSC through teaching demands more training.[9]

Yilmaz and Duygulu conducted the study on developing psychological empowerment and PSC: A pre-experimental study shows that, The psychological Empowerment Scale's competence and meaning subscale scores, the unit's mean positive response to teamwork in the hospital survey on PSC composite ($P < 0.05$), and event reporting ($P < 0.001$) all showed statistically significant increases. The findings of this study imply that an organization's structures and procedures need to be reviewed in order to foster a positive PSC. It takes time and effort to establish and uphold a positive PSC in healthcare facilities. It may be decided how long future empowerment initiatives will run in order to facilitate long-term effects monitoring.[10]

Umar *et al.* conducted Indonesian nurses' empowerment and PSC study: Cross-cultural research shows that they averaged 37.6 years old (SD = 5.42) and 17.20 years of job experience (SD = 4.30). Competence (mean = 3.98, SD = 1.05) and meaningfulness (SD = 3.00, SD = 1.55) were the highest and lowest mean scores, respectively, for nurse empowerment. The teamwork score was the highest at 3.56 (SD = 1.11), followed by the respond to error score at 3.03 (SD = 1.78). The mean PSC score was 3.72 (SD = 1.03). PSC was described by age, job experience, unit, and nurse empowerment in 45.6% of cases. This study found that empowerment affects PSC. Management must empower nurses in professional nursing practices and execute intervention and cultural improvement programs.[11]

Conclusion

The conclusions of the research corroborate the notion that staff nurses' views regarding PSC are improved by the nurse empowerment educational program. The staff nurse's patient safety score has increased.

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