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Research article

A study to assess the knowledge and attitude on utilization of nurse call bell system among the staff nurses working in selected hospital of Vijayapura district

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Abstract

Healthcare is rapidly changing to meet the increasing demands of the people .the industry has become more competitive, and consumer satisfaction is a key to success. A culture of safety doesn't just encourage nurses to work towards change. **Aim:** The objective of the study was to assess the knowledge on utilization of nurse call bell system among staff nurses as measured by structured knowledge questionnaires. To assess the Attitude of Staff nurses regarding utilization of nurse call bell system. To find the association between knowledge and Attitude score with selected demographical variables. **Method:** A non-experimental descriptive design was used to achieve the objectives of the study. The study was conducted at selected hospitals of Vijayapur District.120 samples were selected based on inclusive criteria by means of purposive sampling techniques. Pilot study was conducted. **Results:** Regarding demographic variable 37.5% of respondents are in the age group of 36 & above, majority 55.8% respondents are females, 53.4% respondents belong to Hindu religion, 47% of respondents completed PBBSc (N), 42.5 % Respondents were having less than 7000 income per month. 66.7 % respondents have not handled nursing call bell system & among 33.3% of respondents who have handled nursing call bell system were working in Intensive care unit. **Conclusion:** The study concluded that the staff nurses have an inadequate knowledge & moderately favorable attitude towards the utilization of nursing call bell system. Therefore, proper training regarding importance of utilization of nursing call bell system is needed for improving their knowledge.

Key words: Intensive care unit, Non-experimental descriptive design, Nurse Call bell system

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1. Introduction

According to the care watchdog thousands of hospital patients are being left in pain and discomfort because nurses are not answering call bells. Any hospital in the process of building today will be implementing many advance technology which helps in providing quality care and satisfaction to the client. Today's clinical and high-tech climate has resulted in rendering better services from care giver to client and also improved good patient communication and maximize clinical workflow Advanced nurse call systems is one among that [1, 2].

The idea of a bedside call bell has been introduced by Miss Nightingale, which to be run by the patient to summon the nurse, may have been borrowed from the servant's bell in the homes of the wealthy. Perhaps when she was adapting the idea of the servant's bell to a nurse's call bell. Century and a half after Nightingale's words, wireless phones, pocket pagers, and pillow speakers have replaced bells, pulleys, and valves as the tools of communication between patient and nurse [3].

Patient call-light usage and nurse responsiveness to call lights are two intertwined concepts that could affect patients' safety during hospital stays [4]. In developed countries falls and fall-induced injuries are among the most common and serious health problems of age 65 and older. More than one-third of older adult experiences fall leads to injury-related deaths, half of those who fall suffer moderate to severe injuries that limit their mobility and increase the risk of premature death. Up to

20% of falls cause serious injury, including fractures and subdural hematomas [5].

Even it can necessitate prolonged hospitalization. Some suffer disability and loss of function and are unable to return to their homes; many end up losing their independence. Falls carry staggering economic costs. According to the Centers for Disease Control and Prevention, medical costs related to falls totaled more than $19 billion in 2007–$179 million for fatal falls and $19 billion for nonfatal fall-related injuries. By 2020, the annual direct and indirect cost of fall injuries is expected to reach $54.9 billion [5].

Falls prevention is an essential component of maintaining health. Many effective falls-prevention programs exist, both in the community and in healthcare facilities across a wide variety of settings. Implementing such a program can help reduce falls and help older live longer lives of better quality. To meet needs of client and help to reduce falls, healthcare facilities may need to purchase safety equipment and upgrade their infrastructures with senior-friendly lighting, signage, color schemes, and other improvements [5].

In short, only few researches has been done on knowledge of care giver on patient call light use and staff call light response and attitude towards nurse call bell. Majority of research studies are carried in western country, which has been initiated the researcher to carry this research study to know about knowledge and attitude of nurse call system. Since from 1964 leaders in technologies industry are designing and manufacturing wireless nurse call and emergency call system for health care and emergencies services [6].

The introduction of call lights in health care centers was initiated in order to prevent patients from falling and have the ability to access their nurses' when need arises. The call lights acts as a linkage between the hospitalized patient and the nurses' on duty. It facilitates the communication where by the patient requires aid is able to be attended to at any given time without making noise. The help which patient may need may include going to bath room, changing of bed sheets, laying on the bed, when in pain, as the call lights prevents uncertain circumstances which may worsen the patients health [7].

The call button provides the following benefits to patients:

- To alert a nurse for any type of assistance for the patient who is confined to bed
- Enables a patient who is able to get out of bed, but for whom this may be hazardous, exhausting, or otherwise difficult to alert a nurse of the need for any type of assistance
- Provides the patient an increased sense of security

The call button can also be used by a health care staff member already with the patient to call for another when such assistance is needed, or by visitors to call for help on behalf of the patient [8].

The nursing call System types are Basic, Wireless nurse call, Intercoms, Cell phone alerts and Nurse Call Integration. To hospital inpatients, the call light is the primary method of contacting staff and therefore represents the most basic tool for patient empowerment and allowing patients to communicate their needs to staff whether they require routine assistance or have an acute change in condition. Since the early 20th century, nurse call light systems have provided hospital patients with an essential communication link with their caregivers. Inpatients trust that when they use a call light device, someone will respond to it in a timely manner. Because call light systems are used to communicate patient needs to staff, the prompt answering of call lights directly affects patient satisfaction and perceptions of quality [9]. Surprisingly, little research has been conducted regarding how call light systems are used by patients and responded to by nursing staff members [9].

Fall prevention programs for hospitalized patients have had limited success, and the effect of programs on decreasing total falls and fall-related injuries is still inconclusive [7]. Falls in nursing care facility and hospitals are common events that cause considerable morbidity and mortality for older people [10].

In short, little research has been done on patient call light use and staff call light response time, and only one small-scale pilot study intended to understand how nursing staff view patient-initiated call lights. This pilot study found that, although the majority of the staff (81.6%) agreed that call lights were meaningful, only half of the staff members perceived that call lights mattered to patient safety and required nursing staff attention and 44% thought that answering call lights prevented them from doing critical aspects of their role.

This has motivated researcher to assess the knowledge and attitude of call light among staff nurses working in intensive care of different hospital of Bijapur district

The objective of the study was to assess the knowledge on utilization of nurse call bell system among staff nurses. To assess the Attitude of Staff nurses regarding utilization of nurse call bell system. To find the association between knowledge and Attitude score with selected demographical variables.

Hypotheses

The following hypotheses will be tested at 0.05 levels of significance

H_1: There will be significant association between the knowledge and attitude score regarding utilization of nurse call bell system

H_2: There will be significant association between the knowledge and attitude score with selected demographic variable on utilization of nurse call bell system among staff nurses.

2. Material and method

This chapter deals with the methodology followed by the investigator to assess the knowledge and attitude on utilization of nurse call bell system among the staff nurses working in selected hospitals of Vijayapur District

Research design
The research design selected for the study was Non experimental descriptive study design.

Research approach
Descriptive approach is selected for the study.

Sample & Sampling Technique
Sample size
In this study sample size is 120 staff nurses of selected hospitals of vijayapur district

Criteria for sample selection
The criteria for sample selection are mainly depicted under two headings which includes inclusive and exclusive criteria

Inclusion criteria
- Staff nurses who can read and write Kannada or English.
- Staff nurses who are willing to participate.
- Staff nurses who are present during study.

Exclusion criteria

- Staff nurses who have undergone training regarding utilization of nurse call bell system.
- Staff nurses who are not working in selected Hospital.

Sampling technique
A Purposive or convenience sampling technique was used for selection of the samples

Development and description of tool
To assess knowledge structured knowledge questionnaire was used & Likert's scale was used to assess the attitude

The tool consists of 3 sections

Section A: Structured questionnaire to assess the demographic data
Section B: Structured knowledge questionnaire to assess the level of knowledge of the staff nurses
Section C: A 3-point Likert's scale to assess the attitude of the staff nurses

Scoring key of Attitude: Total no of questions: 14
Maximum possible score: 14 x 3=42

Attitude	Range
Unfavorable attitude Moderately favorable attitude favorable attitude	<50% 50-75% >75%

3. Results

Table No 1: Frequency and Percentage distribution of nursing staff according to Age, Gender, and Religion & Educational status

N=120

SN	Demographic variables	Characteristics	Frequency	%
1	Age in years	Less than 25	15	12.5
		26-30	16	13.3
		31-35	44	36.7
		36 and above	45	37.5
2	Gender	Male	53	44.2
		Female	67	55.8
3	Religion	Hindu	37	30.8
		Muslim	19	15.8
		Christian	64	53.4
4	Educational status	MSc(N)	11	9.3
		PBBSc(N)	42	35.0
		BSc(N)	30	25
		GNM	37	30.8

Table 1 shows the frequency & percentage distribution of demographic variables of staff nurses such as Age, Gender, and Religion and Educational status.

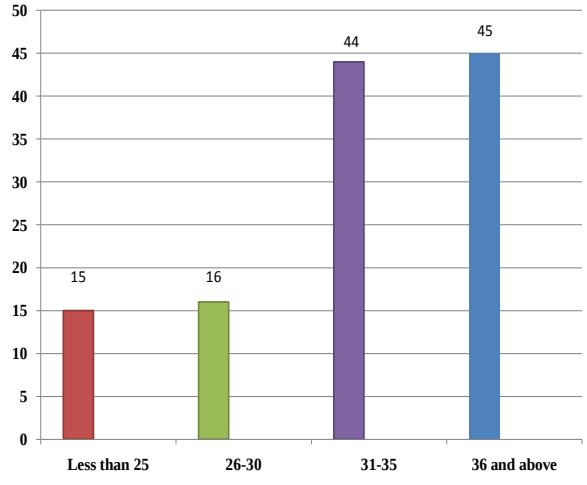

Figure No 1: Percentage distribution of nursing staff according to age

Figure 1 shows that, Age of staff nurses maximum number of subjects 45 (35.7%) were in the age group of 35 and above, 44 (36.7%) were between the age group of 31-35years, 16 (13.3%) were in the age group of 26-30

years and 15 (12.5%) were in the age group of 20-25years

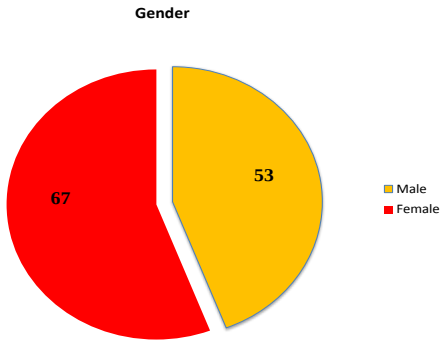

Figure No 2: Percentage distribution of nursing staff according to Gender

Figure 2 shows that, gender 67(55.8%) were females and 53(44.2%) were males.

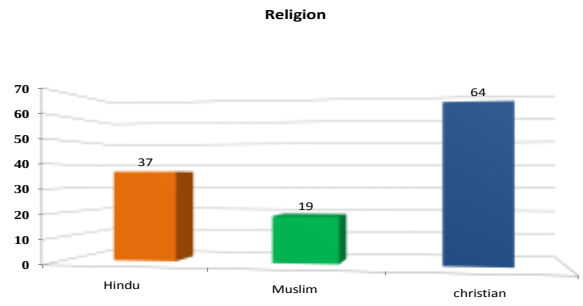

Figure 3: Percentage distribution of nursing staff according to Religion

Figure 3 shows that, regarding Religion, 64(53.4%) were Christians, 37(30.8%) were Hindus & 19(15.8%) were Muslims.

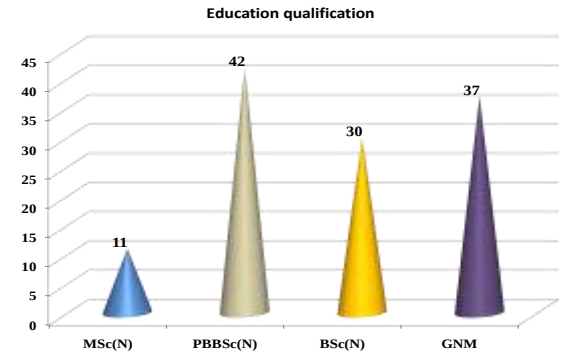

Figure No 4: Percentage distribution of nursing staff according to educational qualification

Figure 4 shows that, considering their educational status 42 (35%) have completed PPBSc (N), 37 (30.8) have completed GNM Nursing, 30 (25%) have completed BSc (N) & 11 (9.3%) Have completed MSc (N).

Table No 2: Frequency and Percentage distribution of nursing staff according to income, handling of nurse call system and specification of handled area

SN	Demographic characteristics	Characteristics	Frequency	%
1	Income for month	Less than 7000	51	42.5
		7001-10,000	34	28.3
		10,001-13,000	25	20.8
		Above 13,001	10	8.3
2	Have you handled nursing call system	Yes	40	33.3
		No	80	66.7
3	If yes specify where you have handled	Intensive care unit	25	20.8
		Emergency y ward	05	4.3
		Special ward	10	8.3
		Not handled	80	66.7

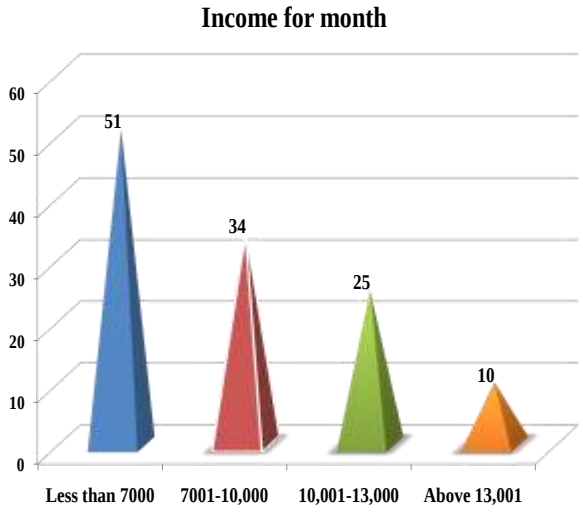

Figure No 5: Percentage distribution of nursing staff according to income

Figure 5 shows that, In relation to income, the maximum number 51(42.5%) of subjects are having monthly income of less than 7000, 34 (28.3%) their income lies between 7001-10, 000, 25(20.8%) were having income between 10, 0001-13000 and 10(8.3%) of them were having income above 13, 0001

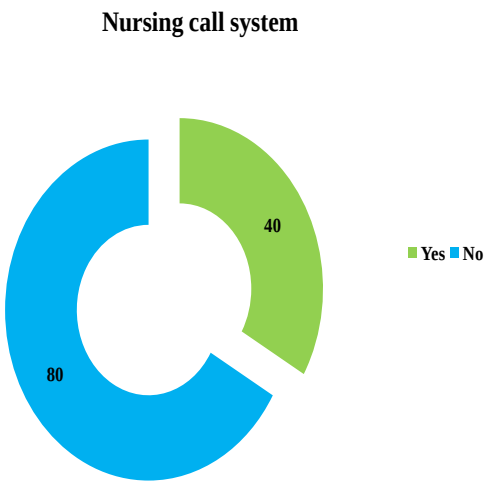

Figure No 6: Percentage distribution of nursing staff according to nursing call system

Figure 6 shows that, regarding handling of nursing call bell system 80(66.7%) have handled nursing call bell system

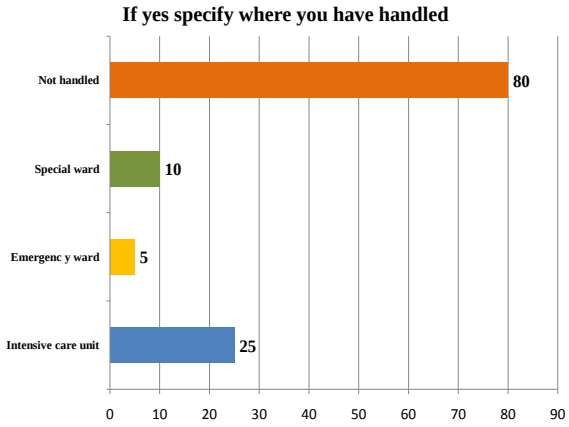

Figure No No 7: Percentage distribution of nursing staff according to specification of handled area

Figure 7 shows that, regarding area of handling of nurse call bell system 25(20.85%) have handled nursing call bell system in intensive care units, 10(8.3%) have handled in special ward& 5(4.3%) have handled in emergency ward

Table No 3: Association of level of knowledge with selected demographical variables of staff nurses according to selected demographical variables such as age, gender, religion & education

SN	Demographic variables	Characteristics	Frequency	%	Knowledge				X2 value	P value
					<median		>median			
1	Age in years	Less than 25	15	12.5	6	8.8	9	17.3	3.980 Df=3 NS	P>0.05
		26-30	16	13.3	12	17.6	4	7.7		
		31-35	44	36.7	24	35.3	20	38.5		
		36 and above	45	37.5	26	38.2	19	36.5		
2	Gender	Male	54	51.7	30	44.1	24	46.2	0.049 DF=1 NS	P>0.05
		Female	66	55.0	38	55.9	28	53.8		
3	Religion	Hindu	37	30.8	22	32.4	15	28.8	3.822 DF=2 NS	P>0.05
		Muslim	19	15.8	12	17.6	7	13.5		
		Christian	64	53.3	34	50.0	30	57.7		
4	Educational status	MSc(N)	11	9.3	7	10.3	4	7.7	8.448 DF=3 S	P>0.05
		PBBSc(N)	42	35.0	25	36.8	17	32.7		
		BSc(N)	30	25	21	30.9	9	17.3		
		GNM	37	30.8	15	22.1	22	42.3		

Note: S-Significant, NS-Not significant

Table 3 shows the association of knowledge of staff nurses with selected demographic variables such as Age, Gender, Religion and Education with knowledge level of staff nurses regarding the utilization of nurse call bell system
In relation to educational status the chi-square value obtained was 8.448, df=3 which showed significant at $p<0.05$ level (9.49), in relation to variable

Table No 4: Association of level of Knowledge with selected demographical variables of staff nurses according to selected demographical variables such as income, handling of call bell system, area of handling call bell system

SN	Demographic Variables	Characteristics	Frequency	%	Knowledge				X 2-value	P-Value
					<median		>median			
1	Income for month	Less than 7000	51	42.5	28	41.2	23	44.2	0.802 DF=3 NS	P>0.05
		7001-10,000	34	28.3	19	27.9	15	28.8		
		10,001-13,000	25	20.8	16	23.5	9	17.3		
		Above 13,001	10	8.3	5	7.4	5	9.6		
2	Have you handled nursing call system	Yes	40	33.3	27	39.7	13	25.0	2.958 DF=1 NS	P>0.05
		No	80	66.7	41	60.3	39	75.0		
3	If yes specify y where you have handled	Intensive care unit	25	20.8	16	23.5	9	17.3		
		Emergency y ward	05	4.3	5	7.4	0	0		
		Special ward	10	8.3	5	7.4	5	9.6		
		Not handled	80	66.7	41	60.3	39	75.0		

Note: NS-Not significant

Table 4 shows that there is no significant association of knowledge level of staff nurses regarding utilization of nursing call bell system and demographic variables such as income, handling nurse call bell system, area of handling nurse call bell system

Table No 5: Association of level of Attitude with selected demographical variables of staff nurses according to selected demographical variables such as age, gender, religion & education

SN	Demographic variables	Characteristics	Frequency	%	Attitude				X2 value	P value
					<median		>median			
1	Age in years	Less than 25	15	12.5	4	6.3	11	19.3	9.815 Df=3 S	P<0.05
		26-30	16	13.3	5	7.9	11	19.3		
		31-35	44	36.7	25	39.7	19	33.3		
		36 and above	45	37.5	29	46.0	16	28.1		
2	Gender	Male	54	51.7	20	31.7	34	59.6	9.414 DF=1 S	P<0.05
		Female	66	55.0	43	68.3	23	40.4		
3	Religion	Hindu	37	30.8	26	41.3	11	19.3	7.365 DF=2 S	P<0.05
		Muslim	19	15.8	7	11.1	12	21.1		
		Christian	64	53.3	30	47.6	34	59.6		
4	Educational status	MSc(N)	11	9.3	5	7.9	6	10.5	4.116 DF=3 NS	P>0.05
		PBBSc(N)	42	35.0	24	38.1	18	31.6		
		BSc(N)	30	25	19	30.2	11	19.3		
		GNM	37	30.8	15	23.8	22	38.6		

Note: S-Significant, NS-Non significant

Table No 6: Association of level of Attitude with selected demographical variables of staff nurses according to selected demographical variables such as income, handling of call bell system, area of handling call bell system

SN	Demographic variables	Characteristic	Frequency	%	Attitude				X 2-value	P-Value
					<median		>median			
1	Income for month	Less than 7000	51	42.5	17	27.0	34	59.6	23.314 DF=3 S	P<0.05
		7001-10,000	34	28.3	25	39.7	9	15.8		
		10,001-13,000	25	20.8	19	30.2	6	10.5		
		Above 13,001	10	8.3	2	3.2	8	59.6		
2	Have you handled nursing call stem	Yes	40	33.3	22	34.9	18	31.6	0.150 DF=1 NS	P>0.05
		No	80	66.7	41	65.1	39	68.4		
3	If yes specify where you have handled	Intensive care unit	25	20.8	19	30.2	6	10.5		
		Emergency ward	05	4.3	4	6.3	1	1.8		
		Special ward	10	8.3	3	4.8	7	12.3		
		Not handled	80	66.7	41	65.1	39	68.4		

Table No 7: Frequency & percentage distribution of staff nurses according to the level of knowledge regarding utilization of nurse call bell system

SN	Level of knowledge	Number/ frequency	%
1	Inadequate knowledge	77	64.2
2	Moderate adequate knowledge	43	35.8
3	Adequate knowledge	-	-
4	Over all	120	100

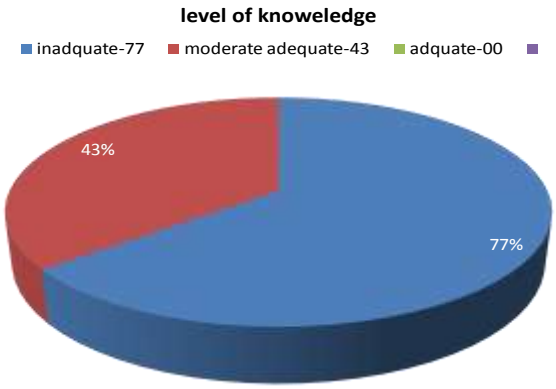

Figure No 8: percentage distribution of staff nurses according to the level of knowledge regarding utilization of nurse call bell system

Table 7 shows the level of knowledge of staff nurses, in which 77(64.2%) are having inadequate knowledge, 43(35.8%) were found to have moderately adequate knowledge, and none of them had adequate knowledge regarding nursing call bell system

Table No 8: Mean, Standard deviation, & Mean Percentage of knowledge of staff nurses regarding utilization of nursing call bell system

N=120

SN	Aspects of knowledge	Maximum score	Range	Mean	SD	Mean Percentage
1	General information	12	2-9	5.67	1.36	47.3
2	Utilization of mobile health services	14	0-14	6.33	3.23	45.2
3	Over all	26	7-19	12.00	3.19	46.1

Table 8 represents the Mean, Mean score and SD of aspects of knowledge of staff nurses regarding utilization of Nursing call bell system. The present study shows that the highest mean score of subjects is 6.33 with SD 3.23 and Mean score percentage of 45.2 was obtained for knowledge on nursing call bell system. The lowest Mean score of subjects is 5.67 with SD 1.36 and Mean score percentage of 47.3 was obtained for knowledge on general information about nursing call bell system. The overall Mean and SD of subjects is 12.00 with SD 3.19, and the Mean score of subjects for overall knowledge is 46.1. This indicates that the staff nurses have inadequate knowledge regarding nursing call bell system

Table No 9: Frequency & percentage distribution of Attitude of staff nurses regarding nursing call bell system

SN	Level of Attitude	Number/frequency	%
1	Inadequate Attitude	56	46.7
2	Moderate favorable Attitude	64	53.3
3	favorable Attitude	-	-
4	Over all	120	100

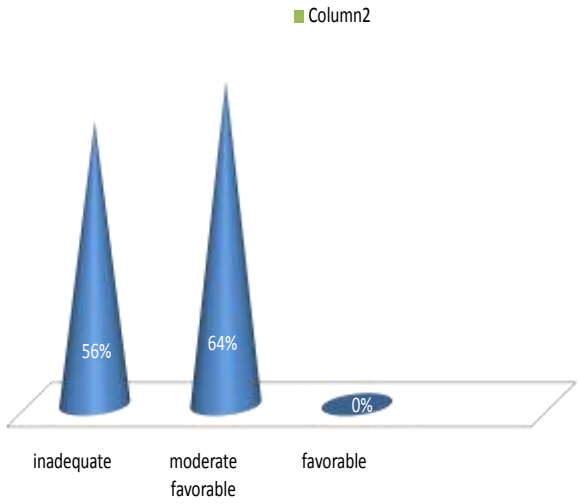

Figure No 9: Percentage distribution of Attitude of staff nurses regarding nursing call bell system

Table 9 depicts that 64(53.3%) of staff nurses were having inadequate Attitude, 56(46.7%) were found to have moderately favorable Attitude, and none of them had favorable Attitude regarding nursing call bell system

Table No 10: Mean, Standard deviation & Mean Percentage of Attitude of staff nurses regarding utilization of nursing call bell system

SN	Aspects of Attitude	Maximum score	Range	Mean	SD	Mean percentage
1	Attitude	42	14-32	21.9	4.32	52.1

Table 10 represents, Mean, Mean score and SD of aspects of Staff nurses regarding nurse call bell system .The Mean score of subject is 21.9 with SD of 4.32 and 52.1 Mean score percentage.

Table No 11: Correlation between knowledge and Attitude of staff nurses regarding nursing call bell system

Variable	Attitude	
	r	p-value
Knowledge	0.339*	P<0.01

Note: *-S

4. Discussion

Only few studies have been taken on utilization of call bell system for meeting the needs of the client one of study oh perspectives of staff nurses of the reasons for and the nature of patient –initiated call light findings highlights that 49% of staff perceived that patient-initiated calls mattered to patient safety, 77% agreed that these call were meaningful [9].

The another study i.e. interventions for preventing fall in older people in nursing care facilities and hospitals-the researcher expressed that multi-factorial interventions reduces falls and risk of falling in hospitals [11]. The another study relationship between call light use and response time and inpatient falls in acute care settings explained that more calls for assistance related to less fall- related patient harm. Surprisingly, longer response time to call lights also related to fewer total falls and less fall-related patient harms [12].

A study on 'buy custom lights in a nursing setting essay UK explains that the patient safety is a key agenda that needs to be fully addressed, all the centers need to give one day training programme on effective utilization of nursing call bell system which satisfy the patient.[18]

The positive effect of evidenced –based nursing strategies on patient outcomes findings indicated that implementation of a 'response to call bell' policy and there was a significant decrease in patient falls. Patient satisfaction scores increased significantly in the area of promptness of response to call bells and pain control [10].

Conclusion

In rapidly changing world, it has become essential for nurse to take care of patients 24 hours without much help from kith & kin of patients. Nursing needs to focus on Quality care and extend utmost importance to the service of the patients and develop a sense of responsibility and accountability of total nursing with compassionate heart. Only few studies have been taken on importance of effective utilization of nurse call bell system, which has many advantages and benefits in emergency unit in meeting the needs of the patient. Presently many companies have come forward with modified nurse call bell system which needs advance training for the staff. If each hospital adopt a policy in implementation of nurse call bell system helps in providing effective care to the patient.

References

1. Beatric J, kalisch. Nursing team work and time to Respond to call lights an exploratory study from journal Nurse care Qual, 24(3):232-42, 2009
2. Borland S. Thousands of patients suffer as nurses fail to respond to call bells, Health correspondence for daily mail published; 2015
3. Laura A, Stokwoski. Ring for Nurses! Improving call light management; 2015
4. Hill Rome clinical, Reducing Patient Falls A call to action available from publication Journal of American Nurses today; 2012
5. A Nurse call button on a pillow speaker with T. V. Control available on; 2012
6. Wireless Emergency call systems for all of your needs; 2013
7. Tzeng HM. The contribution of staff call light response to fall and injurious fall rates''.BMC Health serv Res,12:84, 2012 Mar 31
8. Tzeng, H. M. (2010). Perspectives of staff nurses of the reasons for and the nature of patient-initiated call lights: an exploratory survey study in four USA hospitals. *BMC health services research, 10*(1), 52.
9. Huey-Ming T. Nurses response time to call lights& fall occurrences; Sept 1, 2010
10. Cameron, I. D., Murray, G. R., Gillespie, L. D., Robertson, M. C., Hill, K. D., Cumming, R. G., & Kerse, N. (2010). Interventions for preventing falls in older people in nursing care facilities and hospitals. *The Cochrane Library*.
11. Tzeng, H. M., & Yin, C. Y. (2009). Relationship between call light use and response time and inpatient falls in acute care settings. *Journal of clinical nursing, 18*(23), 3333-3341.
12. Tzeng HM, Larson JL.'Exploring the relationship Tzeng, H. M., & Larson, J. L. (2011). Exploring the relationship between patient call-light use rate and nurse call-light response time in acute care settings. *CIN: Computers, Informatics, Nursing, 29*(3), 138-143.