

THE EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE ON KNOWLEDGE OF STAFF NURSES REGARDING ASSESSMENT OF SELF CARE ACTIVITIES OF CHRONIC ORTHOPEDIC PATIENTS IN SELECTED HOSPITAL, WEST BENGAL

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ABSTRACT

The investigator conducted an evaluative study to assess the effectiveness of Self Instructional Module on knowledge of staff nurses regarding assessment of self care activities of chronic orthopedic patients. The objectives of the study were to develop and validate a self instructional module on Assessment of Self Care activities of chronic orthopaedic patients, to assess the knowledge among Nurses working in orthopedic wards regarding assessment of self care activities of chronic orthopaedic patients before and after exposure of self instructional module, to determine the effectiveness of self instructional module on Assessment of Self Care activities of chronic orthopaedic patients in terms of gain in knowledge and to identify the selected factors associated with pretest knowledge of staff nurses working in orthopaedic wards. The conceptual framework of the study was based on Imogene King's goal attainment theory. The study was conducted at orthopaedic ward of Howrah Orthopaedic Hospital, Howrah. The population of the study consisted of staff nurses working in orthopaedic wards of Howrah Orthopaedic Hospital. Non probability purposive sampling technique was used to obtain 30 samples. Criteria check list Proforma ,Structured interview schedule and Structured knowledge questionnaire were used to collect data. The findings revealed that The mean post-test knowledge score (18.7) of Staff Nurses is higher than the mean

pre-test knowledge score (12.96). Median of the post-test knowledge score (19) is seemed to be higher than median of the pre-test knowledge score (13). The standard deviation of pre-test score (1.42) is seemed to be more dispersed than post-test score (0.91) indicates more homogeneity than pre-test knowledge score. Area wise mean percentage of pre test and post test knowledge scores, actual and modified gain scores of Staff Nurses showed that maximum knowledge gain is in the area of “Activity of daily living”. In order to find out the significant difference, paired $-t$ test were applied between which was found to be statistically significant as evident from the $t' = 31.8$, at 0.001 level. Some factors like age and period of working experience associated with pre test knowledge level as these were increase their knowledge increases.

Keywords: *Knowledge, Effectiveness, Self Instructional Module, Chronic Orthopaedic patient, Self Care activities, Staff Nurse.*

INTRODUCTION

A hospital is a specialized setting where numerous clinical activities are carried out for delivery of health care to the patients. Most admitted patients in the hospital require skilled nursing care are at risk for adverse events or complications from their conditions and treatments. They need close observation during their hospital stays. The nurse must observe and assess the patient's ability to perform **Activities of Daily Living** (ADLs) to determine the level of independence in self care and the need for nursing intervention. Healthcare institutions are evolving because of quality, economic, and demographic pressures. This evolution is increasingly evident in the demographics of the inpatient population, as most routine treatments are delivered in the outpatient care setting versus the traditional inpatient setting. Therefore, patients who are admitted to the hospital for more intense procedures and treatments qualify as higher risk patients than in years past. This "higher risk" designation is applied to all patient groups now and is not limited to patients in the intensive care unit (ICU), the intermediate care unit (IMC), and telemetry units^[1].

The future of medicine is management of chronic disease. 125 million of Americans had 1 or more chronic medical condition that was estimated in 2000 . This number is expected to increase to 157 million by 2020. Moreover, about 60 million have multiple chronic illnesses, a number that could rise to 81 million by 2020^[2]. Some existing conditions of orthopaedic patients can complicate operative procedures^[3]. The people of developed countries like Americans, managing a chronic disease has become a normal part of life. The healthcare system focus on acute illness and injury, not long-term conditions. Fortunately, most chronic illnesses present similar challenges. Patients and their caregivers must learn how to deal with chronic symptoms and often with physical disability. They need to participate in potentially complicated medication regimens, make appropriate management decisions and learn self-monitoring techniques. Chronic disease may also require significant role and lifestyle changes and learning to cope with ongoing emotional turmoil. No less important, both patients and their caregivers must learn how to interact effectively with healthcare personnel ^{[4],[5]}.

In 2007, typical healthcare providers do not have the time and the expertise, to teach patients about disease self-management. However, according to the Chronic Care Model, providers have the responsibility to "reinforce the patient's (and family's) crucial role in managing the condition, help patients to set limited goals for improving management of their illness, identify barriers to reaching their goals, and develop a plan to overcome the barriers."⁴ This is a order, especially as many of the kinds of resources needed to meet such responsibilities are not readily available. In order to accomplish such tasks successfully, patients (and their caregivers) must acquire the self-confidence and skills to significantly contribute to management of their respective chronic disease(s) ^[6]. ADLs are defined as "the things we normally do...such as feeding ourselves, bathing, dressing, grooming, work, homemaking, and leisure"⁷.

A number of national surveys collect data on the ADL status of the U.S. population. Basic categories of ADLs have been suggested, what specifically constitutes a particular ADL in a particular environment for a particular person may vary.

Activities of Daily Living (ADLs) are a term used in healthcare to refer to daily self-care activities within an individual's place of residence, in outdoor environments, or both. Health professionals routinely refer to the ability or inability to perform ADLs as a measurement of the functional status of a person^[7]. In 1997, there were over 4.5 million (14.2%) elders in the world who reported having difficulty carrying out activities of daily living (ADL's) and 6.9 million (21.6%) who indicated difficulties with instrumental activities of daily living (IADL's). Impairments in ADL's lead to further functional decline, declines in quality of life, and loss of independence. Early intervention through detection of functional decline leads to reduction in negative outcomes^[8]. Prevalance Rate for Orthopaedic disorders in India was 158,695,516 (US Census Bureau, International Data Base, 2004)^[9]. Patients expectations were important independent predictors of improved functional outcomes and satisfaction following total joint arthroplasty^[10]. Functional assessment instruments were also used in rheumatology. It was shown that Interventions to enhance older patients' perceived self-efficacy while hospitalized after elective total hip replacement surgery may enhance functional ability, which in turn may decrease the likelihood of depressive symptoms postoperatively.^[11]

NEED OF THE STUDY

Health care interest is increasing in the advanced and developing societies. The human practice of self care is considered with respect to self-care. Self-care is the voluntary regulation of one's own human functioning and development that is necessary for individuals to maintain health, life and well being. The essence of self care is control, responsibility, freedom, expanded options and an improved quality of life^[12]. Self care refers to the individual assuming preventive or therapeutic health care activities, often in collaboration with health care professionals.^[11] Levin has defined self-care as a 'process whereby a layperson can function effectively on his or her own behalf in health promotion and prevention and in disease detection and treatment at the level of the primary health resources in the health care system.'^{[13],[14]} From this definition it is clear that specialists view self care in terms of initiating or changing programs that address the well population as well as the patient population with defined health problems. Thus self-care should address the goals of increasing the ability of lay persons to make decisions regarding their health care and to recognize and exercise options of care. Disease, injury and mental or physical malfunctioning may limit what a person can do for himself, and may involve structural and functional changes, which may necessitate the use of specialized self-care measures. In adult clients, activities of daily living are those skills or abilities that the client needs to perform independently like self-care, communication and mobility. The client's ability to perform these activities contributes either

positively or negatively to total health. The most important of these activities are bathing, feeding, dressing, grooming and toileting. In assessing activities of daily living, it is to be intended whether the individual is able to perform self-care activities independently or requires the assistance of others and whether performance of these activities supports or hinders the client's when a person is not able to know and meet his own health-associated demands, the person develops some deficits. Identification of self-care deficits plays an important role in providing patient care^[15]. In nursing self care is believed to be corner stone of the health promotion and the major nursing goal is to encourage. The nurse should foster self care in patients by providing information about nutrition, sleep, exercise, stress management, sexuality, psychological wellbeing, personal safety and environment management. In the hospital setting orthopedic patients stay in long duration and lack in personal hygiene and self-care activities^[16].

Most of the orthopedic patients are bedridden and of chronic type. They need long term care in the wards, but lack in personal hygiene nutrition, exercises, sleep etc. some of them are immobilized and they lack in knowledge of self care and intern affects their physical and mental health. The knowledge of self-care equips them to adjust to their surroundings and achieve optimum level of health. After hip Fracture and surgical repair, the client is likely to experience some degree of self care deficit in hygiene and dressing limited mobility may decrease independence in self-care and assistive devices may be required^[5]. The orthopedic patients suffer with malnutrition, depression, insomnia, stress and pressure sores. So these problems can be prevented by providing sufficient knowledge and health education in self care. There is urgent need for the empowerment of knowledge through nursing staff in the ward. Patients have the right to participant in decisions regarding their health care plan and responsibility to participate to the extent possible in implementing it. Every patient has the having right to make appropriate arrangement to allow wellness healthcare to deliver, set up, and offer training on prescribed self-care techniques.

Australian Nursing Federation identified related role boundaries in the provision of personal care for disabled clients. These included the following:

- Personal care encompasses a range of activities of daily living that a person would normally undertake independently but because of illness and disability they now require assistance to perform.
- The provision of personal care to individuals in the community enables them to live independently and facilitates their integration and participation in the community. This may involve the performance of intimate activities and therefore requires respect for the individual's dignity, independence and choice.

- It is important that the client is aware of the different types of workers who will be providing their personal care and these workers need to be clearly identified. A nursing assessment includes identification of:
 - The health status of the person
 - The extent of the self care deficit
 - The complexity of the care required in relation to the health status of the individual
 - The most appropriate health care worker to meet the assessed need^[17].

Today's nurse is expected to make independent decision in day to day clinical practices. There is a popular axiom that "what your mind does not know, your eyes will not see". For taking decisions nurses should have sound knowledge on different health markers during assessment. The importance of assessment of self care activity for chronic orthopaedic patients play a very vital role for improving the health status of that patient and also providing right care at right time. Keeping this view in mind the researcher selected this topic with objectives -

- To develop and validate a self instructional module on Assessment of Self Care activities of chronic orthopaedic patients.
- To assess the knowledge among Nurses working in orthopaedic wards regarding assessment of self care activities of chronic orthopaedic patients before and after exposure of self instructional module.
- To determine the effectiveness of self instructional module on Assessment of Self Care activities of chronic orthopaedic patients in terms of gain in knowledge.
- To determine the association between pretest knowledge of staff nurses working in orthopaedic wards with selected variables.

OPERATIONAL DEFINITIONS

- **Knowledge:** Knowledge refers to the correct responses of the nursing staff to the items on structured knowledge questionnaires related to 'self care activity' and expressed in terms of pre test score and post test score.
- **Effectiveness:** It refers to the extent to which the self instructional module has achieved its desired results as evidence by increase post test knowledge regarding assessment of self care activity.
- **Self Instructional Module:** In this study, it is a booklet containing Introduction, Purpose, Objectives, Activities of Daily Living, Self care activities of chronic orthopaedic patients, Assessment of self care activities like Eating, Grooming, Bathing, Dressing, Bowel and Bladder

management, Transfer to bed, chair or wheelchair, Wheelchair propulsion and stair climbing and references.

This booklet was given to each subject with an intention that they would study the assessment of self care activities of chronic orthopaedic patients for gaining knowledge.

- **Chronic Orthopaedic Patient:** Orthopedic patient who are admitted in orthopedic ward over a period of one month.
- **Self care activities:** It refers to the activities done by orthopaedic patients in orthopaedic ward or home like Eating, Grooming, Bathing, Dressing, Bowel and Bladder management, Transfer to bed, chair or wheelchair, Wheelchair propulsion and stair climbing as based on FIM tool.
- **Staff Nurse:** The registered nurses working in orthopaedic ward in Howrah Orthopaedic Hospital, Kolkata.

METHODS

Research Design

One group Pre Test- Post Test design was chosen for the present study.

Final study

Final study was conducted in Howrah Orthopedic Hospital, West Bengal.

Population

For this study, the population was 42 staff nurses working in orthopaedic wards of Howrah Orthopaedic Hospital.

Sampling technique

In this study the sampling technique was Purposive Sampling.

Sample

For this study the samples were Staff Nurses working in Howrah Orthopedic Hospital in Orthopedic ward.

Sample size

For this study total 30 staff nurses were selected as the sample.

Sample Selection Criteria:

Inclusion Criteria:

- Staff Nurses willing to participate in the study
- Staff Nurses who are present during data collection period

Table 1 represents the tool and technique used to collect the data corresponding to research variables.

Table 1 Data collection tools and technique

Tool	Variable	Technique
Criteria check list: Proforma (Tool-I)	Content validity of the SIM	Questioning
Structured interview schedule (Tool-II)	Demographic characteristics	Interviewing
Structured knowledge Questionnaire (Tool-III)	Knowledge on assessment of self care activities of chronic orthopaedic patients	Questioning

After taken Ethical clearance and Administrative approval Self Instructional Module (SIM) was developed and validated. Knowledge Questionnaires were used to assess the knowledge of staff nurses and validated SIM was administered on staff nurses after obtaining their consent.

Tool validity and Reliability

Content validity was established by submitting the tool to **nine** experts for validation.

To ensure the reliability of the tool, Reliability Co- efficient of internal consistency of knowledge Questionnaire on assessment of self care activities of chronic orthopaedic patients was obtained by Product Moment method followed by Spearman- Brown Prophecy formula. It was found to be significant at 0.05 level of confidence, $r_{(18)} = 0.80$ and made the tool reliable. For content validity of SIM the experts were requested to give their opinion on accuracy, relevancy and appropriateness of the items and corrections were done according to the expert's suggestions and percentage of agreement on organizing

the area of Activity of Daily Living.

RESULTS

Section- I: Development and validation of self instructional module regarding assessment of self care activities of chronic orthopaedic patient for the staff nurses.

Self Instructional Module contains information about: Introduction, purpose, objective, activity of daily living, self care activities of chronic orthopaedic patients, assessment of self care activities, description of the levels or function, references.

The experts were requested to give their opinion on accuracy, relevancy and appropriateness of the items and corrections were done according to the expert's suggestions and percentage of agreement

Section-II Description of the sample characteristics. n = 30

The present study indicated that the maximum of the staff nurses (43.33 %) belong to the age group of 51-60 years, whereas only 10% of the staff nurses belong to the age group of 31-40 years.

The majority of the staff nurses (73.33 %) had completed G.N.M course, 13.33% of staff nurses passed Post Basic B.Sc. Nursing and both 6.67% were Basic B.Sc.Nursing and Post Diploma Course in Orthopaedic and Rehabilitation passed.

Study indicated that 60% of the staff nurses had the professional working experience of 16 years above, 20% less than 5 years and 10% staff nurses had professional working experience over 5-10 years and 11-16 years.

The majority of staff nurses (40%) posted in orthopaedic ward had above 10 years of experience and only 7% of

staff nurses had less than 1 year of experience.

Section-III Findings related to knowledge score of the Staff Nurses

Data presented in Table 2 shows that the mean post-test knowledge score (18.7) of Staff Nurses is apparently higher than the mean pre-test knowledge score (12.96).

The data further indicate that median of the post-test knowledge score (19) is seemed to be higher than median of the pre-test knowledge score (13).

The standard deviation of pre-test score (1.42) is seemed to be more dispersed than post-test score (0.91) indicates more homogeneity in post-test knowledge score.

Table 2 Mean, Median and Standard deviation of pre test and post test knowledge score of respondents (n =30).

GROUP	TEST	MAXIMUM POSSIBLE SCORE	MEAN	MEDIAN	STANDARD DEVIATION
Staff Nurses	Pre test	20	12.96	13	1.42
	Post test	20	18.7	19	0.91

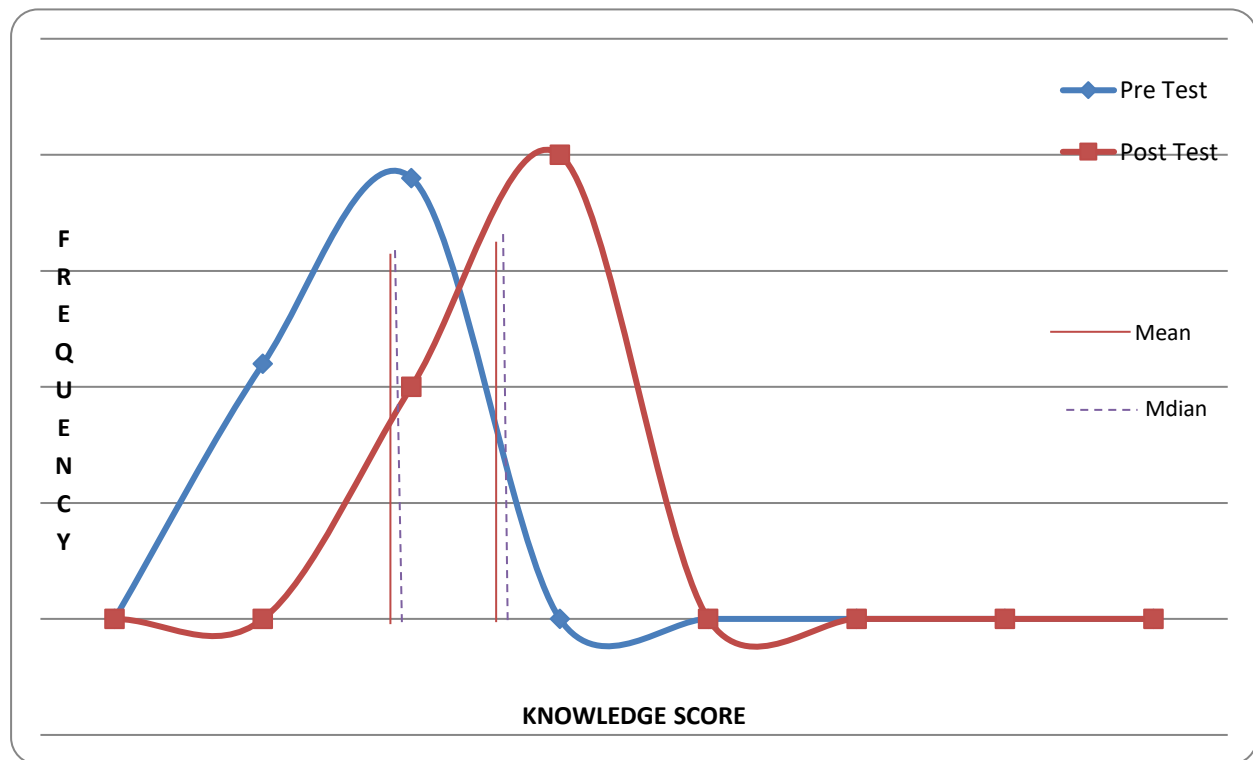


Figure 1 : Frequency Polygon showing Pre-SIM and Post-SIM knowledge score of Staff Nurses (n =30)

The Pre-SIM and Post-SIM knowledge scores are depicted in Figure: 1 in the form of frequency polygon. The mean and median of Pre-SIM and Post-SIM frequency polygon in Figure lie closely to each other. The skeweness of the Pre-SIM and Post-SIM frequency polygon are (-0.01404) and (-0.20808) respectively: both distributions are near normal as skeweness is near zero. In the Figure: 6 the Post-test

frequency polygon is distributed right side of the Pre-test frequency polygon which shows gain in score. Therefore it is evident that most of the participants achieved high in Post-SIM scores than that of Pre-SIM scores, which indicated that there were considerable increase of knowledge and suggesting the effectiveness of Self Instructional Module.



Figure 2 : Ogive curve showing Pre-SIM and Post-SIM knowledge score of Staff Nurses (n =30)

The cumulative frequency percentage of pre-test and post-test knowledge scores were represented in Figure: 2. The Ogive indicated that Post-test scores at 25th Percentile (19), 50th Percentile (20.7) and 75th Percentile (22.3) were apparently higher than the Pre-test scores at 25th Percentile (12.4), 50th Percentile (14.3) and 75th Percentile (16). The Post-test Ogive curve lie to the right of the Pre-test Ogive curve, which was indicating that, the Post-test knowledge scores were consistently higher than that of the Pre-test scores. Thus the improvement of knowledge of staff nurses after intervention of SIM was obvious by the distance in the Pre-test and post-test Ogive curve at various levels.

Actual and Modified gain in pre test and post test among staff nurses: The pre test and post test knowledge scores obtained by the staff nurses were tabulated and the mean knowledge score, standard deviation and the mean percentage scores were computed. In order to compare the mean scores in different areas the mean percentage scores were computed. Taking the mean percentage scores into

account the gain score and the modified gain scores were calculated for pre test and post test knowledge scores.

The data presented in Table 3 reviews that maximum modified knowledge gain is in the area of “Activity of daily living”(0.94). The second highest modified knowledge gain is in the area of “Description of level of function”(0.80). There is also knowledge gain in other area, like “Activity of daily living assessment tool”(0.76) and “Basic scoring principles”(0.66), thereby indicating the effectiveness of self instructional module in increasing the knowledge of staff nurses.

Table 3 Area wise mean percentage of pre test and post test knowledge scores, actual and modified gain scores of Staff Nurses (n = 30)

Area	Maximum Possible Score	Pre Test		Post Test		Actual gain (%)	Modified gain
		Mean score	Mean% score	Mean score	Mean% score		
Activity of Daily Living	5	3.2	64	4.9	98	34	0.94
Activity of Daily Living assessment	3	1.7	56.6	2.7	90	33.4	0.76
Basic scoring principles	4	2.5	62.5	3.5	87.5	25	0.66
Description of level of function	8	5.4	67.5	7.5	93.7	26.2	0.80

Section-IV Findings related to the effectiveness of self instructional module regarding assessment of self care activities of chronic orthopaedic patients

In order to find out the significant difference, 'paired – t' test were applied between:

- (i) Pre - SIM knowledge score with Post -SIM knowledge score

Hypotheses:

H₁: The mean post test knowledge score of staff nurse is significantly higher than the mean pre test knowledge score on assessment of self care activities for chronic orthopaedic patients as evidence by a structured knowledge questionnaire at 0.05 level of significance.

H₀₁ : There is no significance difference between mean post test and pre test knowledge score of staff nurses after administering the self instructional module as evidenced by a structured knowledge questionnaire at 0.05 level of significance.

Data given in Table 4 shows that the mean post-test knowledge score (18.7) of self instructional module on assessment of self care activities of chronic orthopaedic patient is higher than the pre-test knowledge score (12.96) with a mean difference 5.74 which is found to be statistically significant as evident from the 't'₍₂₉₎= 31.8, p<0.001. This shows that the obtained mean difference was a true difference and not by chance. Thus the null hypothesis is rejected and research hypothesis is accepted which shows that self instructional module was effective in developing knowledge of the Staff Nurses regarding assessment of self care activities of chronic orthopaedic patient.

Table 4 Mean, Mean difference, Median, Standard deviation and ‘t’ value of knowledge score of Staff Nurses (n= 30)

Group	Test	Mean	Mean Difference	Median	S.D.	‘t’
Staff Nurse	Pre test	12.96		13	1.42	
	Post test	18.7	5.74	19	0.91	31.8***

***significant at 0.001 level, ‘t’₍₂₉₎ = 3.65, p<0.001

Section- V Association between pre test knowledge score of the staff nurses with their age, professional qualification, period of working experience, period of posting in orthopaedic ward

Table 5 shows that the chi square is computed between pre test knowledge score of the staff nurses with selected demographic variables. It shows that all the variables are not significant except age and period of working experience. The findings presented in table 5 shows that the computed Chi2 value at df 1 (6.82) for pre test knowledge level of the staff nurses significant at df (1) at 0.05 level of significance. So, there is association between pre test knowledge level of the staff nurses with their age and period of working experience. Association shows as age and period of working experience increase their knowledge increases.

Table 5 Chi-square values showing the association between pre test knowledge score of the staff nurses with selected demographic variables (n =30).

Socio-demographic indicators	Knowledge level		Chi square	df	Significance
	Below median	At and above median			
1. Age					
21-40 years	0	9			
41-60 years	8	13	6.82	1	Significant
2. Professional Qualification					
G.N.M	10	12			Not significant
Other (Basic B. Sc. Nursing, Post Basic B. Sc. Nursing, Post diploma in orthopedic & rehabilitation)	4	4	0.40	1	Not significant
3. Period of working experience					
Up to 10 years	0	9			
Above 10 years	8	13	6.82	1	significant
4. Period of posting in orthopedic ward					
Up to 5 years	5	8			Not significant
Above 5 years	5	12	0.01	1	significant

**** χ^2 df(1) 3.84; p<0.05**

DISCUSSION IN RELATION TO OTHER STUDIES

Findings of the present study showed that the mean post test knowledge scores in all areas were significantly higher than the mean pre test knowledge scores. The findings using modified gain suggested that the post test scores in all areas were higher than the pre test scores. The computation of the data using paired 't' test [$t_{(29)} = 31.8, p < 0.001$] showed that the null hypothesis was rejected and research hypothesis was accepted, depicted that the staff nurses gained knowledge on “self care activities”. So it was proved that the Self Instructional Module on “self care activities of chronic orthopaedic patients” was effective in improving the knowledge of the staff nurses. The study is supported by the study Muninarayanappa NV on the effectiveness of two Industrial Strategies on Knowledge and Skills in Activities of Daily Living and their Relationship with Selected Variables, in persons with neurological disability and their Caregivers. The findings suggest that the neurologically disabled persons and their caregivers benefit by self-instruction and also through agent initiated Strategy. The combination of self-instruction method with nurse demonstration of Activities of Daily Living (ADL) activities would benefit more and written materials to read will enhance gain in knowledge and skill of caregivers^[18].

The present study findings is also supported by the study of Kaur N, Verma P, Rana, Singh S on “Effectiveness of planned preoperative teaching on self-care activities for patients undergoing cardiac surgery”. The objective of the study was to assess the effect of planned preoperative teaching on self-care activities for patients undergoing cardiac surgery. A quasi-experimental design was used based on convenient sampling technique. A comparison of post test performance scores between both groups shows that experimental group had strongly statistically significant ($P < 0.001$) increase in performance of total scores as well as each variable of self-care activities. The findings of the study reflect that the preoperative teaching is an extremely effective media to increase the level of performance and enhance the early recovery of the subjects^[19].

Study conducted by Cashman R, Bernstein LJ, Bilodeau D supports the present findings. The study was conducted to evaluate the “impact of continuing education on patient outcomes in the elderly hip fracture population”. Nursing educators are being asked to demonstrate how continuing education for staff improves patient outcomes. A significant difference was found between the control and experimental unit patients with respect to time to first ambulation and length of stay on the orthopaedic unit^[20].

Similar findings were reported in the other areas of knowledge on self care activities. Study was conducted by Bowler M using an e-learning tool to encourage staff in promoting and supporting self care with patients. A team of community matrons in NHS South of Tyne and Wear helped to develop and pilot an e-learning tool for staff, to remind them of the importance of self care and give advice on ways to support patients. It helps them very much to increase their knowledge^[21].

Study conducted by Abdel-shafy EI-shrnouby O, Gad N R A, Seif-Eldeen A I, Abdel Aziz A L, Mohamed N A F supports the present findings. This study aimed to evaluate the ‘Efficacy of Nursing

Interventions of Multimodal Teaching Module of Self-care on Abilities and Quality of Life of Patients Undergoing Spinal Surgeries'. The findings of the study reflect that patients undergoing spinal surgeries and receiving nursing interventions and teaching modules regarding self-care showed a considerable improvement in the average scores of their self-care abilities and quality of life levels. The multimodal teaching group had significant differences regarding all items of self-care abilities, resulting in better quality of life, followed by the illustrated booklet group, then the smart video group, compared to the control group.^[22]

CONCLUSION

From the study findings it can be concluded that the self instructional module on “Self care activities of chronic orthopaedic patients” was effective for increasing the knowledge of the staff nurses as the computed ‘t’ test was significant at 0.001 level. This concludes they were motivated to gain such knowledge which will be beneficial for the individuals, family, community and as a whole for the society. From the analysis of acceptability of the self instructional module it can be concluded it was an acceptable method of improving the knowledge of the staff nurses by teaching module.

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