EFFECTIVENESS OF OREM SELF-CARE THEORY INTERVENTION FOR IMPROVEMENT IN SELF-CARE PRACTICES AMONG MYOCARDIAL INFARCTION PATIENTS; A QUASI-EXPERIMENTAL STUDY

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■ ABSTRACT

Objective: The aim of the study was to identify the effectiveness of Orem self-care theory for the improvement of self-care practices among myocardial infarction patients.

Methodology: The study design was quasi-experimental. The study was conducted between June to September 2022 having a sample size of 90 patients. The study instrument was a self-structured reliable questionnaire of self-care practices that was filled out before intervention and 12 weeks after the intervention, while the intervention was 2 sessions of one hour. The experimental group received education intervention while the control received routine care.

Results: In the study, the number of total participants was 90 divided into experimental (n=45) and control group (n=45). In the experimental group majority of the participants were females (51.2%) having a mean score of (61.5 ± 5.5), while in the control group the number of male participants was in majority (57.8%) while the mean score was (61.3 ± 5.1). In experimental group the intervention was effective on physical (p= 0.001), psychological (p= 0.000), emotional (p= 0.009), and spiritual (p= 0.003) self-care. While there is no effect seen on workplace and relationship care.

Conclusion: The overall self-care of the experimental group was significantly positively changed compared to the control group that concludes that the intervention was effective.

Keywords: Patient Education; Selfcare Ability; Orem Selfcare Theory; Myocardial Infarction; Clinical Practice.

■ INTRODUCTION

Myocardial infarction (MI), colloquially known as "heart attack," is caused by decreased or complete cessation of blood flow to a portion of the myocardium. Myocardial infarction may be"silent," and go undetected, or it could be a catastrophic event leading to hemodynamic deterioration and sudden death.[1] Myocardial infarction has two types i.e., ST elevated MI and Non-ST elevated MI.[2] Globally myocardial infarction (MI) is the leading cause of death and disability.[3] In 2019 among the 32% of all deaths worldwide due to coronary artery diseases, 85% of patient died due to MI and stroke.[4] Atherosclerotic plaque occlusion accounts for 70% of fatal events in patients with acute myocardial infarction.[5] As a result of atherosclerosis not only promote inflammatory cascade but also increase chances of thrombosis formation and platelet aggregation. As a result of atherosclerotic plaque the macrophages and monocytes form an inflammatory cascade with plate-let aggregation and thrombus formation.[6] Therefore it cause obstruction that decrease oxygen rich blood supply towards myocardium. Chest pain that spreads to the left arm or the left side of the neck, shortness of breath, sweating, nausea, and vomiting are all common sign and symptoms of MI,[7] while in "silent MI" a Hugh number of patients 64% doesn't experience chest pain.[8] In Pakistan the ratio of coronary artery diseases increased up to 29% three years consecutively in 2016. The ratio of death from heart diseases accounts 19% of all deaths within the country.[9]

The health care providers when planning for the management of patients with MI, risk factors is primarily targeted that are categorized as modifiable and non-modifiable risk factors. Modifiable health factors are improved through educational and rehabilitation programs: Those are physical activity, smoking habits, diet and obesity, stress management and health responsibility and the vital target of cardiac rehabilitation

programs. The patients who experienced MI modifiable risk factors are responsible for 90% in men and 94% in women's.[6] It is suggested that individuals with CAD constantly practice healthy habits to avoid recurrence and deterioration during acute treatment.[10]

Knowledge about health, in particular, may alter a person's conception of what motivates them to engage in certain behaviors connected to their health and their attitude toward engaging in such actions, thereby boosting the level of engagement.[11] Despite the significance of self-care, patients rarely, if ever, obtain comprehensive health information from their medical professionals. When patient doesn't practice self-care the chances of re-admission increased.[12] The Orem self-care theory (OSCT) enhance patient capabilities of self-care, the theory also identify that how the knowledge of care developed and provide it as proposed by research studies.[13] The OSCT not only promote the patient skills to improve developmental, universal and health related self-care knowledge motivation and strengthen their skills.[14] The aim of the study was evaluate the effectiveness of self-care theory on self-care practices of patient with MI.

METHODOLOGY

The study was conducted between June to September 2022 in the cardiology department of saidu group of teaching hospital swat. The design was quasi-experimental study (pre-test and post-test). A prior experimental research of nurse-led clinics on cardiovascular risk scores,[15] that showed an effect size of d = 0.73 and an alpha of 0.05 for the sample size calculation using G-Power for independent groups.[16] For this study a power value of 0.8 was anticipated. After 125 patients are screened, 90 are chosen and placed in the control and experimental groups.The participants for the study were recruited those patient who met the inclusion criteria set for the participants. The inclusion

criteria for the study was those patient who were admitted in the cardiology department with the diagnosed with myocardial infarction STEMI (ST elevated myocardial infarction) and N-ST EMI (Non-ST elevated myocardial infarction), their age should be between 55 to 75 years, the patient should be admitted for at least 3 days in cardiology ward and those patient who are willing to be the participant of the study for 3 months after discharge and follow-up. While the patient who age was above 75 years, those patients who are not mentally stable and immobilized were excluded from the study.

The instrument used in the study was self-care practices checklist (SCPC).[17] This comprehensive checklist comprised two distinct sections, each serving a specific purpose in assessing and understanding the self-care practices of the participants. Part-A of the checklist focused on gathering demographic information from the patients. This included variables such as age, gender, educational level, marital status, smoking habits, presence of chronic illnesses, family medical history, history of hospitalization, and Body Mass Index (BMI). On the other hand, Part-B delved into the core of the self-care practices, encompassing six dimensions with a total of 42 items. Respondents were required to rate their engagement in each self-care activity using a 4-point Likert scale, ranging from 3 (indicating frequent adherence) to 0 (representing non-engagement). The six distinct categories within Part-B were designed to comprehensively assess various aspects of self-care.

These included Physical Activity Self-Care, which involved seven items; Psychological Self-Care, consisting of seven items; Emotional Self-Care, with seven items; Spiritual Self-Care, comprising seven items; Relationship Self-Care, which included seven items; and Workplace Self-Care, assessed through seven items. This structured approach allowed for a thorough examina-

tion of the participants' self-care behaviors across different dimensions, providing valuable insights into their overall well-being.

The questionnaire was validated from 3 expert nurses and 1 cardiologist, while pilot study was conducted for the reliability of this instrument on 10 patients that shows chronbach alpha of 0.73.

The primary investigator trained three nurses one was qualified nursing instructor and two was intern nurse for the pre-test data collection, provision of intervention and collection of post-test data for the fairness of intervention. The admitted myocardial infarction was investigated by one of the research assistant for the inclusion criteria of the study after 24 hours of thrombolytic therapy or coronary intervention to explain the aim and objective of research study, so after the permission and consent of the patient in the presence of their attendant during introductory phase the patient will be assign to control or intervention group.

In the ward a face-to-face interview was arranged with patient that contain introduction to research project and pre-test from each participant of control and intervention group. The pre-test data were collected of a self-structured checklist of self-care practices that contain 6 dimensions and 42 items with 4 point Likert scale. The checklist was also converted into Urdu for better understanding of patient validated from two subject specialist, in the presence of family member while the need required were provided by research assistant and also from primary investigator. The pre-test data was collected by the assistant after 24 hours of patient then the intervention was provided in two sessions to experimental group while the control group only received their routine care. The post-test data of the patient related to self-care practices was collected after 12 weeks.

The intervention for the study was intricately crafted based on Dorothy Orem's Self-Care Theory (OSCT), a comprehensive framework consisting of three sub-theories, namely OSCT, Orem Self-Care Deficit Theory (OSCDT), and the Theory of Nursing Systems. The education program, structured around a pre-test, intervention, and post-test conducted after a 12-week period, aimed at promoting self-care practices among the participants. The intervention unfolded in four distinct steps. In the initial step, the research assistant assessed patients for inclusion criteria, conducted a needs assessment, and obtained initial consent. The second step initiated interaction with patients, encompassing a detailed exploration of their medical history, identification of barriers to cardiac health behaviors, and an assessment of their specific needs.

A crucial aspect of this step involved providing patients with a contact number for post-discharge support and guidance throughout the 12-week intervention period. Moving to the third step, the actual intervention took place in two sessions. The first session, delivered individually to each patient, disseminated essential information about myocardial infarction (MI), including its signs and symptoms, risk factors, prevention strategies, management approaches, and potential complications. The second session, also individualized for each patient and delivered after a break from the first session, focused on self-care practices. This encompassed crucial aspects such as physical activity, psychological well-being, stress management, spiritual well-being, medication adherence, and the importance of cultivating positive relationships and workplace care. The thoughtful design of these sessions aimed to empower participants with knowledge and skills for effective self-care, ultimately contributing to improved cardiac health outcomes.

The collected data were categorized as descriptive and inferential statistics. The descriptive data was further categorized as categorical and continuous data. Frequencies and percentages were calculated for categorical variables while for continuous data mean and standard deviation was calculated. For inferential statistics, independent t-test was used for difference within the group of demographic variables, while paired sample t-test was applied on the self-care practices to identify the significance among control and experimental data, and Pearson correlation test was used for association of self-care practices with demographic variables of the participants through Microsoft excel and SPPS 20.

The study was approved by graduated committee, ethical review board and advance research board of institute of nursing. The data collection permission was taken from the medical superintendent of institute. During the study period the data of each participant was ensured to be kept in privacy in a locker having access of primary investigator to maintain confidentially of each participant pre-test and post-test data.

RESULTS

In this study 90 participants were divided into equal groups of 45 in experimental and control group. The mean age of intervention group were 61.5 ± 5.5 years, while the mean age of control group was 61.3 ± 5.1 years. In experimental group, the number of female participants was high (51.2%), while in control group, there were more male participants (57.8%) (Table 1). Findings show that in experimental group, there was significantly more effect on physical (p= 0.001), psychological (p= 0.000), emotional (p= 0.009), and spiritual (p= 0.003) self-care. However, there was no effect seen on workplace and relationship care. The overall score reveals that the experimental group was showing significant difference as compared to control group (Table 2).

The association of self-care practices with gender showed a weak association (p=0.045), while there was no significant association with age (p=0.487), and a strong association with co morbididty (p=0.001).

DISCUSSION

In the current study in the control group the number of males was higher (57.8%) than the female participants, while in the experimental group the number of females was higher (51.2%) than male participants. The findings are similar with the study, where the ratio of male in control group is more (72%) than female patients (28%), gender differences in depression, sleep disturbances and stressful life events have been reported.[18] While contradicted by a study that shows men was (49%) and female were (51%) in retrospective qualitative study.[19]

The overall pre-test mean score among the control group was (10.0 ± 0.69) while in post-test the mean score increased to (10.07 ± 0.79). The finding shows that the score of post-test slightly enhanced compare to pre-test in all six categories. The results of our study was parallel to the finding of study done by Mohammadpour et al which showed that the self-care knowledge of post-test score was increased (1.5 ± 0.5) compare to pre-test mean score (1.4 ± 0.5) of control group. In the findings of this study discloses that the 6 categories of self-care practices was improved within the experimental group.[12] The findings was also alike with the study of that shows the pre-test score of self-care agency was (87.68 ± 23.44) decreased compared to post-test score (91.23 ± 21.23) of control group.[20]

The findings concluded that the self-care practices overall mean score was enhanced to (10.90 ± 0.69), compared to pre-test mean score (10.15 ± 0.74). The results of Khatiban M (2018) look resemble with our outcomes that as a result of Orem self-care

Table 1: Demographic data of the participants

Characteristics	Categories	Intervention group (n-45)	Control group (n-45)	p-value
Gender	Male	22 (48.9%)	26 (57.8%)	0.47
	Females	23 (51.2%)	19 (42.2%)	
Age group	55 -62 years	11 (24.4%)	13 (28.9%)	0.97
	63 – 70 years	19 (42.2%)	17 (37.8%)	
	71 – 75 years	15 (33.3%)	15 (33.3%)	
Educational level	Not educated	17 (37.7%)	27 (60%)	0.42
	Matric	13 (28.8%)	13 (28.8%)	
	Intermediate	11 (24.4%)	2 (4.4%)	
	Graduation	4 (8.8%)	3 (6.6%)	
Marital status	Married	45 (100%)	45 (100%)	
Profession	House wife	20 (44.4%)	25 (55.6%)	0.42
	Out of country	7 (15.6%)	3 (6.7%)	
	Teacher	4 (8.8%)	5 (11.1%)	
	Shop keeper	6 (11.1%)	7 (15.6%)	
	Businessman	5 (11.1%)	5 (11.1%)	
Smoking	Never smoked	35 (77.7%)	37 (82.2%)	0.62
	Stopped smoking	5 (11.1%)	5 (11.1%)	
	Currently smoking	5 (11.1%)	3 (6.6%)	
Co-morbid	Hypertension	31 (68.9%)	28 (62.2%)	0.60
	Diabetes	4 (8.9%)	2 (4.4%)	
	DM + HTN	2 (4.4%)	9 (20%)	
	No	8 (17.8%)	6 (13.3%)	
Hospitalization history	No	15 (33.3%)	11 (24.4%)	0.35
	Yes	30 (66.3%)	34 (75.5%)	
Type of Myocardial Infarction	STEMI	28 (62.2%)	28 (62.2%)	1.0
	NSTEMI	17 (37.8%)	17 (37.8%)	

theory intervention the self-care practices mean score increased within patients from (8.61 ± 2.47) in pre-test to higher posttest mean score (12.74 ± 1.33).[21] Likewise in another study the self-care practices regarding body pain, the pre-test score of the patients was (61.17 ± 12.6) that improved in post-test (64.87 ± 16.1), similarly the self-care practices regarding physical role of pre-test mean score was also raised from (36.95 ± 6.06) to (43.47 ± 8.3) in post-test, that show the effectiveness of Orem self-care theory intervention for the enhancing self-care capabilities and help the patient in rehabilitation process.[22]

The findings indicate that Orem self-care

practices improve the self-care practices of patient with myocardial infarction. The overall p-value of self-care practices of the experimental group were (p-value=0.000) while the control group (p-value=0.719). The results of our study are parallel to the study by Mohammadpour et al, where the researcher applied Orem self-care theory intervention for developing the self-care abilities among myocardial infarction through randomized controlled trails.

The results show that the self-care skills of the intervention group were better (p-value=0.221) than control group (p-value=1.00), in self-care motivation of intervention group (p-value=0.001) was higher

than the control group (p-value=0.572).[12] The outcomes of our study is also similar with the study conducted by Khatiban et al which showed that the intervention based on Orem self-care theory shows that the p-value of experimental group was (p-value=0.001) compared to control group (p-value=0.062) in self-care practices.[21] The results is also alike with the finding of Malekzadeh et al, that concluded that supportive educational session based on self-care theory shows better clinical caring skills of intervention group (p-value=0.001) compared to control group.[22] These findings indicates that Orem self-care theory intervention promote self-care skills, motivation and clinical understanding of patients.

Table 2: Effects of Orem self-care theory intervention on self-care practices

Characteristics	Group	Pre-Test	Post-Test (12 weeks later)
Physical self-care	Control	8.24 ± 1.69	8.93 ± 2.11
	Intervention	8.44 ± 1.63	9.62 ± 1.78
	p-value	0.095	0.022
Psychological self-care	Control	9.55 ± 1.53	9.66 ± 2.08
	Intervention	9.46 ± 1.42	10.88 ± 1.41
	p-value	0.209	0.001
Emotional self-care	Control	10.62 ± 1.69	10.22 ± 2.46
	Intervention	10.88 ± 1.52	11.66 ± 1.80
	p-value	0.044	0.000
Spiritual self-care	Control	9.88 ± 1.30	10.04 ± 1.75
	Intervention	10.13 ± 1.16	10.82 ± 1.61
	p-value	0.117	0.001
Relationship self-care	Control	11.44 ± 1.60	11.13 ± 1.75
	Intervention	11.46 ± 0.99	11.66 ± 1.60
	p-value	0.918	0.002
Workplace self-care	Control	10.37 ± 1.38	10.46 ± 1.76
	Intervention	10.51 ± 1.19	10.73 ± 1.54
	p-value	0.452	0.416
Overall	Control	10.02 ± 0.69	10.07 ± 0.79
	Intervention	10.15 ± 0.74	10.90 ± 0.69
	p-value	0.028	0.000

Figure 1: Flow diagram of the study

in the areas of physical self-care, psychological self-care, emotional self-care, and spiritual self-care. The OSCT intervention is also effective in improving patients' self-care knowledge, self-care management behaviors, and self-care maintenance.

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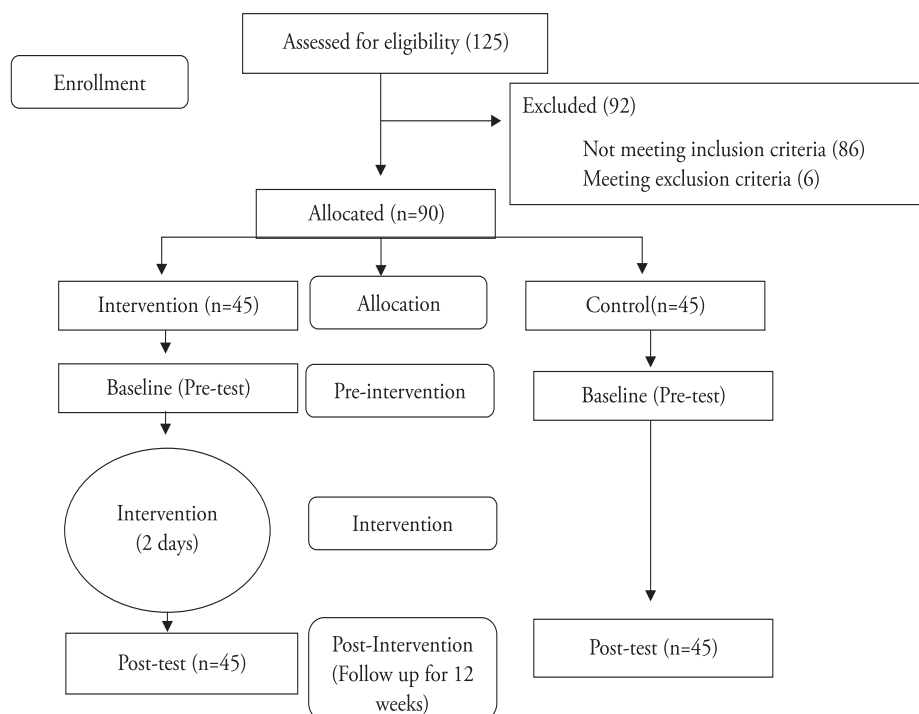
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CONCLUSIONS

Patients with myocardial infarction require counseling, motivation, and self-care practices. Therefore, OSCT intervention enhances the self-care practices of patients

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Author's Contribution

AS conceived the idea, designed the study, and performed data analysis. SK helped in the data acquisition and the write up of the manuscript. Both the authors made substantial intellectual contributions to the study.