

The Impact of Education Level on Quality of Life among Patients after Cardiac Revascularization

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Abstract: This study was conducted to examine the impact of education level on quality of life among patients with ischemic heart disease who are undergoing cardiac revascularization. A convenient sample amounted to 100 hospitalized adult male and female patients with different levels of education were recruited. The study settings were cardiology departments and cardiac critical care units at Al-Manial University Hospital. Data was collected through structured individualized interview and using the following tools: Patients' Sociodemographic and Medical Background Data Scale (PSMDS) and the Medical Outcomes Study (MOS SF-36) Scale. The result of this study revealed that, the majority of study subjects have poor health before revascularization and good health after revascularization. In addition there was statistical significant difference between education level and quality of life before and after revascularization with P value 0.033 and 0.020 respectively. Conclusion: The findings of this study delineated that, there is a high statistical significant difference between education level and quality of life even before and after revascularization.

Key words: Education • Percutaneous Angioplasty • Revascularization • Ischemic Heart Disease

INTRODUCTION

Coronary artery disease (CAD) is one manifestation of ischemic heart disease, which is the leading cause of mortality in the world. In addition to preventive medical therapy and lifestyle changes, consideration of revascularization of obstructed arteries to reduce ischemia, alleviate angina and improve quality of life is a mainstay of current practice. However, the benefits of different methods of revascularization in particular patient populations are debated. Percutaneous coronary intervention (PCI), which involves placement of intracoronary stents in most patients, is a less invasive procedure than coronary artery bypass graft (CABG) surgery [1]. A cornerstone of therapy for a heart attack is antiplatelet medication. Medication can prevent the collection of platelets at a site of injury in a blood vessel wall like a crack in an atherosclerotic plaque. Platelets collecting and accumulating is the initial event that leads to clot formation [2]. Since cardiovascular diseases continue to be the most important cause of mortality and morbidity, there is intense research on this subject and different treatment methods are being developed,

therefore, increasing number of patients are undergoing diagnostic and therapeutic interventions in the invasive cardiology laboratory [1]. Education is a common element of care for people with CHD aiming to decrease mortality and morbidity as well as improving quality of life [3]. Nurses have key roles in the areas of assessment, education and referral. Formal and informal culturally appropriate education programs need to be developed and implemented to disseminate CHD information. Nurses can take a central role in working with patients to promote the best outcomes [4].

Nurses may utilize the provided information through history taking to assist the patients to identify obstacles and inhibitors and to develop strategies to initiate health behavioral changes [5]. Myocardial revascularization has been an established mainstay in the treatment of CAD for almost half a century. Patient information needs to be objective and unbiased, patient-oriented, evidence based, up-to-date, reliable, understandable, accessible and relevant related to revascularization and many studies documented the higher level of quality of life, improved level of physical functioning and diminished state anxiety levels after successful PTCA [6]. The aim of this study

was to examine the impact of education level on quality of life among patients with ischemic heart disease who were undergoing cardiac revascularization.

MATERIALS AND METHODS

Design: A descriptive correlational research design was utilized to achieve the purpose of the study. This design is used to describe the relationship among variables.

Setting: This study was conducted at cardiology and internal medicine departments and the intensive care units of one University hospital affiliated to Cairo University.

Subjects: A total sample of 100 adult male and female patients (as own control) with acute myocardial infarction from different cardiology departments at El Manial University Hospital recruited for the current study. Criteria for subject's inclusion in this study would be" (a) confirmed diagnosis of MI and left ventricular ejection fraction less than or equal 45% according to echo report, (b) PTCA and intracoronary stenting procedure, (c) no other problems as liver cirrhosis, renal failure and musculoskeletal problems that may affect education and exercises implementation. Patients who were post coronary artery bypass graft or pre coronary artery bypass graft; or had prior cardiac surgery as valvular replacement, or had more than one cardiac complain as rheumatic heart in addition to ischemic heart or patients with any organ failure were excluded from the study.

Tools: Data of this study were collected through a structured interview utilizing two main different tools

Tool (1): Patients' Socio-demographic Medical Background Data Scale (PSMDS), this tool was designed by the researcher and covered the following data: age, gender, income, job, education, -place of residency, diagnosis - frequency of previous hospitalization and catheterization. This tool was filled out one time (on admission).

Tool (2): Quality of life assessment tool: Health-related quality of life (HRQL) assessment is an important measure of the impact of the disease, effect of treatment and other variables affecting people's lives which are measured by using The Medical Outcomes Study (MOS SF-36) tool. It was developed by Tarlov *et al.* [7], the SF-36, is for measuring health related quality of life (HRQOL) of patients with coronary heart disease was used to assess quality of life among patients before and after

intervention. The SF-36 comprises 36 items covering eight domains. Physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), general health perceptions (GH), energy/vitality (VT), social functioning (SF), role limitations due to emotional problems (RE) and mental health (MH). The scores for each domains were coded and the total score would be summed and transformed on to a scale from zero to 59 (worst or bad health), 60 to 84 (good health) 85 to 100 (best possible health). Tools no. 2&3 were filled out three times (on admission, after one month and two months).

Pilot Study: A pilot study was conducted on 10% of the sample (10 patients) to estimate the needed time for data collection and test the feasibility, objectivity, validity & applicability of the study tools. The needed modifications were done and the samples included in the pilot study were included from the final study sample.

Procedure: Once permission was granted, data collection was started to proceed with the current study. The patient who was meeting the criteria for inclusion in the study was recruited. Sociodemographic, medical data background and quality of life data were collected through interviewing and examine each subject individually. Structured interview was utilized to assess quality of life for each subject before revascularization and after one month from revascularization. The time needed for data collection ranged between 30 min. to one hour.

Statistical Analysis: Upon completion of data collection by the previously mentioned tools, data were computed and analyzed. Data analysis was done using statistical package for social sciences (SPSS). The following statistical tests were used according to the number of participant patients: (a) Frequency distribution and percentage, (b) Arithmetic mean as an average that describes the central tendency of observations, (c) Standard deviation as a measure of dispersion of results around the mean, (d) T-test and ANOVA were also used. The level of significance was considered at the 5% level ($P = 0.05$).

RESULTS

Table (1) denotes that the majority of the subjects were male (72%). The one third of the study subjects age's ranged between 51 to 60 years with mean of 3.83 ± 1.09 . Regarding place of residency approximately more than two thirds of the study subjects were living in urban

Table 1: Characteristics among the study subjects n= 100.

Variables	No	%
Gender		
Male	72	72.0
Female	28	28.0
Age		
20-30	2	2.0
31-40	10	10.0
41-50	24	24.0
51-60	34	34.0
61-70	27	27.0
more than 71	3	3.0
X± SD	3.83 ± 1.09	
Residence		
Rural	33	33.0
Urban	67	67.0
Level of Education		
Illiterate	48	48.0
Primary, Intermediate & Secondary	36	36 %
Academic	16	16.0
Income		
Not limited	68	68.0
Less than 500 Pounds	1	1.0
500 -1000 Pounds	15	15.0
More than 1000 Pounds	16	16.0
X± SD	1.79 ± 1.20	
Occupation		
Employee	19	19.0
Manual work	20	20.0
Housewife	20	20.0
No work	23	23.0
Heavy duty- such as driving	18	18.0

Table 2: Frequency and percentage distribution of medical data characteristics among the study subjects (n= 100)

Variables	No	%
Diagnosis		
MI	12	12.0
Ischemic Heart Disease	40	40.0
Both	48	48.0
Frequency of admission		
Recent admission	10	10.0
One to three times	75	75.0
More than three times	15	15.0
Frequency of catheterization		
None	13	13.0
One to three times	85	85.0
More than three times	2	2.0
Chest pain		
Yes	95	95.0
No	5	5.0
Fatigue with effort		
Yes	53	53.0
No	45	45.0
Sometimes	2	2.0
Dyspnea		
Yes	91	91.0
No	9	9.0

(67%). for education 48% of the study subjects were illiteracy, while 52% had different levels of education. In relation to family income the 68% of the subjects had non limited income. For occupation the same table presents that 57% of the study subjects had a work (19% employee, 20% manual work and 18% heavy duty).

From Table (2) it is clear that, nearly half of study subjects (48%) had ischemic heart disease and MI and 40% had ischemic heart disease only. As regards to frequency of admission 75% of the subjects were admitted three times or less. 85% of study subjects had done catheterization one to three times. The same table presents, the most prevalent clinical manifestations that associated with heart attack were chest pain, fatigue with effort and dyspnea (95, 53 and 91%) respectively.

From Table 3 it is clear that, the majority of the subjects (72%) have poor health (low change quality of life) before revascularization, while the two thirds of them (67.4%) reported good health (moderate positive change in quality of life) after revascularization. Statistically significant difference was found before and after revascularization (p value 0.000 less than 0.05).

Table 4 shows that, statistically significant difference were found between education level and quality of life before and after revascularization among the study subjects (P value 0.033).

DISCUSSION

The current study revealed that, the majority of the study subjects were males, 34% of the age of study subjects were 51 to 60 years old, the majority of subjects (67%) were living in urban or city, Regarding the level of education the current finding presented that more than two fifths of subjects (48%) were illiterate and the 68% of subjects have unlimited income. More than one fifth of the study subjects (23%) haven't work. A recent observational study indicated that higher income is associated with greater improvement in physical HRQOL following invasive coronary procedures. Improvements in physical HRQOL appear to be unrelated to the age of patients, whereas elderly patients exhibit a stronger improvement in mental HRQOL after medical intervention. However, the association of sex and educational attainment with changes in HRQOL following invasive coronary procedures remains inconclusive [8]. Individuals with less than a high-school education are more likely to have heart disease than individuals with a high school education or more. The risk of death from coronary heart disease is also much greater for the least-educated than

Table 3: Total mean score for quality of life as based on SF-36 assessment in the different stages of program among the study subjects (n= 100, n= 95)

Variables	Before revascularization			After revascularization		
	No	%	X ± SD	No	%	X ± SD
Poor health (= 59)	72	72	1.30±0.50	07	7.4	2.17±0.55
Good health (60 = 84)	26	26		64	67.4	
Best health (85-100)	02	02		24	25.3	
Total	100			95		
Before and after revascularization Paired t-test	0.000*					

Table 4: The relationship between education and total quality of life (ANOVA test) among the study subjects (n= 95)

		Sum of Squares	Df	Mean Square	F	Sig.
Quality Of Life before revascularization and Education	Between Groups	1.694	2	.847	3.526	.033*
	Within Groups	23.306	97	.240		
	Total	25.000	99			
Quality Of Life after revascularization and Education	Between Groups	2.282	2	1.141	4.089	.020*
	Within Groups	25.676	92	.279		
	Total	27.958	94			
	Within Groups	32.352	92	.352		
	Total	33.221	94			

* Significant when P value = 0.05

for the most-educated people [9]. In relation to medical data, the most prevalent clinical manifestations that were associated with heart attack were chest pain, fatigue with effort and dyspnea (95%, 53% and 91%) respectively.

Kang, *et al.* [10] reported that clinically significant CADs are manifested by symptoms including chest pain, dyspnea. Smeltzer *et al.* [11] documented that is the most common symptom of acute myocardial infarction and is often described as a sensation of tightness, pressure, or squeezing. Shortness of breath (dyspnea) occurs when the damage to the heart limits the of the. The current study conducted improvement in the quality of life in after revascularization more than before. The two thirds of study subjects had good health as compared to the total score of quality of life. Education has effective role in the prevention of recurrent and development of coronary artery disease and quality of life improvement. So the current study conducted statistically significant difference between education level and quality of life. This finding does not matched with Henley [12] who found that there is no strong evidence of an effect of education on all-cause mortality (Relative Risk (RR): 0.79, 95% CI 0.55 to 1.13), cardiac morbidity (subsequent myocardial infarction RR: 0.63, 95% CI 0.26 to 1.48, revascularization RR: 0.58, 95% CI 0.19 to 1.71) or hospitalization (RR: 0.83, 95% CI:0.65 to 1.07). Whilst some HRQL of domain scores were higher with education. From the previous findings, the researcher delineated that, there is highly statistically significance between quality of life before and after revascularization, which means that patients after revascularization have good health than

before revascularization. In addition there is a highly statistically significance between education level and quality of life before and after revascularization.

Recommendations: The following recommendations could be inferred from the above mentioned conclusion:

Recommendations Related to Patients:

- Raising awareness about the importance of education and gaining information in relation to quality of life after revascularization to prevent secondary complications.
- Education should be encouraged to enhance the follow up patients with ischemic heart disease after revascularization.
- Comprehensive protocol of nursing care for acute myocardial infarction patients should be available in all cardiology departments to improve patient's outcome.

Recommendations Related to Nurses & Doctors:

- Physicians and nurses should assess the education level of those patients in order to construct database that could help in planning and implementation of future care for such group of patients.
- Nurses, physicians and social workers must coordinate their efforts of providing knowledge and skills to those patients about quality of life domains to increase their independence level and their knowledge.

Further Recommended Studies:

- Comparison study between gender and education impact on the quality of life among patients with myocardial infarction after revascularization.
- Determine impact of nursing rehabilitation program on quality of life after long-term myocardial infarction.

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