Effectiveness of an Instructional Program on patient's knowledge with arrhythmia regarding managing risk factors in coronary care unit.

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Abstract

Objective: To ascertain the effectiveness of an Instructional Program on patient's knowledge with arrhythmia regarding managing risk factors in coronary care unit.

Study Design: A pre-experimental study (one group pretest –posttest).

Place and Duration of Study: This study was conducted at the coronary care unit at Al- diwaniyah Teaching Hospital from 26^{the} June 2024 to 2th January 2025

Methods: Pre-test and post-test approaches are used for the research sample, forty patients participated. Date was collected through the use of constructed program and instruments for patients with arrhythmia knowledge regarding managing risk factors and reduces complication, the study instrument included three sections: socio-demographic characteristics, Clinical Characteristic of Patients With arrhythmia, and Knowledge of Patients With arrhythmia regarding managing risk factors and reduces complication.

Results: The study results indicate that the sample group responses at the pre-test are fail at all studied items at pre-program. However, after the program implementation, the majority of the research sample indicate that the study Sample responses at the post-test are good at all studied items.

Conclusion: the initial evaluation was administered before to the start of the trial to measure patients' knowledge of arrhythmia regarding management risk factors and reduce complications. The researcher finds that the examination found that the vast majority of the patients lacked information, Also notably, influencing factors such as age, gender, and educational level do not exert a significant impact on the execution and outcomes of the instructional program. This underscores the program's universal applicability across diverse age groups, genders, and educational backgrounds, rendering it beneficial for all.

These findings of this study exhibits that instructional program is highly effective (Improvement) on patients' knowledge as indicated by high significant difference with regard to post-test at p-value=0.001.

Keywords: instructional program, patient's knowledge, arrhythmia, and coronary care unit.

الخلاصة

الهدف: تحديد مدى فاعلية البرنامج التعليمي على معارف المرضى المصابين باضطراب نظم القلب فيما يتعلق بإدارة عوامل الخطر في وحدة العناية التاجية وكذلك. لمعرفة العلاقة بين معارف المرضى وبياناتهم الديموغرافية .

المنهجية: تم استخدام نهجي الاختبار الأولي والاختبار اللاحق لعينة البحث، وشارك فيها أربعون مريضًا. تم جمع البيانات من خلال استخدام برنامج وأدوات مصممة لمعرفتهم باضطراب النظم فيما يتعلق بإدارة عوامل الخطر ، وتضمنت أداة الدراسة ثلاثة أقسام: الخصائص الاجتماعية والديموغرافية، والخصائص السريرية لمرضى اضطراب النظم، ومعرفة مرضى اضطراب النظم فيما يتعلق بإدارة عوامل الخطر وتقليل المضاعفات وكان تصميم الدراسة دراسة تجريبية أولية (اختبار أولي لمجموعة واحدة - اختبار لاحق). مكان ومدة الدراسة: أجريت هذه الدراسة في وحدة العناية التاجية في مستشفى الديوانية التعليمي من 6 حزيران 2024 إلى 2 كانون الثاني 2025.

النتائج: تشير نتائج الدراسة إلى أن استجابات عينة الدراسة في الاختبار القبلي كانت فاشلة في جميع البنود المدروسة في البرنامج. ومع ذلك، بعد تنفيذ البرنامج، تشير غالبية عينة البحث إلى أن استجابات عينة الدراسة في الاختبار اللاحق جيدة في جميع البنود المدروسة.

الاستنتاج: تم إجراء التقييم الأولي قبل بدء التجربة لقياس معرفة المرضى باضطراب نظم القلب فيما يتعلق بادارةعوامل الخطر. يجد الباحث أن الفحص وجد أن الغالبية العظمى من المرضى يفتقرون إلى المعلومات، ومن الجدير بالذكر أيضًا أن العوامل المؤثرة مثل العمر والجنس والمستوى التعليمي لا تمارس تأثيرًا كبيرًا على تنفيذ ونتائج البرنامج الارشادي. وهذا يؤكد على قابلية التطبيق الشامل للبرنامج عبر الفئات العمرية والجنسين والخلفيات التعليمية المتنوعة، مما يجعله مفيدًا للجميع. تُظهر نتائج هذه الدراسة

أن البرنامج التعليمي فعال للغاية (تحسين) على معرفة المرضى كما يتضح من الاختلاف الكبير المهم فيما يتعلق بالاختبار اللاحق عند قيمة p = 0.001.

الكلمات المفتاحية: البرنامج التعليمي، معارف المرضى، عدم انتظام ضربات القلب، ووحدة العناية التاجية.

Introduction:

Problems in the electrical circuitry, or "wiring," of the heart muscle are known as cardiac arrhythmias. Almost everyone will at some time in their lives have an irregular heartbeat for different reason (1).

Imperfection in a regularly recurring motion" is what is meant to be understood when one speaks about dysrhythmia. There are two types of dysrhythmia: irregularities in the production and conduction of impulses. Changes in automaticity or triggered activity can lead to aberrant impulse creation, whereas re-entry or ischemia can cause abnormal impulse conduction. Before symptoms appear, arrhythmia can have an effect on a patient's health as general. Earlier patient interviews suggested that few doctors did not take patients' symptoms seriously, making it questioning to diagnose arrhythmia (2).

Three main objectives are included in the management of arrhythmias in patients with CVD: avoiding sudden cardiac death (SCD), improving quality of life (QOL), and reducing dysrhythmia symptoms. Antiarrhythmic medications have historically been the cornerstone of treatment; however, recent developments in no pharmacologic therapies, such as implantable cardioverter defibrillators (ICD) to prevent SCD, cardiac resynchronization therapy (CRT) for heart failure, pacemaker therapy for Brady arrhythmia, catheter ablation for tachyarrhythmia, and combinations of these therapies, have changed the landscape (3,4) .

According to the Framingham Heart Study that patients that suffered from arrhythmia have a greater than 5-fold raised risk of

having an ischemic stroke compared to people without arrhythmia. Consequently, the first management goal for patients with arrhythmia is stroke prevention, which is decided by two together the patient and the doctor (5).

Heart failure is linked to extensive cardiac conduction system electrophysiological remodeling, which causes AF, prolonged QRS and PR intervals, and decreased RR variability. A lengthy QRS (>120 ms) is present in 20–35% of heart failure patients (6).

Pacemakers are required when arrhythmias or conduction defects impair the electrical system and the heart's hemodynamic response. Lately, pacemakers have been used to treat symptomatic bradycardia; however, the rising cost of this life-saving technology has left many poor patients unable to afford them, which has resulted in morbidity and death. Every year, between one and two million people worldwide pass away from a lack of access to pacemakers (7).

Jordan, Yemen, Egypt, Lebanon, and Iraq have relatively high rates of death from CVDs, particularly acute MI and arrhythmia, and when compared to the United States, age-standardized rates of cardiovascular mortality are more than double. According to mortality estimates, CVDs cause between 25% and 40% of deaths in these countries (8).

The Iraqi ministry of health/ biostatistics director (2010), estimate that 149122(6.4%) of morbidity rate out of all inpatients in Iraq due to of cardiovascular diseases and 40386(34.6%) for mortality rate out of all death in Iraq.

Arrhythmias can impose significant healthcare costs. Studies such as those by Colilla. (2013), estimate the economic burden and underscore the importance of effective management to reduce costs, understanding the risk factors linked with arrhythmias allows for better protective strategies (9).

The social learning theory, the health belief model, and the paradigm of responsible environmental behavior all emphasize the importance of attitude in behavior adoption. This means that

instructors should work to assist individuals in changing their behavior by encouraging a positive outlook. Individuals are additional possible to react if they trust their actions will have an important impact; these impulses can be reinforced by positive reinforcement from previous experiences and positive comments from others in similar situations (10).

Individuals who have arrhythmias are more likely to die, clot, or have a stroke. Blood thinners are among the medications used to lower the risk of clot formation. Lowering the risk of thromboembolism is the same as lowering the chance of clot formation. Heart medications like sotalol and flecainide can be used to get the heart back to its regular rhythm. To return their heart rates to normal, patients could require an electrical shock. (11).

There is a correlation between coronary heart disease and the likelihood of (arrhythmia) atrial fibrillation and flutter. Understanding these correlations is crucial if examinations of electrocardiograms are being done to rule out arrhythmias. It is also thought that a number of risk factors, (eg smoking, high level cholesterol, heavy drinking, elevated blood pressure, and physical inactivity (12).

METHODS

Study design

A pre-experimental design (one group pretest -posttest) has used to guide this study, with the application of pretest for all study sample, and performed post-test for the same participants after the researcher application of the instructional program, to evaluate effectiveness of an Instructional Program on patient's knowledge with cardiac arrhythmia regarding managing risk factors in coronary care unit

Setting and period

In order to receive logical and universal data, the study had been done at Al-Diwaniyah teaching Hospital (coronary care unit (CCU)

and Medical wards during the period from 26th June, 2024 to 2th January, 2025.

Study Participant:

The study population of patients in coronary care unit, the sample had been One group include (40) patients with Arrhythmia. The study sample was exposed face-to-face regarding effectiveness of an Instructional Program on patient's knowledge with cardiac arrhythmia regarding managing risk factors in coronary care unit.

Inclusion and exclusion criteria:

The inclusion criteria patients who had been diagnosed with arrhythmia after admission to hospitals ,arrhythmia patients who were admitted to Al-Diwaniyah Teaching Hospital for arrhythmia management, to receive the required treatment and follow-up. The exclusion criteria: Patients who refused to participate in the study. Patient who had any psychiatric disorder.

Sampling and sample size

A non - probability purposive sample was selected from patients admitted to CCU at a Teaching Hospitals in Al-Diwaniyah city. The sample consist of (40) patients in one group.

Study instruments and data collection

Study instruments through a review of pertinent literature and consultation with a panel of experts, the researcher created a questionnaire to evaluate the effectiveness of an instructional; program on patients with arrhythmias' knowledge regarding reducing complications. The instrument consist of three part: **Part one**: Socio-Demographic Characteristics of Patients with arrhythmia which include (age, sex, education level, marital status, occupation, monthly income, and residency).**Part two** is involve Clinical Characteristic of Patients with arrhythmia that includes (patient's past medical history, patient's surgical history, medical Diagnosis,

smoking).**Part three:** Knowledge of Patients With arrhythmia regarding managing risk factors It consisted of (29) multiple choices questions in (3) domains**: First domain:** (10) items related to patients' knowledge regarding arrhythmia. **Second domain:** (9) items related to patients' knowledge about managing risk factors and reduce complication. Third domain**:** (10) items related to patients' knowledge about healthy life style.

Ethical considerations

Following the Nursing College Council's approval, the researcher conform an explanation of the study, including its goals and project, to the Central Statistics Organization of the Iraqi Ministry of Planning, the Technical Section of the Al-Diwaniyah Health Directorate, the Ministry of Health's planning department, and other official bodies to get agreement to acts the research and collect data. After that, the researcher received acceptance to complete the study from Al-Diwaniyah Teaching Hospital, Everyone gave the researcher their verbal informed consent. Prior to participation, the researcher gave an explanation of the study's purpose. Participants are advised by the researchers that their involvement in the study is entirely voluntary and that they are free to discontinue participation at any moment. In accordance with the subject's agreement sheet, the researcher additionally promised to respect the privacy of the data and to keep it securely maintained both during and after the study.

Statistical analysis

Descriptive and inferential statistical procedures were conducted. The descriptive analysis was presented with frequency, percentage, and mean and standard deviation. Paired-Samples t-test, **"**compares the means of two variables" for a single group, ANOVA it was used to determine the association between sociodemographic characteristics and the patient's knowledge statistically significant when the p-value is < 0.05. All the data were analyzed with SPSS Statistics (version 26).

Results:

Table: 1 Demographic data of the Study Sample (N= 40 Nurses).

Demographic data	Rating and scoring	Fre	Per %
Age groups	25 – 35	9	22.5
	36 – 45	6	15
	46 – 55	1	2.5
	56 - and above	24	60
	Min – Max 25- 68 years Mean ± SD 47.35 ± 12.88		
Sex	Male	25	62.5
	Female	15	37.5
Levels of education	Unable to read and write	3	7.5
	Read and write	14	35.0
	Elementary school graduate	7	17.5
	Middle school graduated	7	17.5
	High school graduate	2	5.0
	Diploma	4	10.0
	Bachelor degree and above	3	7.5
Marital status	Married	24	60.0
	Single	7	17.5
	Divorced	3	7.5
	Widowed	3	7.5
	Separated	3	7.5

Table1 shows that the dominant age group for the study sample is 50 years old and more (24) and 60. %). Regarding the sex the results indicate that the male is the dominant sex for the research sample

Occupation	**Freelancer**	**11**	**27.5**
	Retired	5	12.5
	Housewife	12	30.0
	Governmental employee	6	15.0
	Disabled	6	15.0
Monthly income	300,000-600,000	24	60.0
	600,000-900,000	16	40.0
Residency	Urban	29	72.5
	Rural	11	27.5
	Total	40	100.0

(25) and (62.5%). Regarding the educational level, the study results show that the majority of research sample group are Read and write (14) (35.0%) Regarding the marital status, the study results show that the majority of research sample group are married (24) (60%). Relative to the occupation, the results show that (30%) of the research sample group are housewives, (12) (30.0), and the monthly income for the research sample group was 300,000-600,000 (24) (60.0%). In addition, (29) (72.5%) of the research sample group are urban residents.

Table: 2 Past Medical and surgical History of the Sample.

Past Medical History	Classifications	Freq	%
Hypertension	Yes	25	62.5
	No	15	37.5
DM	Yes	10	25.0
	No	30	75.0
Heart Failure	Yes	15	37.5
	No	25	62.5
Other diseases	Yes	18	45.0
	No	22	55.0
Carotid artery surgery	Yes	6	15.0

	No	34	85.0
Peripheral vascular surgery	Yes	3	7.5
	No	37	92.5
PCI	Yes	29	72.5
	No	11	27.5
Allergy and other diseases	Yes	4	10.0
	No	36	90.0

Table (2): illustrates the past medical and surgical history. The study results indicate that the highest percentages of the research sample are suffering from hypertension (25) (62.5%). While surgical history of the sample indicates that the highest percentages for patient's surgical history are suffering from allergy, and other diseases (36) (90.0%).

Table-3- Mean Difference (Paired t-Test) for the sample at Two Levels of Measurement (Pre-Test and Post-Test).

Knowledge	Periods of measurement (Domains)	Pre		Post		Statistical analysis		
		Mean	SD	Mean	SD	t-test	d.f.	p. value
	Domain 1	1.15	.122	2	1.78	19.117	39	.000 HS
	Domain 2	1.16	.170	2	1.89	19.700	39	.000 HS
	3 Domain	1.15	.120	2	1.89	16.248	39	.000 HS
	Overall	1.15	.100	2	1.85	20.777	39	.000 HS

Table 3 shows that there is a high-significant difference between the study sample overall responses in two periods of measurements (pre-test and post-test) at p-value less than 0.01. With respect to the statistical mean, the study results indicate that there is an improvement in the patients' knowledge at the post-test compared with pre-test scores.

Table (4) Relationship between The Study sample Knowledge at The Post-Test Measurement and their Demographic Data.

Demographic Characteristics	Values	Knowledge			
		Mean	SD	Analysis	p. value
Age	25 – 35	1.84	.228	.023	**.995 NS**
	36 – 45	1.86	.180		
	46 – 55	1.86	.		
	56 - and above	1.85	.194		
Sex	Male	1.85	.213	.014	**.908 NS**
	Female	1.86	.149		
Education level	Unable to read and write	1.70	.368	.468	**.827 NS**
	Read and write	1.87	.201		
	Elementary school graduate	1.82	.205		
	Middle school graduated	1.86	.161		
	High school graduate	1.95	.073		
	Diploma	1.91	.120		
	Bachelor degree and above	1.86	.137		
Marital status	Married	1.83	.216	.254	**.905 NS**
	Single	1.88	.165		
	Divorced	1.90	.150		
	Widowed	1.90	.150		
	Separated	1.91	.130		
Occupation	Governmental employee	1.78	.246	1.131	**.358 NS**
	Freelancer	1.83	.229		
	Retired	1.90	.067		
	Housewife	1.93	.063		
	Disabled	1.94	.050		

N.S =Non Significant at p > 0.05, S= Significant at p < 0.05, H.S: High Significant at p < 0.001.

Table-4-shows that there is no association between the study sample knowledge (post-test) and their demographic data at p-value more than 0.05.

Discussion:

Concerning the age the study result that average age ranging from 25 to 56 years and older percentage (60%) this result is

agreement with these Hussein, Zainab Kadhim, and Widad K. Mohammed (2022) studies on 90 patient's finding the majority of age (50 years and more) 60%.Also this agree with Abdul-Ameer, H. F., & Khuder, K. M(2022)on 35 patients that finding most of age is (48 and more) (77.1%).also agree with Abdul-hussain,baqer (2020)finding the age average (Above 58)(40%)of 50 patients with essential hypertension (13,14,15).

In terms of patient sex, the results showed that little over one-third of the research participants were female, with the majority of participants being male *(*25*), (*62.5%*)* These finding of (Khasal, Qasim Ali, and Hussein Hadi Atiyah, 2019) agree with study of 100 patients with myocardial infarction this said majority of sex is male. (68%).also this agree with the finding of (MUSTAFA, MAAK, and DHS HASSAN 2020) Effectiveness of Nursing Intervention on Early Complications for Patients undergoing Coronary Catheterization agree with study of 100 patients this said majority of sex is male. (72%) (16,17).

With respect to the level of education, the study result findings show that most of the sample can (read and write) (35%). These finding is agree with (Rusul and, Hakima, 2023).That said most of educational level is Read and write (43.3%) (18).Concerning marital status the study finding is the majority of sample is married (60.0%). And this result agree with Al-Ganmi, Ali Hussein Alek, et al ,(2019), who studied Medication adherence and predictive factors in patients with cardiovascular disease: A comparison study between Australia and Iraq."on 120 participants, reported that the majority of the study sample were married (chi2 296 = 30.35, p=0.001) (19). also this agree with other study of study (Albadry, Nora Hamed Abas, and Hakemia Shaker Hassen., 2024) on 100 patients with angina pectoris this said majority of marital status is married (70%) (20).

The majority of research participants had moderately decent monthly incomes (between 300,000 and 600,000).These findings are reinforced by Tweely and Mhammad (2018) (21).who pointed out that the monthly income for the biggest proportion (53.3%) of the

research group was somewhat-sufficient. Additionally, Chen et al. (2014) reported that fewer than half (46%) of the 63 participants in their research had a good monthly income (22). According to residency the research's findings that the majority of the study sample resides in metropolitan regions. Said et al. (2019), who studied 310 participants, found that over half of the research sample resided in urban regions (n = 170; 54.8%), which supports these findings (23).

Concerning medical history of patients the results of the study show that over half of the study sample participants had hypertension (62.5%) this agree with Eshah's (2013) study, which found that pre-discharge education increases adherence to a healthy lifestyle among Jordanian patients with acute coronary syndrome. The study group and control group had the highest rates of hypertension (57.7% and 67.3%, respectively).(24).while surgical history of patients the study had significant portion of the research group (72.5%) had had PCI (percutaneous coronary intervention) This finding is consistent with Zachary and James's (2009) study, which described the development of surgical procedures for the treatment of atrial fibrillation throughout time (25).

Concerning patient with arrhythmia knowledge regarding reduce complication in pre and post test the research's findings showed that patients' pre-test knowledge of arrhythmia in lowering complications for the study sample was inadequate (Mean = 33.40; SD = ± 2.907). the patients' knowledge of arrhythmia and how to lower complications in the study sample has improved following the implementation of the educational program, this agree with The study of (Abbas, Douaa Rasool, and Aqeel Habeeb Jasim)that reveals that the highest percentage of the study sample were poor knowledge of all domain in pretest (26). Also this agree (Nadia Bahir Azeez, Hussein Hadi Atiyah, (2024) Effectiveness of Nurse-Led Interventional for Preventing Complications of Postoperative Open Heart Surgery, agree with this study concerning knowledge in pretest and posttest.(27).

Concerning the relationship between patients' age and their knowledge with arrhythmia about reduce complication, the data analysis results indicate that there is no discernible association between patients' knowledge and their age during the post-test phase (p-value=.995). This finding indicates that the instructional program was effective, this agree with Notably, Chinnappan et al. (2017) reported significant differences in knowledge across age groups and ethnicity using ANCOVA ($p < 0.001$). The mean knowledge score for respondents aged 12–24 was 58.92 (SD = 7.81), while those aged 45–64 had the lowest mean score of 54.21 ($p < 0.001$) (28).

Concerning relationship between patients knowledge and patients (sex, educational level ,marital status ,occupation ,residency) reported that there were no significant differences in patients' knowledge in terms of socio-demographic characteristics such as age, gender, marital status, education and this supported by Hwang and Kim (2015) who conducted a study which included 74 participants (29).,also This finding is consistent with that obtained by Kaur and Cheema (2016) who found that there were no significant differences in patients' knowledge in terms of their age at p-value (1.866) (30).

Conclusion:

The initial evaluation was administered before to the start of the trial to measure patients' knowledge of arrhythmia regarding management risk factors the researcher finds that the examination found that the vast majority of the patients lacked information. Also notably, influencing factors such as age, gender, and educational level do not exert a significant impact on the execution and outcomes of the instructional program. This underscores the program's universal applicability across diverse age groups, genders, and educational backgrounds, rendering it beneficial for all. These findings of this study exhibits that instructional program is highly effective (Improvement) on patients' knowledge as indicated by high significant difference with regard to post-test at p-value=0.001.

Recommendation:

Should provide the patient with a booklet or guideline sheet that includes the instructions for the arrhythmia after recovery and discharged from Cardiac care unit. Increase the patients' knowledge and awareness regarding arrhythmia by mass media and printing educational brochures. Similar research must be conducted in other Iraqi cities with a bigger sample size.

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