Interdisciplinary Rehabilitation / Rehabilitación Interdisciplinaria. 2021; 1:4
doi: 10.56294/ri20214

ORIGINAL

Educational intervention on risk factors that trigger angina pectoris

Intervención educativa sobre factores de riesgo desencadenantes de la angina de pecho

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Cite as: Lugo Torres T. Intervención educativa sobre factores de riesgo desencadenantes de la angina de pecho. Interdisciplinary Rehabilitation / Rehabilitación Interdisciplinaria. 2021;1:4. https://doi.org/10.56294/ri20214

Submitted: 07-09-2021 **Revised:** 18-10-2021 **Accepted:** 24-11-2021 **Published:** 25-11-2021

Editor: Prof. Dr. Carlos Oscar Lepez

Peer-reviewed article
Translated by: Cristhian Alejandro Pérez Pacheco

ABSTRACT

A before and after educational intervention was carried out through a pre-experimental study to evaluate the effectiveness of the application of an educational intervention program and to increase knowledge related to the risk factors that trigger angina pectoris in patients in the municipality of Venezuela, during the period between June 2020 and May 2021. The Mc.Nemar statistical test was used to find significant differences between the level of knowledge before and after. The study universe was constituted by 242 young adult patients of both sexes, between 30 and 45 years of age, who belonged to the Consultorio Médico de la Familia # 18, of the health area of the Venezuela polyclinic. We worked with a sample of 20 patients where a questionnaire was applied to evaluate the level of knowledge before and after the intervention. Before the intervention, the patients had inadequate knowledge about risk factors that trigger angina, and after the intervention there was a significant change in the final evaluation. The intervention was effective because it raised the level of knowledge on the subject.

Keywords: Angina Pectoris; Heart Disease; Educational Intervention; Risk Factors.

RESUMEN

Se realizó una intervención educativa de tipo antes y después, a través de un estudio preexperimental para evaluar la efectividad en la aplicación de un programa de intervención educativa y elevar conocimientos relacionados con los factores de riesgo desencadenantes de la angina de pecho en pacientes del municipio Venezuela, durante el período comprendido entre junio del 2020 y mayo del 2021. Se empleó la prueba estadísticas Mc.Nemar para hallar diferencias significativas entre el nivel de conocimiento antes y después. El universo de estudio estuvo constituido por 242 pacientes adultos jóvenes de ambos sexos, en las edades comprendidas entre 30 y 45 años de edad, que pertenecieron al Consultorio Médico de la Familia # 18, del área de salud del policlínico de Venezuela. Se trabajó con una muestra de 20 pacientes donde se les aplicó un cuestionario para evaluar el nivel de conocimientos antes y después de la intervención. Antes de esta los pacientes presentaban conocimientos inadecuados sobre factores de riesgo desencadenantes de la angina, y luego de esta hubo una modificación significativa en la evaluación final. La intervención fue efectiva porque elevó el nivel de conocimientos sobre el tema.

Palabras clave: Angina de Pecho; Cardiopatía; Intervención Educativa; Factores de Riesgo.

INTRODUCTION

Ischemic heart disease represents a significant global health concern, and within this category, angina pectoris will be discussed. While our country has traditionally maintained a relatively low mortality rate due to ischemic heart disease compared to other nations in our vicinity, cardiovascular diseases as a collective continue to be the predominant cause of mortality within our environment. Worldwide morbidity among patients afflicted by this condition stands at staggeringly high figures annually, with a likely increase of approximately 2-3 % in recent decades.[1,2]

In the last years, a 33 % reduction in mortality rates has been observed. This trend can be attributed to a confluence of preventive measures, such as resource optimization, and the implementation of new therapeutic interventions.[3]

The evaluation of risk factors (RF) for angina pectoris has become a significant concern for the healthcare team. These factors can be classified into modifiable and non-modifiable categories. This expression was initially introduced in the classic Framingham study[4] and is defined as a biological, lifestyle, or socioeconomic condition that is associated with an increased likelihood of becoming ill.

On a global scale, angina pectoris represents a highly prevalent and well-known morbidity. The World Health Organization (WHO) underscores the critical situation currently unfolding by highlighting several predisposing factors, including a high rate of sedentary lifestyle at 88,6 %, overweight or obesity at 67 %, smoking at 40,6 %, dyslipidemia at 38,5 %, hypertension at 26,9 %, and diabetes at 9,4 %.[3,4] The increasing prevalence of these factors underscores a prominent metabolic dimension that will escalate the incidence of Cardiovascular Diseases (CVD) in the forthcoming years.[5]

The most recent report on the incidence of angina pectoris stems from the recently published population registry in Finland, revealing data from patients aged 45 to 89 years with no prior history of coronary artery disease. The findings elucidated an annual incidence of angina pectoris at 2,0 % among men aged 45 to 89 years and 1,9 % per annum among women within the same age group.[6] In Spain, the incidence varies from 0,7 % in men aged 45 to 54 years to 4,3 % in those aged 85-89 years, and in women, it ranges from 0,4 % to 4,2 %.[7]

In Latin America, the incidence of angina pectoris as an initial symptom of coronary artery disease is remarkably elevated and exhibits a similarity between both men and women. Peru is among the most affected countries, with an incidence rate of 1,9 percent. The overall incidence of angina risk in outpatient care is significantly higher (two to three times greater, and even up to tenfold in women below the age of 65).[8]

Cuba has instituted a series of measures aimed at averting cardiovascular diseases, especially ischemic heart disease, which was the primary cause of mortality in the nation during the preceding year. Cardiovascular diseases, which were the leading cause of death decades ago and that had been overtaken by cancer, nowadays occupy the top position.[9]

It has been demonstrated that the sole effective approach to curbing the incidence of cardiovascular diseases, with their significant societal burden of morbidity and mortality, lies in the implementation of preventive measures designed to avert the emergence of risk factors.

The strategy adopted by the Ministry of Public Health's management will be gradually implemented across the entire nation. Firstly, it is necessary to assess the cardiovascular risk within the population and, based on this analysis, tailor individualized actions to ameliorate the quality of life and prevent the onset of these maladies in the future. The Family Physician will play a pivotal role in this endeavor, as they are the specialists in Comprehensive General Medicine and are in direct contact with the largest portion of the population. They are best suited to guide their patients, provide follow-up, and monitor the actions.[10]

Cuba exhibits a high prevalence of angina pectoris, ranging from 28 % to 33 % among adults and reaching up to 47 % among individuals aged 60 years or older, resulting in an estimated population exceeding 2,4 million people living with angina.[10] A study conducted in Havana illustrates that, given the association between angina pectoris and certain risk factors, the primary objective of primary preventive measures is the favorable modification of these risk factors. Preventive efforts should commence with a general population education policy, designed to cultivate healthier lifestyle habits.[2]

The province of Ciego de Ávila is not an exception to this situation, as it had a prevalence rate of 24,12 % reported at the conclusion of the year 2015, and the municipality of Venezuela contributes a high figure with 13,8 %.[11]

Healthcare professionals have the mission of conducting the screening for primary risk factors within their designated populations, evaluating the overall risk profile of each individual, and initiating and maintaining interventions targeted at the management of these risk factors.[12]

The objective of this study is to appraise the impact of an educational intervention on patients affiliated with the Family Medical Office #18 at the polyclinic in the municipality of Venezuela, with the aim of augmenting their knowledge of the risk factors associated with angina pectoris. An initial assessment of the patients' knowledge will be executed, followed by the implementation of a tailored educational strategy. Subsequently, the level of knowledge attained after the intervention will be assessed. It is expected that this educational

https://doi.org/10.56294/ri20214

strategy will significantly augment patients' grasp of the risk factors for angina pectoris, thereby promoting prevention and effective disease management. The outcomes will be valuable for guiding future educational and preventive initiatives within this population.

METHODS

An educational intervention was carried out using a pre-experimental, pre-post study design, encompassing patients from the municipality of Venezuela, during the period from June 2020 to May 2021. The objective was to evaluate the effectiveness of an educational intervention pertaining to the risk factors triggering angina pectoris.

The study universe encompassed 242 young adult patients of both sexes, within the age range of 30 to 45 years, who were affiliated with the Family Medical Office #18 (FMO#18) within the healthcare area of the Venezuela polyclinic. A sample of 20 patients was selected utilizing a non-probabilistic intentional sampling method, as long as they met the criteria specified below.

Inclusion criteria

- Patients who voluntarily agreed to participate in the study, by signing the informed consent form (Annex 1).

Exclusion criteria

- Individuals with psychiatric or psychological disorders that may affect the research process.
- Individuals being outside the study area.
- Patients who were temporary visitors in the study area.

Exit criteria

- Patients who did not wish to continue in the study.
- Patients who were admitted to another department or deceased during any stage of the study.
- Those absent from two or more sessions of the educational intervention.

Data collection methods

Data was gathered through a survey, due to its attributes of being a swift and cost-effective information gathering method. The survey was developed by the author and approved by expert opinions. Then, it was administered to the study population both before and after the intervention.

Implementation of the educational strategy: it consists of the following stages: diagnostic, the actual intervention, and assessment.

Diagnostic Stage: Data was obtained through the administration of a questionnaire (Annex 2) that included sociodemographic variables and indicators that assessed the level of knowledge pertaining to the triggering risk factors of angina pectoris. The questionnaire was administered both before and after the educational intervention.

The results of the survey administered before the educational intervention, which included questions 1 to 5, were assessed. For this purpose, an evaluation scale based on 100 points was created.

According to the scale, there were two possible responses:

- Adequate knowledge: from 70 to 100 points
- Inadequate knowledge: less than 70 points

The data were collected through the questionnaire, which served as the primary data source for the research, administered both prior to and following the intervention. The questionnaire was designed by the study's tutor and validated based on expert opinions, considering the input of two assistant-level professors, a specialist in internal medicine, and the head of the educational department in the municipality of Venezuela. They all approved the utilization of the questionnaire in the diagnostic phase and endorsed the educational strategy in the intervention phase.

Actual intervention stage: the study involved a sample of 20 patients. The educational intervention consisted of the design of a program, comprising the following sub-stages:

- Initial familiarization technique.
- Individual exploration of the knowledge.
- Integration of knowledge. Collectivisation.
- Formulation of objectives and topics to be covered.
- Implementation. Techniques for analysis and reflection.
- Feedback: this allowed for the assessment of whether the set objectives were met, and the return of the results to all study participants. The obtained diagnosis and the assessment results were shared with them.

The training program encompassed both lectures and workshops to be conducted over a 2-month period, with each session spanning 60 minutes and taking place twice a week. These sessions were given by the study's author and her tutor. The selection of the educational program content was made based on the aspects where knowledge and attitude difficulties were identified in the initial survey and discussion groups. Aspects linked to the risk factors provoking angina pectoris were included.

The covered topics were: Introduction to the program; General concepts (modifiable and non-modifiable risk factors); Healthy lifestyle habits for angina pectoris prevention; Symptoms of angina pectoris.

Assessment stage: After 2 months, the initial survey was administered again, considering the aspects from the diagnostic stage, which allowed for the assessment of the patients' level of knowledge after the intervention.

To analyze the effectiveness of the educational intervention, the McNemar's statistical test was employed to determine significant differences in the level of knowledge about the triggering factors of angina pectoris, before and after the implementation of the educational program.

The selected patients for the study had the opportunity to be informed about the study's objective and its innocuousness. They were informed that their participation was voluntary and once incorporated, they had the possibility to withdraw from the study at any time. Their willingness to participate in the study was documented using a model of informed consent form, duly signed by both the patients and the researcher. The researcher guaranteed the absolute confidentiality of their identities and information (Annex 1), meeting the ethical principles that govern health research.

RESULTS AND DISCUSSION

Table 1. Level of knowledge about several risk factors for angina pectoris. Before and after of the educational intervention. Ciego de Ávila, 2021.

Level Of Knowledge		Assessment				McNemar's test
		Before		After		
		N	%	N	%	
Familiar health history	Satisfactory	7	35	20	100	p=0,00
	Unsatisfactory	13	65	0	0	
Obesity	Satisfactory	5	25	20	100	p=0,00
	Unsatisfactory	15	75	0	0	
Smoking habit	Satisfactory	15	75	17	85	p=0,5
	Unsatisfactory	5	25	3	15	
Alcoholism	Satisfactory	3	15	20	100	p=0,00
	Unsatisfactory	17	85	0	0	
Consumption of animal fats	Satisfactory	1	5	20	100	p=0,00
	Unsatisfactory	19	95	0	0	
Diabetes mellitus	Satisfactory	4	20	20	100	p=0,00
	Unsatisfactory	16	80	0	0	
Excessive salt intake in the diet	Satisfactory	4	20	20	100	p=0,00
	Unsatisfactory	16	80	0	0	
Arterial hypertension	Satisfactory	4	20	20	100	p=0,00
	Unsatisfactory	16	80	0	0	

Source: Questionnaire.

Table 1 displays the level of knowledge pertaining to the risk factors associated with angina pectoris, before and after the educational intervention.

Before the intervention, an unsatisfactory level of knowledge was observed across all examined risk factors. Nevertheless, following the intervention, a significant enhancement in the level of knowledge was observed in all assessed factors, ultimately attaining a satisfactory level of understanding in each of them.

In particular, risk factors including family health history, obesity, alcoholism, consumption of animal fats, diabetes mellitus, excessive salt intake in the diet, and hypertension exhibited a substantial enhancement in the level of knowledge following the intervention, ultimately reaching 100 % satisfactory level of knowledge.

The smoking habit showed a less pronounced improvement, with a satisfactory level of knowledge of 85 % after the intervention. Similar results were reported by Delgado.[13]

These findings indicate that the educational intervention implemented was effective in augmenting the

level of knowledge concerning the risk factors associated with angina pectoris within the studied population. It is evident that the educational strategy had a favorable impact on patients' awareness and comprehension of these risk factors, thereby contributing to improved prevention and management of angina pectoris. Comparable outcomes were also reported by Martínez et al.[14]

It is worth noting that all the obtained results demonstrated significant disparities both before and after the intervention, as per the outcomes of the McNemar's test. This reinforces the validity and effectiveness of the educational strategy implemented in the present study.

CONCLUSIONS

Prior to the intervention, the most precise knowledge was associated with the smoking habit, followed in descending order by family medical history, obesity, diabetes mellitus, hypertension, and excessive salt intake in meals, with the latter three having the same percentage. Alcoholism and consumption of animal fats held the lowest positions, respectively.

Before the study, patients displayed inadequate knowledge regarding the predisposing risk factors for angina pectoris, and following the intervention, all participants exhibited an adequate level of knowledge. The intervention was effective, as it elevated their level of knowledge on the topic.

RECOMMENDATIONS

It is imperative to expand the role of family physicians and nurses in the dispensarization of high-risk groups for ischemic heart disease, as well as extending the scope of the conducted study by implementing the educational program across multiple medical offices within the municipality of Venezuela, to enhance the level of knowledge among patients regarding the precipitating risk factors of angina pectoris.

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FINANCING

There is no funding for this work.

CONFLICT OF INTEREST

Yenny Martínez Román is a specialist physician at the Policlínico Docente Universitario "Juan Olimpo Valcárcel", Ciego de Ávila, Cuba.

AUTHOR'S CONTRIBUTION

Conceptualization: Tamara Lugo Torres.
Research: Tamara Lugo Torres.
Methodology: Tamara Lugo Torres.
Original drafting and editing: Tamara Lugo Torres.
Drafting-revision and editing: Tamara Lugo Torres.

SUPPLEMENTARY MATERIAL 1 (ORIGINAL LANGUAGE SPANISH)
ANEXO 1

Consentimiento informado

Acta de consentimiento informado de los pacientes para participar en la investigación.
Yo: _____, después de conocer los objetivos de la investigación titulada "Intervención educativa sobre factores de riesgo desencadenantes de la angina de pecho, estoy plenamente de acuerdo en participar en el estudio con disciplina y aportar toda la información necesaria.
Y para que aquí conste, firmo el presente el día ____ del mes de _____ del año _____

_____ _____
Firma del paciente. Firma del Investigador.

ANEXO 2

Encuesta
Edad: ____ años.
Sexo: Masculino ____ Femenino ____

El presente cuestionario es de carácter anónimo y su objetivo es identificar los conocimientos que usted tiene acerca de los factores de riesgo desencadenantes de la Angina de pecho. Agradecemos su cooperación y sinceridad que nos será de gran utilidad para el desarrollo del trabajo. Gracias.

1- Marque con una equis (x), la respuesta que usted considere correcta con relación al concepto de cardiopatía isquémica.
1.1__Ocurre un desequilibrio entre el aporte de sangre al corazón y la demanda de oxígeno.
1.2__Enfermedad en la cual existen anomalías de la estructura o función del corazón que originan el funcionamiento inadecuado del mismo.

2. De las siguientes afirmaciones señale según corresponda, verdadero (V) o falso (F) en relación con los factores de riesgo de la angina de pecho.
2.1__La ingesta de frutas y verduras disminuye la probabilidad de padecer la angina de pecho.
2.2__El exceso de sal en las comidas constituye un riesgo desencadenante de la angina.
2.3__La ingesta en la dieta de grasa de origen animal no constituye un riesgo de angina.
2.4__La práctica sistemática de ejercicios físicos a cualquier edad forma parte de un pilar fundamental en la prevención de la angina de pecho.
2.5__El hábito de fumar no influye en la aparición de la angina.

3. Señale con una X, según su criterio si conoce o no las principales manifestaciones que se presentan en la angina de pecho.
3.1__Dolor de cabeza intenso.
3.2__Dolor en el pecho que puede correr al hombro, brazo superior y parte izquierda de la mandíbula.
3.3__Picazón en la región superior del tórax.
3.4__Deseos de vomitar y vómitos.
3.5__Dolor en la región posterior inferior de la espalda en ocasiones.

4. De los siguientes factores de riesgo desencadenantes de angina de pecho marque con (M) los que usted considere pueden ser modificables y con una (N) los no modificables.
4.1__Sedentarismo
4.2__Antecedentes de un familiar cardiópata (anginoso).
4.3__Hipertensión arterial (presión alta).
4.4__Hábito de fumar.
4.5__Alcoholismo
4.6__Consumo de grasa animal en la dieta.
4.7__Diabetes mellitus
4.8__Género o sexo.

5. Marque con una (X) los factores que pueden desencadenar una crisis de angina de pecho estable.

https://doi.org/10.56294/ri20214

5.1__Temperaturas elevadas.
5.2__Reposo físico de más de 4 horas.
5.3__Esfuerzo físico excesivo.
5.4__El estrés mantenido.

Puntuación para cada pregunta y pautas a seguir en cada ítem para clasificar los diferentes niveles de conocimientos.

Pregunta 1. Se le asignó un valor de 20 puntos.
- Adecuado: si identificó el inciso correcto (20 puntos).
- Inadecuado: si no identificó el inciso correcto (0 punto).

Pregunta 2. Se le asignó un valor de 20 puntos.
- Adecuado: si identificó tres incisos correctos (20 puntos).
- Inadecuado: si identificó menos de tres (0 punto).

Pregunta 3. Se le asignó un valor de 20 puntos.
- Adecuado: si identificó tres incisos correctos (20 puntos).
- Inadecuado: si identificó menos de tres (0 punto).

Pregunta 4. Se le asignó un valor de 20 puntos.
- Adecuado: si identificó 4 o más incisos correctos (20 puntos).
- Inadecuado: si identificó menos de cuatro (0 puntos).

Pregunta 5. Se le asignó un valor de 20 puntos.
- Adecuado: si identificó 3 incisos correctos (20 puntos).
- Inadecuado: si identificó menos de tres (0 puntos).

Por lo que se calificó de forma general en:
- Conocimientos adecuados de 70 a 100 puntos
- Conocimientos inadecuados: menos de 70 puntos

ANEXO 3

Programa educativo

Para la ejecución de este proyecto se utilizó un programa educativo para aplicar información de angina de pecho y así aumentar los conocimientos sobre los factores de riesgo relacionados con la misma.
- Conferencia, juego de conocimientos
- Debate y reflexión.
- Dinámica grupal con debate de situación.

En cada una de las sesiones de trabajo se irán abordando los problemas identificados (una sesión para cada problema) y última se dedicará a precisar el conocimiento alcanzado por los participantes.

Tema # 1: Presentación del programa.
- Sumario: Exposición del proyecto. Aplicación de los cuestionarios. Conclusiones.
- Objetivo: Crear un ambiente de seguridad, desinhibición, establecer reglas del grupo dentro de los pacientes a capacitar.
- Tipo de actividad: Dinámica de grupo.
- Duración: 60 minutos.
- Recursos: Lápices, bolígrafos y hojas.

Tema # 2 Generalidades. Consta de 2 conferencias.
- Sumario: Conferencia # 1 Concepto de cardiopatía isquémica. Conferencia # 2 Factores de riesgo modificables y no modificables desencadenantes de la angina de pecho.
- Objetivos: Explicar conceptos, y factores de riesgo modificables y no modificables relacionados con la angina de pecho.
- Tipo de actividad: Conferencia

https://doi.org/10.56294/ri20214

- Duración: 60 minutos.
- Recursos: Computadora, pendrive, hojas, bolígrafos y lápices.

Tema # 3. Hábitos de vida saludables para la prevención de la angina de pecho.
- Sumario: Hábitos de vida saludables para la prevención de la angina de pecho.
- Objetivos: Explicar sobre los hábitos de vida saludables para la prevención de la angina de pecho.
- Tipo de actividad: seminario.
- Duración: 60 minutos.
- Recursos: Pendrive, hojas, lápices y bolígrafos.

Tema # 4 Síntomas de angina de pecho.
- Sumario: Síntomas de angina de pecho.
- Objetivos: Conocer los síntomas de angina de pecho.
- Tipo de actividad: clase práctica.
- Duración: 60 minutos.
- Recursos: Hojas, bolígrafos y lápices.

Tema # 5: Cierre y evaluación
- Sumario: Reafirmación del contenido. Aplicación del cuestionario.
- Objetivo: Reafirmar conocimientos sobre angina de pecho.
- Tipo de actividad: Clase teórico – práctica.
- Duración: 60 minutos.
- Recursos: Hojas, lápices, pizarra y tizas.

Frecuencia: A los 2 meses de finalizada la intervención educativa.

https://doi.org/10.56294/ri20214