The Effectiveness of a Motivational Interviewing Program on Smoking Cessation among Smoker Patients with Heart Disease

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Abstract

Background: Motivational interviewing is a patient-centered directive approach to enhance intrinsic motivation to behavioral change by helping patients explore and resolve ambivalence between the desired behavior and their actual behavior. ***This study aimed to*** assess the effects of a motivational interviewing as Psychiatric nursing program on smoking cessation among smoker patients with heart disease to increase motivation and promote change. ***Research hypothesis:*** The motivational interviewing as a psychiatric nursing program will have a positive effect on smoking cessation among smokers' patients with heart disease. ***Design***: quasi-experimental design (one group pre-test post-test design) was utilized to achieve the aim of the study. ***Setting*:-** The study was conducted at outpatients' clinic in Benha University Hospital. ***Subjects:*** **-** Purposive sampling of the present study were ٤٠ patients with heart disease. ***Tool of Data Collection****:* The tool was divided into four parts: **١st part**: Socio-demographic data **٢nd part:** Fagerstrom Test for Nicotine Dependence (FTND) questionnaire *(١٩٩١)* .**٣rd part:** Readiness to Change Questionnaire was adopted from *Rollnick et al., (١٩٩٢)*. **٤th part:** Assess the need to quit smoking SCAN adopted from Zeldman et al.,(٢٠٠٤) .***The main findings*** of the study were: There are highly statistically significant differences regarding to Nicotine dependency level, Readiness to change and Need to quit smoking between pre and post program interventions. ***Conclusion*:** Based on the findings of the present study, it is concluded that motivational interviewing intervention had appositive effect on smoking cessation among smoker patients with heart disease. ***Recommendation*:** Professionals at every level of the healthcare system should have the ability to quickly assess patients' smoking status, provide factual information on the harms of tobacco use, and help inspire patients to quit by employing a strategy called Motivational Interviewing.

Key words: Motivational Interviewing, Smoker Patients, Heart disease.

Introduction

Tobacco dependence is a global epidemic problem. It has been estimated approximately that cigarette smoking, about١,٥ Billion daily smoker worldwide. The factors that may contribute to addictive behaviors include neuro-adaptations that occur with the persistent use of nicotine, which leads to withdrawal symptoms that occur when nicotine stops and the effects of nicotine that reinforce dependence. The reinforcing effects can entail the rewarding effects of nicotine (positive reinforcement) and/or the alleviation of aversive or negative states or stimuli— for example, relief from withdrawal symptoms (negative reinforcement) ***(World Health Organization, ٢٠٠٨)***.

Smoking, which is an important risk factor for coronary heart disease (CHD), also exhibits physiological and psychological dependency. Also, Tobacco contributes to the hardening of the arteries, which can then become blocked and starve the heart of blood flow, also increases the risk of having a stroke causing the attack. Often, smokers who develop this will require complex and risky heart bypass surgery. If smoker smoke for a lifetime, there is a ٥٠٪ chance that the eventual death will be smoking-related - half of all these deaths will be in middle age **(*Mojica et al., ٢٠١٤).***

Furthermore, According to the WHO there are approximately more than five million people die yearly prematurely from tobacco use world-wide; this number will probably reach ten Million by ٢٠٢٥. The toll of tobacco use and the enormous health and economic burden it imposes on individuals and society will continue to rise worldwide and up to half of all persistent tobacco users will die prematurely***(WHO, ٢٠١٥).***

Quitting smoking is the single most effective thing that a person who smokes can do to enhance the quality and length of their life. For some conditions, such as ischemic heart disease, the benefits of quitting smoking are substantial, both immediately and in the long term. The risks of dying from tobacco- related diseases are reduced over time, in comparison with those who continue to smoke ***(Elizabeth &Simon, ٢٠١١).***

Withdrawal symptoms begin as soon as four hours after the last cigarette, generally peak in the intensity at three to five days, and disappear after two weeks. They include both physical and mental symptoms. Physical symptoms as tingling in the hands and

feet, sweating, intestinal disorders (cramps and nausea), headache, and dizziness. Mental and emotional symptoms as tension and craving build up during period of withdrawal, sometimes to a nearly intolerable as insomnia, mental confusion, lack of concentration, vagueness, irritability, anxiety, frustration, loneliness, anger, mood swings and depression***(Darla and Ana ٢٠١٨).***

Motivational interviewing takes a client-centered and goal-directed approach to foster behavior change. The purpose of MI is to help clients explore and resolve discrepancies related to their behavior. The nurse guides the client or patient in such a way that the client becomes more likely to take steps toward changing a specific behavior. In addition, we found that the MI intervention was most beneficial for individuals with lower baseline motivation to quit smoking ***(Miller, ٢٠١٠).***

The practice of motivational interviewing for tobacco cessation requires to develop nursing intervention skills express empathy be non-judgmental; listen reflectively; accept ambivalence; see the world through the client's eyes. Accurately understanding the client's experience can facilitate change. Develop discrepancy help client perceive a difference between present behavior and desired lifestyle change. Clients are more motivated to change when they see what they're doing will not lead them to a future goal. Avoid argumentation gently diffuse client defensiveness. Roll with resistance reframe client's thinking/statements; invite client to examine new perspectives; value client as being her own change agent; increase client's self-confidence in ability to change behavior***(Vajer et al., ٢٠١٣)***.

Moreover, Nurses are the first line of treatment among hospital staff, greatly capable of planning and implementing interventions to quit smoking. Also, In terms of motivating smokers to quit smoking, nurses stand in a crucial position. Although nurses might not be able to spend much time counseling the patients to quit smoking, to promote behavioral changes for those who were in the pre-contemplation, contemplation, and preparation stage, MI focused on building motivation for change and help patients who wish to quit smoking successfully ***(Kazemzadeh, ٢٠١٦)***.

Significant of the study

Smoking remains the single most preventable cause of death worldwide and the primary cause of several types of cancer, cardiovascular disease, and respiratory illness .Although the prevalence of smoking among the general population continues to decline, the prevalence of smoking among the Egyptian population remains high. Almost ١٢.٦ million Egyptians are smokers, making up ٢٠.٢ percent of the total population. At least ٣٨.٥ percent of Egyptian males smoke, compared to ١.٥ percent among females (**Central Agency for Public Mobilization and Statistics (CAPMAS) ٢٠١٦).** Motivational Interviewing (MI) is a directive patient-centered style of nursing intervention counseling, designed to help people to change behavior from smokers to non-smokers. It was developed as an intervention may help people to make a successful attempt to quit smoking ***(Chair et al., ٢٠١٤)***.

The aim of the study:

This study aims to assess the effects of motivational interviewing as a psychiatric nursing program on smoking cessation among smoker patients with heart disease to increase motivation and promote change. It will be achieved through:

١- Assessing nicotine dependence level, readiness to change and the need to quit smoking among smokers patients with heart disease.

٢- Accordingly, develop and implement motivational interviewing as a psychiatric nursing program according to their needs of smokers patients with heart disease.

٣- Evaluate the effect of motivational interviewing program on nicotine dependence level, readiness to change and the need to quit smoking among smokers' patients with heart disease.

Research hypothesis:

The motivational interviewing as Psychiatric nursing program will have a positive effect on smoking cessation among smokers patients with heart disease.

Subject and methods

Research Design:-

A quasi-experimental design (one group pre test- post test design) was utilized to achieve the aim of the study.

Setting:-

The study was conducted at out-patients clinic in Benha University Hospital, which receives newly patients with cardiac health problems and serves all cardiac patients who follow up after being discharged from hospital to reduce episode of heart attacks and to promote health of cardiac patients. The outpatients' clinic contains echo stress machine, two chaise lounges, ten chairs, one computer and one cupboard.

Subject:-

Sample Size

The sample size in this study included ٤٠ patients who were subjected from out-patients clinic in Benha University Hospital. The sample consisted according to ٥٪ of patients attending for follow up during the previous two years ٢٠١٥:٢٠١٧.

Sampling type

Purposive sampling of the present study. Patients who fulfilled the inclusion criteria were; Smokers patients with heart diseases, male, all levels of education, aged between ٢٠-٥٥years and willing to participate in this study. Exclusion criteria: Any neurological disorder, mental retardation or any cognitive disorder.

Tool of the study:-

The tool was used to collect the data for this study as the following: An interviewing questionnaire, it was constructed by the researchers after reviewing relevant literatures. This tool was divided into four parts:

١st part: Socio-demographic data for smokers' patients with heart disease, such as age, level of education, occupation, marital status, income, and smoking habits.

٢nd part: Fagerstrom Test for Nicotine Dependence (FTND) questionnaire *(١٩٩١).* This questionnaire aims to assess one's level of dependence on nicotine. It consists of six items; four of them were answered by yes equal (١) no equal (٠) and the other remaining two questions where in the form rank of order scale started from zero to three.

Scoring system of nicotine dependence from ٠ to ٢ mean very low dependent, score from ٣ to ٤ mean low dependent score, from ٤ to ٥ mean moderate dependent score, from ٦ to ٧ mean high dependent score and from ٨ to ١٠ mean very high dependent.

٣rd part: Readiness to Change Questionnaire was adopted from *Rollnick et al., (١٩٩٢)* .This questionnaire aims to assess readiness to change to pattern of smoking to measure level of motivation. The tool was designed to assess an individual's stage of change. This is containing ١٢ items. This questionnaire consists of three subscales: Pre-contemplation, items number ١, ٣, ٥, ١٠ &١٢; Contemplation, items number ٤, ٨ &٩; and Action, items number ٢, ٦, ٧&١١.

Scoring system: The scoring system for the Readiness to Change Questionnaire include five point rating scale, as follows strongly disagree = -٢, disagree= -١, unsure=٠, agree=١, strongly agree=٢, which provides a range of five responses options utilized to measure the items for people may feel about their smoking.

٤th part: Assess the need to quit smoking SCAN was adopted from Zeldman et al.,(٢٠٠٤), in order to assess an individual's needs to smoking quit. It consists of ١٢ items ranged from ١ (very easy) to ٤ (very difficult) circled for each number on a scale based on that, where there is more difficult, he must circle the highest number.

Content Validity:

Before starting the data collection tools were tested for its content validity by five of expertise, three in the Psychiatric Field and two in the Cardiologist to check the relevancy, clarity, comprehensiveness, and applicability of the motivational interviewing intervention. As a result of the jury, required modifications were done and the final form was developed.

Reliability of tools:

It was applied by the researchers for testing the internal consistency of the tools by administration of the same tools to the same subjects under similar

condition on one occasion. Answer from repeated testing were compared (test-retest reliability) the tools revealed (Cronbach's alpha=٠.٩١) for Nicotine Dependence Test, (Cronbach's alpha=٠.٧٨) for Readiness to Change Questionnaire and (Cronbach's alpha=٠.٨٢) for Assess the need to quit smoking tool.

Administrative approval:

The researchers were obtained permissions official letter from the Dean of Faculty of Nursing, Benha University to Head of Outpatient Clinics and Chairman of the Board of Directors of Benha University Hospital associated with the aim of the study and copy from the tool to facilitate the collection of data and implementation of the psychiatric nursing program.

Ethical consideration:

All ethical issued was considered before conducting the study, smoker patients with heart disease were assured that the data will be collected from the questionnaires will remain confidential and that no personal identification was needed by any means, through; gaining oral consent for participation in the study after explanation the purpose of the study to them. Smoker patients were informed that they could refuse to participate in this study, or withdraw from it at any time.

Pilot study:

After the tools have been designed, they were tested through a pilot study, which was done before embarking on the field work to check the clarity and applicability of designed tools and to estimate the time needed to complete its items. It was carried out on ٤ smoker patients with heart disease (١٠٪ of the sample size), who were included in the main study subjects. Where no changes are were required according to the result of the pilot study.

Field work:-

- The study was carried out from the beginning of February ٢٠١٨ to the end of April ٢٠١٨.
- The aim and the nature of the study were explained to smoker patients with heart disease and assured that their personal data will be treated confidentiality

and will be used only for research purpose, and then it was possible to carry out the study with minimum resistance.

- The researchers met each patient individually after introducing their selves and explained to them the purpose of the study to seek participants' cooperation and emphasizing that all collected information is strictly confidential.
- The researchers conducted the program on three months two visits/week (Sundays and Mondays), from ٩.٠٠ a.m. to ١١.٠٠ a.m. carried out in the outpatient's clinics at Benha University Hospitals in Benha City.

Strategies for motivational interview construction:

١- **Preparatory phase:** A review of recent, current, past, national and international literature by the researchers using books, magazines periodicals and network. This was done to get a clear picture of all aspects related to various aspects of the smoking and its effect on heart disease, smoking cessation, and motivational interview strategies and motivational interview about the patients with heart diseases. The tools questionnaire was designed to assess levels of nicotine dependence, readiness to change and need to quit smoking among smokers patients with heart disease regarding theoretical and practical content before and after implementing motivational interview.

٢- **The assessment phase:** The pre-test questionnaire was designed and develop the content of motivational interview sessions and evaluation of the used tools and to identify the effects of motivational interviewing on smoking cessation by nicotine dependence test, promote to change, increase motivation and its outcomes by readiness to change and assess the need to quit smoking tools among smoking patients with heart disease.

٣-**The planning and implementing phase**:

The general objective of the study was to evaluate the effect of motivational interviewing intervention on the decrease of smoking among smoker patients with heart disease.

The intervention content included:

- Knowledge about the smoking includes causes, contents, effect of smoking on the heart &its complication.
- Readiness to change as trying to smoking less than he used to, Have recently changed smoking habits, talk about the desire to quit smoking and already do it, and recently changed his habit of smoking correctly.
- Methods quit of smoking as start with himself, preparation before the day he quit smoking, day of quit smoking, tips for continuing to quit smoking, how to deal with the desire to return to smoking and some tips to avoid weight gain
- How to treat and control the urgency of smoking, find an alternative to the cigarette in his mouth, keep his mind busy, hold his hand, brush his teeth, drink water, lit up other things, be active, and try relaxation.
- How to deal with withdrawal symptoms like the urge to smoke, nervousness and impatience, insomnia, fatigue, low concentration, hunger & desire to eat, and cough, dry throat & runny nose.
- Start exercise sport program especially sports walking, where an hour of daily exercise, such as walking, improves insulin and blood lipids and prevents diabetes and obesity.
- Maintain the practice of breathing exercises and relaxation a powerful factor that helps you get rid of the stress, anxiety and nicotine in the body.
- The stages of the relaxation exercise through the steps e.g. sit in a quiet and comfortable place; wear comfortable clothes, trust in God and start a sentence (In the name of God the Merciful.), and close the eyes and repeat the name of God …etc…..
- The importance of breathing exercises this is play breathing taking the required inhalation and filled with oxygen and put a large role as; Activate the nervous system, strengthen memory, strengthens the individual's attention strengthening the heart, liver and brain as well, strengthen intelligence and helps the individual to think correctly and make good decisions.

- Method of breathing exercise as; Make sure that the air you breathe in is filled with oxygen, make sure the clothes worn are comfortable, ensure the cleanliness of the nose, take a deep breath or what we call the passion and keep it for a while and then put it out of the mouth blowing, and repeat this process according to what the individual finds comfortable, take the inspiration from one opening of the nose after closing the other and alternating between them and put exhalation of the mouth also with repeated this process several times and breathing in a kind of exhaustion or the case of the athlete who runs whenever he found himself in need of it,
- Practice breathing method if you are sitting or standing or walking.

The interviewing motivational intervention/theoretical and practical training included six sessions two for theory and four for practices. Each session takes from ١٥-٢٥ minutes for theory and ٣٠-٤٠minutes for practical.

The teaching methods used were small group discussions, role play, demonstration and re-demonstration. Booklets were distributed as teaching media at the work place.

٤: Evaluating phase

To evaluate the effect of motivational interviewing as psychiatric nursing program on the levels of nicotine dependence, readiness to change and need to quit smoking to achieve the aim of decrease of smoking among smokers patients with heart disease by using post-test that similar to the pre-test was applied.

Statistical analysis:-

The calculated data for this study was analyzed and the collected data was organized, coded, computerized and tabulated and analyzed by using (SSPS) programs version ٢٠. Data analysis was accomplished by the use of number, percentage distribution, mean and standard division, independent "t" test was used to test the significance of some variance, and correlation coefficient was used determine statistically significance relations significant $p < ٠.٠٥$

Results

Table (١): Frequency distributions of studied sample regarding socio-demographic characteristics (n=٤٠).

Socio-demographic characteristics	No	%
Age		
<٣٠	٦	١٥.٠
٣٠-	١٤	٣٥.٠
٤٠+	٢٠	٥٠.٠
Mean ±SD	٤١.٩±١٣.٤٦	
Education level		
Illiterate	٢	٥.٠
Read and write	٤	١٠.٠
Intermediate education	٢٠	٥٠.٠
High education	١٤	٣٥.٠
Marital status		
Single	٨	٢٠.٠
Married	٢٦	٦٥.٠
Divorced	٢	٥.٠
Widowed	٤	١٠.٠
Income		
Not sufficient	٦	١٥.٠
Sufficient	٢٨	٧٠.٠
Sufficient and more	٦	١٥.٠
Occupation		
Working in governmental sector	٢٠	٥٠.٠
Working in special sector	١٤	٣٥.٠
Not working	٦	١٥.٠
Total	٤٠	١٠٠.٠٪

Table (٢): Frequency distribution of studied sample regarding smoking habits.

Smoking habits	No	%
Have you any relatives smoking before		
Yes	٣٢	٨٠.٠
No	٨	٢٠.٠
Did any of their problems smoking (n=٣٢).		
Social problems	٤	١٠.٠
Physical problems	١٦	٤٠.٠
Stressful and Psychological problems	١٢	٣٠.٠
No problems	٨	٢٠.٠
What is the first time for your smoking?		
From ١٢ ≤١٥ year	٦	١٥.٠
From ١٦≤ ٢٠ year	١٤	٣٥.٠
From ٢١≤ ٢٥ year	٢٠	٥٠.٠
Is smoking of the main reasons for heart disease?		
Yes	٣٦	٩٠.٠
No	٤	١٠.٠
Is smoking of the main reasons for the setback of a heart attack?		
Yes	٣٦	٩٠.٠
No	٤	١٠.٠
Does your quit smoking help to restore heart too?		
Yes	٣٦	٩٠.٠
No	٤	١٠.٠

Table (٢) cont.	No	%
Have you ever hit one of your relatives with heart disease due to smoking?		
Yes	٢٢	٥٥.٠
No	١٨	٤٥.٠
Indicate relationship		

My father	٨	٢٠.٠
My uncle	٦	١٥.٠
My brother	٨	٢٠.٠
No present	١٨	٤٥.٠
Will you help others to quit smoking?		
Yes	٢٨	٧٠.٠
No	١٢	٣٠.٠
Have you ever tried to quit smoking previously?		
Yes	٣٢	٨٠.٠
No	٨	٢٠.٠
If yes, how many times (n=٣٢).		
One time	٦	١٨.٧
Two times	١٤	٤٣.٨
Three times or more	١٢	٣٧.٥
Do you use any techniques or methods in dealing with certain stress in your life?		
Yes	٣٤	٨٥.٠
No	٦	١٥.٠
What are the techniques (n=٣٤).		
Relaxation	٨	٢٣.٥
Sleeping	١٢	٣٥.٣
Communicate with others	١٤	٤١.٢

Table (٣): Frequency distributions of studied sample regarding Nicotine dependency level pre and post program.

Nicotine dependency level	**Pre**		**Post**		**X^2**	**P-value**
	No	**%**	**No**	**%**	٢١.٥٨	<٠.٠٠١**
Very low dependency	٢٠	٥٠.٠	٣٨	٩٥.٠		
Low dependency	٨	٢٠.٠	٠	٠.٠		
Moderate dependency	٦	١٥.٠	٢	٥.٠		
High dependency	٤	١٠.٠	٠	٠.٠		
Very high dependency	٢	٥.٠	٠	٠.٠		

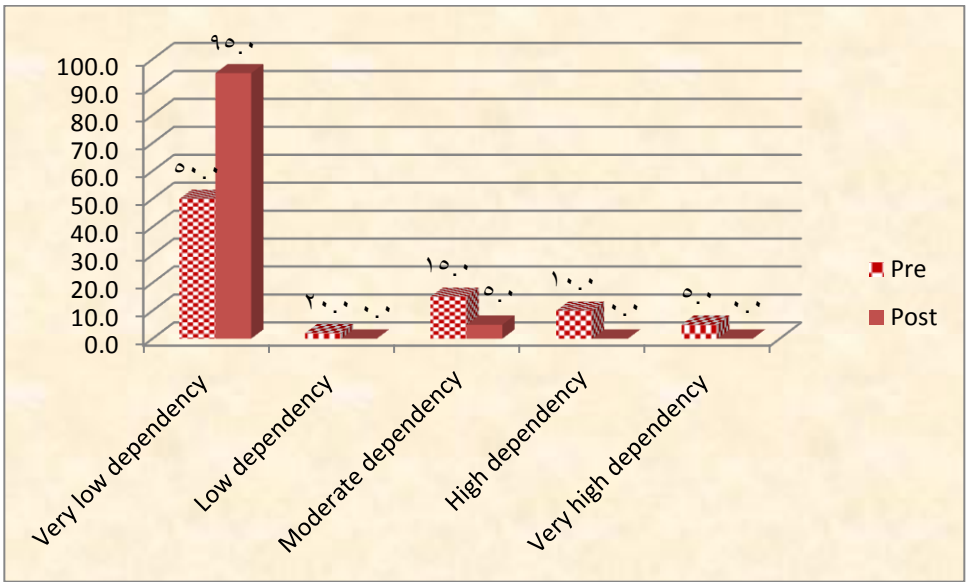

Figure (١): Frequency distributions of studied sample regarding Nicotine dependency level pre and post program.

Table (٤): Frequency distribution of studied sample regarding readiness to change (pre contemplation) pre and post program.

eadiness to change (pre ntemplation)		Unsure		Disagree		Strongly disagree		agree		strongly agree		X^2	p- val
		No	%	No	%	No	%	No	%	No	%		
don't think I drink too uch (PC)	Pre	١٤	٣٥.٠	٤	١٠.٠	٦	١٥.٠	٨	٢٠.٠	٨	٢٠.٠	٢٨.٦	<٠.٠ *
	Post	١٢	٣٠.٠	٢٢	٥٥.٠	٦	١٥.٠	٠	٠.٠	٠	٠.٠		
enjoy my drinking, but ometimes I drink too uch (PC)	Pre	١٠	٢٥.٠	٦	١٥.٠	٢	٥.٠	٨	٢٠.٠	١٤	٣٥.٠	٣٠.٩٨	<٠.٠ *
	Post	٨	٢٠.٠	٢٦	٦٥.٠	٤	١٠.٠	٢	٥.٠	٠	٠.٠		
's a waste of time inking about my rinking (PC)	Pre	٤	١٠.٠	٨	٢٠.٠	٤	١٠.٠	٢٠	٥٠.٠	٤	١٠.٠	١٣.٠٨	٠.٠١
	Post	٦	١٥.٠	٢٠	٥٠.٠	٤	١٠.٠	٦	١٥.٠	٤	١٠.٠		
here is no need for me think about changing y drinking (PC)	Pre	١٢	٣٠.٠	١٠	٢٥.٠	٦	١٥.٠	١٢	٣٠.٠	٠	٠.٠	٢٤.٢٨	<٠.٠ *
	Post	٢	٥.٠	٣٠	٧٥.٠	٦	١٥.٠	٢	٥.٠	٠	٠.٠		
rinking less alcohol	Pre	١٨	٤٥.٠	٦	١٥.٠	٦	١٥.٠	٦	١٥.٠	٤	١٠.٠	٣٤.٩٠	<٠.٠

ould be pointless for e (PC)	**Post**	٤	١٠.٠	٣٠	٧٥.٠	٦	١٥.٠	٠	٠.٠	٠	٠.٠		*

(**) Highly Statistically Significant at ≤٠.٠٠١(SD) Standard Deviation

Table (٥): Frequency distribution of studied sample regarding readiness to change (contemplation) pre and post program.

Readiness to change (contemplation)		**Unsure**		**Disagree**		**Strongly disagree**		**agree**		**strongly agree**		**X^2**	**p- value**
Sometimes I think I should cut down on my drinking (C)		**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	١٠.٩٤	٠.٠٢٧*
	Pre	٦	١٥.٠	٤	١٠.٠	٢	٥.٠	١٦	٤٠.٠	١٢	٣٠.٠		
	Post	٢	٥.٠	٠	٠.٠	٠	٠.٠	١٦	٤٠.٠	٢٢	٥٥.٠		
I am at the stage where I should think about drinking less alcohol (C	**Pre**	١٦	٤٠.٠	٤	١٠.٠	٤	١٠.٠	٦	١٥.٠	١٠	٢٥.٠	٣٣.١٢	<٠.٠٠١* *
	Post	٢	٥.٠	٠	٠.٠	٠	٠.٠	٢٨	٧٠.٠	١٠	٢٥.٠		
My drinking is a problem sometimes (C)	**Pre**	١٢	٣٠.٠	٦	١٥.٠	٤	١٠.٠	٨	٢٠.٠	١٠	٢٥.٠	١١.٩١	٠.٠١٨*
	Post	٤	١٠.٠	١٦	٤٠.٠	٤	١٠.٠	١٢	٣٠.٠	٤	١٠.٠		

(*) Statistically Significant at ≤٠.٠٥ (**) Highly Statistically Significant at ≤٠.٠٠١ (SD) Standard Deviation

Table (٦): Frequency distribution of studied sample regarding readiness to change (Action) pre and post program.

Readiness to change (Action)		**Unsure**		**Disagree**		**Strongly disagree**		**agree**		**strongly agree**		**X^2**	**p- value**
I am trying to drink less than I used to (A)		**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	٢٤.٧٥	<٠.٠٠١* *
	Pre	٨	٢٠.٠	١٠	٢٥.٠	٤	١٠.٠	١٤	٣٥.٠	٤	١٠.٠		
	Post	٢	٥.٠	٠	٠.٠	٠	٠.٠	٣٠	٧٥.٠	٨	٢٠.٠		
I have just recently changed my drinking habits (A)	**Pre**	١٢	٣٠.٠	٢	٥.٠	٦	١٥.٠	١٤	٣٥.٠	٦	١٥.٠	١٧.٧٧	٠.٠٠١**
	Post	٢	٥.٠	٢	٥.٠	٠	٠.٠	٢٤	٦٠.٠	١٢	٣٠.٠		
Anyone can talk about wanting to do something about drinking, but I am actually doing	**Pre**	٢٠	٥٠.٠	٦	١٥.٠	٦	١٥.٠	٦	١٥.٠	٢	٥.٠	٣١.٩٦	<٠.٠٠١* *
	Post	٤	١٠.٠	٤	١٠.٠	٠	٠.٠	٢٨	٧٠.٠	٤	١٠.٠		

something about it (A)													
I am actually changing my drinking habits now (A)	**Pre**	١٢	٣٠.٠	٨	٢٠.٠	١٠	٢٥.٠	١٠	٢٥.٠	٠	٠.٠	٤١.٨٣	<٠.٠٠١**
	Post	٢	٥.٠	٠	٠.٠	٠	٠.٠	٣٦	٩٠.٠	٢	٥.٠		

(**) Highly Statistically Significant at ≤٠.٠٠١ (SD) Standard Deviation

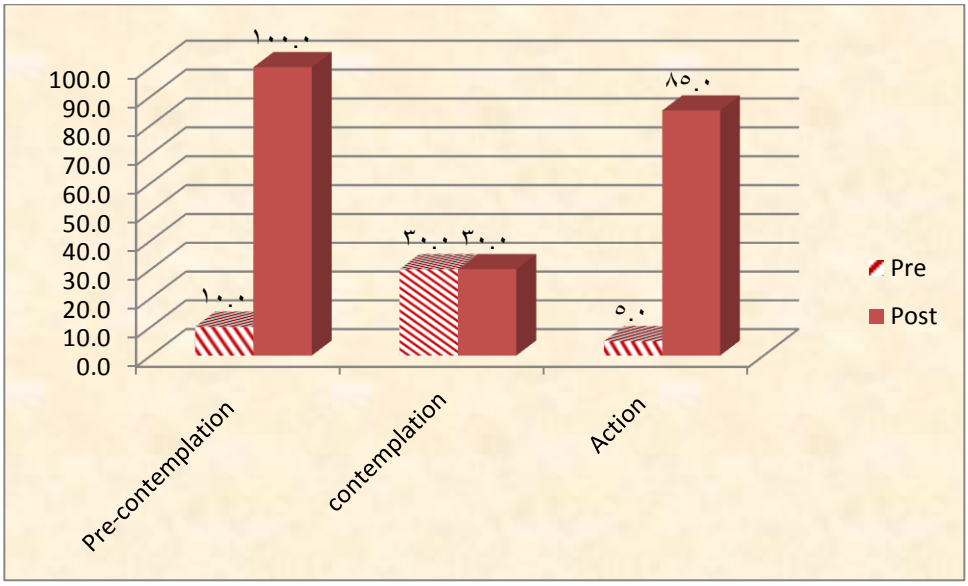

Figure (٢): Frequency distributions of studied sample regarding readiness to change pre and post program.

Table (٧): Frequency distributions of studied sample regarding need to quit smoking pre and post program (n=٤٠)

Need to quit smoking		Very difficult		Difficult to somewhat		Easy to somewhat		very easy		X^2	p- value
Need to quit smoking in dealing with withdrawal symptoms											
Dealing with the craving		**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	١٣.٦	٠.٠٠٣*
	Pre	٤	١٠.٠	١٠	٢٥.٠	٤	١٠.٠	٢٢	٥٥.٠		
	Post	٠	٠.٠	٢	٥.٠	١٢	٣٠.٠	٢٦	٦٥.٠		
Control in appetite	**Pre**	٦	١٥.٠	٨	٢٠.٠	٤	١٠.٠	٢٢	٥٥.٠	١١.٤	٠.٠١٠*

	Post	٠	٠.٠	٤	١٠.٠	١٢	٣٠.٠	٢٤	٦٠.٠		
Dealing with the stress	**Pre**	٦	١٥.٠	٤	١٠.٠	١٨	٤٥.٠	١٢	٣٠.٠	٧.٧١	٠.٠٥*
	Post	٠	٠.٠	٦	١٥.٠	١٦	٤٠.٠	١٨	٤٥.٠		
Need to quit smoking in dealing with self control											
To find the motivation	**Pre**	٨	٢٠.٠	٤	١٠.٠	١٤	٣٥.٠	١٤	٣٥.٠	٩.٨٣	٠.٠٢*
	Post	٠	٠.٠	٨	٢٠.٠	١٤	٣٥.٠	١٨	٤٥.٠		
A sense of confidence	**Pre**	١٢	٣٠.٠	٨	٢٠.٠	٤	١٠.٠	١٦	٤٠.٠	١٦.٣	٠.٠٠١**
	Post	٠	٠.٠	١٠	٢٥.٠	١٢	٣٠.٠	١٨	٤٥.٠		
Use of nicotine	**Pre**	٢٢	٥٥.٠	٢	٥.٠	٤	١٠.٠	١٢	٣٠.٠	٣٢.٦	<٠.٠٠١**
	Post	٢	٥.٠	٢٠	٥٠.٠	٢	٥.٠	١٦	٤٠.٠		
Do not smoke	**Pre**	٨	٢٠.٠	١٤	٣٥.٠	٦	١٥.٠	١٢	٣٠.٠	١٤.٧٥	٠.٠٠٢*
	Post	٠	٠.٠	٨	٢٠.٠	١٦	٤٠.٠	١٦	٤٠.٠		
Not to resort	**Pre**	١٢	٣٠.٠	٨	٢٠.٠	٨	٢٠.٠	١٢	٣٠.٠	١٤.٤٣	٠.٠٠٢*
	Post	٠	٠.٠	١٤	٣٥.٠	١٠	٢٥.٠	١٦	٤٠.٠		
Need to quit smoking in dealing with around people											
Resist the temptation	**Pre**	٤	١٠.٠	٤	١٠.٠	١٢	٣٠.٠	٢٠	٥٠.٠	٤.٩٦	٠.١٧n.s
	Post	٠	٠.٠	٤	١٠.٠	١٠	٢٥.٠	٢٦	٦٥.٠		
To obtain the support	**Pre**	١٢	٣٠.٠	١٢	٣٠.٠	٦	١٥.٠	١٠	٢٥.٠	١٦.٧	٠.٠٠١**
	Post	٠	٠.٠	١٢	٣٠.٠	١٦	٤٠.٠	١٢	٣٠.٠		
Refused a cigarette	**Pre**	٦	١٥.٠	٦	١٥.٠	١٤	٣٥.٠	١٤	٣٥.٠	٦.٦٣	٠.٠٨*
	Post	٠	٠.٠	٦	١٥.٠	١٦	٤٠.٠	١٨	٤٥.٠		
Stay with other people	**Pre**	٨	٢٠.٠	١٢	٣٠.٠	١٤	٣٥.٠	٦	١٥.٠	١١.٧١	٠.٠٠٨*
	Post	٠	٠.٠	٨	٢٠.٠	٢٤	٦٠.٠	٨	٢٠.٠		

(n.s) Not Statistically Significant (*) Statistically Significant at ≤٠.٠٥ (**) Highly Statistically Significant at ≤٠.٠٠١ (SD) Standard Deviation

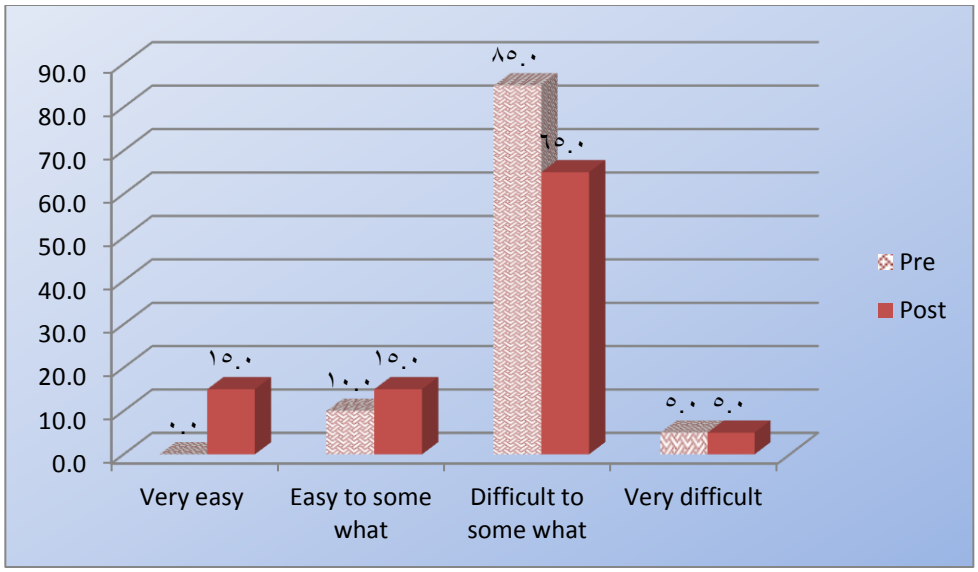

Figure (٣): Frequency distributions of studied sample regarding need to quit smoking pre and post program.

Table (٨): Correlation between total dependency level, total readiness to change and total need to quit smoking pre and post program.

	Total dependency level			
	pre		Post	
	r	p-value	r	p-value
Total readiness to change	٠.٢٥	٠.١١	-٠.٤٨	٠.٠٠١**
Total need to quit smoking	-٠.٣٥	٠.٠٢	-٠.٦٤	<٠.٠٠١**

Table (١): This table shows that, the socio- demographic characteristic of the studied patients. As regard age, highest percentage (٥٠٪) were more than ٤٠ years with a mean age of ٤١.٩±١٣.٤٦years, half (٥٠.٠٪) of the studied patients were intermediate education, more than half (٦٥.٠ %) of them were married, the majority (٧٠.٠٪) were sufficient income and half (٥٠.٠٪) of patients were working in governmental sector.

Table (٢): This table shows that, the smoking habits of the studied patients. As regard relatives smoking, majority (٨٠.٠٪) of the studied subjects had positive history of smoking for their relative, most of studied patients had physical, stressful and

psychological problems to their families from smoking (٤٠.٠, ٣٠.٠٪) respectively, half (٥٠.٠٪) of the studied patients were smoking at age range from ٢١-٢٥ years old and most (٩٠.٠٪) of studied patients know that smoking causes heart disease, causes heart episode of attack, the smoking quit help in restore the heart**.**

Table (٢) cont. This table shows that, the smoking habits of the studied patients. more than half (٥٥.٠٪) of the studied patients had ever hit one of their relative with heart disease due to smoking where is between father, brother and their uncles(٢٠.٠٪ &١٥.٠٪) respectively. The highest percentage, representing less than three quarters (٧٠.٠٪) will help others to quit smoking, and more than three quarters (٨٠.٠٪) tried to quit smoking previously while one fifth (٢٠.٠٪) only didn't have any trial to quit smoking. majority (٤١.٢٪) of the studied patients use communicate with other as a techniques or method in dealing with certain stress in their life.

Table (٣): This table reveals that, there are highly statistically significant differences between pre and post program regarding to Nicotine dependency level.

Figure (١): This figure shows that the studied sample become very low dependency level on nicotine post program.

Table (٤): This table documents that, there are highly statistically significant differences related to all items regarding to readiness to change (pre contemplation) between pre and post program

Table (٥): This table illustrate that, there are statistically and highly statistically significant differences related to all items regarding to readiness to change (contemplation) between pre and post program.

Table (٦): This table shows that, there are highly statistically significant differences related to all items regarding to readiness to change (Action) between pre and post program

Figure (٢): This figure documents that, increase readiness to change (Action) post program for the studied sample.

Table (٧): This table shows that, there are statistically and highly statistically significant differences related to all items regarding to need to quit smoking between

pre and post program. While there are no statistically significant differences related to resist the temptation between pre and post program.

Figure (٣): This figure illustrates that, need to quit smoking become easy to somewhat for the studied sample post program intervention.

Table (٨): This table reveals that, there is positive Correlation between total dependency level, total readiness to change and total need to quit smoking pre and post program

Discussion:

Smoking is a leading cause of morbidity and mortality globally and it is a significant modifiable risk factor for cardiovascular disease (CVD) and other chronic diseases. Efforts to encourage and support smokers to quit are critical to prevent premature smoking-associated morbidity and mortality. So this study aimed to assess the effects of motivational interviewing as a therapeutic intervention on smoking cessation among smoker patients with heart disease to increase motivation and promote change.

This table shows that, the socio- demographic characteristic of the studied patients. As regard age, half of the study subject were more than ٤٠ years, less than one fifth were in young age less than thirty years, and also, more than one third between ٣٠ and less than ٤٠ years old with the **Mean±SD** were ٤١.٩±١٣.٤٦ years old, this is mean the smoking was prevalent among all age group, this is refers to the effect of smoking increase with increasing age, as well as the study subject have the same percent regarding half of the studied patients were intermediate education and working in governmental sector, because the Benha city is considered rural area having short coming view for education and dependent on governmental work, regarding marital status the present study reported that around two thirds of them were married where is suitable for their age, Therefore less than three quarters of the studied patients were have sufficient income .

These findings were in agreement with **Abd –Elfatah (٢٠١٣),** were married, who reported almost one quarter in the participants were young age, less than three quarters of them were working, most of them were married, almost one third of them were

secondary school education, and for three fifth of them had enough income. In addition agreement with previous study, **Rollnick (٢٠٠٨),**who reported that a half of participants were ٥٠ years or more and prevalence of smoking habits was according to their monthly income.

However, these findings were inconsistent with those of **Eaton et al.,(٢٠٠٨)** who mentioned that the highest percentage of participants were in the ٢٦-٣٠ age group, most of them single/never married, and two fifth had a master's degree. Also this finding was in disagreement with **Helmut et al., (٢٠١٦),** who found that most of the patients were high education level (university).

The present study findings, reported that the most of the studied subjects had positive history of smoking for their relatives. It could be due to that Egyptian who had greater positive beliefs about smoking was at a higher risk of engaging in any smoking behavior, and also, may be due to negative role model in term of smoking as coping strategies.

This finding was agreement with those **Gilpin and Pierce (٢٠٠٢)**, identified that Egyptian usually look up to family members and adults in the community and try to emulate their behavior.

Results of this study revealed that most of studied patients had physical, stressful and psychological problems to their families from smoking; it may be lead to a major motivator for quitting.

It is similarity to **Abd –Elfatah (٢٠١٣),**who found that more than two fifth of the studied cases had family harm from smoking, in the same line, **Detailed Overview of the Transtheoretical Model, (٢٠١٠)** found that final quit attempt tended to be more personal for the smoker than the previous quit attempts. Therefore, focusing on personal motives for quitting may help increase motivation.

The current study indicated that half of the studied patients started smoking at age range from ٢١-٢٥ years old. It could be due to psychological distress, easily emotional and easily stress by social pressures from environment, exposure to life and family

stress. It could be due to lack of interpersonal stress skills to cope with daily life stressors.

This finding was in agreements with the **American Cancer Society (٢٠٠٩),** stated that the highest of current smokers began smoking by the age of ٢٥-٤٤ age and decline after that. While, this finding different with **Cabezas et al., (٢٠٠٩)**, reported that most smokers are exposed to cigarettes between the ages of ١١:١٣ years.

This study result also revealed that most of studied patients know that smoking causes heart disease, causes heart episode of attack, the smoking quit help in restore the heart, as well as, more than half of the studied patients had ever hit one of their relative with heart disease due to smoking where is between father, mother, and their uncles. The highest percentage, representing less than three quarters will help others to quit smoking, and more than three quarters tried to quit smoking previously while one fifth only didn't have any trial to quit smoking. It might be due to that patients were not encouraged to attempt to quit, and decrease awareness about the negative consequences of tobacco use.

This result consistent with **Fiore et al., (٢٠٠٨),** whom mentioned that seventy-two participants in the study reported that they had made at least one attempt to quit smoking. However **Rollnick (٢٠٠٨),** found that more than one third made attempts to quit and failed while two thirds hadn't made any trail to quit smoking.

The findings of the present study revealed that, majority of the studied patients use communicate with other as a techniques or method in dealing with certain stress in their life. Although of the most studied patients use these technique in dealing with stressors, this mean the patients had lack of orientation and shallow experiences regarding stress management techniques to deal with daily life situation of stress and how to handle the severity of emotional toward anger behavior.

Nicotine dependence:

The present study results demonstrated that there are highly statistically significant differences between pre and post program regarding to nicotine dependency level. It could be due to most of the studied patients' well understanding for the program/MI

sessions and become aware by importance of smoking cessation. Also, Smoking cessation intervention is a treatment for nicotine dependence and represents a type of health service from which preventive and prognostic benefit for heart diseases related to smoking can be expected.

This finding was supported by **Abd –Elfatah (٢٠١٣),** who reported that statistically significant in the ١st group regarding nicotine dependency level. In the same line congruent with **Piper et al., (٢٠٠٨),** who clarified that cigarette smoking is extremely addictive, and that most researchers agree that cigarette addiction and dependence are the result of the inter play between psychological, social, and physiological factors.

The present study revealed that, there are highly statistically significant differences between pre and post intervention regarding to nicotine dependency level where most of studied sample reported very low dependence post-program comparatively by pre-program demonstrated by half of them, this is could be due to effect of knowledge, stress management technique and deep breathing. This findings was consistent with **Elizabeth and Simon (٢٠١١),** who found that statistically significant different between pre and post program toward smoking dependence

Stages of readiness to change

The present study documents that, there are highly statistically significant differences between pre and post program regarding to readiness to change pre contemplation, contemplation and Action. It could be due to that when the researcher identified the motivational stage of each participant, the researcher implemented the appropriate intervention along the sessions e.g., positive thinking approach and practicing active listening for actual motivation needs to quit.

This finding was in corroborated with **Miller and Rollnick (٢٠١٢),** who clarified that, many consider motivation to change behavior a crucial factor in the success of behavioral and cognitive- behavioral interventions. In line with this reasoning, motivational interviewing is a treatment strategy that capitalizes on the ability of therapist to increase patients` motivation to change behavior.

In addition, **Elizabeth and Simon (٢٠١١)** mentioned that motivational interviewing involves using active listening, reflecting aims to move patients through Prochaska three stages of change: pre contemplation, contemplation and decision to change. The decision to change stage is characterized by being ready to change, and attempting to do so.

The present study results documented that, there are highly statistically significant differences related to all items regarding to readiness to change (Action) between pre and post program. It may be due to the "action" (people are in the process of change, need to strengthen their commitments) and finishing with “maintenance” (change is complete it is necessary to be aware of the need to fight the urges that may lead back to unhealthy behavior). So the purpose of motivational interviewing program is to help clients explore and resolve discrepancies related to their behavior. The researcher guides the patient in such a way to becomes more likely to take steps toward changing a specific behavior.

These finding was supported by **Rollnick et al., (٢٠٠٨),** who stated that, MI focuses on identifying the problem, increasing motivation to change, accepting ambivalence, collaborating with the client, and letting the client set the pace for change.

The current study documents that increase readiness to change (Action) post program for the studied sample. On the contrary, these findings were in disagreement with **Helmut et al., (٢٠١٦),** who stated that, the majority of the participants were in the “contemplation” phase, and only ١٠٪ are found to be in the “action” phase. Although the biggest proportion was in the “contemplation” phase it is still encouraging, as it shows that with work that focuses on strengthening their resolve and giving more of an emphasis on positive aspects of accepting healthier behavior patterns may encourage the change

Need to quit smoking

The current study showed that, there are statistically and highly statistically significant differences to all items regarding to need to quit smoking between pre and post program. This may be due to quitting smoking is one of the best things a patient does to improve his overall health and add years to his life. Where people who quit smoking

generally live longer than people who continue to smoke. This finding was in disagreement with **Gajin et al.,(٢٠١٤)** who reported that, Smoking cessation rate in patients with cardiovascular disease, hypertension, and diabetes did not show statistically significant differences between two groups .Only one of the ١٥ patients who had psychiatric disorders such as depression, anxiety disorder, and schizophrenia succeeded in quitting smoking.

The current study illustrated that, need to quit smoking become easy to somewhat for the studied sample post program intervention. It may be due to, the principle of MI is to listen, express understanding of the patient's point of view and motivation, avoid arguments and strong persuasion, and draw out the patient's own motivation. This finding supported by **Bredie and colleagues (٢٠١١),** who explored the feasibility and effectiveness of MI for smoking cessation, The study recruited ١١٢ patients with established cardio-cerebral vascular diseases (myocardial infarction, stroke, and peripheral vascular disease) or at high cardiovascular risk (hypertension, hyper-lipidemia, and diabetes), and randomly allocated them to a routine lifestyle intervention group and a lifestyle intervention plus MI group. After ٣ months of follow-up, the cessation rates were ٧٪ and ٢٦٪ in the control and intervention groups, respectively, and the rates of smoking reduction were ١٥٪ and ٣١٪ in the corresponding.

The current study showed that, there is positive Correlation between total dependency level, total readiness to change and total need to quit smoking pre and post program. It could be due to the higher readiness to change lead to decrease the dependency level of nicotine then the patient quit smoking rapidly. These finding was in disagreement with **Helmut et al., (٢٠١٦),**who reported that, Moderate and higher nicotine dependency level were significantly associated with a higher readiness to quit smoking, and older age with a lower readiness to quit.

Conclusion

Based on the findings of the present study, it is concluded that motivational interviewing intervention had appositive effect on smoking cessation among smoker patients with heart disease.

Recommendation

Professionals at every level of the healthcare system should have the ability to quickly assess patients' smoking status, provide factual information on the harms of tobacco use, and help inspire patients to quit by employing a strategy called Motivational Interviewing.

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