Original Article

The Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Coronary Artery Disease among Obese People Attending OPDs of different Hospitals in Bangalore

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Abstract*:* Coronary heart disease (CHD) is an epidemic in India and one of the major causes of disease burden and deaths. Coronary artery diseases have one or more major risk factors that are influenced by lifestyle. Obesity is considered an important risk factor for the occurrence of coronary artery diseases. Obesity is likely when an individual's body mass index (BMI) is 30 or higher. As the body mass index rises, so does the risk of coronary heart disease. This study helps obese people understand the relationship between obesity and CAD, thus helping obese people to reduce the risk factors of CAD. Hence, the investigator decided to evaluate the knowledge level among obese people and educate them regarding the prevention of coronary artery disease. One group pretest-posttest design (pre-experimental design) was selected for the study. The participants were 60 obese people attending OPD in selected hospitals in Bangalore. A purposive sampling technique was used to select the sample of the study. A structured knowledge questionnaire was used to collect data from the subjects. The obtained data were analyzed using descriptive and inferential statistics and interpreted in terms of the objectives and hypotheses of the study. The level of significance was set at 0.05 levels. In the pretest, the subjects had inadequate Knowledge, with a mean percentage of 46.2% and a standard deviation of 12.8%, whereas, in the posttest, there was a significant mean knowledge gain of 83.5% and a standard deviation of 11.8%. The paired "t" test value (21.09*) shows statistical significance at a level of $p<0.05$ with df (59), establishing the effectiveness of the Structured Teaching Program. In the pretest, a significant association was found between the age group and the mean pretest knowledge scores at 0.05 level of significance. In the pretest, about 65% of the samples had inadequate Knowledge, whereas in the posttest of the samples, 68.3% had gained adequate Knowledge. These findings indicate that the structured teaching program was effective in enhancing the Knowledge of the obese people attending OPD in selected hospitals regarding the Prevention of Coronary Artery Disease.

Keywords: structured teaching program, obese people, coronary artery disease

1. INTRODUCTION

Obesity is a complex disorder involving an excessive amount of body fat, obesity is not just a cosmetic concern. [1] As the body mass index rises, so does the risk of coronary heart disease (CHD). Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity, and harmful use of alcohol using population-wide strategies [2]. That figure represents more than 50% of the American adult population. Of this group, 11 million adults suffer from severe obesity [3]. Obesity is a major risk factor for the development of chronic diseases and mortality. The risk of cardiovascular events rises with increasing body mass index (BMI). The World Health Organization recommends the measurement of BMI as a universal criterion of overweight (>=25) and obesity (>=30), while measures of abdominal fat distribution such as waist circumference (WC) or waist-to-hip ratio (WHR) are also encouraged. Prospective epidemiological studies have shown increased abdominal fat accumulation to be an independent risk factor for type 2 diabetes mellitus and cardiovascular risk conditions, such as coronary artery disease (CAD), stroke, and hypertension [4]. Obesity has emerged as one of the biggest global health threats by virtue of its strong association with CAD [5]. American Heart Association, in June 1998, reclassified overweight and obesity as a major, modifiable risk factor for coronary artery disease, comparable with the other well-established risk factors [6]. Controllable risk factors for coronary artery disease include high blood cholesterol, hypertension, smoking, obesity, lack of physical activity, and stress. Uncontrollable risk factors for coronary artery disease include gender, family history, race, and genetics [7]. These studies have also shown that the bulk of coronary heart disease is preventable, or at least its occurrence can be delayed [8]. CAD increases the risk for related mortality and morbidity and presents treatment challenges. While genetic factors play a part, 80% to 90% of people dying from Coronary artery disease have one or more major risk factors that are influenced by lifestyle. Obesity, often associated with other factors, increases the risk for the development of Coronary Artery disease [9]. The measurement of obesity is done using the waist-to-hip ratio (WHR). WHR is calculated by the circumference of the waist divided by the circumference of the hip. For men, the cutoff point is 0.9, and for women, it is 0.8. The WHR more than these measurements is considered obese [10]. The prevalence of obesity is found largely among the middle class, middle-upper class, and the upper class [11]. It is estimated that 1.7 billion people around the world are overweight, and 300 million are obese [12]. According to the National Health and Nutritional Examination Survey (NHANES), from 1988–1999, the prevalence of obesity increased from 22.9% to 30.5% [13]. Studies have estimated that in 2007–2008, the prevalence of obesity was 32.2% among adult men and 35.5% among adult women in the United States [14]. Cardiovascular disorders due to obesity result in increased mortality from coronary artery disease, heart failure, arrhythmias, and sudden death [15]. Approximately 86% of the global burden is also accounted for by developing countries. By 2015, CAD is estimated to be the leading cause of death in developing countries [16]. In India, CVD accounts for 31.7% of the deaths. Deaths from coronary heart disease rose from 1.17 million in 1990 to 1.59 million in 2000 and are expected to rise to 2.03 million in 2010. In addition to high CHD mortality in the Indian subcontinent, it manifests almost 10 years earlier on average in this region compared with the rest of the world, resulting in a substantial number of CHD deaths occurring in the working age- group [17]. Only a few studies on the prevalence of CAD have been conducted in Kerala, a Southern Indian state [18]. There is epidemiological evidence that all these risk factors are increasing. An urgent and sincere bureaucratic, political, and social will to initiate steps in this direction is required [19]. There was no difference in exercise capacity between AO and non-AO patients, but AO patients had a higher resting heart rate ($p = 0.021$). Women, most of whom were postmenopausal. The association of central adiposity with the risk of coronary death is independent, for the most part, of its association with hypertension and diabetes [20]. The

incidence of CAD in young adults is increasing mainly due to tobacco consumption, lack of physical activity, sedentary lifestyle, work stress, and obesity [21]. Several surveys conducted across the country over the past few decades have shown a rising prevalence of major risk factors for CVD in the Asian Indian population [22]. The increasing rate of CVD may be explained by the high rates of other risk factors, including adverse lipid profile [23]. Since the majority of the Indians live in rural areas, CVD may lead to epidemic proportions [24]. Health promotion programs and reorientation of primary health care are needed to improve CVD detection in earlier stages and its management [25]. Nurses in preventative health care are tasked with improving the health of patients through evidence-based recommendations while encouraging individuals to receive preventative services such as screenings, counseling, and precautionary medications [26]. Preventative healthcare nurses encourage healthy lifestyles, regular exercise, weight management, avoidance of smoking and drug abuse, moderated alcohol use, and control of existing diseases [27]. The Knowledge of the study would help obese people better understand the relationship between obesity and CAD and its prevention, thereby motivating them to bring about the desired modification in their lifestyle [28]. To assess the existing level of Knowledge regarding prevention of coronary artery disease among obese people [29]. This study refers to the gain in Knowledge as determined by the statistical difference between pretest and posttest knowledge on the prevention of Coronary Artery Disease. In this study, it refers to the level of understanding of information about the prevention of CAD [30].

2. MATERIALS & METHODS

To assess the existing level of Knowledge regarding the prevention of coronary artery disease among obese people. To evaluate the effectiveness of a structured teaching program on Knowledge regarding the prevention of coronary artery disease among obese people. To determine the association between the pretest level of Knowledge regarding the prevention of coronary artery disease with their selected demographic variables. One group pretest-posttest design (pre-experimental design) was selected for the study. The participants were 60 obese people attending OPD in selected hospitals in Bangalore. A purposive sampling technique was used to select the sample of the study. A structured knowledge questionnaire was used to collect data from the subjects. The obtained data were analyzed using descriptive and inferential statistics and interpreted in terms of the objectives and hypotheses of the study. The level of significance was set at 0.05 levels. The statistical procedure of the data gathered to assess the Knowledge regarding the Prevention of Coronary artery disease among obese people attending OPD in selected hospitals enabled the researcher to organize, interpret, and communicate information meaningfully. In order to find a meaningful answer to the research questions, the collected data must be processed and analyzed in an orderly, coherent fashion so that patterns and relationships can be discussed.

3. RESULTS & DISCUSSION

3.1 Socio-demographic characteristics of the respondents

In this heading the socio-demographic characteristics had been described. It includes age, sex, marital status, religion and ethnicity of respondents.

Table 01: Socio-demographic characteristics of respondents

Characteristics	Number	Percentage
Sex of Respondents		
Male	179	39.9

Female	270	60.1
Religion		
Hindu	395	88.0
Buddhist	47	10.5
Muslim	2	0.40
Christian	5	1.10
Marital Status		
Married	18	4.00
Unmarried	431	96.0
Ethnicity		
Dalit	100	22.3
Janajati	104	23.2
Madhesi	1	0.20
Brahmin/Chhetri	244	54.3

Adolescents between the ages of 15-19 years old were included in the study. The mean age of respondents was 17.05 years with standard deviation ± 1.077. Table 01 showed that 39.5% were male and 60.1% were female. The respondents were from different religion. The majority of the respondents (88%) were Hindu followed by Buddhist (10.5%). The remaining were Christian and Muslim. The majority of the respondents (96%) were unmarried while remaining 4% had already got married in their teenage. The respondents were from different ethnic community. More than half of them were from Brahmin/Chhetri (54.3%) whereas, 23.2% and 22.3% were from Janajati and dalit ethnic community respectively.

Table 02: Health facility access and utilization

Characteristics	Number	Percentage
Accessibility **Distance to nearby Public health facility**		
≤ 30 min travel distance	295	65.70
> 30 min travel distance	154	34.30
Utilization **Health Facility visited for health service**		
Yes	310	69.0
No	139	31.0
Type of health facility visited (n=310)		
Public health facility	257	82.9
Private health facility	53	17.1
Received health service went for (n=257)		
Received	201	78.2
Not received	56	21.8
Total	257	100

Table 02 showed that out of 449 adolescents, around one third (34.30%) of them need to travel more than 30 minutes to reach nearby health facility. Regarding the utilization of health facility 69% had visited to any of the health facility for health services in last six month. Among them 82.9% had visited to the adolescent

friendly health facility within last six month. Out of the total adolescents who had visited adolescent friendly health facility for service, 21.8% did not get the service they need.

Table 03: Respondent's observation regarding basic amenities and opening hours

Characteristics	Number	Percentage
Availability of drinking water		
Yes	223	86.8
No	34	13.2
Availability of functional toilets		
Yes	225	87.5
No	32	12.5
Surrounding of health facility		
Clean	226	87.6
Not clean	31	12.1
Comfortable waiting space		
Yes	177	68.9
No	80	31.1
Health facility opening hours		
Convenient	147	57.2
Not convenient	110	42.8
Total	257	100

Table 03 showed that 86.8% had found that the health facility they visited had drinking water facility; 87.5% had found availability of functional toilets, 87.6% had found clean surrounding of the health facility and 68.9% had found comfortable waiting space. The above table showed that 57.2% of the respondents found the health facility opening hours as convenient to them while 42.8 % responded as inconvenient.

3.2 Access to information on AFSRH service availability

Table 04: Awareness of AFSRH service availability in nearby health facility.

Sex of respondents	Known about service availability of ASRH	
	Yes (%)	No (%)
Male	80 (72.1)	31 (27.9)
Female	94 (64.4)	52 (35.6)
Total	174 (67.7)	83 (32.3)

The majority of respondents (67.7%) were aware that AFSRH services is available in the nearby public health facility. Still more than one third adolescents did not know about the availability of AFSHR services in the nearby health facility among which females were higher 35.6% than males 27.9%.

Table 05: Respondent's knowledge on ASRH services availability

Services available in the health facility*	Number	Percentage
Problems during menstruation	186	78.5
Treatment of STIs	71	30.0
Counseling and testing of HIV	52	21.9
Counseling of reproductive health	111	46.8
Counseling of Contraceptives	164	69.2
Contraceptive device	204	86.1
Emergency contraceptive pills	112	47.3
Antenatal care	176	74.3
Safe delivery	142	59.9
Postpartum care	125	52.7
Safe abortion	114	48.1
Mean knowledge score 5.67 and ±3.37 SD within minimum 0 and maximum 11		

*Multiple Response

Majority of the respondents were aware that nearby health facility provides ASRH services like contraceptive devices, ANC/PNC services, and management of problems during menstruation, delivery services. Still the awareness regarding the availability of services like counseling on HIV, reproductive health, treatment of STIs, emergency contraceptives, abortion services is low. The mean knowledge score of respondents was 5.67, ±3.329 SD with minimum 0 and maximum 11.

3.3 Respondent's knowledge on ASRH rights

Table 06 showed that majority of the respondents knew that clear and adequate information, non-discrimination, participation in decision making during treatment procedure are the ASRH rights of adolescents. Small number of the respondents were known about the ASRH rights like respectful and non-judgmental attitude of service providers, respect for their privacy, anonymity of the information. The mean score of respondent's knowledge on ASRH rights was 3.22, ± 1.87 SD with minimum 0 and maximum 7.

Table 06: Respondent's knowledge on ASRH rights

Adolescents' SRH Rights*	Number	Percentage
Considerate, respectful and non-judgmental attitude	60	23.9
Respect for privacy during consultations, examinations and treatments	102	40.6
Non-discrimination	142	56.6
Participation in decision making of treatment procedure	149	59.4
clear information	148	59.0
Adequate information	115	45.8
Anonymity of information	124	49.4
Mean knowledge score 3.27 and ± 1.90 SD within minimum 0 and maximum 7		

*Multiple response

3.4 Promotional activities of AFSRH service

Table 07 showed that 67.7% of adolescents had seen the display of list of available ASRH services while 32.3% did not see. Regarding the provider adolescent interaction, 62.3% of the respondents had never experienced that provider had discussed on the availability and importance of AFSRH services. Only 27.6%

of respondents were provided with IEC materials related to adolescent sexual and reproductive health services of which 76.1% found those materials were useful to gain knowledge on ASRH. The KII findings showed that the outreach activities regarding the AFHS were conducted very rarely during school health program (classes on SRH, Nutrition, Drug abuse etc). But these activities have not been conducted in last six month except in two health facilities. Being busy in the health facility; thoughts like adolescents have access to information from social media, they get information from HFs; lack of budget, and instructions from DPHO were the reported reasons for not conducting such activities.

Table 07: Promotional activities of AFSRH service

Characteristics	Number	Percentage
Display list of available services (n=257)		
Yes	174	67.7
No	83	32.3
Provider-adolescents interaction regarding AFSRH (n=257)		
Yes	97	37.7
No	160	62.3
Provided IEC materials related to ASRH (n=257)		
IEC materials Provided	71	27.6
IEC materials not provided	186	72.4
Usefulness of IEC materials for ASRH Knowledge (n=71)		
Useful	54	76.1
Not useful	17	23.9
Total	257	100

3.5 Privacy and confidentiality

Respondent's Experience on privacy and confidentiality during last visit Table showed that 87.58% of the respondents did not see the confidentiality policy displayed in the public health facility that they had visited in last six month. Regarding the respondent's experience on privacy and confidentiality, 18.3% of them had experienced that someone other than health worker had enter the room during consultation or treatment and 81.7% respondents found curtains on doors and windows in examination rooms. But, 73.9% respondents were not assured that the information provided won't be shared to anyone else by the service provider. Similarly, out of 257 respondents 70.4% of them do not had trust that the providers will not share information to anyone else.

Table 08: Respondent's Experience on privacy and confidentiality.

Characteristics	Number	Percentage
Display of Confidentiality policy		
Yes	32	12.5
No	225	87.5
Privacy (anyone entered the room during counseling or treatment)		
Yes	47	18.3
No	210	81.7
Curtains in doors and windows		
Yes	210	81.7

No	47	18.3
Confidentiality (provider assurance for not sharing the information)		
Yes	190	73.9
No	67	26.1
Trust (felt confident that providers do not share information to anyone)		
Yes	76	29.6
No	181	70.4
Total	257	100

3.6 User's perspectives

Regarding the users perception towards provider's attitude during service delivery, 67.7% respondents found that service providers were respectful towards them while 32.3% did not. Out of 257 respondents who had visited to the nearby public health facility, 64.2% of them perceived that the service providers were friendly to them. Similarly, only 52.5% of the adolescents who had visited to the nearby public health facility were asked for consent during the treatment process.

Table 09: Respondent's perception on service provider's attitude

Characteristics (n=257)	Number	Percentage
Respectful service provider		
Yes	174	67.7
No	83	32.3
Informed Consent		
Yes	135	52.5
No	122	47.5
Friendly service provider		
Yes	165	64.2
No	92	35.8
Total	257	100

Out of 257 respondents who had visited to nearby public health facility for ASRH services, 17.5% of the respondents were denied for the service they went for. The findings of KII and observation showed that health service to adolescents was not denied for anyone just for being adolescent or unmarried but if the case was unmanageable in the health facility referral used to be done. Sometimes stock out of drugs commodities and absence of health worker were reasons to turn back adolescents.

Table 10: experience of service denial by respondents

Service denied by service provider		
Respondents	Yes (%)	No (%)
Male	24(21.6)	87 (78.4)
Female	21 (14.4)	125 (85.6)
Total	45 (17.5)	212(82.5)

Among the respondents who were denied for providing the services most of them perceived the reasons for service denial were service unavailable in the facility, lack of medicine and equipment, being age below 18 years and unmarried.

Table 11: Respondent's perception for service denial by provider

Perceived reasons for service denial*	Number	Percentage
Age below 18	11	24.4
Unmarried	14	31.1
Unable to pay	4	8.9
Lack medicine and equipment	15	33.3
Unavailable in the facility	17	37.8

*Multiple response

Out of the 257 respondents who had visited to public health facility for ASRH services in last six month, 66.9% of the respondents told that they will visit the same health facility for required health services while 20.6% of respondent's do not want to visit the same health facility again for the ASRH services. Similarly, 12.5% of the adolescents were not sure that whether they will revisit the same health facility for health services.

Table 12: Respondent's willingness to revisit the same health facility

Response	Number	Percentage
Yes	172	66.9
No	53	20.6
Don't Know	32	12.5
Total	257	100

3.7 Discussion

The major findings and discusses them in relation to similar studies conducted by other researchers [30]. The evaluation of the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among obese people attending OPD in selected hospitals, Bangalore. Pre-experimental design (one group pre-test and post-test design) was used to evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among 60 obese people [31]. A self-administered structured knowledge questionnaire was used to collect the data from subjects. Pre-test was conducted on first day among obese people after explaining the purpose of the study. Structured teaching programme was delivered among the samples on first day after conducting pre-test examination [32]. Post-test was done on the seventh day after pretest to evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease. Assess the existing level of knowledge regarding prevention of coronary artery disease among obese people [33]. Evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among obese people determine the association between the pre-test level of knowledge regarding prevention of coronary artery disease with their selected demographic variable [34].

Regarding age-group, 40.0% of respondents fall within 21-35 years, 40.0% respondents are within 36–49 years and another 20.0% of respondents are within 50-59 years [35].

4. CONCLUSIONS

The purpose of this study was to evaluate the effectiveness of structured teaching programme on knowledge regarding Prevention of Coronary artery disease among obese people attending OPD in selected hospitals, Bangalore. This study revealed that there is a significant difference in knowledge of obese people regarding Prevention of Coronary artery disease after attending structured teaching programme. The obtained data were analyzed using descriptive and inferential statistics and interpreted in terms of the objectives and hypotheses of the study. The study statistically proved that there is an association between knowledge level and selected socio demographic variables of the obese people. The level of significance was set at 0.05 levels. In the pretest, a significant association was found between the age group and the mean pretest knowledge scores at 0.05 level of significance. In the pretest, about 65% of the samples had inadequate Knowledge, whereas in the posttest of the samples, 68.3% had gained adequate Knowledge. These findings indicate that the structured teaching program was effective in enhancing the Knowledge of the obese people attending OPD in selected hospitals regarding the Prevention of Coronary Artery Disease. Due to time constraints, a purposive sampling technique was used. The nurse can utilize this study in developing a model, theory, evidenced based care. The present study helps nurses and other health care personnel to understand the level of Knowledge of obese people regarding the prevention of coronary artery disease. Student nurse researchers can also be motivated to conduct studies in this area.

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