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Evaluation of Body Mass Index, Exercise Barriers, Depression and Lifestyle in Patients Visiting Executive Health Check up Centre at a Tertiary Care Hospital- A Cross-Sectional Study

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Abstract
Background: *Regular physical activity has been recommended for the prevention and rehabilitation of cardiovascular and other chronic diseases by different health care associations world-wide. Numerous Studies have shown a direct relation between lack of physical activity and the multiple risk factors. Hence, evaluation of risk factors like BMI, exercise barriers become important in identifying individuals in an urban area. Hence the present study was an initiation to conduct an evaluation at an exucutive health check-up centre.AIM: This study aimed to evaluate BMI, exercise barriers, depression and lifestyle in individuals visiting executive health check-up centre.*
Settings and Design: *The study was undertaken in a tertiary care referral hospital for a period of 6 months.*
Materials and Methodology: *A total of one hundred and fifty (150) all adult subjects males and females visiting executive health check-up centre with age 30-65 years old participated in the study. Scales pertaining to psycho-social and exercise benefits and barrier scales were administered to all the subjects visiting executive health check-up centre along with evaluation of BMI. Statistical Analysis was done using SPSS Version 16. Students dependent and independent't' test was used to analyse the outcome measures.*
Results: *Out of a total of 150 subjects 104(69.37%) were males and 46(30.66%) females with mean age of males (45.85±7.69) and females (45.70±7.72) respectively. BMI in males (21.84±2.48) and in females (24.31±2.58) were noted. Lifestyle and depression has shown strong negative correlation i.e leading a healthy lifestyle decreases the chances of depression in the individuals with (p= ≤0.05).*
Conclusions: *The present study concludes that leading a healthy lifestyle decreases the chances of depression and other lifestyle diseases in the individuals.*
Keywords: *Exercise barriers, Depression, Exercise Benefits/Barrier scale, Zung Self Rating Depression Scale, Fantastic Lifestyle Scale.*

INRODUCTION

Physical inactivity and low physical conditioning level have been considered as risk factors for early mortality so important as the smoking, dyslipidemia and arterial hypertension.[1] Regular physical activity practice has been recommended for the prevention and rehabilitation of cardiovascular diseases and other chronic diseases by different health associations world-wide such as American College of Sports Medicine, The Centers for disease control and prevention.[2]

There is direct relation between lack of physical activity and the presence of multiple risk factors such as those found in the metabolic syndrome[3]. The regular practice of physical exercise has proved to be beneficial in terms of its effects in the prevention and treatment of hypertension, insulin resistance diabetes and obesity and also improving lifestyle of the individuals.[4]

In the last decade, a rapid and increasing growth of obese people have been observed that made the obesity a public health problem. This disease has been classified as a disorder of primarily of high energetic ingestion[5]. Most cases of obesity are more related to the low energy expenditure than to the high food ingestion, where the physical inactivity of the modern life to be the highest etiological factor for the growth of the disease in industrialized societies. Therefore it is important and necessary that the energy expenditure should be higher than the daily energy intake in case of treatment of obesity. Change in the lifestyle through the increase on the amount of physical activity practiced and alimentary re-education have been suggested as the best treatment options.[6]

Physical activity also have been considered as an important tool in the treatment of individuals in type 2 diabetes mellitus. Physical exercise programs have demonstrated to be effective in the glycemic control of diabetic individuals improving the insulin sensibility and the glucose tolerance and decreasing the blood glycemia of the individuals. High level of daily physical activity is associated to the lower levels of arterial blood pressure. Physical exercises have demonstrated prevention of age related hypertension.[7] Also physical activity is one of the important tools in prevention of hypertension. Therefore Physical training should be encouraged for both healthy and those with multiple risk factors individuals.[8] Thus arising a neccesity to carry similar observational study at our tertiary care set- up.

MATERIAL AND METHODOLOGY

A total of one hundred and fifty (150) all adult subjects males and females visiting executive health check-up centre aged 30-65 years old participated in the study (α= 0.05,with CI=95%). Subjects with aged 30-65 years and those who gave informed consent were included in the study. Exercise Benefit/Barrier scale, Zung Self Rating Depression Scale, Fantastic Life Style Scale was administered to all the subjects. Subjects with musculoskeletal or neurological conditions, impaired walking/supported walking, individuals with mental illness and aged above 65 years were excluded from the study.

STATISTICS

Statistical analysis for the present study was done manually as well as using statistical package of social sciences (SPSS) version 16. so as to verify the results obtained. Various statistical measures such as mean, standard deviation, and test of significance such as paired and unpaired t- test were used. Nominal data such as subject's demographic data i.e. age, sex, BMI, height, weight distribution were analyzed. Analysis of Exercise Benefits/Barrier Scale, Zung Self Rating Depression Scale and Fantastic Life Style Scale was analysed using -t test, Karl Pearson's test was used to asses correlation between lifestyle, depression and exercise barriers. Probability values less than 0.05 were considered statistically significant.

RESULTS

A total of one hundred and fifty (150) subjects participated in the study, where 104(69.33%) were males and 46(30.66%) females with mean age of males (45.85±7.69) and females (45.70±7.72) respectively. BMI was noted in males with values of (21.84±2.48) and in females (24.31±2.58) respectively.

There was significant difference found in males and females with mean BMI i.e male (21±2.45) and females with mean BMI (24±2.45) with p-value of (0.0001). Though not clinically

significant there was significant difference between male and female individuals when compared with lifestyle scores with males (69.23%) and females (45.65%) suggesting that males had healthier lifestyle as compared to females. In case of lifestyle assessment scores males were in good category with score of 69.23%

on Fantastic Lifestyle Scale and 45.65% in females respectively with p=0.0032. There was no significant differences seen in comparison with gender and depression and exercise barriers. There was negative correlation among lifestyle and depression score with(p= -0.1799).

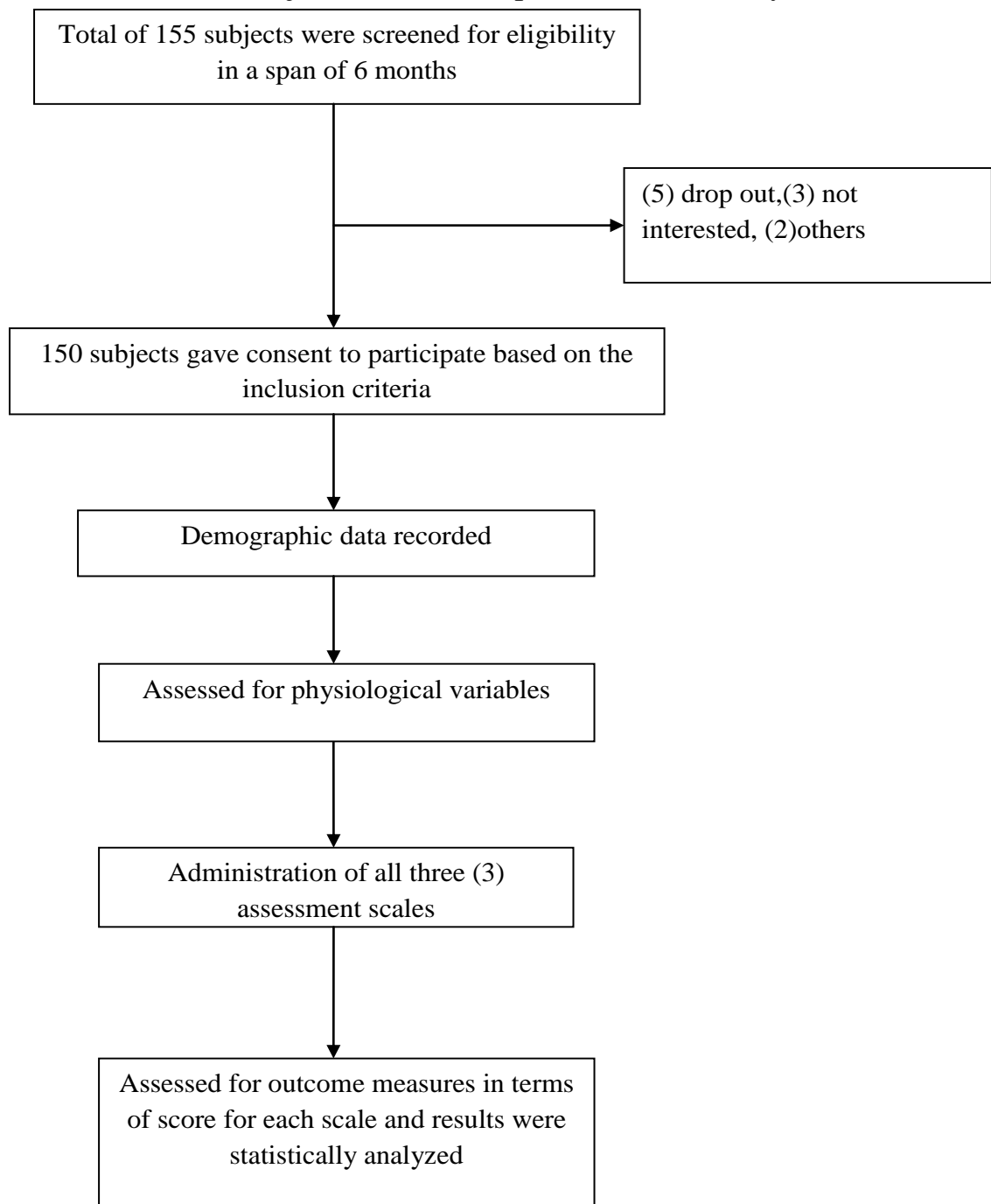Figure 1: Flow Chart of subjects recruitment process for the study.

Table 1: Demographic data of all subjects in the study

Sex	No. of Participants	Age	BMI
		Mean ± SD	Mean ± SD
Male	104	45.85±7.69	21.84±2.84
Female	46	45.70±7.72	24.31±2.58
Total	150	45.80±7.67	22.60±2.75
t-value		0.1104	-5.5451
P-value		0.9122	0.0001*

Level of significance $p= \leq 0.05$

Table 2: Comparison of lifestyle between male and female subjects in the study

Lifestyle levels	Male	Percentage (%)	Female	Percentage (%)
Need improvement (0-34)	0	0.00	2	4.35
Fair (35-54)	14	13.46	15	32.61
Good (55-69)	72	69.23	21	45.65
Very Good (70-84)	15	14.42	6	13.04
Excellent (85-100)	3	2.88	2	4.35
Total	104	100.00	46	100.00

P=0.0032*

Level of significance $p = \leq 0.05$

Table 3: Comparison of depression levels between male and female subjects in the study

Depression Levels	Male	Percentage (%)	Female	Percentage (%)
Normal (0-30)	56	53.85	22	47.83
Medium (30-50)	47	45.19	22	47.83
Severe (50-80)	1	0.96	2	4.35
Total	104	100.00	46	100.00

P=0.3504

Level of Significance $p=\leq 0.05$

Table 4: Comparison of exercise barriers/benefit between male and female subjects in the study

Benefits /Barrier Level	Male	Percentage (%)	Female	Percentage (%)
Barrier (≤13)	26	25.00	9	19.57
Benefits (14-56)	78	75.00	37	80.43
Total	104	100.00	46	100.00

P= 0.4681

Level of Significance $p=\leq 0.05$

Table 5: Comparison of lifestyle between male and female subjects in the study by t-test

Gender	No. of participants	Mean ± SD	t- value	p- value
Male	104	62.66±9.18	2.1509	0.0331*
Female	46	58.41±14.72		

Level of Significance p=≤0.05

Table 6: Correlations between Lifestyle, Depression and Exercise Barriers/benefits scores in the present study

Variables	Lifestyle Scores	Depression Scores	Exercise barrier/benefit Score
Lifestyle			
Depression	r= -0.1799*		
Exercise barriers/benefit	r= 0.0995	r= -0.0793*	

Level of Significance p=≤ 0.05

DISCUSSION

To gain better understanding of the issues associated with the physical inactivity and low levels of exercise generally observed in adult population, this study aimed to identify the barriers to participation in physical activity and exercise, levels of depression and lifestyle among the middle-aged individuals in the community.

Modernity has reduced the amount of work-and leisure-time physical activity. Lifestyles are increasingly sedentary, with the resultant side-effects of obesity currently which is one of the major issues in the world wide.[9] The present study demonstrated that females had more body weight issues as compared to males this may be due to lack of daily physical activities than males as due to more household activities and responsibilities in the family.[10] The number of females who visited health check-up centre were less as compared to males, this may be due to their priorities to their health related issues as most of the female individuals have to look after their household activities than males which leads to negligience of their health issues and considers medical advice only when symptom aggrivates.[11]

Poor diet, physical inactivity and smoking have long been recognized as key contributors to many diseases. There are studies suggesting that the modifiable lifestyle behaviors are risk factors for common mental disorders as depression.[2]

However depression levels were very low in the individuals visiting executive health check-up centre as there was maintenance of good mental health and lifestyle among the individuals, similar to the study which demonstrated that non-depressed individuals had significantly higher health promoting lifestyle suggesting that individuals with good lifestyle have less chances of depression in their lives.[12]

Alcohol drinking was found to be one of the important factor in US population due to stress factors and cultural differences.[13] Similarly present study showed that there was alcohol consumption in individuals with higher class in the society, this may be due to their lifestyle and more of stress and depression among the individuals due to workload. Alcohol consumption in females was equal to those of males who visited executive health check-up centre due to their lifestyle and cultural background.[14] Tobacco chewing was considered harmful and dangerous for consumption due to its severe effects on health.[15] The present study showed similar results were individuals who consumed tobacco were less, due to awareness among the people about harmful effects of tobacco chewing which may lead to cancer. Use of drugs such as marijuana, cocaine was more among the individuals with low education was proved in one of the previous study.[12] where as

the present study dint show any similar results this may be due to level of education provided and less availability of the drugs in the society and due to different laws pertaining to drug consumption.[16]

When assessed for type of behaviour on fantastic lifestyle scale it showed that most of the individuals used to perform their work in hurry, similar to the results of the study which proved that individuals who work during late shifts are in hurry as they have to complete their target and daily routine work.[16] Individuals working late night or those who go to bed late has shown irritable behaviour and lack of positive characteristics,[17] but in present study there were no such complains this may be due to lifestyle of the individuals and usually going with the saying early to bed, early to rise, thus getting more sleep that helps in proper functioning of the brain.[18] Individuals working in companies face lot of stress due to target of completion of their work, similarly present study showed that the individuals working in companies have more stress related to their work front and hence they get into habits such as alcohol consumption, tobacco chewing and even drugs.[19]

The study conducted lack of time, facilities and lack of motivation was an important barrier in inactive older adults, who rated exercise as their lowest priority,[20] where as in the present study showed that there were less exercise barriers faced this could be because individuals believed that their routine activities already provided them with the required exercise, similarly present study found that not having enough time was one of the major barrier for participation in the physical activity and exercise. This may be explained to be part of the general opinion harboured by the participants that exercise is time consuming.[21] Similar results were found in study conducted in Chinese populations were three most barriers were insufficient time. Inadequate skill and resource and lack of support from family and friends[22] and no one to exercise with was also one of the major barrier for participation in the physical activity and exercise.[23] Lack of exercise was seen more in females as compared to males this may be due to their busy schedule and household responsibilities and cultural beliefs in India, but most of the working women and those who were aware of the fitness and importance of exercising give importance to exercise thrice a week.[24]

CONCLUSION

The present study adds to the existing literature on the exercises barriers among the individuals and concludes that lifestyle and depression are correlated that is leading a healthy lifestyle decreases the chances of depression.

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