

Cross sectional study on adherence and barriers to healthy lifestyle habits in Indian population

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ABSTRACT

Millions of people are targeted every year by various non-communicable diseases like cancer, diabetes, hypertension, cardiovascular, and respiratory diseases. This impacts global morbidity and mortality. Diet is one of the criteria that influences one part; physical inactivity reflects on the other. Healthy promotion can be achieved through healthy nutrition and regular exercise, which will lay the foundation for preventing non-communicable diseases. To avoid or prognostic detection of non-communicable diseases, understanding the adherence caused by various barriers must be the first priority. Adherences and barriers to the lifestyle will help us promote health strategies that might be useful to guide adolescence, adulthood, and ageing. Healthy lifestyles support health promotion and disease prevention, which is cost-effective for noncommunicable diseases chronic diseases like cancer. The aim of the present study is to monitor, evaluate, and identify adherence and barriers to healthy lifestyle habits in patients attending the district general hospital.

Keywords: mortality, non-communicable diseases, adherence and barriers, lifestyle

INTRODUCTION

Modifiable lifestyle behaviors such as smoking, unhealthy diet, and physical inactivity significantly increase the risk of chronic diseases like heart disease, stroke, diabetes, obesity, metabolic syndrome, COPD, and cancer. The rise in these conditions highlights the urgent need for public health interventions to combat the global trend of sedentary lifestyles and poor dietary choices [1].

Unhealthy lifestyles play a critical role in the development and progression of Non-Communicable Diseases (NCDs) [2]. Adhering to healthier lifestyle practices can notably reduce the incidence and mortality rates of Cardio Vascular Diseases (CVD), even among high-risk groups such as individuals with type II diabetes mellitus [3]. For instance, Benaich S. et al. (2021) reported that 14.8% of students were overweight and 1.6% were obese. They linked poor dietary habits, including fast food consumption, sugary drinks, and irregular sleep patterns, to an increased risk of overweight and obesity. This underscores the need for targeted interventions to encourage healthier habits among the youth [4].

Ozemek C. et al. (2020) found that hypertensive individuals could lower their risk of heart disease and stroke by adopting a healthy lifestyle, which includes a diet rich in fruits and vegetables, limiting sodium, avoiding excessive alcohol, and not smoking. This study emphasized the importance of non-pharmacological strategies in managing hypertension [5]. Similarly, Alshammari SA. et al. (2020) highlighted widespread physical inactivity and poor diet, suggesting that awareness campaigns, improved exercise facilities, and subsidized gym memberships could promote healthier behaviors [6].

Jillian M. et al. (2017) demonstrated that engaging in Therapeutic Lifestyle Changes (TLC) significantly improved quality of life, led to weight loss, and reduced diastolic blood pressure over nine weeks. This emphasizes the effectiveness of comprehensive lifestyle interventions [7]. King DE. et al. (2006) observed a decline in adherence to healthy lifestyle habits from 1988 to 2006, particularly among non-Hispanic Whites. They noted that individuals with hypertension, diabetes, or cardiovascular disease were not more likely to adhere to a healthy lifestyle, indicating the need for targeted public health strategies [8].

Zhang Y. et al. (2021) found that consuming butter and margarine was linked to higher mortality, whereas replacing these fats with

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non-hydrogenated vegetable oils like canola, corn, or olive oil reduced mortality risks. This supports dietary recommendations for better cardiometabolic health [9]. Additionally, Aksoylu Ozbek et al. (2021) found that Turkish consumers were aware of the health risks associated with fat consumption but had positive attitudes towards vegetable oils like olive oil, highlighting the importance of public education on the health benefits and risks of various dietary fats [10, 11].

The aim of the present study is to monitor, evaluate, and identify adherence to healthy lifestyle habits and the barriers to such adherence among patients attending a district general hospital. This will help inform and design effective interventions to promote healthier behaviors and reduce the prevalence of lifestyle-related chronic diseases.

MATERIALS AND METHODS

The study received approval from the institutional ethics committee at the Apollo Institute of Medical Sciences and Research Centre, Andhra Pradesh (UG/02/IEC/AIMSR/2023).

A questionnaire-based cross-sectional study was conducted at a tertiary care district general hospital in Chittoor, Andhra Pradesh. The study included a sample size of 100 patients of both

genders, aged between 18 years and 80 years, who attended the outpatient department over a two-months period from October 2023 to November 2023. Exclusion criteria comprised children below 18 years old, pregnant women, and individuals unwilling to participate.

Patient information was gathered concerning personal details, adherence to, and barriers against adopting healthy diet and lifestyle practices. Data on the consumption of fruits and vegetables, salt and oil intake, regular exercise habits, maintenance of ideal weight, and smoking status were collected using a self-administered questionnaire. Subsequently, the collected data underwent analysis using the Statistical Package for the Social Sciences (SPSS).

RESULTS

The study comprised 100 participants, with 61% being male and 39% female. The average age was 43.19 years, with a standard deviation of 15.89 years, spanning from 18 years to 80 years. Notably, 24% of the participants were in the 41-50 age group, and 21% were in the 31-40 age group. This highlights that the majority of participants were middle-aged, particularly between 31 years and 50 years old (Table 1) (Figure 1).

Age Group	Number of Subjects	Males	Females
11 Year-20 Year	8	5	3
21 Year-30 Year	16	11	5
31 Year-40 Year	21	15	6
41 Year-50 Year	24	11	13
51 Year-60 Year	15	8	7
61 Year-70 Year	10	6	4
71 Year-80 Year	6	5	1
Total	100	61	39

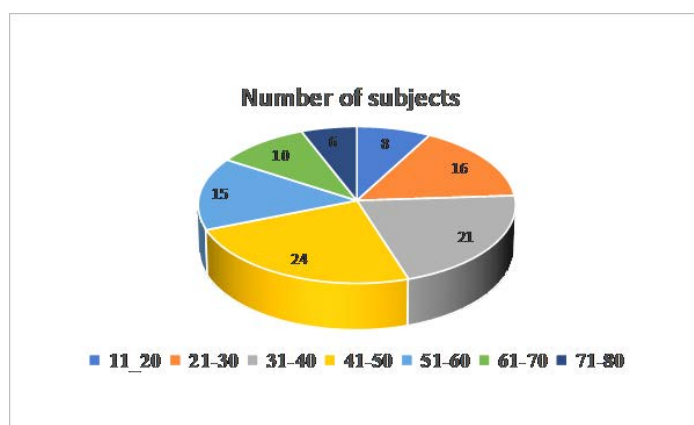


Fig. 1. Age group

The study included 100 participants (61 males, 39 females) with an average age of 43.19 years (SD=15.89) and ages ranging from 18 to 80. The largest age group was 41 years-50 years (24%), followed by 31 years-40 years (21%) (Table 2). Regarding BMI, 46 males and 15 females had a normal BMI, 8 males and 19 females were overweight, and 7 males and 5 females were obese, indicating more males with normal BMI and more females overweight (Figure 2).

Collected data has shown the majority of the subjects are married

(88%) and around 12% are unmarried. The details are enclosed in the table 3 and figure 3.

The study indicates that out of the total 100 participants, 78 were deemed physically active, comprising 72 males and 6 females. Conversely, 22 participants were classified as physically inactive, with 8 males and 14 females falling into this category as shown in the table 4. This data underscores a notable gender disparity in physical activity levels, with a higher proportion of females being physically inactive compared to males (Figure 4).

BMI	Males	Females
Normal	46	15
Overweight	8	19
Obese	7	5
Total	61	39

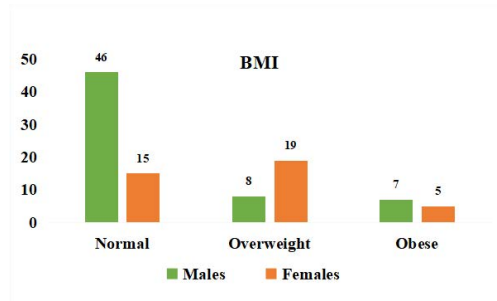


Fig. 2. Body Mass Index (BMI)

Marital Status	Number of Patients
Married	88
Single	12

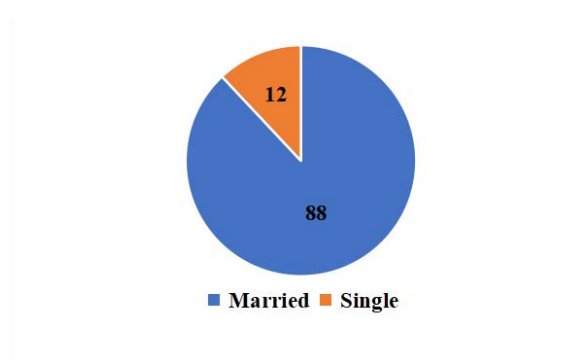


Fig. 3. Marital status of the collected data (n=100)

Physically Inactive	Males	Females	Total
Yes	8	14	22
No	72	6	78

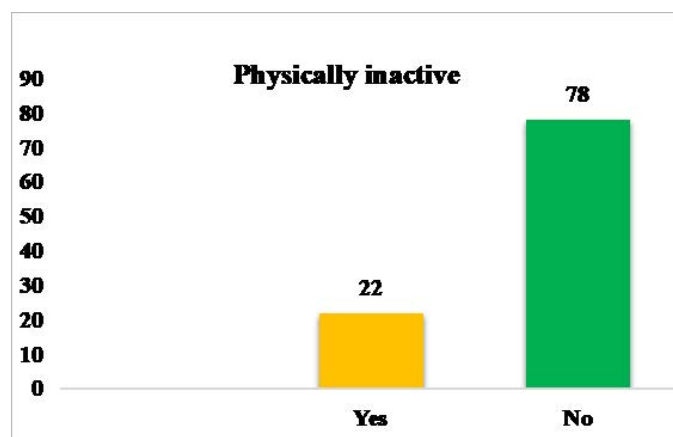


Fig. 4. Physically inactive (not exercising ≥ 30 minutes, 3x/day for past 3 months)

The study investigated the prevalence of Diabetes Mellitus (DM) and Hypertension among 100 participants. It revealed that 19 individuals had DM, while 21 had Hypertension (Table 5 and 6). Notably, 8 participants were diagnosed with both conditions in the studied population (Figure 5). Conversely, 91 participants did not have DM, and 79 did not have Hypertension. This data sheds light on the co-occurrence and individual prevalence rates of these chronic health conditions within the studied population (Figure 5).

Tab. 5. Clinical history considering the status of Diabetes Mellitus and Hypertension

DM/Hypertension	Yes	No
Diabetes Mellitus	19	91
Hypertension	21	79
Both	8	92

Tab. 6. Dietary habits

	Rice	No (%)
A	Less than once a day	3 (3%)
	1-2 times a day	63 (63%)
	3-5 times a day	34 (34%)
B	Vegetables	
	Less than once a week	1 (1%)
	1-2 times a week	15 (15%)
	3-5 times a week	59 (59%)
C	Fruits	
	Less than once a week	21 (21%)
	1-2 times a week	51 (51%)
	3-5 times a week	21 (21%)
D	Meat Intake	
	Less than once a week	23 (23%)
	1-2 times a week	66 (66%)
	3-5 times a week	8 (8%)
E	Sugars/Sweet	
	Less than once a week	30 (30%)
	1-2 times a week	24 (24%)
	3-5 times a week	37 (37%)
	6 or more times a week	9 (9%)

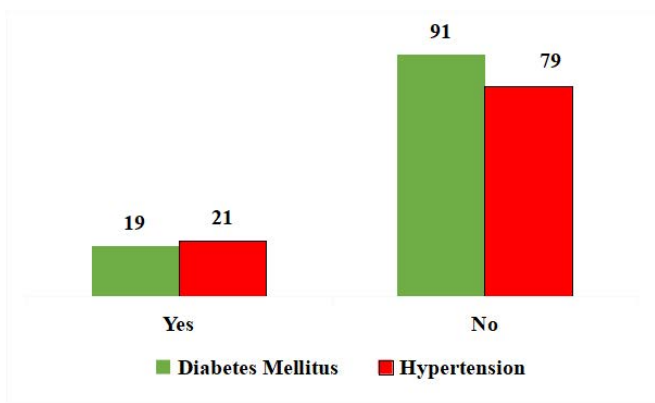


Fig. 5. Clinical history considering the status of Diabetes Mellitus and Hypertension

The study meticulously examined participants' dietary habits across five essential categories: rice, vegetables, fruits, meat, and sugars/sweets consumption. Results revealed that 63% of participants consumed rice 1 times-2 times daily, while 59% consumed vegetables 3 times-5 times weekly. Fruit intake was predominantly observed 1 times-2 times weekly (51%), with meat commonly

consumed 1 times-2 times weekly (66%). Additionally, sugars/ sweets were typically consumed 3 times-5 times weekly (37%). These findings offer valuable insights into the dietary preferences of the study population, contributing to a deeper understanding of their nutritional behaviors.

Tab. 7. Barriers to physical activity and healthy diet

Personal and Environmental Barriers to Healthy Eating.	1 Obstacles	2 Somewhat Obstacles	3 Non-Obstacles
Do not have enough information about health diet?	4 (4%)	41 (41%)	55 (55%)
Do not have motivation to eat a healthy diet?	25(25%)	44 (44%)	31 (31%)
Not able to buy healthy foods that are inexpensive?	7 (7%)	33 (33%)	60 (60%)
Social Barriers to Healthy Eating			
No family support to eat a healthy diet?	41 (41%)	22 (22%)	37 (37%)
No friends' support to eat a healthy diet?	72 (72%)	18 (18%)	10 (10%)
Not having time to prepare or eat healthy foods?	10 (10%)	19 (19%)	71 (71%)
Personal Barriers to Physical Activity			
Do not have motivation to do physical activity, exercise, or sport?	62 (62%)	13 (13%)	25 (25%)
Not enjoying physical activity, exercise, or sport?	52 (52%)	22 (22%)	26 (26%)
Do not have the skills to do physical activity, exercise, or sport?	54 (54%)	17 (17%)	29 (29%)
Social Support Barriers to Physical Activity			
No family support to be physically active	58 (58%)	12 (12%)	30 (30%)
No friends' support to be physically active	72 (72%)	8 (8%)	20 (20%)
No work environment to be physically active?	40 (40%)	19 (19%)	41 (41%)
Environmental Barriers to Physical Activity			
Do not have enough information about how to increase physical activity?	55 (55%)	22 (22%)	23 (23%)
Not being able to Find physical activity facilities that are inexpensive?	80 (80%)	10 (10%)	10 (10%)
Not having the time to be physically active?	19 (19%)	4 (4%)	77 (77%)

The study reveals critical barriers undermining both healthy eating and physical activity among participants. Firstly, a significant portion lacks essential information about healthy diets (4%) and struggles with motivation for healthy eating (25%). Social dynamics also exert substantial influence, with a considerable percentage experiencing inadequate family (41%) and friends' support (72%) for healthy eating. On the physical activity front, personal obstacles such as motivation (62%), dislike (52%), and skills deficiency (54%) are prevalent. Moreover, social support barriers, including insufficient family (58%) and friends' backing (72%), significantly impede physical activity engagement. Lastly, environmental constraints like the absence of affordable physical activity facilities (80%) and time scarcity (77%) pose significant hurdles. These findings underscore the complex landscape of challenges individuals face, emphasizing the necessity for comprehensive interventions addressing personal, social, and environmental factors to promote healthier lifestyles effectively.

DISCUSSION

39% of participants in our study were classified as overweight or obese, a prevalence consistent with Schienkewitz A et al.'s research and marginally lower than that reported by Nagendra et al. [12, 13]. Intriguingly, half of our cohort did not adhere to recommended dietary or exercise guidelines, signifying a concerning trend. Dietary habits revealed a reliance on rice among 34% of participants, while 72% reported consuming fruits and vegetables infrequently, mirroring patterns observed in Oman [14]. Notably, Bergstrom M et al. noted a shift towards low-carbohydrate, high-fat diets, corroborated by findings from Corvalán C et al. and Al-Zalabani AH et al., underscoring a global trend towards less

healthy dietary choices [15-17].

Despite global health recommendations advocating for regular physical activity, our study found that only 22% of participants were physically inactive, a stark contrast to the higher rates reported by Al-Zalabani AH et al. [18]. Conversely, Badr HE et al. reported significantly higher levels of physical activity among both genders, highlighting potential disparities in activity levels across different populations [19]. Gender differences were evident, with women exhibiting lower levels of physical activity compared to men, consistent with broader trends observed in Saudi Arabia and Kenya.

Additionally, only a small minority (4%) perceived a lack of information as a barrier to healthy eating, diverging from studies in Switzerland that identified price as a predominant obstacle [20]. Instead, barriers such as willpower, time constraints, and taste preferences emerged as significant challenges to adopting healthier dietary habits. Our findings underscore the multifaceted nature of promoting healthy lifestyles and the importance of tailored interventions to address diverse barriers effectively.

While initiatives to encourage healthy eating and regular physical activity are paramount, the complexities inherent in changing behavior warrant careful consideration. Barriers to physical activity, such as lack of motivation and family support, as well as limited access to facilities, must be addressed comprehensively to facilitate sustained lifestyle changes. Moreover, efforts to improve dietary habits should account for cultural, economic, and environmental factors that influence food choices. By fostering collaboration between policymakers, healthcare professionals, and community stakeholders, we can develop evidence-based strategies that promote healthier lifestyles and reduce the burden of non-communicable diseases on a global scale.

CONCLUSION AND SUMMARY

The study elucidates a concerning pattern of inadequate adherence to healthy lifestyle habits among participants, revealing notable barriers such as insufficient knowledge and motivation regarding physical activity engagement. Notably, evidence underscores the profound impact of embracing healthy lifestyle factors including weight management, regular exercise, balanced diet, and tobacco avoidance on mitigating the risk of chronic diseases. Customized interventions are imperative to surmount these obstacles, fostering enduring behavioural changes and enhancing overall health outcomes. Moreover, emphasizing the importance of healthy habits may prove instrumental in reducing cancer risk and bolstering overall well-being.

Amidst challenges, participants exhibit varying degrees of motivation, often influenced by the perceived support from partners and

community networks. Addressing impediments to a healthy lifestyle, such as financial constraints and the burden of comorbidities, necessitates tailored strategies that account for community-specific obstacles and promote sustainable lifestyle modifications. By comprehensively understanding dietary patterns, physical activity levels, and the hurdles encountered by individuals with chronic ailments, interventions can be tailored to facilitate lasting behavioural changes and advance overall health outcomes.

In light of these findings, it becomes increasingly evident that fostering healthy lifestyle practices not only mitigates the risk of chronic diseases but also holds potential in reducing the incidence of cancer. Integrating preventive measures aimed at promoting physical activity, healthy eating habits, and tobacco cessation into healthcare initiatives may offer a multifaceted approach to enhancing public health and reducing the burden of non-communicable diseases, including cancer.

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