"Comparative analysis of physical activity level & influencential factors on exercise participation desk job worker among age & gender, match with & without diabetes"

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ABSTRACT

Background: Physical activity is essential for maintaining overall health, particularly in individuals with diabetes. Sedentary lifestyles, especially among desk job workers, contribute to reduced physical activity levels, which can exacerbate health risks. This study aims to compare the physical activity levels and influential factors affecting exercise participation among age- and gender-matched individuals with and without diabetes.
Aim and Objective: To determine exercise participation based on physical activity level & influential factors among adults with age & sex match in diabetes & non- diabetes population
Methods: A cross-sectional comparative study was conducted with 100 participants (50 diabetic and 50 non-diabetic desk job workers) aged 40-60 years. The International Physical Activity Questionnaire (IPAQ) and the Exercise Benefits and Barriers Scale (EBBS) were used to assess physical activity levels and perceived exercise barriers. Data were analyzed using statistical software, with comparisons made between diabetic and non-diabetic groups based on age, gender, and BMI.
Results: Non-diabetic individuals exhibited significantly higher physical activity levels compared to diabetic individuals (*p < 0.0001*). individuals* reported *more perceived barriers to exercise, such as lack of motivation and physical discomfort (*p < 0.0001*).
No significant gender differences were found in physical activity levels, but higher BMI was associated with lower activity levels. Sedentary behavior was more common among desk job workers, negatively impacting physical activity.
Conclusion: Diabetic individuals engage in less physical activity and perceive more barriers to exercise compared to their non-diabetic counterparts. The findings emphasize the need for targeted interventions to promote an active lifestyle, particularly in diabetic populations. Addressing exercise barriers could improve health outcomes and quality of life.

Keywords: Physical Activity, Diabetes, Exercise Barriers, Desk Job Workers, IPAQ EBBS ,Sedentary Lifestyle ,BMI

INTRODUCTION

Physical activity is essential for maintaining overall health and reducing the risk of chronic diseases, including diabetes. Regular exercise improves cardiovascular function, regulates blood sugar levels, and enhances overall well-being. However, sedentary lifestyles, especially among desk job workers, contribute to decreased physical activity, increasing the risk of obesity, hypertension, and diabetes.

Diabetes is a metabolic disorder characterized by insulin dysfunction, leading to high blood sugar levels. Physical inactivity worsens its complications, affecting muscle function and increasing cardiovascular risks. Engaging in regular exercise is crucial for both diabetic and non-diabetic individuals to improve health outcomes.

This study aims to compare physical activity levels and the factors influencing exercise participation among desk job workers with and without diabetes, considering age and gender. Understanding these factors can help develop targeted physiotherapy interventions to promote an active lifestyle and prevent health complications.

LITERATURE REVIEW

1.American college of sports medicine guidelines for graded exercise testing & exercise prescription (9th edition) .is guidelines " typically emphasize the importance of individualized exercise prescription based on though assessment & evaluation it often highlights the significance of exercise in promoting health & preventing chronic disease.

2.Ali Fattahi,Majid Barati,Saeed Bashirian,Rashid Heydari Moghadam(2014). conducted a study titled " physical activity and it's related factors among type 2 dibetic patient in Hamdan.study done by Fattahi has demographic and psychology variables relationship with physical activity is important are be used as an introduction to design effective intervention to promote physical activity.

3.Srikanth Bellay,loannis Kyrou ,James E.Brown & Clifford J. Bailey. A study titled "Type 2 diabetes mellitus in older adults: clinical consideration and management**.**study done by Bailey .SL.has proved the increasing prevalence of T2 DM in older adults reflects an increase in risk factors (such as prior obesity & inactivity) as well as improvements in general health care that have extended life expectancy.

4.DR.Rebacca (Nolan phD) , Associate professor Annette J Raynor phD, Dr.Narelle M. Berry phD, professor Esther J may phD.conducted a study titled " self physical activity using the international physical activity questionnaire IPAQ in Australian adults with type 2 dibetes with & without peripheral neuropathy study done by Dr. Rebecca Nolan has demonst the people with type 2 dibetes & peripheral neuropathy need to be encouraged to perform higher level of physical activity for biological , physical and psychological benefits.

5.D Chathuranya Ranasinghe,Priyanga Ranasinghe Ranil Jayawardena,David R.mattaheus & Prasad Katulanda **".** conducted a study titled " evaluation of physical activity among adults with diabetes mellitus from srilanka.study done by Ranasinghe DC.has demonstrate the in activity of those residing in urban area was higher than rural in all adults.

MATERIALS & METHOD

The study was Cross-sectional comparative study where Desk job workers aged *40-60 years, including 50 diabetic and 50 non-diabetic individuals. The Inclusion Criteria to select the study population were Diabetic and non-diabetic participants. Both males and females between the age group 40-60 years.The Exclusion Criteria were Pregnant women Individuals with cognitive or neurological impairment.&Participants with severe cardiac dysfunction .

Materials used in the study included consent form,demographi data proforma.

Procedure- A written consent was taken from all the subjects.Selection of the subjects was done as per the inclusion and exclusion criteria. Once the approval was obtained there will an informal interaction with the diabetic patient and then they were provided with information sheet with regards to the nature of study.

After explaining nature of the study to the diabetic patient a written consent was obtained from the subject.The subjects were selected based on fulfilment of inclusion criteria on those individuals who are voluntarily willing to participate were included as the subject for the study. Later on, the questionnaire were handed over to the subjects and were asked to fill it up and hand it over according to the instruction given. On completion of marking the responses the question were taken back and weres later interpreted.

Statistical Analysis –

Data was entered into Microsoft Excel spreadsheet. Tables and Graphs were prepared using Microsoft word and excel software. Continuous variables was presented as Mean ± SD and Median & Range for non-normalised data. Categorical variables were expressed in frequency and percentages. Categorical variables were compared between 2 groups by performing chi2 test. For small numbers, Fisher exact test will be used wherever applicable. Comparison of IPAQ and EBBS score between Diabetic and Non-diabetic patients by performing independent t-test. Spearman's correlation coefficient was used to determine direction and magnitude of correlation of IPAQ and EBBS score with age, Gender and BMI .$P<0.05$ will be considered as statistical significance. Statistical software STATA version 14.0 will be used for data analysis.

RESULT

The study was undertaken for the comparative analysis of physical activity level & influential factors on exercise participation desk job worker among age & gender, match adults with and without diabetes has yielded fallowing results.The age & gender distribution were equal in both diabetic &non-diabetic desk job worker age distribution of study subjects with mean age SD (ranges) 49.9± 5.31 (41-59).[In table no.1&2].

- In table no.3 comparison of distribution of study subject according to IPAQ &EBBS scale showed highly significant p- value <0.001.
- In table no-4comparison of IPAQ score EBBS score among diabetic &no-diabetic patients showed highly significant p-value <0.0001.

- Table No.1 Age distribution of study subjects.

Age in years	Diabetic Group		Non Diabetic Group	
	N	%	N	%
41 – 45	14	28.0	14	28.0
46 – 50	12	24.0	12	24.0
51 – 55	15	30.0	15	30.0
56 – 59	9	18.0	9	18.0
Total	50	100	50	100
Mean Age SD (Range)	49.9 ± 5.31(41- 59)		49.9 ± 5.31(41 - 59)	

P=1.000,NS

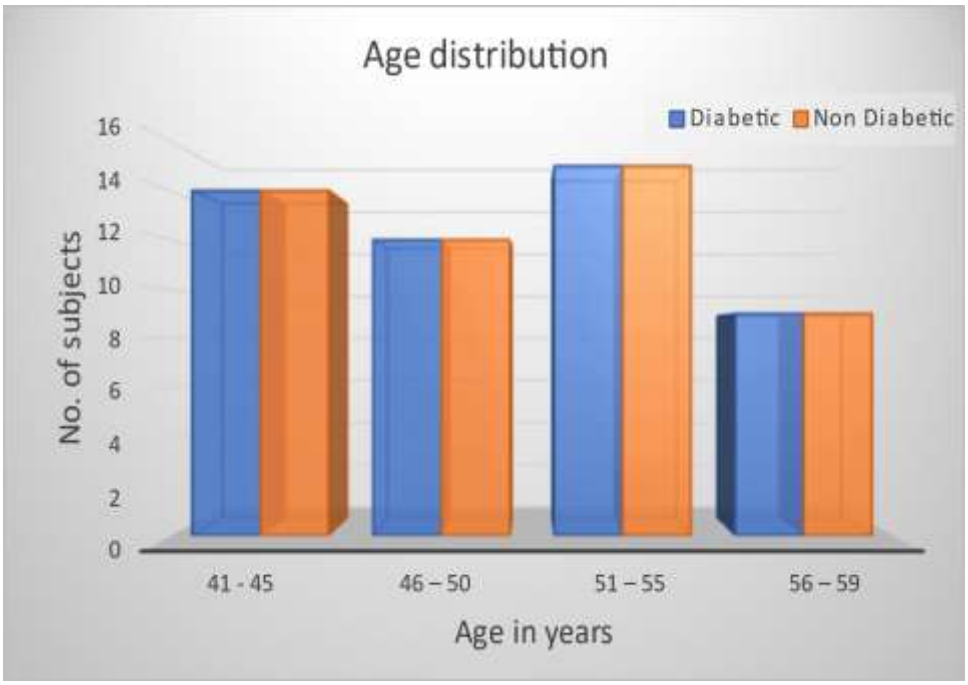


Table No. 3 BMI wise distribution of study subjects.

BMI	Diabetic Group		Non Diabetic Group	
	N	%	N	%
<18.5	5	10.0	3	6.0
18.5 – 22.9	28	56.0	31	62.0
23.0 – 24.9	11	22.0	9	18.0
25 – 29.9	3	6.0	7	14.0
≥30	3	6.0	0	0
Mean BMI	21.86 ± 3.76		22.03 ± 2.78	

P=0.7943,NS

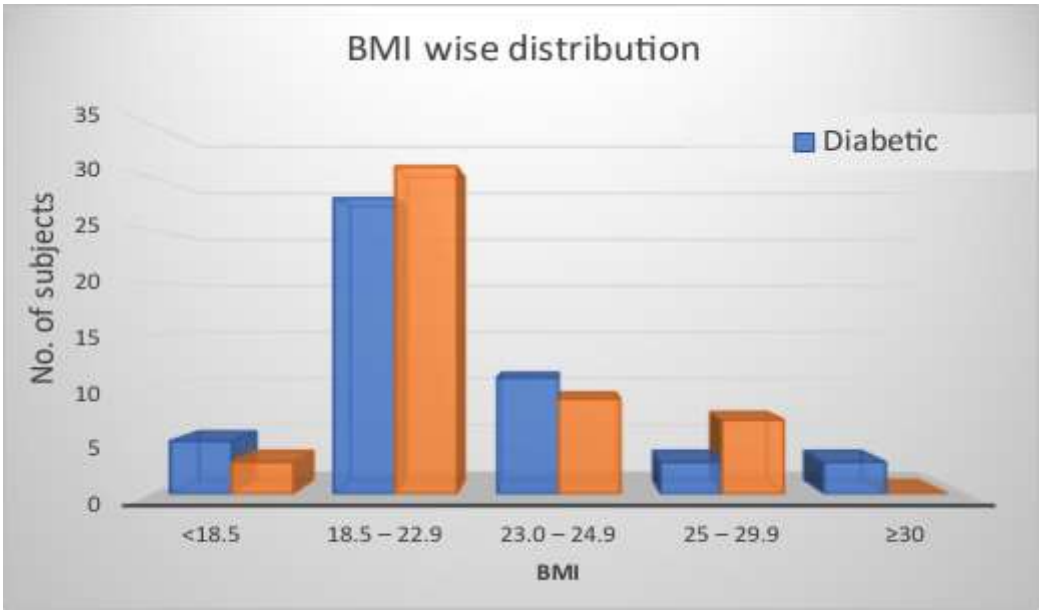
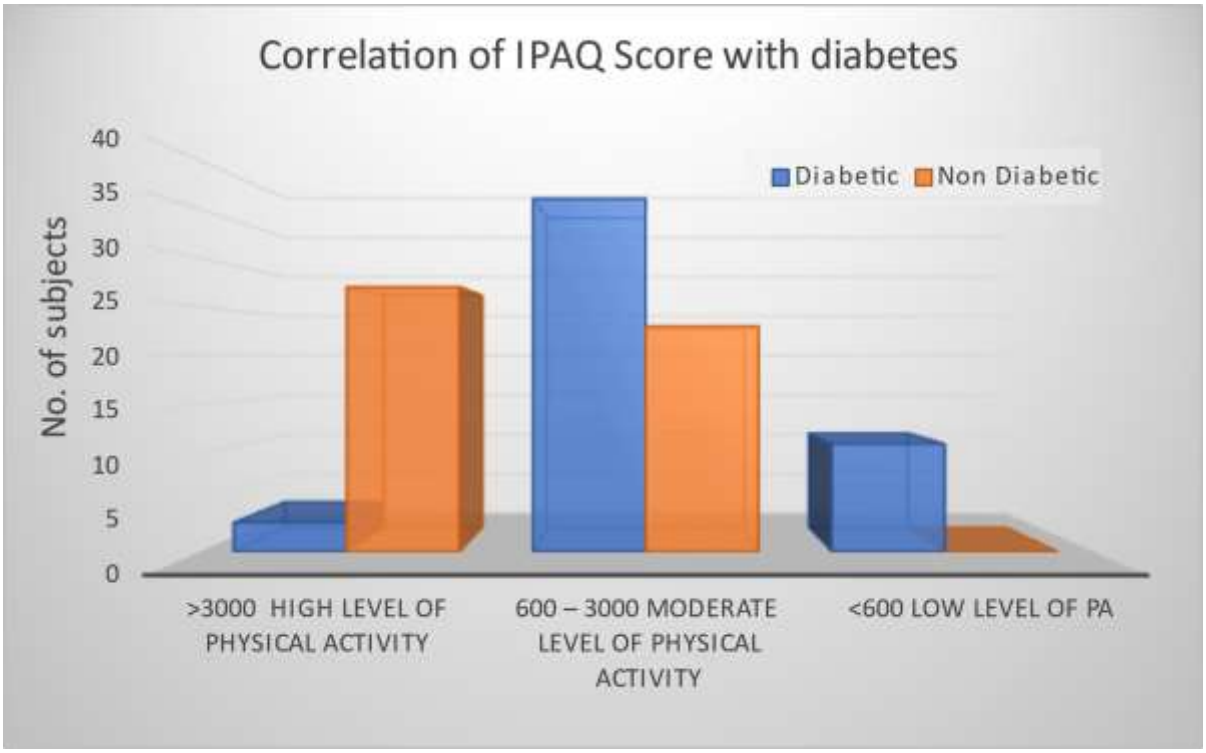


Table No.4 Distribution of study subjects according to IPAQ Scale

IPAQ Scale	Diabetic Group		Non Diabetic Group		p-value
	N	%	N	%	
>3000 High level of physical activity	3	6.00	27	54.00	Chi2=33.0644 d.f.=2 p<0.001 HS
600 – 3000 Moderate level of physical activity	36	72	23	46.00	
<600 Low level of PA	11	22.00	0	0	



DISCUSSION

According to WHO In 2020,these guidelines offer evidence-based recommendations. On the amount and types of physical activity beneficial for health. they address various population groups, including adults, discuss the health risks associated with sedentary behaviour.

The distribution of participants is balanced across age groups & gender for both diabetic and non-diabetic individuals, ensuring comparability between the group.

Non-diabetic participants tend to have a healthier BMI range (18.5-22.9) compared to diabetic participants, who show a higher prevalence in the overweight (23-24.9) &obese (>25) categories. this aligns with existing literature linking higher BMI with an increased risk of diabetes.

This study of non-diabetic individuals exhibit higher physical activity levels, with a significant proporation falling into the high activity category, as indicated by the IPAQ score.

Diabetic individuals have a notable presence in the low and moderate physical activity categories, suggesting a need for targeted interventions. To promote, higher physical activity levels in this groups.

Non-diabetic participants have higher scores, in the moderate to high range on the ebbs scale. Indicating a greater perception of exercise benefits & fewer barriers.

Diabetic individuals show lower scores, suggesting that perceived barriers to exercise may be higher in this group, potentially contributing to lower physical activity levels.

The across different age groups, non-diabetic participants consistently show higher IPAQ score. Than diabetic participants indicating higher physical activity levels.

Gender wise comparison shows that both male & female non-diabetic participants

Have higher physical activity levels compared to their diabetic counterparts. Similarly, in different BMI categories non-diabetic individuals, maintain higher physical activity levels, with diabetic individuals showing a decline in activity as BMI increase.

CONCLUSION

In the present study, according to the results (table no. 1,2,3) this proved that the The study highlights the need for targeted interventions to promote physical activity among diabetic individuals. Addressing perceived barriers and encouraging an active lifestyle may help

improve health outcomes. Future research with larger and more diverse populations is recommended.

Acknowledgement

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