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The Impact of Evening Outdoor Sports on Energy Levels among Office Workers: An Observational Study

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Abstract:

Background: Prolonged sedentary behaviour among office workers has become a major public health concern, contributing to increased fatigue, musculoskeletal disorders, and decreased work efficiency. Engaging in physical activities, particularly outdoor sports, has been proposed as a potential intervention to enhance energy levels and overall well-being.

Aim: This study aimed to assess the impact of evening outdoor sports on the energy levels and fatigue among office workers in Bengaluru, Karnataka.

Methods: An observational, single-group cross-sectional online survey was conducted among 81 office workers aged 20–45 years. Data were collected using a structured questionnaire distributed via Google Forms, focusing on demographics, type and frequency of sports activity, and fatigue-related parameters rated on a 7-point Likert scale. Inclusion criteria required participants to be office workers engaging in sports activities for at least 6–8 working hours daily.

Result: The majority of participants (53%) were aged 20–25 years, and 76.5% were male. About 74.1% reported participating in recreational or sports activities, with cricket (50.6%) being the most popular. Most respondents played for less than 30 minutes daily or mainly on weekends. Findings revealed that tiredness only occasionally interfered with physical functioning, and a majority reported that regular exercise improved their work efficiency and energy levels. Participants engaging in evening outdoor sports experienced reduced fatigue, higher motivation, and improved overall productivity.

Conclusion: Evening outdoor sports significantly enhance the energy, motivation, and work performance of office workers, mitigating the adverse effects of prolonged sitting and occupational stress. Regular participation in physical and recreational sports can serve as an effective strategy to improve both physical and psychological well-being in sedentary work environments.

Keywords: Office workers, evening sports, fatigue, energy levels, physical activity, occupational health, work efficiency.

1. INTRODUCTION

Sedentary behaviour, such as exceptionally prolonged sitting in office environments, has emerged as a significant public health concern due to its association with increased cardiovascular risk¹. As the modern workplace continues evolving, with many employees spending most of their workday in seated positions, interventions to mitigate these risks have become increasingly important². Research indicates that these individuals maintain a sitting posture for approximately two-thirds of their working hours. Prolonged sitting is a risk for the development

of musculoskeletal disorders (MSDs) in the workplace³. Prolonged sitting is associated with poor mental and physical health and premature death. Expert guidance recommends that workers regularly break up sitting and accumulate 2-4h standing per 8h workday⁴. Office-based employees, in particular, have been found to spend approximately 75% of their total working time sitting. Over the past 20years, various studies have addressed SB in the workplace⁵. Worldwide, millions of office workers use a computer. Reports of adverse health effects due to computer use have received considerable media attention⁶.

Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by the three dimensions of exhaustion, cynicism, and inefficacy. The past 25 years of research has established the complexity of the construct, and places the individual stress experience within a larger organizational context of people's relation to their work⁷. Studies on the effect of occupational burnout (exhaustive fatigue, cynicism, and lost occupational self-respect caused by chronic work stress) on eating behaviour are lacking ⁸.

Fatigue has been defined as the subjective experience of tiredness or lack of energy. Normal tiredness is usually not experienced as an unpleasant state, since it can be remedied by rest and sleep. Fatigue, however, has an unpleasant quality; it is not necessarily related to exertion and is not easily or fully restored by rest or sleep⁹. Fatigue is broadly defined as a condition characterized by difficulty in initiating or maintaining voluntary activity. Employees who work in environments with high job demands, limited autonomy, and limited coworker support are more likely to experience increased levels of fatigue due to stress. In particular, office workers have higher levels of stress than manual workers, due to greater job-related strain and reduced energy activation. The physical and psychological benefits of exercise have been highlighted as an effective strategy for stress management¹⁰. Fatigue in response to exercise (exercise (-induced) fatigue) can be caused by mental disorders, organic central nervous system (CNS) abnormalities (central fatigue), or by peripheral nervous system (PNS) dysfunction or skeletal muscle disease (peripheral, muscle, contractile, or mechanical fatigue, contractile impairment, loss of force generating capacity). Factors that contribute to feeling tired include neurological and non-neurological causes.

Chronic fatigue syndrome (CFS) Exercise-induced muscle fatigue has to be clearly delineated from fatigability in the resting stage (fatigue prior to exercise), which may be caused by similar or other factors than exercise-induced muscle fatigue. Exercise-induced muscle fatigue is defined as a reversible loss of muscle force (muscle contractility) during work over time (peripheral muscle fatigue during exercise) ¹¹. Fatigue is one of the most common complaints when seeking medical advice in primary care, known to cause disability, burnout, yawning, drowsiness, and lack of interaction. A study reported that 19.8% and 67.2% of Iranian university students suffered from severe and moderate fatigue, respectively¹². Unexplained fatigue is a relatively common condition in the community and primary care. A recent study in the Netherlands has reported a prevalence rate of fatigue up to 36.4% in the general population associated with unhealthy lifestyles or coping mechanisms¹³.

Adults who are physically inactive or who experience any psychological problems are at much higher risk of feeling fatigue than those who are physically active or free from psychological problems. Women are more likely to feel fatigued than men, and heavier women are more likely to feel fatigue than lighter ones¹⁴. Fatigue is distributed as a continuous variable in the community and is closely associated with psychological morbidity¹⁵. Psychological detachment from work was associated with positive mood and low fatigue. The negative relationship between psychological detachment and fatigue was particularly strong on days with high time pressure¹⁶.

Those who exercise suffer from less depression, anxiety, fatigue, and cognitive impairments. A firmly established reverse link for depression and Physical activity suggests that a similar trend may exist for stress and physical activity¹⁷. Research evidence shows that participating in sports assists in better social skills, assertiveness, higher self-esteem, self-confidence, self-control, self-concept, and competence. According to Council of Europe (2001), "Sport means all forms of physical activity which, through casual and organized participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels." It can be an individual alone participating or involved in a team¹⁸. Evidence suggests that the protective effect of exercise may to some extent be ascribed to the antiinflammatory effect of regular exercise. The exercise-induced myokines appear to be involved in mediating both systemic as well as local anti-inflammatory effects¹⁹. Myokines may be involved in mediating the health-beneficial effects of exercise and that these in particular are involved in the protection against chronic diseases associated with low-grade inflammation such as diabetes and cardiovascular diseases²⁰.

Stress and mental fatigue are major health threats to employees in office-based occupations. Physical activity is widely used as a stress-management intervention for employees. Moreover, experiences in contact with nature have been shown to provide stress-reduction and restoration from mental fatigue²¹. Natural environments impact stress recovery on several levels that can play a key role in occupational well-being. Natural environments speed up physical recovery via releasing muscle tension and reducing blood pressure, heart rate and salivary cortisol²². The natural environment is known to provide positive effects on affect and well-being (Ward Thompson & Aspinall, 2011). The positive impact on psychological well-being after being exposed to natural, as opposed to

urban, environments has been associated with a restorative effect (Kaplan and Kaplan, 2011, Tzoulas et al., 2007). Restoration research highlights the potential of natural outdoor environments (for example, trees, lakes, mountains) for reducing stress, fatigue, and improving mood. Such effects can be accrued without being physically immersed in the natural setting²³. The review gives an overview of the social impacts associated with outdoor sports which have been clustered to six broad categories: physical health, mental health and wellbeing, education and lifelong learning, active citizenship, crime reduction, and anti-social behavior, as well as additional benefits. Beyond the health enhancing effects of physical activity and nature, outdoor sports are also associated with social benefits including the intra- and interpersonal development for young people, crime reduction, and active citizenship as they provide unique opportunities within the natural and social environments.

They connect individuals with nature, with other people and with themselves and so achieve a range of positive effects simultaneously²⁴. Longer work -related electronic communication (WREC) is associated with worse fatigue and depression and lower lapse of Brief Psychomotor Vigilance Test (PVT-B)(higher alertness) before bedtime for working mostly from the office. Workers, especially those working from the office, should minimize WREC during non-working hours to maintain good health²⁵.

2. AIM AND OBJECTIVES

- The survey aims to determine the effect of sports on office workers.
- The survey aims to determine how sports activity will affect the office workers in their working pattern.

METHODS

2.1. Study Design

An observational single group cross sectional survey.

2.2. Study Setting and Duration

The study was entirely conducted online in Bengaluru, Karnataka during the month of May to October 2025 Bengaluru was chosen as the study setting due to its high population of office workers because of major IT offices in Bangalore:

2.3. Sample Size: 81

Inclusion Criteria

- the subjects are included with the age group of 20-45 age
- The subjects are included who are office workers
- Subjects should be playing the sports
- Working hours 6-8 hours
- Those who are willing to participate

Exclusion Criteria

- Person who doesn't play at all
- History of substance abuse
- Professional sports players
- Other Profession than office work
- College going and university and school student
- Those who are not willing to participate

3. METHODOLOGY

3.1. Data Collection

Data were collected through an online cross-sectional survey distributed via Google Forms among office workers in Bengaluru, Karnataka. The questionnaire was shared through WhatsApp and other social media groups. Participation was voluntary and anonymous to maintain privacy and confidentiality.

The questionnaire included:

Demographic data (age, gender, weight, work experience, working hours).

Sports and recreational activity details (type of sport, duration, frequency).

Fatigue and energy-related questions using a 7-point Likert rating scale to assess tiredness, motivation, and impact on physical functioning and work efficiency.

A total of 81 valid responses were received and used for statistical analysis.

3.2. Statistical Analysis:

Data were collected through an online questionnaire distributed via Google Forms among office workers in Bengaluru. The survey included demographic details, sports participation, and fatigue-related parameters on a 7-point Likert scale. Participation was voluntary, and informed consent was obtained before submission.

Table 1: It describe about age of involved office workers. It Include age from 20-45 years which segregated in different groups

Age	No. Of People	Percentage%
20-25 YEARS	45	53.0%
26-30 YEARS	22	27.2%
31-35 YEARS	6	7.3%
36-45 YEARS	5	6.0%

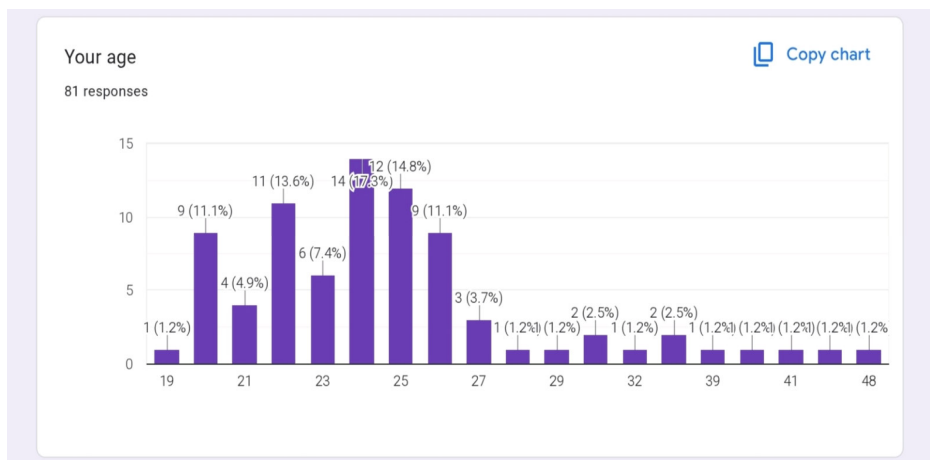


Fig 1: A bar-diagram showing the distribution of the age factor among the involved office worker. Based on the data, the majority of respondents (53%) are in the 20-25 age group. The number of participants decreases significantly with each older age bracket, with only 6% of respondents being between 36 and 40 years old

Table 2: This table depicts the gender involved office workers

Gender	No. Of People	Percentage%
Male	62	76.5%
Female	19	23.5%

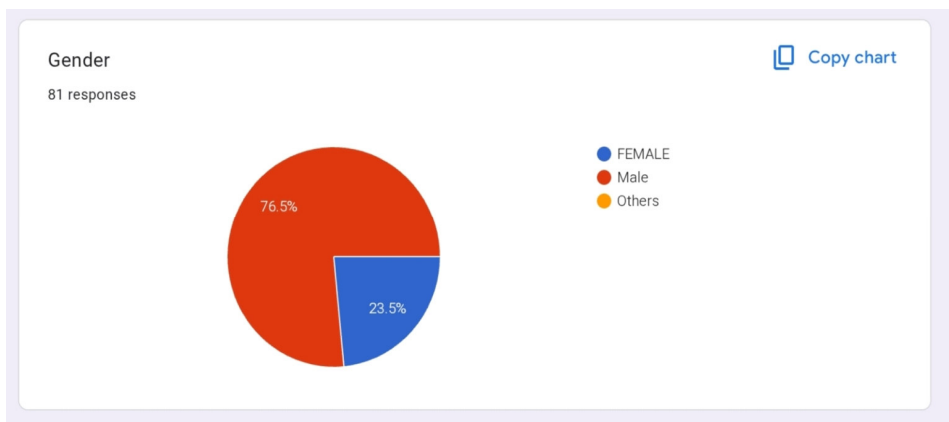


Fig 2: The pie-chart shows about the gender of involved office workers. This pie chart shows that the majority responses are given by male's i.e 76.5% and female responses is about the 23.5%. The response of the male is higher than the female.

Table 3: This table depicts information about years of working experience of office workers.

Years Of Experience	No. Of People	Percentage%
<2 Years	54	66.7%
2-4 Years	15	18.5%
5-6 Years	8	9.9%
>6 Years	4	4.9%

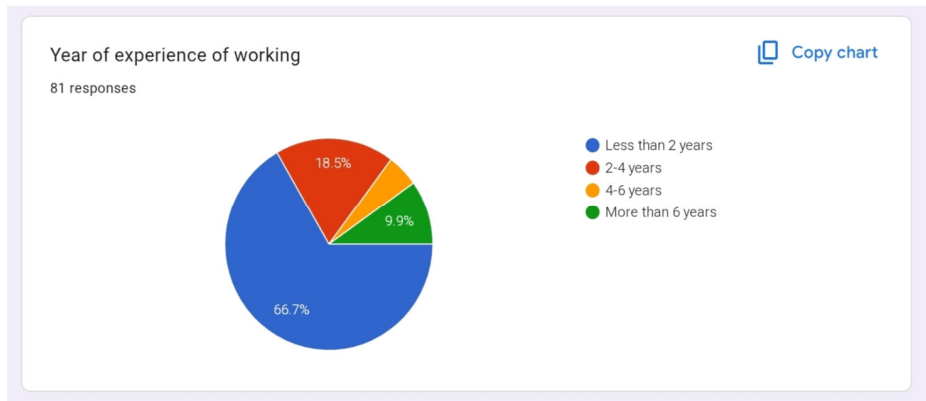


Fig 3: This pie chart shows the distribution of the year of working experience. This result shows that most of the people are having less than 2 years of experience and less people have the working experience of 4-6 years.

Table 4: This table depicts about working hours of office works. It Include from less than 7 hours to more than 10 hours of working.

Hours Of Working	No. Of People	Percentage%
<6 Hours	7	8.6%
6-8 Hours	17	21%
8-10 Hours	30	37%
>10 Hours	27	33.3%

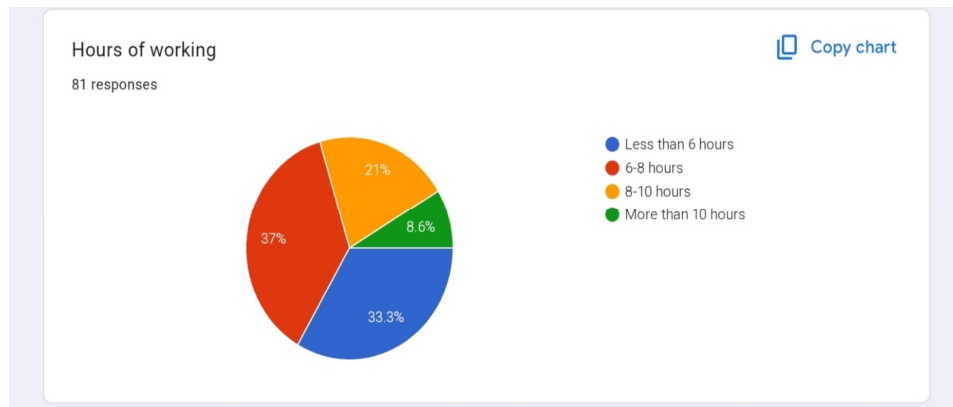


Fig 4: This pie chart shows the distribution working hours. The result shows the most people is working for 6-8 hours and very less people is working for more than 10 hours.

Table 5: This table depicts about does office workers play any recreational activity.

Recreational Activity	No. Of People	Percentage%
Yes	60	74.1%
No	21	25.9%

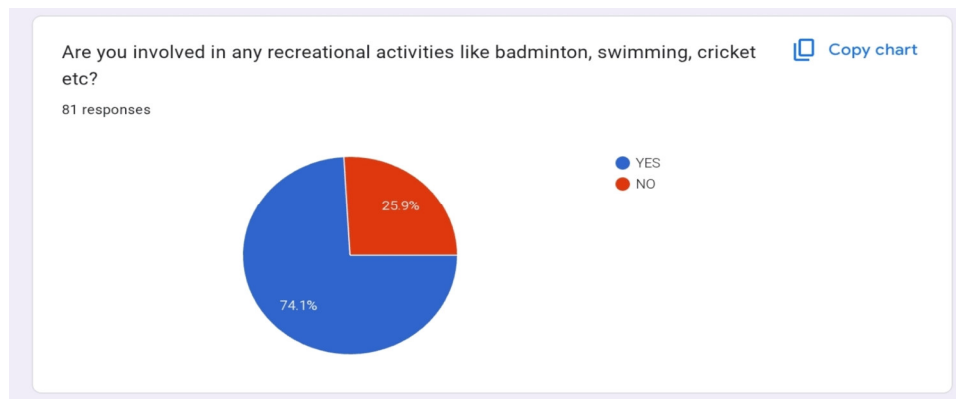


Fig 5: This pie chart shows the distribution about the involment of the person in any recreational activities. The result shows the involment in recreational sports is higher than non-involved persons.

Table 6: This table depicts about in which sports the office works are involved.

Sports	No. Of People	Percentage%
Cricket	41	50.6%
Football	35	43.2%
Badminton	33	40.7%
Basket Ball	18	22.2%
Vollyball	12	14.8%
Others	12	14.8%

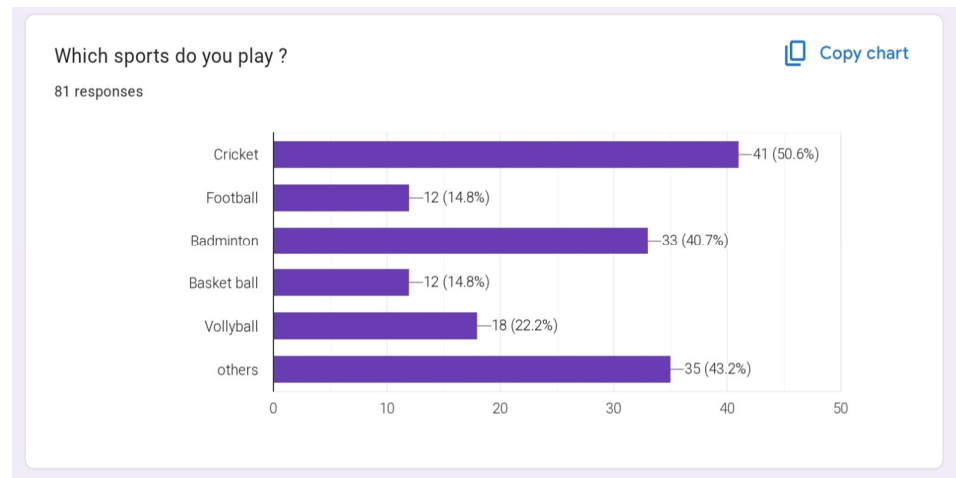


Fig 6: This bar diagram shows the distribution of specific sports played by involved office workers. The results indicate the cricket is the most popular sorts played by the persons while the least sports played is the football and basketball.

Table 7: This table depicts timing of playing sports on the basis of every day.

Plays Per Day	No. Of People	Percentage%
<30 Min	9	11.1%
30-60 Min	14	17.3%
60-90 Min	10	12.3%
90-120 Min	21	25.9%
>120 Min	27	33.3%

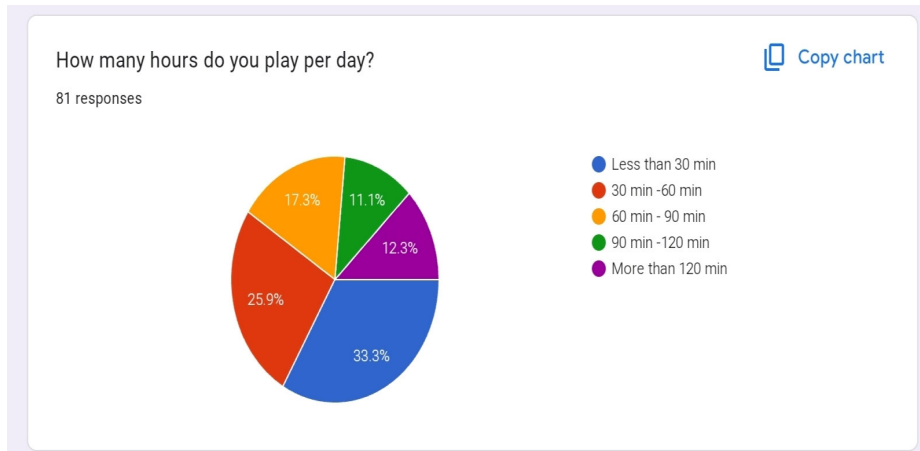


Fig 7: This pie chart shows the distribution of the hours of playing per day. The result shows the most people play less than 30 min every day, while on other hand the 90-120min per day is played by very few people.

Table 8: This table describe about frequency of playing sports by office workers.

Frequency Of Playing Sports	No. Of People	Percentage%
Daily	42	51.9%
Alternate Day	14	17.3%
Twice In Week	10	12.3%
Only Holidays	15	18.5%

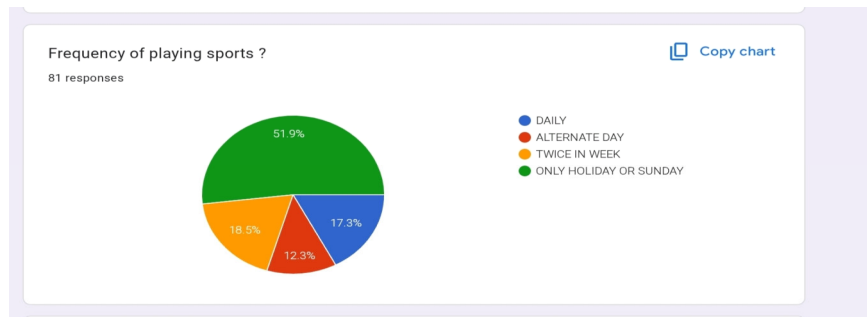


Fig 8: The pie chart shows the distribution about the frequency of playing sports. The result shows the more response of the playing the sports only during the holidays or sunday, very less persons are playing the sports on alternate day.

Table 9: This table depicts about relation between tiredness and physical functioning of office workers.

Tiredness Interferes Physical Functioning	No. Of People	Percentage%
Sometimes	16	19.8%
Regularly	14	17.1%
Frequently	9	11.1%
Rarely	39	48.1%
Never	3	3.7%

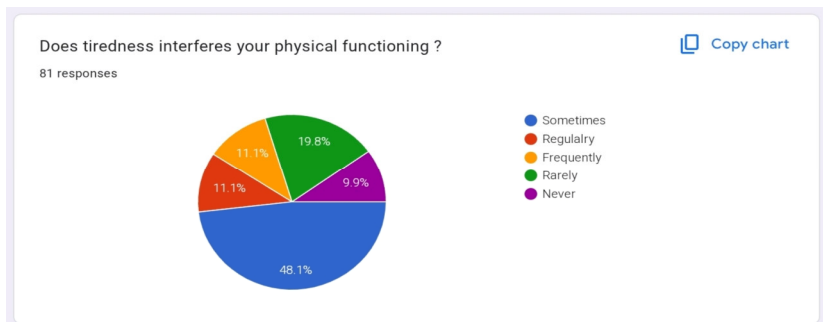


Fig 9: This pie chart shows the distribution of the interferences of tiredness in physical functioning of the person. The result indicates that interference of tiredness is sometimes for most of the people, while very few people say the tiredness is never interfeared in their physical functioning.

Table 10: This table depicts about does any sports or exercise results in fatigue. the involved office workers rated the fatigue on scale of 1-7.

Exercise Or Sports Brings You Fatigue	No. Of People	Percentage%
1	13	10%
2	12	12.3%
3	11	13.6%
4	11	13.6%
5	14	17.3%
6	16	19.8%
7	11	13.6%

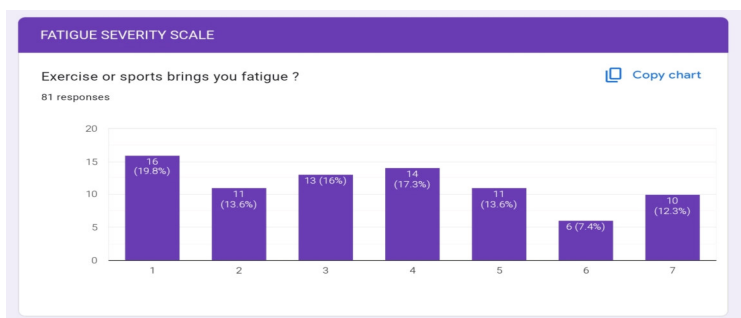


Fig 10: This bar diagram shows the distribution of the fatigue among the people. The result indicates that most people rated the 1 out of 7 while less people rated the 6 out of 7 on the rating scale.

Table 11: This table depicts about how easily playing person get tired. The involved office workers rated the fatigue on scale of 1-7.

I Am Easily Tiredness	No. Of People	Percentage%
1	13	16.05%
2	21	25.93%
3	20	24.69%
4	11	13.58%
5	5	6.17%
6	7	8.64%
7	4	4.94%

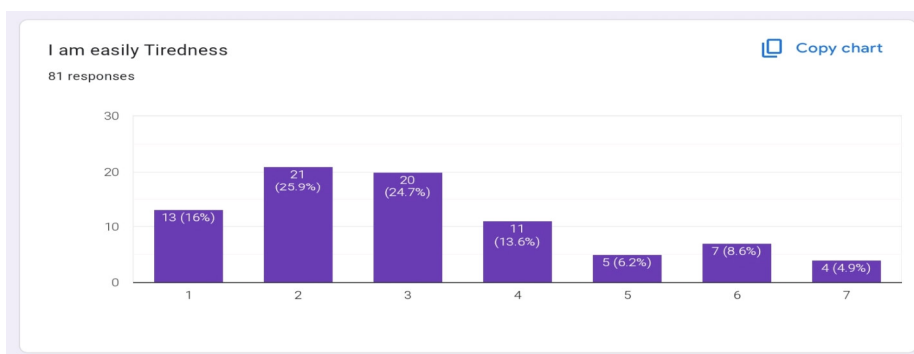


Fig 11: This bar diagram shows the frequency of tiredness. The result shows the most people rated 2 out of the 7 while very less rated 7 out of 7 on rating scale.

Table 12: This table depicts about relation between tiredness and motivation of sports playing person those who working in office.

My Motivation Is Lower When Tiredness	No. Of People	Percentage%
1	9	11.1%
2	18	22.2%
3	14	17.3%

4	10	12.3%
5	13	16.0%
6	9	11.1%
7	8	9.9%

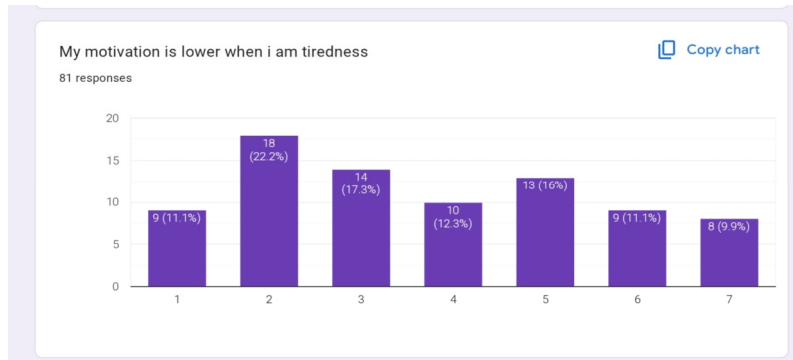


Fig 12: This bar digram shows the distribution about the effect of tiredness on the motivation. The result shows the most of the people rated 2 out of 7 while on other hand very less people rated 7 out of 7 on the rating scale.

Table 13: This table depicts about does tiredness causes frequent problem for involved person in sports.

Tiredness Cause Frequent Problems Me	No. Of People	Percentage%
1	17	21.0%
2	14	17.3%
3	16	19.8%
4	12	14.7%
5	11	13.6%
6	5	6.2%
7	6	7.4%

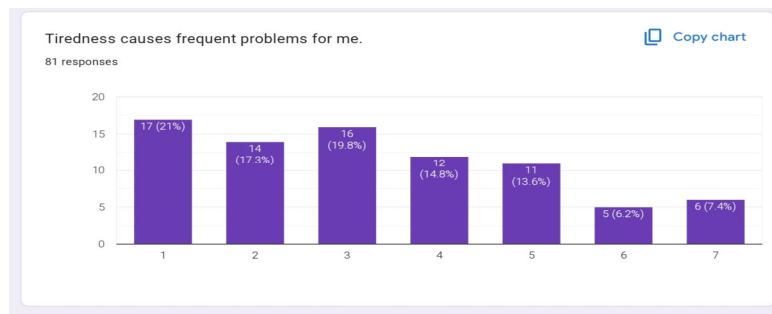


Fig 13: This bar digram says the distribution about the relation between the tiredness and the problem caused by tiredness. The result shows the majority of the people rated the 1 out of 7 while very less people rated the 6 out of 7 on rateinf scale.

Table 14: This table depicts the does tiredness prevent sustained physical functioning.

Tirednes Prevent Sustained Physical Functioning.	No. Of People	Percentage%
1	16	19.8%
2	9	11.1%
3	14	17.3%
4	13	16%
5	13	16%
6	8	9.9%
7	8	9.9%

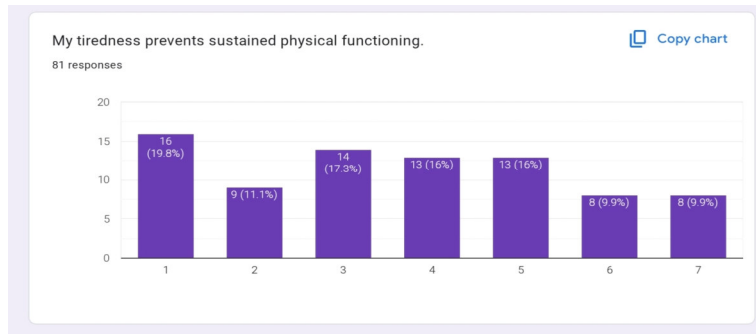


Fig 14: This bar diagram shows the distribution of the physical functioning prevented by the tiredness. The result shows that the most of the people rated the 1 out of 7 while very few rated the 6 and 7 on the scale of 7.

Table 15: This table describes about tiredness is considered as disability symptoms.

Tiredness Is My Disability Symptoms	No. Of People	Percentage%
1	16	19.8%
2	14	17.3%
3	13	16.0%
4	13	16.0%
5	9	11.1%
6	8	9.9%
7	8	9.9%

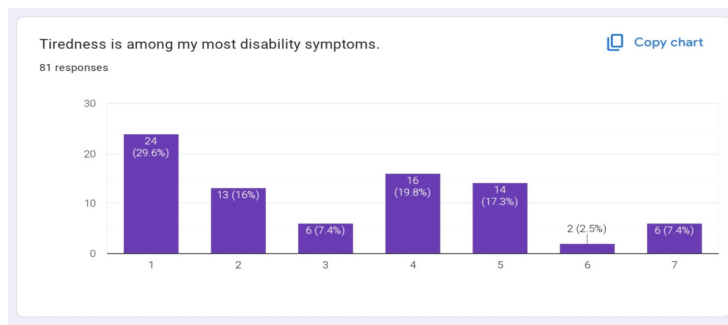


Fig 15: The bar diagram shows the distribution of tiredness like the disability symptoms. The result shows the majority of the people rated 1 out of 7 while minor people rate the 6 out of 7 on the rating scale.

Table 16: This table depicts about how much tiredness interferes carrying certain duties and responsibilities. Involved people in survey rated it on the scale of 1-7.

Tiredness Interferes Carrying Our Certain Duties & Responsibility	No. Of People	Percentage%
1	24	29.6%
2	13	16%
3	16	19.8%
4	14	17.3%
5	2	2.5%
6	6	7.4%
7	6	7.4%

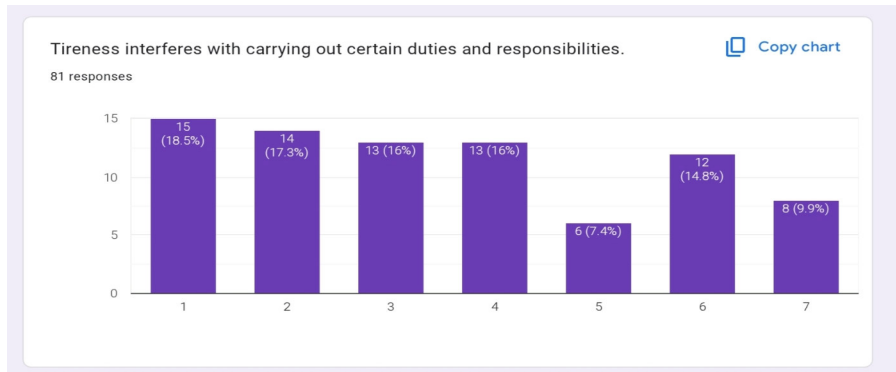


Fig 16: This bar diagram shows the distribution of the how the tiredness is interfering the certain duties nad responsibilities. The result shows the most of the people rated 1 out of 7 while very few rated the 5 out of 7 on the rating scale.

Table 17: This table describe about tiredness is considered as disability symptoms.

Tiredness Is Among My Most Disability Symtomes.	No. Of People	Percentage%
1	19	23.5%
2	15	18.6%
3	11	13.6%
4	11	13.6%
5	9	8.6%
6	7	8.6%
7	5	6.2%

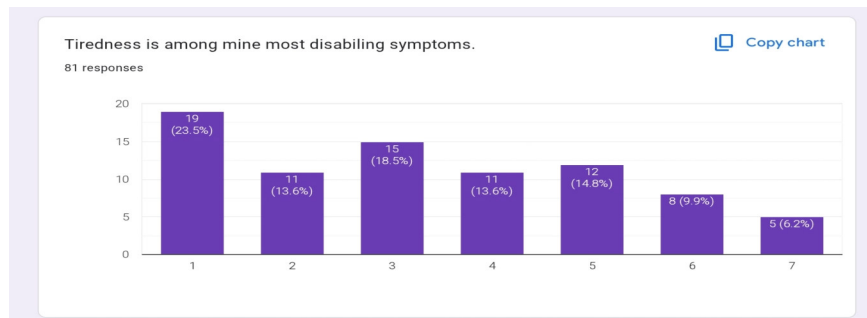


Fig 17: The bar diagram shows the distribution about does the tiredness is most disabling symptoms of involved office worker. The result shows that most of people rated 1 out of 7 while very few rated 7 out of 7 on rating scale.

Table 18: This table depicts about relation between tiredness and family, social life.

Does Tiredness Interferes Your Work, Family & Social Life?	No. Of People	Percentage%
1	17	21%
2	10	12.3%
3	13	16%
4	13	16%
5	10	12.3%
6	9	11.1%
7	9	11.1%

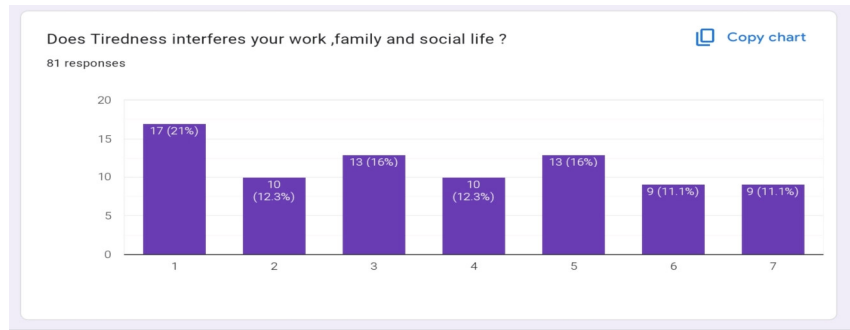


Fig 18: The bar diagram showing the distribution of the does tiredness interferences your work, family and social life? The graph shows that out of 81 responses, the highest percentage (21%) believe that tiredness interferences with work, family, and social life. The lowest percentage (11.1%) are for option 6 and 7.

Table 19: this table depicts about does exercise improve working status.

Exercise Improve Or Does Not Improves Your Working Status?	No. Of People	Percentage%
Sometimes	0	0%
Regularly	26	32%
Frequently	24	27%
Rarely	18	21%
Never	13	20%

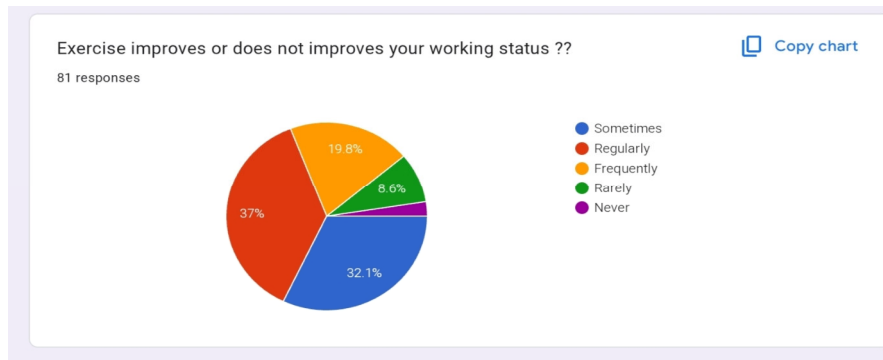


Fig 19: The pie chart shows the distribution of the relation between the exercise and the working status. The result shows that most people say the exercise is improving the regularly there working status while less people says that the exercise is never improving the working status.

4. RESULTS

Among 81 office workers surveyed, most participants (53%) were aged 20–25 years, and 76.5% were male. A majority (66.7%) had less than two years of work experience, with 37% working 8–10 hours daily. About 74.1% engaged in recreational or sports activities, with cricket (50.6%), football (43.2%), and badminton (40.7%) being the most preferred. Around 33.3% played for more than 120 minutes, while 51.9% played daily. Nearly 48.1% reported that tiredness rarely interfered with their physical functioning, and 32% stated that regular exercise consistently improved their energy and work performance.

5. DISCUSSION

The present study examined the influence of evening outdoor sports on the energy levels and fatigue among office workers, revealing a strong positive relationship between physical activity participation and enhanced work efficiency. The findings demonstrated that most participants were young adults aged 20–25 years, suggesting that younger employees are more motivated to engage in post-work physical activities. Males constituted the majority of respondents, reflecting gender-based differences in sports participation patterns within the corporate workforce. Despite working long hours—typically 8–10 hours daily—many participants managed to incorporate recreational activities into their routines, indicating a growing awareness of the importance of maintaining physical fitness to counteract sedentary lifestyles.

Cricket, football, and badminton were the most preferred sports, likely due to their accessibility and social appeal in urban areas such as Bengaluru. However, the frequency and duration of play were relatively short, with most individuals engaging primarily on weekends or for less than 30 minutes daily, which may limit the full physiological benefits of exercise. Nonetheless, participants reported feeling less fatigued, more energetic, and

more motivated after engaging in these activities. This aligns with previous research indicating that regular physical activity reduces occupational stress, improves cardiovascular health, and promotes psychological well-being.

Furthermore, the majority of office workers acknowledged that regular sports participation improved their productivity, concentration, and overall mood at work. The results support the role of outdoor physical activities in combating the negative effects of prolonged sitting and occupational fatigue. These findings underscore the potential of evening sports as a practical and enjoyable intervention for promoting physical and mental health in sedentary employees. Encouraging corporate wellness programs and community sports initiatives could further enhance workplace well-being and prevent lifestyle-related disorders among office professionals.

6. LIMITATIONS AND SUGGESTIONS

This study has a few limitations. The sample size was small and limited to office workers in Bengaluru, which may affect the general applicability of the findings. Data were self-reported through online surveys, which could introduce response bias. The study also excluded individuals not participating in sports, limiting comparisons between active and inactive workers. Future research should include larger and more diverse populations, along with objective assessments of fatigue, energy levels, and productivity. Long-term and intervention-based studies are recommended to better evaluate the sustained effects of evening sports on overall health and work performance.

7. CONCLUSION

The findings of this study clearly indicate that evening outdoor sports have a positive impact on the energy levels, motivation, and overall work efficiency of office workers. Despite long hours of sedentary work, individuals who engaged in regular physical activity—particularly outdoor sports such as cricket, football, and badminton—experienced lower levels of fatigue and reported better mental alertness and physical performance. In conclusion, integrating sports and physical activity into the daily routines of office workers should be recognized as a vital component of occupational health promotion.

8. CONFLICT OF INTEREST

There is no conflict of interest.

9. ACKNOWLEDGEMENT

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