

COMPARATIVE ANALYSIS OF MENTAL HEALTH, PHYSICAL ACTIVITY, AND LIFESTYLE CHARACTERISTICS AMONG ADULTS ENGAGED IN YOGA AND SPORTS

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ABSTRACT:

Yoga and sports are widely practiced forms of physical activity that may influence mental health and lifestyle through different behavioural and psychological pathways. This study compared mental health, physical activity, and lifestyle characteristics among adults engaged in Yoga and Sports. A comparative cross-sectional secondary-data analysis was conducted using 91 adults selected from a publicly available Kaggle dataset. The final sample included 45 Yoga participants and 46 Sports participants. Descriptive and inferential statistics were applied, including the Mann-Whitney U test, chi-square test, Spearman correlation, Cohen's d, and regression. No statistically significant differences were found between Yoga and Sports participants in daily steps, exercise frequency, exercise duration, sleep, screen time, diet quality, social interaction, stress, anxiety, depression, happiness, or overall mental-health score. Sports participants showed slightly higher daily steps, happiness, and mental-health scores, whereas Yoga participants showed somewhat longer exercise duration and more sleep. Screen time was positively associated with anxiety and remained a significant predictor of anxiety in regression analysis. Exercise type did not independently predict overall mental-health score. Yoga and Sports participants demonstrated broadly comparable physical activity, lifestyle, and mental-health profiles. Both activities may be suitable for adult health promotion, while screen-related behaviour may warrant greater attention in relation to anxiety.

KEYWORDS: Yoga; Sports; Mental Health; Physical Activity; Lifestyle

1. INTRODUCTION

Regular exercise is significant to physical health, mental, and the general quality of life in adults. Various types of exercise can have health effects by physiological, behavioural and social mechanisms. Frequent exercise has been linked to a better mood, decreased psychological distress, and mental well-being, but in comparison, sedentary behaviour has been linked to worse outcomes in relation to stress and lifestyle (Mahindru et al., 2023). These results advocate the relevance of active routines and decreasing the prolonged non-activities among adult populations (Guerriero et al., 2025). Yoga and sports are different types of physical activity. Yoga is a practice of physical poses, breathing, rest, and concentration of attention, whereas sports are usually organized or recreational movements, competition, collaboration or practice of skills. The motivation to practice yoga is sometimes driven by an exercise beyond, such as reducing stress, increasing flexibility, self-understanding, and emotional stability (Cagas et al., 2023). The perceived physical and psychological health benefits and positive lifestyle behaviours have also been reported by yoga practitioners (Cartwright et al., 2020). Comparative research has also indicated that various types of participation in fitness could be affected by various behavioural and motivational factors (Kim & Lee, 2024).

Mental health exercise has been given a lot of attention. Exercise has been associated with enhanced mental health and well-being among adult populations (Faulkner et al., 2021). Yoga has demonstrated a positive impact on depressive symptoms, indicating that mind-body therapies can aid psychological well-being both physically and cognitively (Brinsley et al., 2021). Individuals who practice yoga, physical activities, or live an inactive lifestyle have also been found to differ in terms of cognition, coping skills, and other aspects of personality (Kaur et al., 2022). Other types of exercises, such as yoga, team sport, individual sport, and dance, might also have various tendencies to correlate with well-being and body-related perceptions (Marschin and Herbert, 2021). Other lifestyle factors can also influence the interconnection between physical activity and mental health. Relevant behavioural variables include sleep duration, screen time, dieting quality and social interaction, which are related to overall well-being. The rate of engagement in various types of physical activities has been linked to better lifestyle habits among the various age groups (Liutsko et al., 2024). Lifestyle differences between populations with different physical activity and behavioural profiles have also been reported as related to stress (Guidotti et al., 2024). In urban working professionals, yoga practices and exercise have also been linked to quality-of-life results, which supports the general applicability of lifestyle behaviours related to exercise (Kumar & Sadulla, 2026).

The recent comparative research has pointed out possible variations between yoga and other types of exercise. Yoga and Zumba have shown contrasting impacts on stress, self-esteem, and body satisfaction in the working women (Kumaat et al., 2025). Comparative studies of similar individuals in the form of sedentary middle-aged adults have also indicated that physical fitness, mental health, and quality of life vary after yoga, aerobic exercise, and combined training (Oraon, 2024). Similar comparisons of healthy ageing features have been made between yoga practitioners, exercise fans, and physically inactive adults (Dhanlika et al., 2026). Moreover, yoga has been linked to the psychological health of adult populations in other cultural backgrounds (Lähteinen et al., 2025). Although accumulating evidence exists, there is a lack of direct comparisons between adults practicing yoga and sports based on mental health, physical activity, and lifestyle aspects. The available research usually compares yoga or exercise in a general manner and not by comparing the two or more domains at once. Both yoga and physical activity have been recognized as applicable quality of life predictors in adulthood (Pluto-Pradzynska et al., 2022), and more general studies have highlighted the interplay between sporting activity and psychological wellbeing (Martin-Rodriguez et al., 2024). Thus, the current research focused on comparing mental health, physical activity, and lifestyle factors of adults practicing Yoga and Sports.

Objectives of the study

To compare physical activity, lifestyle, and mental-health characteristics between Yoga and Sports participants.

To examine associations between physical activity and lifestyle factors and mental-health outcomes among the participants.

2. METHODOLOGY

2.1 Study Design

The study design was comparative cross-sectional and was utilized to investigate the difference in mental health, physical activity, and lifestyle features between adults who practiced Yoga and Sports. The research relied on secondary data that was obtained in the form of a publicly available dataset. The participants were categorized based on the type of exercise they recorded and the comparison was made based on the demographic, physical activity, lifestyle and mental-health variables. The design allowed evaluating the differences and associations at the group level among the variables of the study in the existing sample of adults.

2.2 Data Source

The data were obtained from the publicly available Kaggle data repository (Fatima, 2025). The participants of the source were 300 adults with the data on demographic factors, sleep time, steps per day, frequency of exercise, exercise time, exercise type, screen time, diet quality, social interaction, stress level, anxiety level, depression level, happiness level, and total mental-health score. The screening of the records was followed by the screening of the data and only those participants who were involved in Yoga or Sports and variables that are directly related to the objectives of the current study were retained to be analysed. In the final dataset, 91 participants were considered, having filtered out inconsistent records.

2.3 Study Population and Sample Selection

The participants were chosen on the basis of the type of exercise recorded. To begin with, 101 records were found in the categories of Yoga and Sports. Records where the exercise frequency as well as the exercise duration was recorded as zero were eliminated as they were out of line with participation in the activity that was reported. After screening the data, 91 participants remained to be analyzed and there were 45 participants in the Yoga group and 46 participants in the Sports group.

2.4 Inclusion and Exclusion Criteria

The criteria used to include the participants were that they had to be adults, type of exercise was registered as Yoga or Sports and they had to have full information on the required variables of the study. Participants who were either cardio or strength training or mixed exercise or any other exercise category were not included. There were also records that lacked the information on the type of exercise. Besides this, those participants whose exercise frequency was zero and those whose duration was zero were also eliminated since their observations did not reflect active participation in the given category of exercise.

2.5 Study Variables

The variables in the study were grouped in four domains. The demographic factors were age, gender and occupation. The variables of physical activity were the daily number of steps, the frequency of exercises, duration of exercises, and the type of exercises. Lifestyle factors were hours of sleep, screen time, quality of diet and social interaction. Mental-health variables were stress level, anxiety level, depression level, happiness level, and overall mental-health score. The main grouping variable was exercise type, as participants were divided into two groups: Yoga and Sports.

2.6 Data Cleaning and Preparation

A screening of the dataset prior to analysis was done to remove missing values, duplicate observations, duplicate participant identifiers and inconsistent records. Only Sports and Yoga were retained. Records that had zero-exercise frequency and zero exercise duration were eliminated and the ranges of variables were checked on their plausibility. The analytical dataset was filtered out and irrelevant data was removed. The resulting dataset, which existed after cleaning,

consisted of 91 complete observations, having neither missing nor duplicated participant records in the variables under statistical analysis.

2.7 Statistical Analysis

Descriptive and inferential statistics were used to examine the data. Continuous variables were summarized by use of mean and SD, and categorical variables summarized by frequencies and percentages. The Shapiro-Wilk test was used to check the normality. The Mann-Whitney U test and chi-square test were used to test group differences. The correlation was used to evaluate the relationship between variables of the study and the regression was used to predict mental-health outcomes. Cohen's d estimated effect size, and $p < 0.05$ indicated statistical significance.

3. RESULTS

3.1 Demographic Profile of Yoga and Sports Participants

The resulting analysis of 91 adults consisted of 45 participants of Yoga and 46 participants of Sports. The average age of the Yoga group was 44.02 ± 14.94 years and Sports group was 42.93 ± 13.49 years and there was no significant difference between the groups ($p = 0.608$). The greatest percentage was the females in the two groups. The gender distribution and occupational status were similar as well, and there were no statistically significant links between gender ($p = 0.508$) or occupation ($p = 0.941$) (Table 1).

Table 1. Category-wise demographic characteristics of Yoga and Sports participants

Demographic variable	Category	Yoga (n = 45), n (%)	Sports (n = 46), n (%)	Test statistic	p-value
Age	Mean $\pm$ SD, years	44.02 ± 14.94	42.93 ± 13.49	U = 1100.0	0.608
Gender	Female	21 (46.7)	22 (47.8)	$\chi^2 = 1.355$	0.508
	Male	9 (20.0)	13 (28.3)		
	Other	15 (33.3)	11 (23.9)		
Occupation	Student	12 (26.7)	12 (26.1)	$\chi^2 = 0.396$	0.941
	Working Professional	12 (26.7)	10 (21.7)		
	Unemployed	11 (24.4)	12 (26.1)		
	Retired	10 (22.2)	12 (26.1)		

Figure 1 shows the distribution of the participants in terms of gender and occupational category.

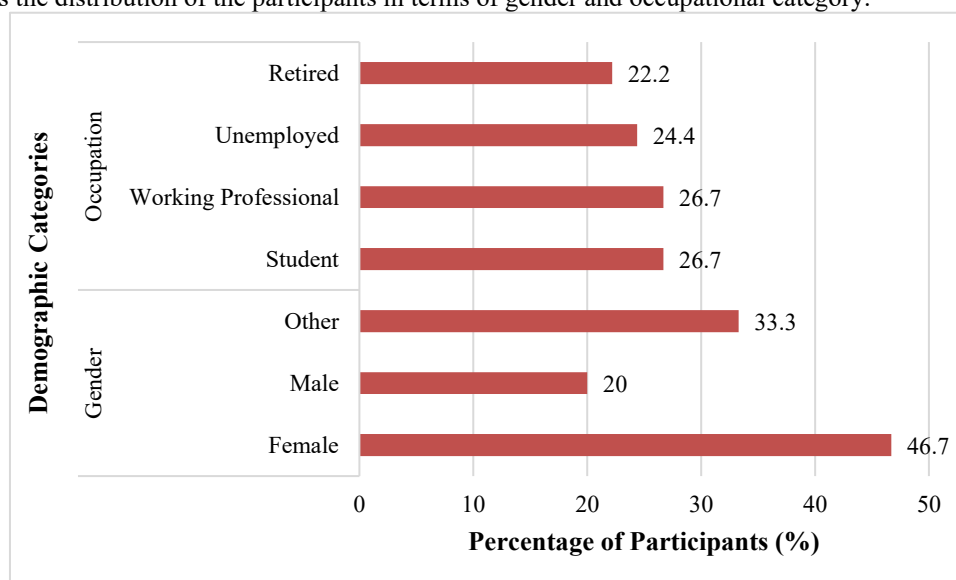


Figure 1. Demographic Distribution of Participants

The number shows a mixed racial and ethnic makeup, with female respondents constituting the biggest gender group. Occupational representation was relatively equal among students, working professionals, unemployed and retired participants indicating wide participation among various demographic groups.

3.2 Physical Activity Patterns Across Exercise Groups

The mean number of steps taken by sports participants on a daily basis was more than that of Yoga participants and the mean duration of exercise was more in Yoga participants. There were no differences in frequency of exercise in the two groups. Nonetheless, all these differences were not statistically significant. Daily steps were approximately 1,022 steps different between groups, and exercise time was almost six minutes longer among Yoga participants. The effect sizes on the daily steps, exercise duration and exercise frequency were small and insignificant respectively, suggesting that there were only significant practical differences between the groups (Table 2).

Table 2. Comparison of physical activity characteristics between Yoga and Sports participants

Variable	Yoga (n = 45), Mean ± SD	Sports (n = 46), Mean ± SD	Mann-Whitney U	p-value	Cohen's d
Daily steps	7821.13 ± 4020.74	8843.02 ± 4232.15	891.0	0.255	-0.247
Exercise frequency	3.93 ± 1.86	4.09 ± 1.93	980.0	0.662	-0.081
Exercise duration	49.44 ± 24.80	43.45 ± 23.57	1185.0	0.235	0.248

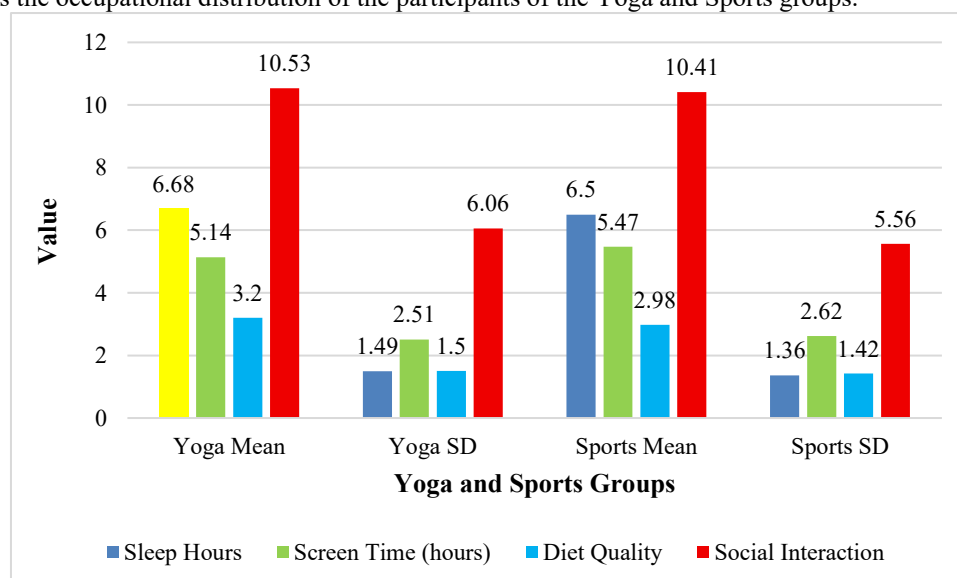
3.3 Lifestyle Characteristics Among Yoga and Sports Participants

There were widely similar lifestyle characteristics in the Yoga and Sports participants. Yoga participants slightly got more sleep, reduced screen time, improved on diet quality and slightly increased social interaction compared to Sports participants. Nonetheless, all these between-group differences were not significant. There were nearly equal social interaction scores among groups but there was a minor descriptive difference in screen time. The results indicate that there was no significant difference in the lifestyle profiles of the two exercise groups regarding sleep, exposure to screens, diet, and social interaction (Table 3).

Table 3. Comparison of lifestyle characteristics between Yoga and Sports participants

Variable	Yoga (n = 45), Mean ± SD	Sports (n = 46), Mean ± SD	Mann-Whitney U	p-value
Sleep hours	6.68 ± 1.49	6.50 ± 1.36	1111.5	0.546
Screen time, hours	5.14 ± 2.51	5.47 ± 2.62	959.5	0.552
Diet quality	3.20 ± 1.50	2.98 ± 1.42	1127.0	0.458
Social interaction	10.53 ± 6.06	10.41 ± 5.56	1049.0	0.915

Figure 2 shows the occupational distribution of the participants of the Yoga and Sports groups.

**Figure 2. Occupational Distribution by Exercise Group**

The pattern of occupation was generally the same in the Yoga and Sports groups. Both groups had a relatively balanced occupational representation as students, working professionals, unemployed participants, and retired people were represented without significant differences in categories.

3.4 Mental Health Profile of Yoga and Sports Participants

Mental-health patterns of Sports and Yoga participants were pretty similar. Yoga participants exhibited a marginally greater level of stress and anxiety with a lower level of depression and Sports exhibited a marginally higher score on happiness and overall mental-health. Although there were these descriptive variations, mental-health variables did not differ significantly. Effects were small and non-significant, and suggest little practical differentiation between Yoga and Sports participants in terms of stress, anxiety, depression, happiness, and overall mental-health score in this sample (Table 4).

Table 4. Comparison of mental health characteristics between Yoga and Sports participants

Mental health variable	Yoga (n = 45), Mean ± SD	Sports (n = 46), Mean ± SD	Mann-Whitney U	p-value	Cohen's d
Stress level	5.24 ± 2.52	5.04 ± 2.94	1079.0	0.728	0.073
Anxiety level	5.64 ± 2.97	5.09 ± 2.45	1153.5	0.346	0.205
Depression level	4.98 ± 2.86	5.52 ± 3.05	920.5	0.362	-0.184
Happiness level	5.67 ± 3.23	6.28 ± 3.13	917.5	0.349	-0.194

Mental health score	6.04 ± 6.21	7.35 ± 6.02	889.5	0.250	-0.213
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Figure 3 represents the relative distribution of mental health indicators between Yoga and Sports participants.

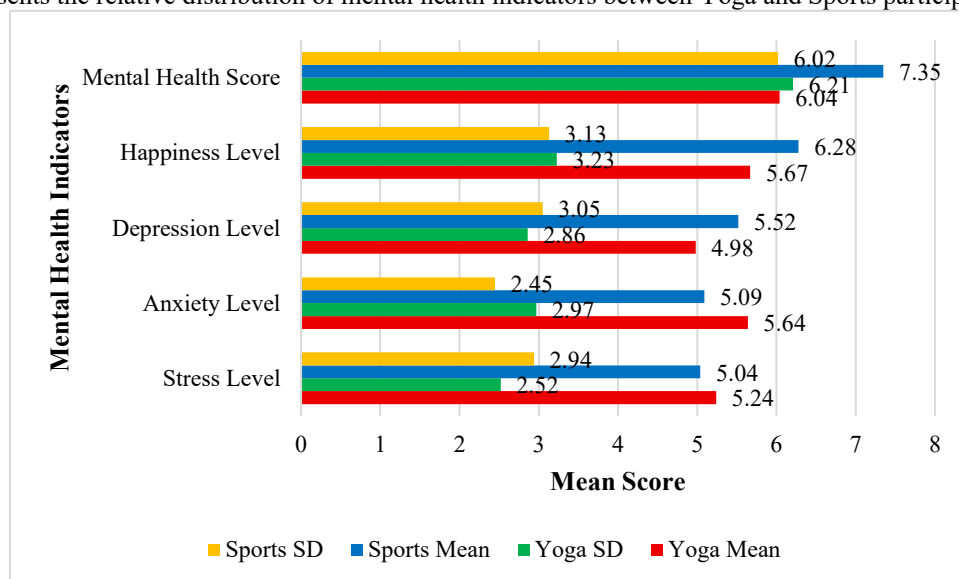


Figure 3. Mental Health Indicators Among Yoga and Sports Participants

The number indicates that there are relatively similar mental health patterns in the two groups. Sports participants had a bit higher happiness and general mental health scores, and Yoga participants had a bit higher stress and anxiety scores, but with relatively small differences across indicators.

3.5 Predictors of Overall and Individual Mental Health Outcomes

The overall mental-health score regression model was not statistically significant and only explained 6.1% of the variance. No included predictors, such as exercise group, age, sleep, daily steps, exercise frequency, exercise duration, screen time or diet quality or social interaction, alone predicted the overall score. Screen time was a strong predictor of anxiety in the individual outcome models, with more screen exposure being linked to high levels of anxiety. All the other predictors that were tested were not statistically significant predictors of stress, depression, or happiness (Table 5).

Table 5. Regression for overall mental-health score

Predictor	B	Standard error	95% CI	p-value
Sports group vs Yoga	1.632	1.347	-1.048 to 4.313	0.229
Age	0.023	0.048	-0.073 to 0.118	0.639
Sleep hours	0.487	0.477	-0.463 to 1.436	0.311
Daily steps	-0.0002	0.0002	-0.0005 to 0.0002	0.358
Exercise frequency	0.262	0.380	-0.493 to 1.017	0.492
Exercise duration	0.025	0.028	-0.030 to 0.081	0.368
Screen time	-0.001	0.265	-0.529 to 0.526	0.996
Diet quality	-0.211	0.487	-1.179 to 0.757	0.666
Social interaction	-0.034	0.120	-0.273 to 0.204	0.774

Model statistics: $R^2 = 0.061$; adjusted $R^2 = -0.043$; $F = 0.588$; $p = 0.803$.

3.6 Correlations Between Lifestyle, Physical Activity, and Mental Health

The majority of physical-activity and lifestyle factors did not have significant relationships with mental-health outcomes. There were no significant correlations between the daily steps, exercise frequency, the duration of exercise, sleep hours, the quality of diet and the social interaction with stress, anxiety, depression, happiness, and the overall mental-health score. The only variable that had significant relationships was screen time, as the correlation had a positive value with anxiety and an inverse value with depression. These correlations were also small, implying that there were few yet significant associations between screen exposure and the chosen mental-health outcomes.

Figure 4 shows the general trend of associations between physical activity, lifestyle, and the variables of mental-health.

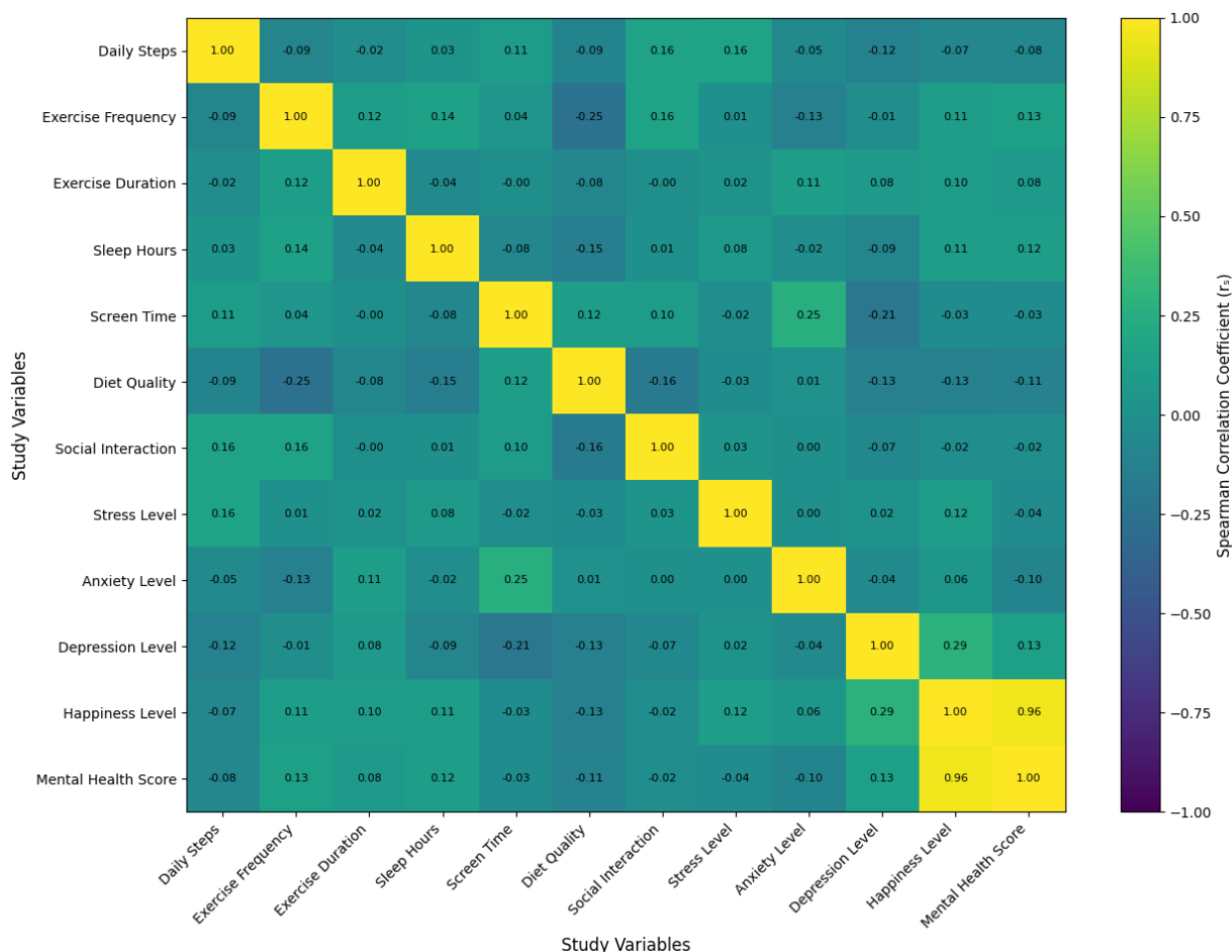


Figure 4. Spearman Correlation Heat Map of Physical Activity, Lifestyle, and Mental Health Variables

The heat map indicates that there are mainly weak correlations between the variables in the study. The most significant correlation was found between happiness and overall mental-health score with screen time having a positive slight relationship with anxiety and a negative slight relationship with depression.

4. DISCUSSION

The current research involved a comparison of the mental health, physical activity, and lifestyle factors in adults practicing Yoga and Sports. Generally, the profiles of both groups were quite similar, and there were no statistically significant differences in daily steps, exercise frequency, exercise duration, sleep, screen time, diet quality, social interaction, stress, anxiety, depression, happiness, or overall mental-health score. There was a descriptively greater daily steps, happiness, and mental-health scores among sports participants, with slightly greater exercise duration, increased sleep, reduced screen time, and reduced depression among Yoga participants. These were minor differences which did not signify obvious excellence of one of the activities. The similarity in the mental-health profiles implies that Yoga and Sports can potentially alleviate psychological health in various ways. Yoga involves actions and breathing exercises, rest, and concentration, but Sports might offer more physical intensity, recreation, socialization, and accomplishment. The same study by Puttraju et al. (2025) compared stress, anxiety, and depression in the participants of the Hatha Yoga and recreational sports and emphasized the applicability of both practices to the psychological well-being. Similar to Ramaprasad et al. (2025), the mental-health parameters between yoga and non-yoga practitioners have been found to differ, which means that the results can change depending on age, population, and the study environment.

The demographic results indicated no significant differences in age, gender or occupation between Yoga and Sports participants. This is significant since sociodemographic factors might be able to affect the participation in certain physical activities. According to Rizo et al. (2024), physically active adults varied in terms of sociodemographic profile based on the nature of the exercised activity. On the same note, Sahoo et al. (2023) also discovered the variations in the participation of yoga and mindfulness based on the demographic and residential factor. The equal population representation in the current research minimized the chances that such factors had a strong impact on the group comparisons. There were also slight differences in lifestyle characteristics between groups. The participants of yoga experienced a little bit longer sleep, reduced screen time, high quality of the diet, and a little more social interaction, but none of these differences was significant. The majority of the lifestyle and physical activity variables were also not significantly related to mental-health outcomes. The sole exception was screen time, which had a positive correlation with anxiety and was still a significant predictor of anxiety in adjusted regression equation. This indicates that screen exposure can be the most pertinent to anxiety than the type of exercise performed.

The results align with the evidence that has been obtained in the past indicating that various types of physical activity could be helpful in promoting psychosocial well-being without having the same effects. Tsuji et al. (2020) found that

socio-psychological health was linked to participation in particular sports and exercise groups in older adults. Tornoczyky et al. (2022) also discovered that yoga practice did correlate with better well-being in university students. The implications of these findings are that mental-health benefits might not just be determined by the type of activity, but also the setting, social engagement, motivation, consistency, and personal preference. Regression analysis indicated that type of exercise did not significantly predict overall mental-health score, even after demographic, physical activity and lifestyle factors were taken into account. This complements the opinion that mental health is influenced by multiple interacting determinants as opposed to the type of exercise alone. Vella et al. (2023) also highlighted that individual factors, behavioural factors, and contextual factors influence the mental-health benefits of physical activity. In practice, it implies that not only Yoga but also Sports could be marketed as an appropriate type of physical activity, and it should be focused on accessibility, enjoyment, adherence, and long-term involvement.

There are a number of constraints to bear in mind. Causal interpretation was not possible because of the cross-sectional form, and the secondary data posed some limitation on the ability to control the measurement of variables and the data collection process. The sample was rather small and some of the measures might have been self-reported. There was also limited information on the intensity of exercise, long-term participation and validated mental-health instruments. Larger and more heterogeneous samples, longitudinal or intervention designs, and validated psychological measures should be used in future studies. Further evaluation of the intensity of exercise, frequency, adherence, and duration is suggested. The prospective studies must also investigate the possibility of age, gender, social situation, and screen-use habits modulating the correlation between exercise type and mental-health outcome, in particular, the alleged relationship between screen time and anxiety.

5. CONCLUSION

The current research showed that the mental health, physical activity and lifestyle profiles of adults who practiced Yoga and Sports were typically similar. There were no statistically significant differences between both groups in the number of steps taken daily, frequency of exercise, time spent in exercise, sleep, screen time, quality of diet, social interaction, stress, anxiety, depression, happiness, or overall mental-health score. Even though no significant difference was found between Sports and Yoga participants, the participants of the former had higher daily steps, happiness, and overall mental-health scores, whereas the participants of the latter reported a longer duration of exercise, more sleep, less screen time, and depressive levels. These were minor differences that did not show a decisive factor of one activity being better than the other. Mental-health outcome was not significantly related to most of the physical activity and lifestyle variables. The sole exception was on screen time, which had a positive correlation with anxiety and was also a significant predictor of anxiety in the regression analysis. The type of exercise itself was not significantly related to overall mental-health score, after controlling on demographic, physical activity, and lifestyle factors. In general, the results indicate that both Yoga and Sports can be appropriate types of physical activity that adults can engage in, and the possible benefits rely on more prolonged involvement, choice, and more global lifestyle behaviours than on the type of activities. Additional longitudinal analysis using larger samples and validated mental-health instruments are suggested.

REFERENCES

1. Brinsley, J., Schuch, F., Lederman, O., Girard, D., Smout, M., Immink, M. A., ... & Rosenbaum, S. (2021). Effects of yoga on depressive symptoms in people with mental disorders: a systematic review and meta-analysis. *British journal of sports medicine*, 55(17), 992-1000.
2. Cagas, J. Y., Biddle, S. J., & Vergeer, I. (2023). When an activity is more than just exercise: a scoping review of facilitators and barriers for yoga participation. *International Review of Sport and Exercise Psychology*, 16(1), 93-154.
3. Cartwright, T., Mason, H., Porter, A., & Pilkington, K. (2020). Yoga practice in the UK: A cross-sectional survey of motivation, health benefits and behaviours. *BMJ open*, 10(1), e031848.
4. Dhanlika, D., Meenakshi, K., Yadav, P., & Monika, P. (2026). Healthy Ageing Components Among Yoga Practitioners, Exercise Enthusiasts, and Physically Inactive Community Dwellers of Rishikesh: A Cross-Sectional Comparative Study. *Indian Journal of YOGA Exercise & Sport Science and Physical Education*, 1-15.
5. Fatima, S. (2025). Mental health × physical activity [Data set]. Kaggle. <https://www.kaggle.com/datasets/safiyafatima/mental-health-x-physical-activity/data>
6. Faulkner, J., O'Brien, W. J., McGrane, B., Wadsworth, D., Batten, J., Askew, C. D., ... & Lambrick, D. (2021). Physical activity, mental health and well-being of adults during initial COVID-19 containment strategies: A multi-country cross-sectional analysis. *Journal of science and medicine in sport*, 24(4), 320-326.
7. Guerriero, M. A., Dipace, A., Monda, A., De Maria, A., Polito, R., Messina, G., ... & Limone, P. (2025). Relationship between sedentary lifestyle, physical activity and stress in university students and their life habits: A scoping review with PRISMA checklist (PRISMA-ScR). *Brain Sciences*, 15(1), 78.
8. Guidotti, S., Fiduccia, A., Murgolo, M., & Pruneti, C. (2024). Comparison between physical activity and stress-related lifestyle between orthorexic and non-orthorexic university students: A case-control study. *Nutrients*, 16(9), 1340.
9. Kaur, H., Chaudhary, S., Mohanty, S., Sharma, G., Kumaran, S. S., Ghati, N., ... & Pandey, R. M. (2022). Comparing cognition, coping skills and vedic personality of individuals practicing yoga, physical exercise or sedentary lifestyle: a cross-sectional fMRI study. *Integrative medicine research*, 11(1), 100750.
10. Kim, J. S., & Lee, J. S. (2024). An Analysis of Influencing Factors of Regular Physical Activities between Fitness Participation Types: Focus on Bodybuilding and Yoga. *American Journal of Health Behavior*, 48(1), 134-144.

11. Kumaat, N. A., Rusdiawan, A., Dafun JR, P. B., Wahyudi, H., Arfanda, P. E., Wijaya, F. J. M., ... & Artanty, A. (2025). Comparative effects of Zumba and Yoga on stress, body satisfaction, and self-esteem in working women: a randomized control trial. *Pedagogy of Physical Culture and Sports*, 29(3), 160-171.
12. Kumar, T. S., & Sadulla, S. (2026). Physical Activity, Yoga Practice, and Quality of Life: A Cross-Sectional Study among Urban Working Professionals. *Journal of Yoga, Sports, and Health Sciences*, 1-7.
13. Läheteinen, S. A., Pandey, M., Keshav, R., & Babu, N. (2025). Relevance of yoga practices concerning the psychological well-being in Finnish adults: A cross-sectional study. *Journal of Bodywork and Movement Therapies*, 42, 674-683.
14. Liutsko, L., Leonov, S., Pashenko, A., & Polikanova, I. (2024). Is frequency of practice of different types of physical activity associated with health and a healthy lifestyle at different ages?. *European Journal of Investigation in Health, Psychology and Education*, 14(1), 256-271.
15. Mahindru, A., Patil, P., & Agrawal, V. (2023). Role of physical activity on mental health and well-being: a review. *Cureus*, 15(1).
16. Marschin, V., & Herbert, C. (2021). Yoga, dance, team sports, or individual sports: Does the type of exercise matter? An online study investigating the relationships between different types of exercise, body image, and well-being in regular exercise practitioners. *Frontiers in Psychology*, 12, 621272.
17. Martín-Rodríguez, A., Gostian-Ropotin, L. A., Beltrán-Velasco, A. I., Belando-Pedreño, N., Simón, J. A., López-Mora, C., ... & Clemente-Suárez, V. J. (2024). Sporting mind: the interplay of physical activity and psychological health. *Sports*, 12(1), 37.
18. Oraon, A. (2024). Comparative Effect of Hatha Yoga, Aerobic Exercise, and Combined Training on Physical Fitness, Mental Health, and Quality of Life among Sedentary Middle-Aged Adults. *International Journal of Research & Technology*, 12(2), 57-64.
19. Pluto-Pradzynska, A., Pluto-Pradzynska, K., Frydrychowicz, M., Lagiedo-Zelazowska, M., Owoc, J., Benjamin, S., ... & Wasik, J. (2022). Are yoga and physical activity determinants of quality of life in Polish adults? a cross-sectional study. *BMJ open*, 12(9), e059658.
20. Puttraju, V. P., Srikanth, J., & priya Puttraju, V. (2025). Comparing Stress, Anxiety, and Depression in Adolescent Practitioners of Hatha Yoga and Recreational Sports: A Cross-Sectional Study. *Cureus*, 17(10).
21. Ramaprasad, S., Snigdha, A., Manjunath, N. K., & Majumdar, V. (2025). Comparative Study on Mental Health Parameters among Yoga and Non-Yoga Practitioners in Older Adults Amidst COVID-19 Pandemic. *OBM Geriatrics*, 9(1), 1-12.
22. Rizo, M. A. P., Cigarroa, I., Sánchez, S. O., Saiz, J. G., López, A. I. A., Moreno, J. G., ... & Yáñez-Yáñez, R. (2024). Sociodemographic profile of physically active older adults according to the type of physical activities practiced: gymnastic exercises, aquatic activities, yoga, Pilates and dance. *Retos: nuevas tendencias en educación física, deporte y recreación*, (56), 280-288.
23. Sahoo, U., Sharma, S. K., Chari, H., Nayak, S. R., Ali, W., & Muhammad, T. (2023). Examining the rural–urban differentials in yoga and mindfulness practices among middle-aged and older adults in India: secondary analysis of a national representative survey. *Scientific Reports*, 13(1), 22095.
24. Tornóczy, G. J., Bánhidi, M., Rózsa, S., & Nagy, H. (2022). Yoga in university sports: Effects on spirituality, well-being, and physical symptoms among students-A quasi-experimental study. *International Leisure Review*, 11(1), 22-47.
25. Tsuji, T., Kanamori, S., Saito, M., Watanabe, R., Miyaguni, Y., & Kondo, K. (2020). Specific types of sports and exercise group participation and socio-psychological health in older people. *Journal of sports sciences*, 38(4), 422-429.
26. Vella, S. A., Aidman, E., Teychenne, M., Smith, J. J., Swann, C., Rosenbaum, S., ... & Lubans, D. R. (2023). Optimising the effects of physical activity on mental health and wellbeing: A joint consensus statement from Sports Medicine Australia and the Australian Psychological Society. *Journal of science and medicine in sport*, 26(2), 132-139.