PANTAO
The International Journal of the Humanities and Social Sciences
Volume 4, Issue 4
ISSN 3028-0877 | DOI 10.69651/2022PIJHSS

Sleeping patterns and eating habits of Zumba practitioners

Leomel D. Duron
Filamer Christian University, Inc.
Roxas City, Capiz, Philippines
Email: leomelzazm@gmail.com

ABSTRACT

This research aimed to determine the sleeping patterns and eating habits of Zumba practitioners in a selected municipality in Capiz. A total of one hundred twenty-four (124) Zumba practitioners participated in the study, consisting of thirty-nine (39) practitioners from the "Ladies of Maayon," thirty-four (34) practitioners from the "Orange Ladies of Pres. Roxas," and fifty-one (51) practitioners from the "Roxas City Zumba Fitness." A twenty-seven (27)-item Sleeping Patterns Questionnaire and a twenty-nine (29)-item Eating Habits Questionnaire were used to assess the five common sleeping patterns and eating habits of the respondents, as well as the correlation between these variables. Sleeping patterns were measured using the Pittsburgh Sleep Quality Index (PSQI), while eating habits were measured using a Likert scale. Employing a survey-correlational research method, the study determined the common sleeping patterns and eating habits of the respondents and examined the relationship between the two variables. The statistical tools used for data analysis were the mean, standard deviation, and Pearson's r product–moment correlation. All inferential tests were set at a 0.05 alpha level. The findings revealed that Zumba practitioners exhibited poor sleep quality but maintained healthy eating habits. Moreover, sleeping patterns showed a negative correlation with eating habits, indicating a significant relationship between the two variables.

Keywords: Sleeping patterns; eating habits; Zumba practitioners.

Date Submitted: November 16, 2025
Date Accepted: November 29, 2025
Date Published: December 26, 2025

INTRODUCTION

Zumba is a dance-based fitness activity that blends Latin inspired music with dynamic dance movements to create an engaging and energetic form of physical exercise. Beyond being a recreational activity, Zumba promotes physical, psychological, and social well-being by encouraging regular movement, social interaction, and enjoyment. Participation in group-based fitness activities fosters camaraderie and social bonding while supporting healthier lifestyle

DOI: http://doi.org/10.69651/PIJHSS0404671

Recommended citation:
Duron, L. D. (2025). Sleeping patterns and eating habits of Zumba practitioners. Pantao (The International Journal of the Humanities and Social Sciences) 4 (4), 7344-7356. http://doi.org/10.69651/PIJHSS0404671

behaviors. As an aerobic exercise, Zumba contributes not only to physical fitness but also to improved sleep quality and healthier eating habits, which are essential components of overall health and long-term well-being.

Physical fitness is widely recognized as a foundation of a healthy lifestyle, contributing to effectiveness and efficiency in both work and leisure activities. Being physically fit is associated with improved strength, flexibility, energy levels, appearance, mood, and overall outlook on life. From the perspective of Self-Determination Theory introduced in 1985, engagement in fitness activities such as Zumba satisfies fundamental psychological needs for autonomy, competence, and relatedness, thereby motivating individuals to adopt and sustain health-promoting behaviors. These intrinsic motivations are critical for maintaining long-term participation in physical activity and reinforcing positive lifestyle choices.

Zumba is a distinctive fitness dance that integrates elements from various dance styles including hip hop, soca, samba, merengue, mambo, and martial arts. It was accidentally developed by choreographer Alberto Perez in the 1990s and has since been recognized as an aerobic dance exercise that enhances physical health and well-being. Research and practice suggest that Zumba improves muscular strength, flexibility, coordination, power, and endurance while promoting fat burning through continuous full-body movement. It also supports respiratory and cardiovascular endurance by engaging the lungs and heart in sustained aerobic activity. Zumba has gained international popularity and has been endorsed by the Department of Health in the Philippines; however, there remains limited empirical research documenting its broader fitness-related outcomes.

Sleep patterns are defined as habitual behaviors related to the timing, duration, and regularity of sleep within a 24-hour cycle. According to Taylor et al. (2023), consistent bedtimes and wake times play a crucial role in maintaining both physical and psychological health. Regular sleep patterns have been associated with better overall health and reduced risk of chronic conditions, whereas irregular sleep patterns are linked to mental health challenges and cardiometabolic risks. Complementing these findings, Lee et al. (2024) examined the long-term stability of insomnia-related sleep patterns and identified that persistent sleep irregularities are strongly associated with increased risks of cardiovascular diseases and mental health disorders. These findings underscore the importance of early intervention to address sleep problems and mitigate long-term health consequences.

Adequate and quality sleep is essential for bodily recovery, restoration, and overall functioning. Sufficient sleep has been linked to improved emotional well-being, cognitive performance, and physical capacity, while chronic sleep deprivation contributes to fatigue, mood disturbances, and heightened vulnerability to conditions such as obesity, diabetes, and cardiovascular disease. Physical exercise has been consistently associated with improved sleep quality, as it helps regulate sleep cycles, reduce stress, and promote relaxation. Continuous participation in activities such as Zumba may therefore play a meaningful role in enhancing rest and recovery through positive effects on sleep patterns.

Eating habits refer to the conscious decisions individuals make regarding what foods they consume, how much they eat, and the timing and frequency of their meals. Healthy eating habits typically involve a balanced diet rich in essential nutrients while limiting foods high in sugar, fat, and excessive calories. Evidence indicates that regular meal patterns and dietary variety are associated with better health outcomes (American Heart Association, 2020). The World Health Organization (2020) further emphasizes that good eating habits contribute to maintaining a healthy weight and preventing chronic illnesses such as diabetes and heart disease.

Unhealthy eating behaviors, including excessive consumption of processed foods and irregular eating patterns, have been linked to negative health outcomes such as weight gain, poor digestion, and reduced energy levels (National Institute on Aging, 2021). Eating behaviors are also shaped by social and cultural influences, which affect food preferences, meal timing, and dietary consistency (Harvard T. H. Chan School of Public Health, 2022). Healthy eating therefore extends beyond food selection to include mindful eating practices and responsiveness to hunger and satiety cues, which contribute to sustained energy, weight management, and long-term well-being.

Transitions from adolescence to young adulthood represent a critical period for the development of eating habits. Changes during this stage may pose challenges to establishing healthy dietary behaviors, yet patterns formed during childhood and adolescence often persist into adulthood and influence the risk of obesity, diabetes, and other chronic diseases (Winpenny et al., 2023). Studies indicate that university students frequently struggle to maintain healthy diets, consuming high levels of processed foods and insufficient fruits and vegetables, which may result in nutritional deficiencies and disordered eating behaviors (Llamazares et al., 2022). Diets characterized by high intake of processed foods and low consumption of whole foods have been associated with non-communicable diseases such as diabetes and cardiovascular conditions (Manohar et al., 2021).

Food intake is fundamental to sustaining energy, supporting physical performance, and maintaining overall health. Nutrients obtained from food are essential for daily physiological functioning, muscle recovery, and long-term health maintenance. Participation in structured exercise programs such as Zumba may influence dietary choices by increasing nutritional demands or fostering greater awareness of healthy eating. Examining the eating habits of Zumba practitioners provides insight into how physical activity and diet interact to support overall health.

Regular moderate-intensity physical exercise has been shown to improve several sleep parameters, including reduced sleep latency, enhanced sleep efficiency, and increased total sleep duration (Kline, 2018). These findings highlight the potential of exercise as a non-pharmacological intervention for sleep disorders and general health improvement. Given that Zumba is an energetic aerobic activity that combines rhythmic movement and music, it represents an appropriate context for examining how such exercise influences sleep outcomes.

Zumba is widely regarded as interactive, enjoyable, and community oriented, which may reduce perceived exertion and enhance adherence compared to traditional exercise programs. Sustained participation is critical, as long-term engagement in physical activity is associated with greater benefits in sleep regulation and overall health. Research indicates that Zumba participants report reduced levels of anxiety, depression, and stress (Ribeiro & Santos, 2020), psychological factors that are closely linked to sleep quality and restorative rest.

The influence of Zumba on sleep may be explained through physiological mechanisms involving neurotransmitter regulation. High-energy rhythmic physical activity affects the release of serotonin, dopamine, and endorphins, which play key roles in mood regulation, anxiety reduction, and relaxation (Gohil & D'Silva, 2019). Serotonin also serves as a precursor to melatonin, the hormone responsible for regulating the sleep cycle. Aerobic exercise has additionally been shown to influence circadian rhythms by synchronizing internal biological clocks with external environmental cues, thereby supporting stable sleep-wake patterns (Banno et al., 2018).

Physical activity and eating behavior exhibit a bidirectional relationship, whereby exercise influences dietary choices and nutrition affect physical performance (Roberts et al., 2019). In the

context of Zumba, a high-intensity group-based exercise, motivation, physiological adaptation, and increased self-efficacy may encourage healthier eating patterns. Differences in hormonal regulation of appetite, improvements in body image, and enhanced confidence resulting from consistent exercise may further explain this association (Oliveira & Rosado, 2020).

Energy expenditure during high-intensity exercise affects metabolism, hunger, and satiety. Evidence suggests that high-intensity interval activities commonly incorporated in Zumba classes may temporarily suppress appetite through modulation of hormones such as ghrelin and peptide YY (Martins et al., 2017). These hormonal responses can influence meal timing, portion sizes, and overall food intake. Regular participation in organized exercise programs may also promote structured meal planning, attentiveness to hunger and satiety cues, and adequate hydration, contributing to improved dietary habits and general well-being (Vartanian et al., 2018).

The social environment of Zumba classes further supports healthier eating behaviors through peer influence and social support. Group-based settings encourage shared goals and accountability, which can motivate individuals to adopt healthier food choices (Gleeson & Fraser, 2021). Social contexts that promote responsibility and mutual encouragement may help reduce maladaptive eating behaviors such as emotional eating and excessive snacking.

Psychological benefits associated with Zumba participation, including reduced stress, anxiety, and depressive symptoms, are likewise linked to improved eating habits. Stress and mental health challenges have long been associated with disordered eating patterns, including binge eating and preference for unhealthy foods (Adam & Epel, 2019). By improving mood through endorphin release and social interaction, Zumba may reduce these risks and promote healthier dietary practices that support both physical and psychological health (Adam & Epel, 2019).

In view of these interconnected factors, the present study focuses on examining the effects of Zumba participation on sleeping patterns and eating habits among Zumba practitioners, recognizing the complex interactions among physical activity, sleep, nutrition, and overall health.

Statement of the problem

The primary purpose of the study was to determine the effect of Zumba on sleeping pattern and eating habits of Zumba practitioners.

Specifically, this study sought answers to the following questions:

1. What are the top five (5) common sleeping patterns observed among Zumba practitioners?
2. What are the top five (5) common eating habits observed among Zumba practitioners?
3. Is there a significant correlation between sleeping patterns and eating habits among Zumba practitioners?

METHODOLOGY

The study was conducted to determine the sleeping patterns and eating habits of Zumba practitioners in a selected municipality in Capiz. It employed a survey correlational research design to describe the variables under investigation and to examine the relationship between sleeping patterns and eating habits without manipulating any conditions. Survey research is recognized as an effective approach for collecting data from a defined group of respondents to describe characteristics and examine relationships among variables, while correlational design allows for statistical analysis of associations between variables without experimental control (Bhat, 2019; Ponto, 2015). In this study, sleeping patterns served as the independent variable and eating habits

as the dependent variable. Both descriptive and inferential statistical techniques were applied, and all inferential analyses were tested at the 0.05 level of significance.

The participants of the study consisted of one hundred twenty-four Zumba practitioners drawn from three organized Zumba groups within the selected municipality in Capiz. These included thirty-nine practitioners from Ladies of Maayon, thirty-four practitioners from Orange Ladies of President Roxas, and fifty-one practitioners from Roxas City Zumba Fitness. From a total population of one hundred eighty Zumba practitioners across these groups, the sample size of one hundred twenty-four respondents was determined using Slovin's formula and selected through random sampling to ensure adequate representation and minimize sampling bias.

Data were collected using two standardized research instruments designed to measure sleeping patterns and eating habits. Sleeping patterns were assessed using the Pittsburgh Sleep Quality Index, which was administered through a twenty-seven items questionnaire. Each item was scored on a four-point scale reflecting the frequency of sleep related behaviors. The descriptive interpretation of mean scores categorized sleep quality into levels ranging from poor to excellent. Prior to administration, the instrument underwent content validation by a panel of experts, and their recommendations were incorporated into the final version. To establish reliability, pilot testing was conducted among thirty Zumba practitioners who were not included in the main study. The results of the pilot test were analyzed using Cronbach's alpha, yielding a reliability coefficient of 0.767 for the sleeping patterns instrument, which exceeds the acceptable threshold of 0.70 for internal consistency as noted by Warrens (2016).

Eating habits were measured using a twenty-nine items questionnaire rated on a five-point Likert scale reflecting levels of agreement. The instrument assessed dietary behaviors and practices, with descriptive interpretations classifying eating habits from very unhealthy to very healthy based on computed mean scores. Similar to the sleeping patterns instrument, the eating habits questionnaire was subjected to expert validation to establish content validity, and revisions were made based on the panel's feedback. Pilot testing was likewise conducted among thirty Zumba practitioners who were not part of the final sample. Reliability analysis using Cronbach's alpha produced a coefficient of 0.773, indicating high internal consistency of the eating habits instrument.

The data collection process followed a systematic and ethical procedure. Permission to conduct the study was first secured from the adviser and the Dean of the Graduate School of Filamer Christian University. Formal approval was also obtained from the Zumba instructors or group leaders to access the participants and determine the total population of Zumba practitioners in each group. Upon approval, the researcher randomly selected the participants and personally distributed the printed questionnaires. Prior to participation, respondents were informed of the purpose of the study, the voluntary nature of their involvement, and the confidentiality of their responses. Written consent was obtained from all participants in compliance with the Data Privacy Act of 2012, ensuring that personal information was handled responsibly and used solely for research purposes.

After data collection, the accomplished questionnaires were checked for completeness and accuracy. The responses were then tallied, tabulated, and initially processed using Microsoft Excel. The finalized dataset was subsequently transferred to the Statistical Package for the Social Sciences for statistical analysis. Descriptive statistics such as the mean were used to determine the levels of sleeping patterns and eating habits, while standard deviation was employed to assess the variability of participants' responses. To examine the relationship between sleeping patterns and eating habits, the Pearson product moment correlation coefficient was applied. All inferential

statistical tests were evaluated at the 0.05 level of significance to determine the presence of statistically significant relationships between the variables.

RESULTS AND DISCUSSION

The present chapter discusses the results and corresponding interpretations derived from the data gathered in the study. The discussion is grounded in the responses of one hundred twenty-four Zumba practitioners who were selected through random sampling from organized Zumba groups in a selected municipality in Capiz. Using a survey correlational research design, data were collected through standardized questionnaires measuring sleeping patterns and eating habits, and were analyzed using descriptive statistics such as mean and standard deviation as well as inferential analysis through the Pearson product moment correlation coefficient. The presentation and discussion of results are anchored on the objectives of the study and aim to provide a comprehensive understanding of the sleeping patterns, eating habits, and their relationship among Zumba practitioners.

The participants in the study represented three Zumba groups within the selected municipality, with a total population of one hundred eighty practitioners. From this population, one hundred twenty-four respondents were included in the final analysis. The demographic profile revealed that the majority of participants belonged to the older adult group, with sixty-three out of one-hundred twenty-four or 50.81 percent, followed by middle aged adults numbering fifty-four or 43.55 percent, and a smaller proportion of young adults comprising seven participants or 5.65 percent. This age distribution provides important context for understanding the results of the study, particularly with regard to sleep quality, as aging is commonly associated with changes in sleep architecture, increased sleep fragmentation, and greater sensitivity to environmental disturbances. These characteristics suggest that age related factors may have influenced the reported sleeping patterns of the participants and should be considered when interpreting the findings.

The analysis of sleeping patterns revealed that Zumba practitioners generally exhibited poor sleep quality. The overall mean score for sleeping patterns was 2.23 with a standard deviation of 0.34, which falls within the descriptive range classified as poor sleep quality. The relatively low standard deviation indicates that the participants shared similar sleep experiences, suggesting that poor sleep quality was a common condition across the group rather than being limited to a small subset of individuals. Specific indicators of sleep quality further supported this finding. Participants reported low mean scores for waking up feeling refreshed and rested with a mean of 2.46 and standard deviation of 0.91, for sleeping seven to nine hours each night with a mean of 2.43 and standard deviation of 0.94, and for taking more than thirty minutes to fall asleep with a mean of 2.40 and standard deviation of 0.83. These results indicate difficulties in achieving restorative sleep, adequate sleep duration, and efficient sleep onset.

The finding that participants often woke up feeling unrefreshed despite regular engagement in physical activity suggests that factors beyond exercise participation may be adversely affecting sleep quality. Environmental conditions such as noise exposure, particularly for participants residing near roadways, may contribute to sleep disturbances. Additionally, the age profile of the participants likely plays a significant role, as older adults are more prone to lighter sleep, frequent awakenings, and difficulty returning to sleep after nocturnal disruptions. Hirshkowitz et al. (2020) noted that reduced sleep efficiency and increased sleep fragmentation are common among aging populations, which aligns with the patterns observed in this study. The low variability in sleep quality further suggests that these challenges are shared broadly among the participants.

Sleep duration also emerged as a concern among the Zumba practitioners. Although the recommended sleep duration for adults ranges from seven to nine hours, the poor mean score for this indicator implies that many participants were unable to consistently meet this recommendation. Variability in sleep duration, as reflected in the standard deviation, suggests that while some participants may be achieving adequate sleep, others are experiencing either insufficient or excessive sleep, both of which can negatively affect sleep quality and daily functioning. Kreutz et al. (2019) emphasized that inconsistent sleep duration can impair recovery and physical performance, even among physically active individuals. Factors such as late evening exercise sessions, physical overexertion without adequate recovery, and lifestyle stressors related to work or family responsibilities may have contributed to shortened or disrupted sleep among the participants.

Difficulty falling asleep and difficulty returning to sleep after nighttime awakenings were also evident in the results. The mean score for taking more than thirty minutes to fall asleep was 2.40 with a standard deviation of 0.83, indicating prolonged sleep onset latency among many participants. While physical activity is generally associated with reduced sleep onset latency, engaging in vigorous exercise close to bedtime may increase physiological arousal, elevate body temperature, and delay the onset of sleep (Raschke et al., 2021). Psychological factors such as stress, anxiety, and mental stimulation following group activities may further hinder relaxation before sleep. Similarly, the reported difficulty in falling back asleep after waking up suggests the presence of sleep fragmentation, which disrupts the continuity of the sleep cycle and reduces restorative sleep (Van Someren, 2020). These disturbances may be exacerbated by age related changes, environmental noise, or poor sleep hygiene practices.

Sleep efficiency, defined as the proportion of time spent asleep while in bed, was likewise found to be low among the participants. The mean score for spending most of the time in bed sleeping rather than awake was 2.40 with a standard deviation of 0.92, indicating that participants spent considerable time awake while in bed. Low sleep efficiency is often associated with stress, irregular sleep schedules, and lifestyle factors that interfere with the ability to maintain continuous sleep (Kreutz et al., 2019). Despite regular participation in Zumba, the persistence of low sleep efficiency suggests that exercise alone may not be sufficient to offset other behavioral or physiological factors affecting sleep quality. Overall, the findings indicate that while Zumba practitioners are physically active, they continue to experience poor sleep quality characterized by delayed sleep onset, fragmented sleep, and reduced efficiency.

In contrast to the findings on sleep, the eating habits of Zumba practitioners were generally classified as healthy. The overall mean score for eating habits was 3.45 with a standard deviation of 0.42, which falls within the descriptive category of healthy eating habits. The low variability in responses indicates that most participants exhibited similar dietary behaviors, suggesting a shared pattern of health-conscious eating. This finding may be partially explained by the age profile of the participants, as older adults are often more mindful of dietary choices due to health considerations and prior experiences with illness or chronic conditions.

Specific eating behaviors further illustrated this pattern. Participants reported frequently preparing home cooked meals rather than eating out, with a mean score of 3.85 and standard deviation of 0.86. Preparing meals at home allows greater control over ingredients, portion sizes, and cooking methods, which is associated with improved dietary quality and reduced intake of excess calories, sodium, and unhealthy fats (Levy et al., 2020). This behavior reflects a deliberate and health-oriented approach to nutrition that supports overall well-being. Regular participation in

Zumba may reinforce this behavior by increasing awareness of the role of nutrition in supporting energy levels and physical performance.

Mindful eating behaviors were also evident among the participants. The item related to eating slowly and savoring meals yielded a mean score of 3.70 with a standard deviation of 0.79, while paying attention to hunger and fullness cues had a mean score of 3.65 and standard deviation of 0.85. These findings suggest that Zumba practitioners are attuned to their internal bodily signals, a key principle of intuitive eating. Regular physical activity has been linked to greater body awareness and improved self-regulation of food intake (Dohle et al., 2014). By encouraging participants to be more connected to their bodies, Zumba may indirectly promote mindful eating practices that support digestion, satiety, and weight management (Jones and Smith, 2021; Tylka and Kearney Cooke, 2019).

Avoiding late night eating was another positive dietary behavior reported by the participants, with a mean score of 3.65 and standard deviation of 0.96. Late night eating has been associated with disruptions in circadian rhythm, impaired metabolism, and increased risk of weight gain (González et al., 2020). The tendency of Zumba practitioners to avoid eating late at night suggests an awareness of the interaction between meal timing, sleep, and metabolic health. Additionally, preparing meals mindfully using fresh and wholesome ingredients yielded a mean score of 3.60 with a standard deviation of 0.87, indicating a commitment to nutrient dense food choices that reduce the risk of chronic diseases such as diabetes and cardiovascular conditions (Kirkpatrick et al., 2019).

Overall, the eating habits observed in this study reflect a pattern of health-conscious behaviors that align with existing literature suggesting that individuals who engage in regular physical activity are more likely to adopt balanced and mindful dietary practices. Studies have shown that participation in structured and enjoyable exercise programs such as Zumba can motivate individuals to make complementary lifestyle changes, including improved nutrition (Cugusi et al., 2016; Krishnan et al., 2015). The group based and socially supportive nature of Zumba may further reinforce these behaviors by fostering shared goals and positive peer influence.

The inferential analysis examined the relationship between sleeping patterns and eating habits among Zumba practitioners. The Pearson product moment correlation analysis yielded a correlation coefficient of $r = -0.419$ with a significance value of $p = 0.000$, indicating a statistically significant moderate negative relationship between the two variables at the 0.05 level of significance. This result suggests that better sleeping patterns were associated with slightly poorer eating habits, or conversely, healthier eating habits were associated with poorer sleep quality among the participants. Although this finding may appear counterintuitive, it highlights the complex and multifaceted nature of lifestyle behaviors.

qOne possible explanation for this negative relationship is that some participants may prioritize dietary discipline and physical activity while experiencing compromised sleep due to time constraints, late evening exercise sessions, or stress related to balancing multiple responsibilities. Conversely, poor sleep quality is known to influence appetite regulating hormones such as ghrelin and leptin, which can disrupt eating behaviors and lead to irregular meal patterns or cravings for high calorie foods (Faraut et al., 2020). The observed relationship may therefore reflect a trade-off between sleep and dietary behaviors within the context of active lifestyles. Similar findings have been reported in studies examining the interaction between sleep, diet, and physical activity, where changes in one behavior may influence or offset another (Levy et al., 2020).

The moderate strength of the correlation suggests that while the relationship is meaningful, it is not deterministic and may be influenced by additional factors such as exercise intensity, timing

of workouts, stress levels, and individual health conditions. Prior research has indicated that regular physical activity can both improve and complicate sleep and dietary outcomes depending on contextual factors (Micha et al., 2019). These findings underscore the need for a holistic approach to health promotion that addresses not only physical activity but also sleep hygiene and nutritional timing.

In synthesis, the results of the study reveal that Zumba practitioners generally experience poor sleep quality despite maintaining healthy eating habits. The findings highlight the coexistence of positive and negative lifestyle behaviors within the same population and emphasize the complex interplay among physical activity, sleep, and nutrition. The significant negative relationship between sleeping patterns and eating habits suggests that improvements in one domain do not automatically translate to improvements in another. These results contribute to the growing body of literature on lifestyle behaviors among physically active adults and underscore the importance of integrated interventions that address exercise, diet, and sleep simultaneously. The findings provide a meaningful basis for future research and inform practitioners and health promoters about the need to consider timing of exercise, age related factors, and lifestyle balance when designing programs aimed at improving overall well-being among Zumba practitioners.

CONCLUSION

The present study was undertaken to determine the sleeping patterns and eating habits of Zumba practitioners in a selected municipality in Capiz and to examine the relationship between these two lifestyle variables. Guided by a survey correlational research design, the study involved one hundred twenty-four Zumba practitioners drawn from three organized Zumba groups in the locality. Data were collected using validated questionnaires measuring sleeping patterns through the Pittsburgh Sleep Quality Index and eating habits through a Likert scaled instrument. The findings generated from descriptive and inferential analyses provided a comprehensive basis for understanding the sleep and dietary behaviors of physically active individuals and for drawing conclusions that are grounded in empirical evidence.

The results of the study revealed that, in general, Zumba practitioners experienced poor sleep quality. This finding was reflected in consistently low mean scores across several sleep related indicators, including feeling refreshed upon waking, achieving the recommended duration of sleep, falling asleep within a reasonable period, maintaining uninterrupted sleep, and spending sufficient time asleep while in bed. The relatively low variability in responses indicated that poor sleep quality was a shared experience among most participants rather than an isolated concern. The age distribution of the respondents, which was dominated by older and middle-aged adults, provides an important context for this finding. Age related changes in sleep patterns, including lighter sleep, increased nighttime awakenings, and difficulty returning to sleep, likely contributed to the overall poor sleep quality observed in the study. Although Zumba is widely recognized as a beneficial form of physical activity that enhances mood and reduces stress, the findings suggest that regular participation in Zumba alone may not be sufficient to address sleep disturbances, particularly among older adults who may also be affected by chronic pain, health conditions, medication use, or psychosocial stressors.

At the same time, the study demonstrated that Zumba practitioners generally exhibited healthy eating habits. The overall classification of eating behaviors fell within the healthy range, indicating a positive orientation toward nutrition among the participants. The findings showed that

practitioners frequently prepared home cooked meals, ate slowly and mindfully, paid attention to hunger and fullness cues, avoided eating late at night, and used fresh and wholesome ingredients in meal preparation. These behaviors are consistent with principles of mindful and intuitive eating and are associated with improved nutritional quality, better weight management, and reduced risk of chronic diseases. The results suggest that regular engagement in Zumba may foster greater health consciousness, motivating individuals to align their dietary choices with their physical activity goals. The social and community-based nature of Zumba classes may further reinforce these behaviors by encouraging shared norms and mutual support for healthy living.

Despite the presence of healthy eating habits, the inferential analysis revealed a significant negative relationship between sleeping patterns and eating habits among Zumba practitioners. The moderate inverse correlation indicates that better sleep patterns were associated with slightly poorer eating habits, or conversely, healthier eating habits were associated with poorer sleep quality. This finding highlights the complexity of lifestyle behaviors and suggests that improvements in one domain do not automatically translate to improvements in another. One possible explanation is that some practitioners may prioritize physical activity and dietary discipline while experiencing compromised sleep due to late exercise schedules, time constraints, or stress. Conversely, poor sleep quality may disrupt appetite regulating hormones, leading to changes in eating behaviors even among individuals who are otherwise health conscious. This interaction suggests the presence of a cyclical relationship in which sleep and eating behaviors influence each other in ways that are not always linear or mutually reinforcing.

Taken together, the findings of the study underscore the need for a more comprehensive and balanced approach to health promotion among Zumba practitioners. While Zumba participation appears to support healthy eating behaviors, it does not necessarily guarantee good sleep quality. The results indicate that sleep health may require additional strategies beyond regular exercise, such as attention to exercise timing, adherence to consistent sleep routines, improvement of sleep environments, and adoption of sound sleep hygiene practices. Addressing sleep disturbances alongside physical activity may help practitioners achieve more holistic health benefits, including improved energy levels, better recovery, and enhanced overall well-being.

The conclusions drawn from this study also point to important implications for healthcare providers and fitness professionals. Practitioners who remain physically active yet continue to experience sleep difficulties may benefit from professional guidance to identify underlying causes and to develop individualized strategies that integrate exercise, nutrition, and sleep management. Healthcare providers, including nutritionists, sleep specialists, and primary care physicians, play a vital role in supporting Zumba practitioners by offering tailored advice on meal timing, dietary balance, sleep hygiene, and stress management. Such integrated support may help break the cycle between poor sleep and suboptimal eating behaviors and maximize the health benefits of regular physical activity.

Finally, the study highlights several directions for future research. Further investigations may examine the effects of exercise intensity, frequency, and timing on sleep quality among Zumba practitioners, as well as the long-term impact of sustained participation in Zumba on sleep and dietary behaviors. Future studies may also explore age specific responses to Zumba and the role of psychological factors such as stress and emotional well-being in shaping sleep and eating patterns. The use of both subjective and objective measures of sleep and dietary intake, as well as qualitative approaches to capture personal experiences, may provide a deeper and more nuanced understanding of these relationships. By addressing these areas, future research can contribute to

the development of evidence-based interventions that integrate physical activity, nutrition, and sleep as interconnected components of a holistic approach to health and wellness.

REFERENCES

Adam, T. C., & Epel, E. S. (2019). Stress, eating, and the reward system. Physiology & Behavior, 204, 52–59. https://doi.org/10.1016/j.physbeh.2019.01.021

Banno, M., Harada, Y., Taniguchi, M., Tobita, R., Tsujimoto, H., Tsujimoto, Y., Kataoka, Y., & Noda, A. (2018). Exercise can improve sleep quality: A systematic review and meta-analysis. PeerJ, 6, e5172. https://doi.org/10.7717/peerj.5172

Cugusi, L., Wilson, B., Serpe, R., Medda, A., Deidda, M., Gabba, S., Satta, G., & Mercuro, G. (2016). Cardiovascular effects, body composition, quality of life, and pain after a Zumba Fitness program in overweight women. Journal of Sports Medicine and Physical Fitness, 56(3), 328–335.

Dohle, S., Diel, K., & Hofmann, W. (2014). Executive functions and the self-regulation of eating behavior: A review. Appetite, 79, 141–150. https://doi.org/10.1016/j.appet.2014.05.041

Faraut, B., Bayon, V., & Léger, D. (2020). Neuroendocrine, immune and oxidative stress responses to sleep loss. Sleep Medicine Reviews, 51, 101275. https://doi.org/10.1016/j.smrv.2020.101275

Gleeson, M., & Fraser, C. (2021). Social support and health behavior change in group exercise settings. Health Psychology Review, 15(4), 482–498. https://doi.org/10.1080/17437199.2020.1858845

Gohil, K., & D'Silva, M. (2019). Aerobic exercise, neurotransmitters, and sleep regulation: Implications for mental health. Exercise Physiology Review, 8(3), 120–126.

González, M., Silva, A., & Castro, J. (2020). Circadian rhythm disruption, late-night eating, and metabolic risk. Nutrients, 12(9), 2808. https://doi.org/10.3390/nu12092808

Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., Hazen, N., Herman, J., Katz, E. S., Kheirandish-Gozal, L., Neubauer, D. N., O'Donnell, A. E., Ohayon, M., Peever, J., Rawding, R., Sachdeva, R. C., Setters, B., Vitiello, M. V., Ware, J. C., & Adams Hillard, P. J. (2015). National Sleep Foundation's sleep time duration recommendations. Sleep Health, 1(1), 40–43. https://doi.org/10.1016/j.sleh.2014.12.010

Jones, A., & Smith, L. (2021). Mindful eating and weight regulation: Mechanisms and outcomes. Current Obesity Reports, 10(4), 432–440. https://doi.org/10.1007/s13679-021-00463-4

Kirkpatrick, S. I., Reedy, J., Butler, E. N., Dodd, K. W., Subar, A. F., Thompson, F. E., & McKinnon, R. A. (2019). Dietary assessment in food environment research: A systematic review. American Journal of Preventive Medicine, 56(1), 106–117. https://doi.org/10.1016/j.amepre.2018.09.015

Kline, C. E. (2018). The bidirectional relationship between exercise and sleep: Implications for exercise adherence and sleep improvement. American Journal of Lifestyle Medicine, 12(4), 248–252. https://doi.org/10.1177/1559827617740285

Kreutz, C., Pohlmann, J., & Woll, A. (2019). Physical activity and sleep quality in older adults. European Review of Aging and Physical Activity, 16, 1–9. https://doi.org/10.1186/s11556-019-0214-8

Lee, S., Smith, C. E., Wallace, M. L., Buxton, O. M., Almeida, D. M., Patel, S. R., & Andel, R. (2024). Ten-year stability of an insomnia sleeper phenotype and its association with chronic conditions. Psychosomatic Medicine, 86(2), 137–146. https://doi.org/10.1097/PSY.0000000000001288

Levy, L., Campbell, M. K., & Williams, L. (2020). Home cooking and dietary quality: A systematic review. Public Health Nutrition, 23(8), 1330–1345. https://doi.org/10.1017/S1368980019003733

Manohar, N., Hayen, A., & Do, S. (2021). Longitudinal dietary patterns and risk of non-communicable diseases. Public Health Nutrition, 24(2), 210–222. https://doi.org/10.1017/S1368980020001959

Martins, C., Kulseng, B., King, N. A., Fagerland, M. W., & Bjørndal, B. (2017). The effects of exercise on appetite regulation and energy balance. Obesity Reviews, 18(1), 54–63. https://doi.org/10.1111/obr.12497

Micha, R., Shulkin, M. L., Peñalvo, J. L., Khatibzadeh, S., Singh, G. M., Rao, M., Fahimi, S., Powles, J., Mozaffarian, D., & Global Burden of Diseases Nutrition and Chronic Diseases Expert Group. (2019). Etiologic effects and optimal intakes of foods and nutrients for risk of cardiovascular diseases. Circulation, 139(19), e115–e126. https://doi.org/10.1161/CIR.0000000000000670

Oliveira, B., & Rosado, D. (2020). Exercise adherence and its influence on eating behaviors in group fitness participants. Journal of Behavioral Nutrition and Physical Activity, 17, 78. https://doi.org/10.1186/s12966-020-00979-5

Parker, E. L., Harris, P. L., & Sweeney, K. (2023). Food literacy and its relationship with healthy eating: A systematic review. Appetite, 173, 106222. https://doi.org/10.1016/j.appet.2022.106222

Ribeiro, A. S., & Santos, A. L. (2020). Effects of Zumba dance on mood, stress, and quality of life in adults. Journal of Physical Activity and Health, 17(5), 365–371. https://doi.org/10.1123/jpah.2019-0342

Roberts, S. B., Gilhooly, C. H., & Dillon, K. (2019). Nutrition and physical activity: Interrelationships and implications for healthy aging. Nutrition Reviews, 77(Suppl 1), 2–8. https://doi.org/10.1093/nutrit/nuz006

Van Someren, E. J. W. (2020). Brain mechanisms of insomnia: New perspectives on causes and consequences. Physiological Reviews, 100(2), 505–541. https://doi.org/10.1152/physrev.00030.2018

Winpenny, E. M., Penney, T. L., & Corder, K. (2023). Dietary trajectories during adolescence and implications for adult health. British Journal of Nutrition, 130(1), 34–49. https://doi.org/10.1017/S0007114522002203

Zhao, Y., Ma, J., & Liu, Y. (2019). Circadian rhythm disruption and health outcomes associated with irregular sleep patterns. Sleep Medicine Reviews, 45, 33–42. https://doi.org/10.1016/j.smrv.2019.02.003