

Yoga Practice Frequency, Anxiety Levels, and Quality of Life in Dwijendra High School Adolescents: An Observational Study

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ABSTRACT

Introduction: Adolescence is a transitional period marked by physical, cognitive, and psychosocial changes. According to the World Health Organization (WHO), 3.6% of children aged 10-14 and 4.6% of those aged 15-19 experience anxiety disorders. Changes during adolescence, including in physicality, sexuality, cognition, health, and socioemotional aspects, can lead to anxiety, which can disrupt quality of life. Yoga is one method to alleviate anxiety and improve quality of life.

Methods: This study aimed to examine the relationship between the frequency of yoga practice, anxiety levels, and quality of life among adolescents at Dwijendra High School. An observational analytic study with a cross-sectional design was conducted. The sample consisted of 106 students aged 16-18 from Dwijendra High School, who practiced yoga at least once a week. Data were collected using a yoga frequency questionnaire, the DASS-21, and the WHOQOL-BREF.

Results: Bivariate analysis using Spearman's Rho revealed a significant relationship between the frequency of yoga practice and anxiety levels ($p=0.001$, $r=-0.585$), indicating that more frequent yoga practice is associated with lower anxiety levels. The analysis also showed a significant relationship between the frequency of yoga practice and quality of life ($p=0.001$, $r=0.714$), indicating that more frequent yoga practice is associated with a higher quality of life. Correlation values for each variable ranged between 0.5 and 0.75, demonstrating a significant relationship between yoga frequency, anxiety levels, and quality of life in adolescents.

Conclusion: There is a significant relationship between the frequency of yoga practice, anxiety levels, and quality of life among adolescents at Dwijendra High School, Denpasar.

Keywords: yoga frequency, quality of life, adolescents, anxiety levels

INTRODUCTION

Adolescence is the transition period from childhood to adulthood, typically ranging from ages 10 to 19.¹ This period affects feelings, thoughts, decision-making, and interactions with the surrounding environment. Many adolescents face difficulties due to the adjustments required by these developmental changes, making this transition period considered a risky time. The various changes experienced during adolescence can lead to anxiety, as individuals encounter many aspects of life for the first time.

Anxiety is a negative emotional condition characterized by nervousness, fear, worry, and is often associated with increased physiological arousal or bodily excitement.² Anxiety is an individual's response to stressors or anticipated threats, originating from within themselves or their environment. Anxiety disorders are reported in 3.6% of children aged 10-14 years and 4.6% of those aged 15-19 years.³ Based on data from Riskesdas 2018, the prevalence of emotional mental health disorders (depression and anxiety) among individuals over 15 years old was 9.8% out of 713,783 people surveyed nationwide. In Bali, the prevalence was 8.4% out of 15,591 individuals surveyed.⁴

Anxiety is a normal emotional response that can also become pathological depending on its intensity, duration, and the individual's coping abilities.⁵ Anxiety is a natural and normal reaction experienced by individuals in response to threatening or dangerous situations. However, excessive anxiety can lead to disorders that hinder a person's life. Adolescents experiencing untreated anxiety may face persistent fear, inability to concentrate, and even panic attacks, which can disrupt daily activities and potentially lead to serious mental health disorders.

Excessive anxiety not only affects a person's performance and physical health but also diminishes their quality of life. Poor quality of life among adolescents can lead to feelings of despair, fear, anxiety, and excessive worry. Various anxiety disorders have been found to significantly reduce a person's quality of life.

Someone's perception of their position based on culture and value systems, and how it relates to their goals, expectations, standards, and concerns, is known as quality of life. If quality of life decreases, individuals may struggle to accept their condition, perform daily activities, manage illnesses, and have inadequate coping mechanisms, resulting in declining physical health.⁶

Exercise is an activity that can be used to reduce anxiety levels and improve quality of life. One form of exercise that can achieve this is yoga. Etymologically, yoga is derived from the Sanskrit word "yuj," which means to unite, connect, or integrate, aiming to facilitate harmony and union.⁷ Many studies have provided evidence that yoga can yield improvements in psychological well-being. Among the benefits found are reduced stress levels, decreased depression, enhanced well-being, and reduced anxiety levels.⁸ Yoga practice provides benefits both physiologically and psychologically for individuals. Psychologically, yoga exercises can help individuals regulate emotions and accept their situations. Physiologically, engaging in yoga increases the activity of the neurotransmitter gamma-aminobutyric acid (GABA).⁹ GABA reduces excitability and excessive activity in the central nervous system.¹⁰ Yoga balances the autonomic nervous system by regulating breathing to become slower and deeper, and by controlling the release of hormones that increase blood pressure, such as adrenaline and epinephrine. This process helps the body and mind feel more comfortable and relaxed.

Yoga stimulates alpha brainwaves associated with relaxation and mental health, and it can lower blood pressure. Based on yoga principles, slow breathing acts as a link between the body and mind, providing relaxation. Slow, deep breaths meet the body's oxygen needs, promoting mental stability, enhancing bodily functions, and improving mental health.¹¹

The positive impact of yoga on health is more influenced by frequency rather than the duration of practice.¹⁰ Many studies have shown that yoga can reduce anxiety in adolescents. However, the frequency of yoga practice also plays a crucial role in determining whether adolescent anxiety decreases or not.

Based on the background above, the researcher believes that yoga practice correlates with anxiety levels and quality of life in adolescents. Therefore, the researcher has chosen to investigate this topic with the study titled "The Relationship Between Frequency of Yoga Practice, Anxiety Levels, and Quality of Life in Adolescents at Dwijendra High School, Denpasar". The study proposes two hypotheses: first, that the frequency of yoga practice correlates with anxiety levels in adolescents; and second, that the frequency of yoga practice correlates with quality of life in adolescents. This research aims to contribute new data to existing studies and serve as a reference in the fields of health and public health. The study is expected to raise awareness about the benefits of yoga for adolescent mental health, encourage regular yoga practice among adolescents, and assist parents and healthcare professionals in providing appropriate support for adolescents experiencing anxiety.

METHODS

Inclusion criteria for this study require individuals aged between 16 and 18 years who have practiced yoga at least once, and voluntarily consent to participate from start to finish. Additionally, participants must sign an informed consent form provided by the researcher and co-signed by their parents or guardians as evidence of willingness to participate. Exclusion criteria include a history of pre-diagnosed mental illnesses and incomplete questionnaire responses. The study was conducted during March and April 2024, with a minimum sample size calculated using cross-sectional formula to be 96 individuals. Non-probability purposive sampling was utilized.

To mitigate bias, the researcher conducted observations and interviews to select samples meeting inclusion criteria, resulting in a sample size of 106 individuals. The study involved two phases, with the first phase dedicated to study introduction and obtaining informed consent. Participants were asked to engage in yoga for one month prior to subsequent study activities. Before data collection, subjects meeting study criteria completed the Multidimensional Scale of Perceived Social Support (MSPSS) and Eysenck Personality Inventory the day before via WhatsApp class groups. On the day of study, researchers collected completed yoga frequency questionnaires and distributed Depression Anxiety Stress Scales 21 (DASS-21) and WHOQOL-BREF questionnaires via Google Forms following provided guidelines.

The DASS-21 and WHOQOL-BREF questionnaires were chosen due to their established use in various Asian countries, including Indonesia. The DASS-21 exhibits satisfactory reliability with alpha values for depression ($\alpha = 0.86$), anxiety ($\alpha = 0.81$), stress ($\alpha = 0.70$), and overall scale ($\alpha = 0.91$). Benefits of the DASS-21 include widespread accessibility, brevity, and ease of use in various situations. The WHOQOL-BREF questionnaire was selected for its international collaboration in developing reliable, valid, and culturally responsive quality of life assessment tools, with reliability >0.8 and validity >0.6 .

Data analysis employed Excel and SPSS, divided into descriptive, univariate, and bivariate analyses. No missing data were reported, and sensitivity analysis was not conducted. Descriptive analysis was used to characterize study data, including mean, standard deviation, variance, range, minimum and maximum values, and total data count. Univariate analysis focused on variables such as age, gender, social support, and personality type. Bivariate analysis, utilizing Spearman's rho correlation test, examined relationships between two variables with ordinal data.

The study received ethical clearance from Universitas Udayana/RSUP Sanglah Faculty of Medicine Denpasar under Ethical Clearance Number 2536/UN14.2.2.VII.14/LT/2023.

RESULTS

Target sample for this study consists of individuals aged 16-18 years, totaling 131 participants. After conducting interviews to determine samples that meet the inclusion criteria, a final sample of 106 individuals was obtained. Below is the flowchart depicting the sample recruitment process in Figure 1.

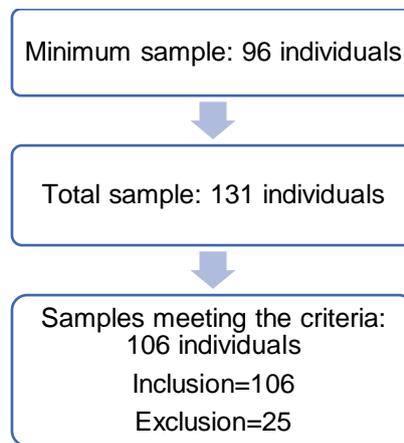


Figure 1. Sample Determination Process

Based on Figure 1, the study obtained a total sample of 106 individuals meeting the inclusion criteria, with 106 participants meeting these criteria. Additionally, 25 participants did not meet the inclusion criteria due to incomplete questionnaire responses.

There were no missing values or data for each variable examined in this study, and sensitivity analysis was not conducted to assess study stability. Instead, potential confounding variables among sample characteristics were analyzed through regression analysis. The results of the regression analysis for each subject characteristic relative to the variables studied are presented below:

Table 1. Results of Univariate Linear Regression Analysis between Subject Characteristics and Anxiety Levels

Characteristic	OR (95% CI)	p-value
Age	-0.002 (-0.162 – 0.434)	0.368
Gender	0.023 (-0.661 – 0.180)	0.063
Social Support	-0.003 (-0.442 – 0.180)	0.405
Personality Type	-0.008 (-0.472 – 0.312)	0.693

According to the significance values (p-values) for each subject characteristic exceeding 0.05, no significant relationship was found between each characteristic and anxiety levels, as shown in Table 1.

Table 2. Results of Univariate Linear Regression Analysis between Subject Characteristics and Quality of Life"

Characteristic	OR (95% CI)	p-value
Age	-0,004 (-0,273 – 0,122)	0,451
Gender	0,048 (-0,059 – 0,503)	0,014
Social Support	0,025 (-0,006 – 0,400)	0,058
Personality Type	-0,006 (-0,182 – 0,339)	0,552

In Table 2, it is shown that only the subject characteristic of gender significantly influences quality of life, with a p-value of 0.014 ($p < 0.05$) and an OR value of 0.048, indicating that gender influences quality of life prediction by a factor of 0.048 times. Meanwhile, other subject characteristics show p-values greater than 0.05, indicating no significant influence on quality of life.

Table 3. Characteristics of Research Samples

Characteristic	Frequency (n)	Percentage (%)
Gender		
Female	66	62.3
Male	40	37.7
Age		
16 years old	45	42.5
17 years old	57	53.8
18 years old	4	3.8
Personality Type		
Introvert	25	23.6
Extrovert	81	76.4
Social Support		
Low Perceived Support	2	1.9
Medium Perceived Support	50	47.2
High Perceived Support	54	50.9

Continuation of Table 3. Characteristics of Research Samples

Characteristic	Frequency (n)	Percentage (%)
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Introvert	25	23.6
Extrovert	81	76.4
Social Support		
Low Perceived Support	2	1.9
Medium Perceived Support	50	47.2
High Perceived Support	54	50.9
Yoga Frequency		
Rarely	21	19.8
Regularly	51	48.1
Very Regularly	34	32.1
Anxiety Level		
Normal	77	72.6
Mild	7	6.6
Moderate	20	18.9
Severe	2	1.9
Quality of Life		
Low	4	3.8
Moderate	45	42.5
High	57	53.8

Table 3 provides information that the majority of the sample, consisting of 106 individuals, were aged 17 years, totaling 57 people (53.8%). Most of the study's participants were female, numbering 66 (62.3%), with males totaling 40 (37.7%). The study sample predominantly exhibited extroverted personalities, with 81 individuals (76.4%), while 25 (23.6%) were introverted. A majority of the subjects reported high levels of social support, with 54 individuals (50.9%), followed by medium support with 50 individuals (47.2%), and low support with 2 individuals (1.9%). According to Table 1, 34 individuals (32.1%) practiced yoga very regularly, 51 (48.1%) practiced regularly, and 21 (19.8%) practiced yoga rarely. The highest level of anxiety among the study subjects was normal, reported by 77 individuals (72.6%), followed by moderate anxiety in 20 individuals (18.9%), mild anxiety in 7 individuals (6.6%), and severe anxiety in 2 individuals (1.9%). A majority of the study subjects reported high quality of life, with 57 individuals (53.8%), followed by moderate quality of life in 45 individuals (42.5%), and low quality of life in 4 individuals (3.8%).

Table 4. Characteristics of Sample Based on Anxiety Scores and Quality of Life Scores

	Mean	Median	Standar Deviasi
Anxiety Scores	5.81	5.00	0.865
Quality of Life Scores	2.50	3.00	0.573

Based on the table 4 of sample characteristics according to the anxiety scores of the research samples, the average score is 5.81 with a median of 5.00, and the standard deviation is 0.865 and the characteristics according to the quality of life scores of the research samples, the average score is 2.50 with a median of 3.00, and the standard deviation is 0.573.

Table 5. Correlation Results Between Frequency of Yoga Practice and Anxiety Levels

Variables	Correlation	p-value
Correlation Between Frequency of Yoga Practice and Anxiety Levels	-0.585	0.001

Based on the bivariate analysis using Spearman's Rho, (Table 5) the significance result was $p = 0.001$ ($p < 0.05$), indicating a significant relationship between the frequency of yoga practice and anxiety levels among adolescents at SMA Dwijendra. The correlation value of 0.585, which falls between 0.5 and 0.75, indicates a strong correlation, while the negative value shows an inverse direction, meaning the higher the frequency of yoga practice, the lower the anxiety levels.

Table 6. Correlation Results Between Frequency of Yoga Practice and Quality of Life

Variables	Correlation	p-value
Correlation Between Frequency of Yoga Practice and Quality of Life	0.714	0.001

The significance value of $p = 0.001$ ($p < 0.05$) was obtained from the bivariate analysis using Spearman's Rho, indicating a significant relationship between the frequency of yoga practice and the quality of life among adolescents at

SMA Dwijendra. The correlation value of 0.714, which is positive and falls between 0.5 and 0.75, indicates a strong correlation. The positive correlation value shows that the higher the frequency of yoga practice, the higher the quality of life.

DISCUSSION

The Relationship Between the Frequency of Yoga Practice and Anxiety Levels

Based on this study using non-parametric Spearman's rho analysis, the results indicate a significant relationship between the frequency of yoga practice and anxiety levels. Additionally, the study found a negative correlation. The negative value indicates an inverse relationship, meaning that the higher the frequency of yoga practice, the lower the anxiety levels. This is evidenced by the cross-tabulation data of yoga frequency against anxiety levels, showing that adolescents who practice yoga very regularly have only normal anxiety levels compared to those who rarely practice yoga, who have the highest levels of moderate and severe anxiety. Therefore, the results demonstrate that the more regularly yoga is practiced, the lower the anxiety levels will be compared to those who practice yoga less frequently. This finding is consistent with the research conducted by Trisukusuma and Suarya (2020), which investigated the impact of yoga on anxiety levels. They found a coefficient of determination (R-square) value of 0.109, indicating that the frequency of yoga practice contributes 10.9% to predicting anxiety levels, while the remaining 89.1% is contributed by other factors.¹¹ Additionally, they found a parameter coefficient of -0.0883 with a significance value of 0.000 ($p < 0.05$), indicating that the higher the frequency of yoga practice, the lower the anxiety levels. This demonstrates that yoga has a significant role in reducing anxiety levels.

The results of this study are also supported by research conducted by Indriani et al. (2022), which examined the effect of yoga on reducing anxiety levels among adolescents at Pasraman Suling in the Tabanan area. The statistical test results showed a significant difference between pre-test and post-test scores among respondents who practiced yoga, with a significance value (2-tailed) of 0.000, which is less than 0.05. This statistical result indicates that yoga has a significant impact on reducing anxiety levels among the sample.¹⁴

Yoga practice can provide benefits both physiologically and psychologically, including reducing anxiety levels. When practicing yoga, the activity of the neurotransmitter GABA (gamma-aminobutyric acid) increases. GABA can help block impulses that can trigger stress and anxiety towards the receptors of the central nervous system.¹⁵ Additionally, on the psychological side, yoga can help improve emotional management skills and acceptance of one's current condition.

Relationship Between Frequency of Yoga Practice and Quality of Life

Based on the analysis using Spearman's rho, significant results indicate a meaningful relationship between the frequency of yoga practice and the quality of life. The positive correlation suggests a direct relationship between yoga frequency and the quality of life of adolescents, meaning that the more frequently they practice yoga, the better their quality of life.

This finding aligns with the research conducted by Setiawati et al. (2016), which examined the effects of yoga on the quality of life of adolescents with obesity. Their study found that there was no significant difference in the mean scores of the physical domain of WHOQOL-BREF between the treatment and control groups after 3 weeks of intervention ($p = 0.087$). However, after 6 weeks of intervention, the mean score difference became significant ($p = 0.005$).¹⁶ Inclusion criteria for this study included being aged 15-19 years during the study, being categorized as obese according to the World Health Organization, providing written informed consent, and having a good understanding of yoga instructions and exercise explanations.

Participants in this study underwent 18 sessions of Hatha Yoga over 6 weeks, with a frequency of 3 sessions per week. The results of this study indicate that while there was no significant difference in the first 3 weeks, there was a significant difference after 6 weeks of intervention, indicating that the more frequently the participants practiced yoga, the better their quality of life became.

Additionally, this study is supported by research conducted by Nidhi et al. (2020), which investigated the effects of a yoga program on adolescents with Polycystic Ovarian Syndrome (PCOS). The study found that the yoga program over 12 weeks significantly improved the quality of life in adolescent females with PCOS compared to conventional physical exercises. The research involved two groups: an intervention group performing yoga exercises and a control group engaging in conventional physical activities. Each group practiced for 1 hour per day, 7 days a week, over 12 weeks. The study utilized Wilcoxon signed ranks test data analysis, revealing that the yoga group experienced greater improvements in emotional disturbances (effect size: Yoga 1.52, Exercise 0.72), hirsutism (effect size: Yoga 1.02, Exercise 0.32), body weight (effect size: Yoga 0.96, Exercise 0.33), and menstrual problems (effect size: Yoga 1.24, Exercise 0.64) compared to the physical exercise group.¹⁷ The effect size values in the intervention group indicate that the yoga program had a stronger impact compared to the conventional physical exercise group.

While there are currently few specific studies on the frequency of yoga and its impact on the quality of life in adolescents, there is abundant research demonstrating the significant effects of yoga practice on the elderly, pregnant women, and patients with chronic diseases. Yoga can enhance quality of life by reducing physical pain, strengthening muscles, lowering stress, emotions, and anxiety, and aiding in pain management, thereby improving overall well-being.¹⁸

A limitation of this study is the lack of direct yoga interventions, which means that the frequency of yoga practice could not be controlled. Experimental research could strengthen understanding of the relationship between yoga frequency, anxiety levels, and quality of life. Additionally, the sample was limited to only second-year high school students, which may limit generalizability, despite being representative in terms of age.

Several recommendations can be made for future research. It is suggested that future researchers consider using experimental designs with control groups to strengthen the relationship between yoga frequency and adolescent anxiety

levels and quality of life. Further studies could also explore the duration, intensity, and types of yoga practiced, as well as include other variables such as additional sports activities to reduce bias. Additionally, it is recommended that respondents and other adolescents consider practicing yoga regularly during leisure time or when feeling overwhelmed to relax and stay physically fit. Seeking professional advice from psychologists or healthcare professionals about anxiety-related concerns is also advisable.

CONCLUSION

The analysis in this study yielded significant results with a p-value of 0.001 ($p < 0.05$), indicating a strong correlation with a coefficient of -0.585. This negative correlation implies that as yoga frequency increases, adolescent anxiety levels decrease. Furthermore, the analysis examining the relationship between yoga frequency and quality of life also showed significant results with a p-value of 0.001 ($p < 0.05$) and a correlation coefficient of 0.714. This positive correlation indicates that higher yoga frequency correlates with higher quality of life among adolescents.

The study's findings highlight a significant correlation between anxiety levels and quality of life among adolescents at SMA Dwijendra Denpasar in relation to yoga practice frequency. Increased yoga practice frequency appears to reduce anxiety and enhance overall quality of life.

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