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Research Article

Path Analysis: Factors Influencing The Students Quality of Life at Pesantren X

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ABSTRACT

Islamic boarding schools (Pondok Pesantren) play a crucial role in the Islamic education system, particularly in shaping the character and identity of students (santri). Although Pondok Pesantren primarily focuses on educational aspects, other essential factors such as health, environment, and students' behavior also deserve attention to achieve a good quality of life for students. The quality of life significantly determines the success of the educational process. This study aims to analyze the determinants of students' quality of life at Pondok Pesantren X using the PRECEDE-PROCEED framework. Data collection was conducted using the Siskestren (Pondok Pesantren Health Survey Information System) website. The data were analyzed using Smart-PLS version 3.0 for Windows. The results show that several factors significantly influence students' quality of life at Pondok Pesantren X. Genetic factors have a significant impact on behavior (p-value: 0.000) and health (p-value: 0.000). Additionally, a significant influence was found between behavior and health (p-value: 0.000). Furthermore, the study identified a significant influence of environmental factors on health (p-value: 0.010) and a significant impact of health on students' quality of life (p-value: 0.037). Therefore, strategies to improve students' quality of life at Pondok Pesantren X should consider these significant factors, particularly health, behavior, and environment.

Keywords: *Determinant factors, quality of life, students (santri), pesantren*

INTRODUCTION

Pondok Pesantren is one of the Islamic educational institutions that plays an essential role in shaping students' character and identity to become a quality generation. Besides focusing on religious education, Pondok Pesantren also has a responsibility to ensure students' physical, mental, and social well-being, which is reflected in their quality of life. The dimensions of students' quality of life are crucial indicators that significantly determine the success of the education process at Pondok Pesantren. Good quality of life is not only determined by educational aspects but also by various essential factors such as health, behavior, and environment.

Quality of life is a crucial aspect that determines individual and group well-being, including students at Pondok Pesantren. Quality of life is objectively interpreted as biological needs, basic needs, and self-potential developed following prevailing norms. Therefore, it is vital to understand various factors that can affect students' quality of life by identifying which aspects or factors need attention to improve students' quality of life. A comprehensive understanding of the various determinant factors influencing students' quality of life is expected to impact the effectiveness of education and students' well-being at Pondok Pesantren.

This study's urgency is based on the need to identify and analyze the determinant factors affecting students' quality of life at Pondok Pesantren X. Students' quality of life is determined by various dimensions, including health, behavior, and environment, which are often overlooked. However, these dimensions will impact student's ability to develop optimally. This research is crucial to support the role of Pondok Pesantren as a generator of a generation that is expected not only to have broad knowledge and adequate religious understanding but also to have a good quality of life.

This study uses the PRECEDE-PROCEED framework (Predisposing, Reinforcing, Enabling Constructs in Educational/Ecological Diagnosis & Evaluation - Policy, Regulatory, Organizational Constructs in Educational and Environmental Development) as the basis for analysis. This framework facilitates the identification of various factors contributing to health and behavioral problems and helps formulate appropriate interventions to improve quality of life.

Health aspects in the PRECEDE-PROCEED framework can directly impact quality of life. Health issues often occur in Pondok Pesantren environments, both related to infectious and non-communicable diseases. These issues arise due to students' low awareness of implementing Clean and Healthy Living Behavior (PHBS). Every individual's awareness in choosing and predicting behavior is the essence of an attitude. This attitude has a positive relationship that influences PHBS practices (Srisantyorini, 2020).

Several previous studies have shown that health, physical environment, and behavior factors significantly impact individual and community quality of life. A study by WHO (2018) revealed that a conducive environment and good social support improve the quality of life of adolescents in educational institutions. Additionally, research by Smith, Brown, & Williams (2019) also highlights the importance of health factors in influencing the quality of life of students living in dormitories, similar to students residing in Pondok Pesantren.

The environmental conditions in Pondok Pesantren are also one of the determinants affecting students' health status. Some health disorders that may arise due to low environmental quality include skin diseases, Tuberculosis (TB), diarrhea, scabies, and others. Risk factors found in Pondok Pesantren include sanitation problems, room conditions, and community behavior in the Pondok Pesantren environment.

Several health promotion efforts and community empowerment initiatives have been undertaken in the Pondok Pesantren community. These efforts are strategic developments to improve the quality of life of the Pondok Pesantren community. The success of these quality-of-life improvement strategies will be achieved when needs such as the availability of health services, individual health behavior, and good environmental conditions are met.

This study aims to analyze factors such as health, behavior, and environment influencing the students quality of life at Pondok Pesantren X using the PRECEDE-PROCEED framework. The results of this study are expected to provide a more holistic insight into various factors influencing

students quality of life and formulate recommendations that can be implemented to improve the overall well-being of the Pondok Pesantren community.

MATERIAL AND METHODS

This study employs a quantitative method by conducting a survey through the Siskestren website (Pondok Pesantren Health Survey Information System) as the primary data collection tool. The research was carried out in August 2024 at Pondok Pesantren X, located in Sidoarjo Regency, East Java. The study population consists of all active students at Pondok Pesantren X, totaling 300 students. The sample comprises 91 students aged 10–19 years, selected using purposive sampling. The inclusion criteria for the sample include students who are officially registered as active, residing in the pesantren, and willing to provide their data via the Siskestren website. Data analysis was conducted using path analysis with Structural Equation Modeling (SEM).

The determinant factor analysis applied in this study refers to the framework developed by Green & Kreuter, namely the PRECEDE-PROCEED framework. The PRECEDE component allows researchers to work backward from distal outcomes to design a blueprint that guides the development of intervention strategies. Meanwhile, the PROCEED component functions to produce evaluations, including assessing the effectiveness (excellence) of the conducted research (Sulaeman, Murti, & Waryana, 2015). This framework serves as a reference for analyzing the determinants of students' quality of life at Pondok Pesantren X.

Therefore, the variables in this study are classified based on the PRECEDE-PROCEED framework. In the social assessment phase, the analyzed variable is students quality of life. Meanwhile, in the epidemiological, behavioral, and environmental assessment phase, several factors are evaluated. These factors include: (1) Genetic factors (individual characteristics of students), consisting of gender and age variables, which were collected through a questionnaire. (2) Students' health status factors, including nutritional status, fat levels, anemia status, Hemoglobin (Hb) levels, blood pressure, eye health, and glucose levels, were obtained through direct measurements. Meanwhile, mental health status, tuberculosis screening status, and scabies screening status were assessed using a questionnaire. (3) Students' behavioral factors, comprising variables related to Clean and Healthy Lifestyle Behavior (PHBS), dietary patterns, food diversity, and physical activity, were collected through a questionnaire. (4) Environmental factors, including access to healthcare services and disaster preparedness, were also assessed using a questionnaire.

Data collected through Siskestren was processed through cleaning, editing, coding, scoring, and tabulating. Subsequently, data were analyzed using path analysis with SEM-PLS (Structural Equation Modeling-Partial Least Square). This study has also undergone ethical review with approval number: 009/KEPK/VIII/2024.

RESULTS AND DISCUSSION

Descriptive Analysis

The following are the results of the identification of factors related to the quality of life of the community (santri) at Pondok Pesantren X based on the PRECEDE-PROCEED framework. These factors include genetic factors related to individual characteristics, health factors, behavioral factors, and environmental factors, which were analyzed during the epidemiological, behavioral, and environmental assessment phases. The results of this diagnosis determine quality of life (QoL) during the social assessment phase.

The genetic factors describing the individual characteristics of the students consist of the variables gender and age of the respondents at Pondok Pesantren X, as detailed below.

Table 1. Genetic Factors (Students Individual Characteristics)

Category		N	%
Gender	Male	32	35,2
	Female	59	64,8
Age	10-14 years	44	48,4
	15-19 years	47	51,6

Table 1 illustrates the individual characteristics of students at Pondok Pesantren X based on gender and age, as recorded in the Siskestren website. The individual characteristics based on gender show that female students dominate the population, with 59 students (64.8%). Additionally, most of the student respondents fall within the 15–19 years age range (51.6%). Students in this age group are primarily enrolled in junior high school (SMP/MTs) and senior high school (SMA/MA).

The majority of respondents are female students, who have specific vulnerabilities to various health issues, such as anemia, pediculosis, vaginal discharge, and reproductive health problems (Azizah, Rosyidah, & Nastiti, 2020). These issues often arise due to inadequate sanitation and hygiene facilities, an unbalanced nutritional intake, and fatigue caused by the demanding activities in the pesantren. Health problems among female students can significantly impact their physical and mental well-being. Most students at Pondok Pesantren X are in adolescence—a phase characterized by significant physical and emotional changes, making health awareness crucial. This is especially relevant for students at Pondok Pesantren X, who follow a structured daily routine within a strong pesantren culture. Common health issues among adolescent students include reproductive health concerns, mental health challenges, nutritional problems, and other health-related conditions (Abdullah et al., 2022).

Maintaining optimal health not only enhances students' academic and religious performance but also ensures the physical and mental balance necessary to navigate the challenges of adolescence. Therefore, it is essential to instill awareness of healthy living practices from an early age, allowing students to go through their daily routines with enthusiasm and achieve optimal results. Pondok Pesantren X implements a combined traditional and modern education system, integrating Islamic studies with formal schooling. This approach ensures that all students have access to formal education while also engaging in various intra- and extracurricular activities to develop their interests and talents. Additionally, Pondok Pesantren X has a Pesantren Health Post (Poskestren); however, it has not been fully optimized for promotive and preventive health efforts. Currently, the Poskestren primarily provides basic medical treatment for students experiencing health complaints.

Table 2. Students Health Factors

Indicator	Category	N	%
Nutritional Status	Normal	56	61,5
	Mildly Underweight	6	6,6
	Severely Underweight	12	13,2
	Mildly Overweight	3	3,3
	Severely Overweight	14	15,4
Fat Level	Low	3	3,3
	Normal	73	80,2
	High	7	7,7
	Very High	8	8,8
Anemia Status	Not Suspected	68	74,7

Indicator	Category	N	%
Hb Level	Suspected	23	25,3
	Low	32	35,2
	Normal	45	49,5
	High	14	15,4
Stress Level	Normal	33	36,3
	Mild	34	37,4
	Moderate	23	25,3
	Severe	1	1,1
Anxiety Level	Normal	17	18,7
	Mild	10	11,0
	Moderate	50	54,9
	Severe	14	15,4
Depression Level	Normal	49	53,8
	Mild	25	27,5
	Moderate	14	15,4
	Severe	3	3,3
Blood Pressure	Hypotension	13	14,3
	Normal	72	79,1
	Pre-Hypertension	4	4,4
	Hipertensi	2	2,2
Eye Health	Abnormal	26	28,6
	Normal	65	71,4
Glucose Level	Low	14	15,4
	Normal	75	82,4
	High	2	2,2
TB Screening Status	Not Suspected	65	71,4
	Suspected	26	28,6
Scabies Screening Status	Never	57	62,6
	Ever	34	37,4

Table 2 presents an overview of the health factors of student respondents at Pondok Pesantren X, as recorded in the Siskestren database. The data indicate that the majority of respondents have a normal nutritional status (61.5%). However, a significant number of students were also found to be severely overweight and severely underweight, ranking as the second and third most common categories, with 14 students (15.4%) identified as severely overweight and 12 students (13.2%) identified as severely underweight. These findings align with a study conducted by Camila et al. (2022), which found that most pesantren students have a normal nutritional status. Based on national data from the 2017 Nutritional Status Monitoring Survey, the prevalence of adolescents aged 12-18 years with normal nutritional status was 75%, underweight 3.5%, severely underweight 1.2%, overweight 15.1%, and obesity 4.3%.

The issue of both undernutrition and overnutrition still found at Pondok Pesantren X may be due to the food provision patterns at the pesantren. Although meal schedules and menus are systematically arranged for all students without exception, some students are still undisciplined in following the designated mealtimes. This happens partly due to a lack of appetite and the demanding activities at the pesantren. Additionally, students often consume less nutritious snacks, which they purchase from food and drink vendors around the pesantren during school breaks.

Another variable related to nutritional status is the fat percentage measurement among students at Pondok Pesantren X. The results reveal that 80.2% of student respondents fall within the normal fat percentage category. Several studies have indicated that fat percentage can also serve as an indicator of students' quality of life.

Furthermore, another variable associated with nutritional status is the anemia status of students at Pondok Pesantren X, observed through physical examinations, including the condition

of the eyelids, skin and nail color, and the lower part of the tongue. The screening results indicate that the majority of student respondents (74.7%) were not suspected of having anemia. These findings were confirmed through hemoglobin (Hb) level tests, which showed that 49.5% of students were not anemic, as their hemoglobin levels were normal. However, 35.2% of students were found to have low hemoglobin levels and were identified as anemic.

The identification of anemia status among student respondents at Pondok Pesantren X suggests the need for efforts to fulfill iron intake and limit the consumption of foods and beverages that may inhibit iron absorption in the body. A previous study by Ekayanti, Rimbawan, & Kusumawati (2020) stated that iron deficiency anemia in adolescents can have long-term effects, including an increased risk of giving birth to stunted children in the future.

The next variable assessed was the mental health status of student respondents, which included stress levels, anxiety levels, and depression levels. Based on questionnaire responses recorded in the Siskestren database, it was found that the majority of student respondents (37.4%) experienced mild stress and moderate anxiety (54.9%). However, regarding depression levels, most students were still within the normal range (53.8%).

The stress and anxiety conditions among students may be caused by their demanding daily routines, high academic expectations, and limited time with their families due to studying far from home. This may impact students' mental health (Priasmoro, 2020). A study by Lumaksono (2020) also stated that students, including pesantren students, often do not receive adequate mental health services tailored to their needs. This issue should be a concern for pesantren administrators and poskestren (pesantren health cadres) to start facilitating access to mental health services for students at Pondok Pesantren X.

Meanwhile, data processing from Siskestren showed that most student respondents (79.1%) had normal blood pressure. Additionally, eye health tests revealed that most students (71.4%) had normal vision. The results of glucose level measurements among student respondents also showed positive outcomes, with 82.4% falling within the normal range.

Moreover, tuberculosis (TB) and scabies screenings were conducted. The results showed that 71.4% of student respondents were not suspected of having TB, while 28.6% were suspected of having TB and therefore required further examination for diagnosis confirmation. The scabies screening results indicated that 62.6% of student respondents had never experienced scabies symptoms, while 37.4% had previously experienced scabies symptoms.

The identification of suspected TB cases among students should be taken seriously, as TB is a contagious disease that can spread quickly and have severe consequences. Early detection and proper management are crucial. This issue requires special attention to ensure a good quality of life for students, as TB status can negatively impact their quality of life (Pariyana et al., 2018). The poskestren at Pondok Pesantren X can collaborate with the nearest community health center (Puskesmas) to implement various disease control efforts, particularly for TB.

Meanwhile, the findings that some students had experienced scabies symptoms indicate issues with personal hygiene practices and pesantren environmental sanitation, which remain inadequate (Febrina, Harminarti, & Ali, 2020). Scabies transmission can occur directly or indirectly through contaminated objects, such as sharing bed sheets or towels with an infected person. Such practices are common in pesantrens and have long been a persistent issue that requires intervention (Menaldi, Bramono, & Indriatmi, 2017).

Table 3. Students Health Behavior Factors

Indicator	Category	N	%
PHBS (Clean and Healthy Lifestyle Behavior)	Poor	2	2,2
	Good	89	97,8
Eating Pattern	Poor	15	16,5
	Good	76	83,5
Dietary Diversity (IDDS)	Low	19	20,9
	Moderate	19	20,9
	High	53	58,2
Physical Activity	Very Rare	64	70,3
	Rare	20	22
	Normal	7	7,7

Table 3 provides an overview of santri health behaviors based on the Siskestren database. A total of 97.8% of santri have successfully implemented Clean and Healthy Lifestyle Behavior (PHBS). According to Indonesian Ministry of Health Regulation No. 2269/Menkes/PER/XI/2011 on PHBS Development Guidelines, PHBS refers to a set of behaviors practiced based on awareness as a result of learning, enabling individuals, families, groups, or communities to independently manage their health and actively contribute to public health. In general, there are seven PHBS indicators in pesantren, including: (1) Washing hands with soap; (2) Consuming healthy food and beverages; (3) Using proper sanitation facilities; (4) Disposing of waste in designated trash bins; (5) Avoiding smoking, drugs, alcohol, psychotropic substances, and other addictive substances (NAPZA); (6) Not spitting indiscriminately; and (7) Preventing mosquito breeding. Additional indicators may be included as needed (Ministry of Health, 2021).

PHBS should be practiced by all community members, including those in pesantren. The successful implementation of PHBS is closely linked to the role of religious leaders (kiai), teachers (ustaz and ustazah), and pesantren administrators as role models for healthy living despite the limitations in facilities and infrastructure (Safari, 2021). Religion-based health education is crucial in fostering collective awareness about PHBS. Research has shown that when health education is integrated into religious teachings, especially in pesantren, santri are more likely to adopt healthy behaviors as they align with their religious values (Rohmawati & Suryadi, 2019).

Another identified health behavior factor among santri is dietary patterns. The majority of santri (83.5%) have good dietary habits, which is a crucial factor in supporting their overall health. A balanced diet that includes carbohydrates, proteins, healthy fats, vitamins, and minerals is essential for maintaining immunity and supporting their learning activities. Studies suggest that proper nutrition enhances cognitive and physical performance, allowing santri to engage in daily activities optimally (Nurhayati & Prasetyo, 2019). Additionally, meal regularity, such as having breakfast, plays an important role in maintaining metabolism throughout the day. Santri who consistently eat breakfast tend to have better concentration and stamina, positively affecting their academic performance and overall health (Sari, 2021).

The next indicator is dietary diversity, with more than half of the santri (58.2%) categorized as having high dietary diversity. The variety of food consumed directly influences nutritional status and nutrient adequacy (Khusniyati, Sari, & Ro'ifah, 2016). Although access to nutritious food is sometimes limited, efforts to provide balanced meals in pesantren remain essential. A diverse menu that includes vegetables, fruits, and plant- or animal-based protein can help ensure santri receive the necessary nutrients for growth, development, and overall health. Nutrition education programs in pesantren also play a role in raising awareness among santri about the importance of maintaining a healthy and varied diet, helping them make wiser food choices (Amalia, 2020).

Meanwhile, a concerning finding was observed in the physical activity indicator, where 70.3% of santri reported engaging in physical activity very rarely. This issue requires special attention. A lack of physical activity can slow down basal metabolic rate, reducing calorie expenditure. Engaging in moderate to high-intensity physical activities significantly impacts both physical and mental health (Chaeroni et al., 2021). Research conducted by Aulia, Hardiansyah, & Widiastuti (2022) indicates that the low physical activity levels among santri are due to their monotonous and repetitive daily routines in pesantren, from waking up in the morning to going to bed at night.

Table 4. Environmental Factors

Indicator	Category	N	%
Access to Health Services	Poor	9	9,9
	Fair	33	36,3
	Very Good	49	53,8
Santri Preparedness	Not Ready	5	5,5
	Less Ready	10	11
	Almost Ready	18	19,8
	Ready	33	36,3
	Very Ready	25	27,5

Table 4 illustrates two indicators classified as environmental factors related to the pesantren community. Access to health services was rated as very good by 53.8% of the students. This assessment is based on several aspects, including the ease of students accessing healthcare facilities, membership in the Social Security Administration Agency (BPJS), and/or other health funds during their time at Pondok Pesantren X. The pesantren also plays a role in creating a health-supportive environment, including providing adequate facilities to maintain cleanliness and promote a healthy lifestyle. Community-based health programs involving students as pesantren health cadres can also enhance collective awareness of the importance of maintaining both physical and mental health (Hasanah, 2021).

Another indicator is the preparedness of students in facing disasters. A total of 36.3% of students were identified as ready to face various disaster risks based on assessments conducted on the Siskestren platform. Student preparedness for disasters is measured by several indicators, such as knowledge of the definition of disasters, potential causes of disasters, case studies of specific disasters such as fires, as well as students' sources of information about disasters and how to handle them (Ma'arif & Nurrohmah, 2023).

Disaster preparedness among students is a crucial aspect of ensuring safety and security in the pesantren environment. Continuous simulation training can improve students' physical and mental readiness to handle emergency situations, such as fires, earthquakes, or floods (Fauzan & Sari, 2022). The support of pesantren administrators is essential in establishing a responsive disaster management system.

Path Analysis

The path analysis in this study aims to explore the structure and patterns underlying the relationships between variables, as well as to provide clearer insights into the factors influencing the observed outcomes. The following are the results of the path analysis using the SmartPLS 3.0 application.

a. Outer Model Testing

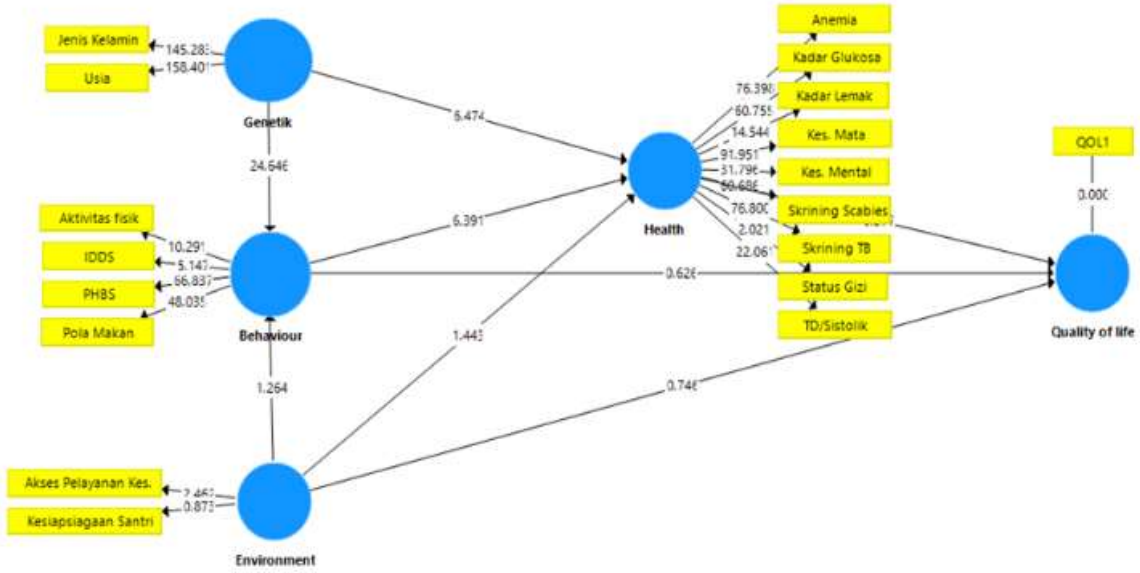

Figure 1. Outer Model

Convergent Validity

The results of the outer model testing in the first stage indicate the convergent validity value. Convergent validity can be assessed based on the loading factor value and the t-statistic value. A loading factor is considered valid if it is greater than 0.5.

Table 5. Outer Loading Output

Indicator	Genetics	Behavior	Environment	Health	Quality of Life
Gender	0.942				
Age	0.943				
PHBS (Clean and Healthy Lifestyle)		0.907			
Eating Pattern		0.870			
Physical Activity		0.675			
IDDS (Individual Dietary Diversity Score)		0.445			
Access to Health Services			0.775		
Student Preparedness			-0.380		
Glucose Level				0.894	
Fat Level				0.705	
Eye Health				0.905	
Mental Health				0.826	
TB Screening				0.903	
Scabies Screening				0.878	
Nutritional Status				0.171	
Blood Pressure				0.813	
QoL1 (Quality of Life)					1.000

Based on the results of the outer model test in Table 5, the indicators have been rearranged according to the SEM model structure. However, some indicators still do not meet the criteria, including physical activity, dietary diversity (IDDS), student preparedness, and nutritional status. Therefore, these indicators need to be removed and reanalyzed.

Table 6. Outer Loading After Re-Estimation

Indicator	Genetics	Behavior	Environment	Health	Quality of Life
Gender	0.942				
Age	0.942				
PHBS (Clean and Healthy Lifestyle)		0.939			
Eating Pattern		0.937			
Access to Health Services			1.000		
Glucose Level				0.900	
Eye Health				0.911	
Mental Health				0.841	
TB Screening				0.914	
Scabies Screening				0.881	
Blood Pressure				0.819	
QoL1 (Quality of Life)					1.000

Based on the results of the outer model test in Table 6, the indicators have been reordered to align with the SEM model. The structure now follows the sequence of variables as per the model, ensuring consistency in analysis.

Discriminant Validity

The next step is to measure the Average Variance Extracted (AVE) value. This value indicates the amount of variance in the indicators that is captured by their latent variable. An AVE value greater than 0.5 also demonstrates sufficient validity for the latent variable. Reflective indicator variables can be assessed using the AVE value for each construct (variable). Construct reliability is measured using the composite reliability value. A construct is considered reliable if the composite reliability value is above 0.70, indicating that the indicators are consistent in measuring their respective latent variable.

Tabel 7. Construct Validity & Reliability

Indicator	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Behavior	0,863	0,863	0,936	0,879
Environment	1,000	1,000	1,000	1,000
Genetic	0,873	0,873	0,941	0,888
Health	0,952	0,954	0,960	0,776
Quality of Life	1,000	1,000	1,000	1,000

The results of the validity and reliability calculations indicate that all constructs have a sufficiently strong correlation, confirming that the constructs are valid and reliable.

b. Inner Model Testing – R Square (R^2)

The R Square value represents the coefficient of determination for the endogenous construct. The R Square values are classified as follows: 0.67 (strong), 0.33 (moderate), and 0.19 (weak).

Table 8. R Square Value

Indicator	R Square	R Square Adjusted
Behavior	0,769	0,767
Health	0,715	0,711
Quality of Life	0,016	0,002

Table 8 shows that the value of the exogenous genetic variable on behavior is 0.769. When represented as a percentage, this indicates that the intensity of this indicator influences the behavioral factor by 76.9%, while the remaining 23.1% is influenced by other indicators. Similarly, the intensity

of behavior on health has a value of 0.715. When converted into a percentage, this means that behavior influences health by 71.5%, while the remaining 28.5% is affected by other factors. Furthermore, the intensity of the environment on quality of life is 0.016. This means that the influence of environmental intensity on quality of life is 1.6%, while the remaining 98.4% is determined by other factors.

Inter-Variable Effect

Table 9. Output Path Coefficient

Variabel	Original Sample (o)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values
Behavior → Health	0,330	0,336	4,415	0,000
Behavior → Quality of Life	0,030	0,039	0,161	0,872
Environment → Behavior	-0,047	-0,048	1,387	0,166
Environment → Health	0,131	0,132	2,591	0,010
Environment → Quality of Life	0,073	0,067	0,815	0,416
Genetic → Behavior	0,886	0,885	43,908	0,000
Genetic → Health	0,505	0,500	7,125	0,000
Health → Quality of Life	0,203	0,202	2,089	0,037

Based on the statistical calculation of path analysis as presented in Table 9, it is found that the independent variable behavior has a positive coefficient of 0.330 with a p-value of 0.000, meaning that behavioral factors have a significant and positive influence on the health status of students (santri). This implies that the better the students' behavior in maintaining their health, the higher their health status. The behaviors in question encompass various aspects, such as personal hygiene, adherence to a healthy diet, regular physical activity, and compliance with health procedures in the pesantren. Good behavior can prevent various communicable and non-communicable diseases. A study by Wahyuni (2020) found that consistent healthy behaviors among students, such as washing hands with soap, maintaining environmental cleanliness, and avoiding risky behaviors, had a significant impact on reducing disease incidence in pesantren. Additionally, dietary patterns play a crucial role in determining health status. A healthy diet affects an individual's overall health (Stenlund et al., 2022). Discipline in dietary habits is one of the key efforts required for a healthy life, free from various diseases. This reinforces the idea that preventive behaviors significantly contribute to preventing health problems in pesantren. Therefore, a behavior-based approach in pesantren health programs is essential to promote the overall well-being of students.

Furthermore, path analysis results also indicate a significant influence of environmental factors on the health status of pesantren communities. A clean, hygienic, and organized environment plays a role in preventing the spread of infectious diseases, such as respiratory infections and diarrhea, which are common in densely populated environments. Facilities such as adequate sanitation, access to clean water, and proper ventilation are essential aspects of a physical environment that supports the health of pesantren communities (Rohmatika, 2020). A supportive environment, including access to healthcare services and students' disaster preparedness, also plays a vital role in enhancing students' health status. Easy access to healthcare services and BPJS membership and/or health funds are crucial dimensions in this regard. A study by Fisabilillah, Syari, & Parinduri (2020) explains that one way to improve the quality of health in pesantren communities is by facilitating access to healthcare services. Poskestren (pesantren health posts) serve as an initiative to optimize this role. The function of poskestren as a center for promotive and preventive efforts should be established within the pesantren environment. Additionally, poskestren must also

accommodate curative and rehabilitative aspects to ensure that students requiring medical assistance receive proper care.

The statistical calculation using path analysis also reveals a significant influence between genetic factors and students' behavior at Pondok Pesantren X. One of the genetic factors examined is age. In this study, the majority of student respondents were adolescents, a transitional and developmental phase marked by significant changes in behavior. Adolescence is a stage where genetic influences play a role in shaping human behavior (Danielle, Amy, & Sally, 2016).

Additionally, genetic factors significantly influence students' health status. Genetics plays a crucial role in determining an individual's susceptibility to various diseases, including metabolic disorders and infectious diseases. In the context of pesantren, where students typically live in densely populated dormitories, the potential for the spread of infectious diseases such as tuberculosis and respiratory infections is higher. In some individuals, genetic factors may lead to a weaker immune system, making them more vulnerable to infections. Furthermore, genetics also influence metabolism, affecting aspects such as nutrition, obesity, and mental health disorders like depression and anxiety. Studies in public health have shown that the interaction between genetics and environmental factors significantly contributes to overall health, including how individuals respond to high-risk environments (Jiang, Holmes, & McVean, 2021).

Similarly, the results also indicate that health status has a significant impact on the quality of life of students at Pondok Pesantren X. Better health conditions have a positive effect on quality of life. Factors such as physical and mental well-being enable individuals, including students, to lead more productive and fulfilling lives. Conversely, chronic health issues or multimorbidity can negatively affect quality of life, particularly in terms of physical mobility, mental well-being, and emotional stability (Zhang, Wang, & Li, 2023). A person's health status significantly impacts overall well-being, especially in closed or densely populated communities like pesantren. In such environments, poor health conditions can affect multiple aspects of life, including learning ability, social engagement, and emotional stability. If students suffer from serious health problems, it can disrupt their concentration in studies and participation in daily activities, directly affecting their quality of life in pesantren.

Model Findings

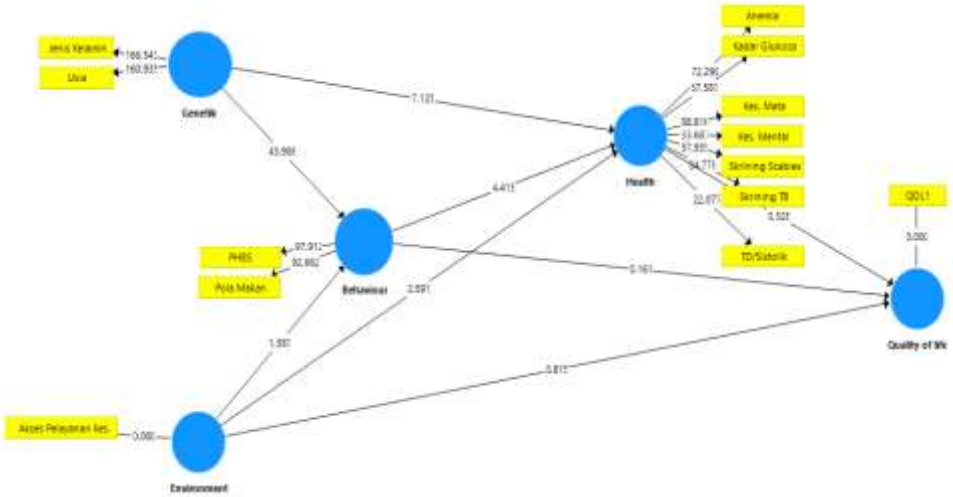

Figure 2. Findings of the Model on Determinant Factors of Santri's Quality of Life at Pondok Pesantren X

The findings from the model on the determinant factors of santri's quality of life at Pondok Pesantren X using SEM-PLS indicate that several indicators are valid. These include mental health status, eye health, anemia status, glucose levels, fat levels, TB screening status, and scabies. After conducting the construct validity calculation, it was confirmed that these factors significantly impact santri's quality of life. According to research conducted by Haryono & Kurniasari (2018), stress levels in adolescents can lead to behavioral, psychological, and biochemical changes, which in turn affect their quality of life. Additionally, a person's level of depression can interfere with daily activities and impact their overall quality of life (Utami, Liza, & Ashal, 2018). Proper mental health development supports concentration abilities, fosters positive interpersonal relationships, and helps individuals regulate emotions when facing conflicts.

In addition to mental health, other health screening results that provide information about the santri's health status in pesantren, such as anemia status, TB, glucose levels, and blood pressure, are also important dimensions that need to be considered in achieving better quality of life. Good health conditions, without dependence on medication or medical devices, serve as an indication that an individual also possesses a good quality of life.

The health status of santri has a significant impact on the quality of life in the pesantren community. As an educational institution that emphasizes character formation through religious learning, pesantren regulate santri's daily activities under a structured and strict schedule. This condition can have both positive and negative effects, depending on the individual's health status. Santri with good health status are more capable of following lessons, actively participating in social activities, and performing religious practices more optimally. Conversely, poor health can reduce quality of life, lower productivity, and negatively affect emotional well-being.

According to several studies, health status plays a crucial role in determining overall well-being. Research by Ruiz-Baena et al. (2024) shows that individuals with good physical and mental health tend to have a better quality of life. This is highly relevant in the context of pesantren, where santri are required to not only engage in academic activities but also perform religious obligations that demand strong physical and mental endurance. Therefore, maintaining both physical and mental health is essential in sustaining balance and enhancing the quality of life within the pesantren community.

CONCLUSION AND SUGGESTION

Based on the research findings presented above, it can be concluded that the health, behavioral, and environmental factors in Pondok Pesantren X are generally in good condition. However, certain aspects still require special attention to improve the well-being and quality of life of the pesantren community. One of these aspects is the low level of physical activity among santri, which remains infrequent. Improving this aspect could enhance physical fitness and even contribute to better mental health among santri. Path analysis findings indicate that genetic factors, including age and gender, positively influence santri's behavior and health status. Environmental factors have a positive impact on health status but do not significantly affect santri's behavior. Behavioral factors positively influence santri's health status, meaning that the better the health-related behaviors among santri in Pondok Pesantren X, the better the overall health status of the pesantren community.

Practices such as Clean and Healthy Living Behavior (PHBS) and a consistently good diet will support improved physical health. A positive influence was also found between health factors and the quality of life of santri in Pondok Pesantren X. This indicates that better health status directly supports a higher quality of life. Health factors such as health screening results (TB and scabies),

glucose levels, eye health, and mental health play a crucial role in determining the quality of life of santri. This study is expected to contribute significantly to improving the quality of life of santri in pesantren. Efficient and effective interventions aimed at enhancing the well-being and quality of life of the pesantren community should be designed by considering the various health factors that influence them. Additionally, health promotion interventions should also take into account behavioral, environmental, and even genetic factors that may significantly impact the well-being and quality of life of the pesantren community at Pondok Pesantren X.

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CONFLICT OF INTEREST

There are no conflicts of interest in this research.

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