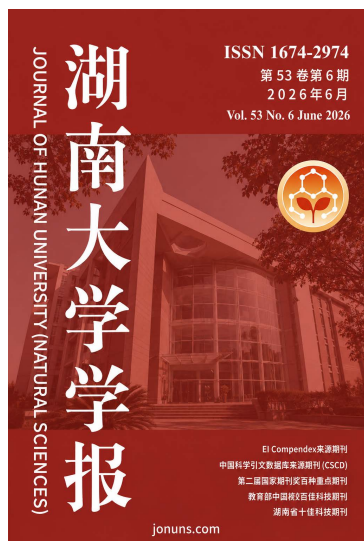




Journal of Hunan University (Natural Sciences)

Vol. 53 No. 6

June 2026

Available online at

<https://jonuns.com>



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 <https://doi.org/10.55463/issn.1674-2974.53.6.10>

Teacher Role Modelling and Health Promotion in Early Childhood Education: Formation of Clean and Healthy Living Behaviour

Zulhakim^{1*}, Mulyanto², Suminah³, Anik Lestari⁴

¹ Doctoral in Development Extension/Community Empowerment, Department Health Promotion, Postgraduate School, Universitas Sebelas Maret, Surakarta, Indonesia,

² Department of Fine Arts Education, Faculty of Teacher Training and Education, Universitas Sebelas Maret, Surakarta, Indonesia,

³ Department of Agricultural Extension and Communication, Faculty of Agriculture, Universitas Sebelas Maret, Surakarta, Indonesia,

⁴ Department of Public Health and Community Medicine, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia,

* Corresponding author: izulhakim@gmail.com

Received: May 3, 2026

Revised: June 10, 2026

Accepted: June 16, 2026

Published: June 30, 2026

Abstract: This study aims to analyse the integration of health promotion through teacher role modelling in the formation of Clean and Healthy Living Behaviour (Perilaku Hidup Bersih dan Sehat, PHBS) among young children in early childhood education units in Central Lombok Regency. The study employed a quantitative approach with a cross-sectional design involving formal early childhood education teachers selected through proportional random sampling. Data were collected using a Likert-scale questionnaire measuring work experience, working conditions, knowledge, motivation, attitudes, intentions, and teachers' role-modelling behaviour in PHBS practices. Validity and reliability tests were conducted prior to data collection. The relationships among variables were then analysed using path analysis to identify the direct and indirect effects of personal and environmental factors on teachers' role-modelling behaviour.

The findings show that teachers' role-modelling behaviour is relatively strong in relation to personal



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hygiene habits and light physical activity, while healthy eating habits still need to be strengthened through school environmental support and parental collaboration. Personal factors, including motivation, attitudes, knowledge, and intention, contribute to the consistency of teachers' role-modelling behaviour. Environmental factors, such as school policies and the availability of sanitation facilities, influence the sustainability of healthy lifestyle practices. These findings have important implications for strengthening practice-based teacher training, developing a healthy school culture, and formulating more contextual and sustainable health promotion policies in early childhood education.

Keywords: Early childhood education; Health promotion; Clean and Healthy Living Behaviour; PHBS; Teacher role modelling; Healthy school culture.

教师角色示范与幼儿教育中的健康促进：清洁健康生活行为的培养

摘要：本研究旨在分析通过教师角色示范将健康促进融入印度尼西亚中龙目县幼儿教育机构中儿童清洁健康生活行为（Perilaku Hidup Bersih dan Sehat, PHBS）形成过程的情况。本研究采用定量研究方法和横断面研究设计，研究对象为通过比例随机抽样选取的正规幼儿教育教师。数据通过李克特量表问卷收集，问卷测量内容包括工作经验、工作条件、知识、动机、态度、意向以及教师在 PHBS 实践中的角色示范行为。在正式数据收集前，研究对问卷进行了效度和信度检验。随后，采用路径分析方法分析各变量之间的关系，以识别个人因素和环境因素对教师角色示范行为的直接和间接影响。研究结果表明，教师在个人卫生习惯和轻度身体活动方面的角色示范行为相对较强，而健康饮食习惯仍需通过学校环境支持和家长合作进一步加强。个人因素，包括动机、态度、知识和意向，有助于提升教师角色示范行为的一致性。环境因素，如学校政策和卫生设施的可获得性，会影响健康生活方式实践的可持续性。研究结果对于加强基于实践的教师培训、建设健康学校文化以及制定更具情境适应性和可持续性的幼儿教育健康促进政策具有重要意义。

关键词：幼儿教育；健康促进；清洁健康生活行为；PHBS；教师角色示范；健康学校文化。

1. Introduction

Health promotion and early childhood education play an important role in achieving the Sustainable Development Goals (SDGs), particularly SDG 3 on healthy and prosperous lives and SDG 4 on quality education. SDG 3 focuses on improving well-being and reducing under-five mortality, while SDG 4 places inclusive and quality early childhood education services as the foundation for lifelong learning. UNESCO & Unicef, (2024) The Global Report on Early Childhood Care and Education states that early stimulation and a healthy learning environment determine a child's readiness to learn. Organization & Fund, (2023) The Nurturing Care Framework identifies the age of 0–3 years as a critical phase for the rapid formation of neural connections in the brain, which has an impact on long-term health, learning and behaviour. Therefore, investing in health promotion during childhood is necessary to build sustainable healthy

habits. This framework is reinforced by five main theories: Social Learning Theory about imitating the behaviour of role models such as teachers [1]; Theory of Planned Behaviour regarding the role of attitudes, norms, and behavioural control in shaping healthy living intentions [2]; Ecological Systems Theory about school–family interaction [3]; Health Belief Model related to perceptions of risk and benefits [4]; and Health Literacy Theory about the ability to understand and use health information [5]. Integrating health promotion through teacher role modelling in early childhood education is an effective evidence-based strategy for shaping a healthy, intelligent and health-conscious generation from an early age. The formation of healthy behaviours in early childhood is of high urgency because the age of 0–6 years is the golden age that determines the direction of character development, habits, and lifestyle throughout life. At this stage, brain, social and emotional

development reaches its most plastic point, so that ingrained behaviours will remain into adulthood. Children learn through observation and imitation, as explained by Bandura & Walters, (2017) Tarde & Baldwin, (2019) where behaviour is formed through the process of imitating significant figures. In the context of early childhood education, teachers and parents become the main role models. Teachers who consistently wash their hands before eating, consume nutritious food, maintain classroom hygiene, and engage in light exercise indirectly shape children's habits to do the same. This habit supports physical and mental growth and prevents infectious diseases such as diarrhoea, respiratory tract infections, and nutritional disorders, which remain health problems for children in Indonesia. Kemenkes, (2023) The 2023 Indonesian Health Survey reported that only 48.2% of young children regularly wash their hands and 74.6% dispose of waste properly, while the Indonesian Ministry of Health 2023 revealed that many early childhood education centres still lack sanitation facilities and clean water. Low compliance with the principles of Clean and Healthy Living Behaviour (PHBS) highlights the importance of establishing healthy behaviours from an early age through the example set by teachers and synergy with parents. These efforts serve as preventive interventions to reduce the risk of disease, strengthen children's health, and shape a resilient and hygiene-conscious generation.

The national situation presents major challenges in implementing PHBS in schools, despite the launch of various promotional programmes. Based on data Kemenkes, (2023) Proper hand washing behaviour is still low at school level, while Riskesdas shows similar results in the over-10 age group. The government has responded with policies such as the Healthy Living Community Movement (GERMAS), which encourages simple behaviours such as physical activity, consumption of vegetables and fruit, and washing hands with soap. In addition, the School/Madrasah Health Programme (UKS/M) and Minister of Health Regulation No. 2269/MENKES/PER/XI/2011 organising PHBS guidance in schools so that educators and students have the awareness and ability to apply healthy habits [6]. This commitment is in line with the targets of the SDGs 2030 and the National Action Plan for Handwashing with Soap 2022–2030 which emphasises universal access to sanitation and hand hygiene [7]. However, various obstacles are still encountered in the field: limited sanitation facilities and clean water, low awareness among teachers and parents in instilling healthy habits, and a lack of training for early childhood teachers on health promotion. NTB Province Health Profile 2023 only 64.5% of schools have access to clean water, while in Central Lombok Regency, around 48.2% of schools still lack handwashing facilities that meet standards [8].

Study Pratami & Nugraheni, (2024) shows that of the 87.9% of schools that have handwashing facilities, only 35.7% use them regularly and 11.3% operate them in accordance with the Ministry of Health's technical guidelines. These findings reveal a gap between policy and implementation in the field. Awareness among teachers and parents is still uneven, while promotion of healthy lifestyles is still more focused on primary school level and above. This situation indicates the need for a new strategy based on teacher role modelling in early childhood education so that health promotion becomes an integral part of the learning system. Through this approach, healthy habits can be instilled from an early age, strengthening the foundations for long-term health and supporting the achievement of sustainable development goals in the education and health sectors.

Early childhood teachers are the main focus of this study because between the ages of 0 and 6, children form habits through direct experience and adult figures they often observe outside the home. Teachers therefore serve as health promotion agents and role models for forming healthy daily routines. This basis is in line with Social Learning Theory viewing behaviour as learned through observation, modelling, and social reinforcement, as well as Imitation Theory (Tarde & Baldwin, 2019) social behaviour develops through imitation of authoritative figures who are emotionally close [1]. In early childhood education, this authority is attached to teachers because they set the pace of the class, establish rules, build a climate of discipline, and serve as a reference for "correct" behaviour for children. Therefore, teachers' exemplary behaviour should be understood as the practical implementation of health promotion in daily activities, not merely the dissemination of knowledge about healthy lifestyles. Role modelling is demonstrated through actions that are easy to imitate and repeat: washing hands with soap before eating, coughing and sneezing etiquette, personal hygiene, choosing nutritious snacks and drinking water, waste management and classroom cleanliness, structured light physical activity through exercise/songs, and arranging a safe, clean, child-friendly learning space. This practice serves as an "implicit curriculum" that shapes habits through repetition and positive reinforcement so that healthy behaviours become routine. Its relevance is strong in the context of early childhood education in Central Lombok Regency, NTB, where sanitation facilities and access to clean water are not yet evenly distributed, the use of handwashing facilities is inconsistent, and classroom hygiene culture still varies. In these conditions, teacher role modelling becomes a realistic strategy for instilling healthy habits, while also strengthening teacher-parent collaboration so that healthy habits continue at home.

The integration of health promotion into early

childhood education plays an important role in shaping healthy lifestyles for children from an early age, including in Central Lombok Regency, West Nusa Tenggara, where children's hygiene habits are still poor due to limited facilities and habits. Health promotion in early childhood education needs to be part of the curriculum and school culture, internalised through contextual learning activities. Through a learning by doing approach, children can experience healthy living practices first-hand, such as role-playing as little doctors, singing songs about hygiene, washing their hands with soap before eating, cleaning their toys and classrooms, and growing vegetables in the school garden. This approach is reinforced with positive reinforcement, for example through praise or small rewards so that children build positive associations with clean and healthy behaviour. This strategy is in line with the concept of Health Promoting Schools (WHO, 2018), positioning schools as health promotion environments through collaboration between teachers, children and parents. Viewing children as learning by imitating the behaviour of teachers [3]; positioning schools as micro systems that have a direct influence; Ajzen (2021) linking teachers' behavioural norms with children's intentions; and Rosenstock (2018) explaining the development of health awareness through concrete experiences. However, implementation in Central Lombok Regency is still hampered by limited sanitation, lack of teacher training, and weak school-home synergy. Therefore, the implementation of health promotion based on teacher role models and parental support in early childhood education is a strategic step towards building a healthy, independent and characterful generation from the golden age of child development.

Various studies have discussed health promotion in schools and the role of teachers in PHBS, but there is a significant gap in the context of teacher role modelling as a key strategy in early childhood education. Parlaungan et al., (2022); Yunita et al., (2023) discusses the empowerment of early childhood teachers to improve the healthy lifestyles of children aged 3–5 years, but has not yet tested role modelling as a mechanism for integrating health promotion into daily learning routines. Nagy-Pénzes et al., (2022) reported the positive impact of health promotion programmes on adolescents' knowledge and behaviour, but the focus was on programme interventions rather than teachers as role models. Naing et al., (2022) examined teacher involvement in the Health Promoting School programme, but only in terms of participation levels and did not analyse the influence of role models on student behaviour. Corbett et al., (2024) assessing teachers' healthy lifestyles, but not linking this to health promotion practices in the classroom and their impact on children. Study Fitria, (2024); Kartika et al., (2025); Maharwati & Dinatha, (2023) photographing PHBS

practices in early childhood education and the strategies of school principals, but with more emphasis on descriptive and administrative aspects than on integrative theoretical models that focus on teacher role models. Lestari (2018) strengthening the relationship between the roles of teachers and PHBS in primary schools, but it has not been tested in early childhood education and does not include the observation-imitation process as a basis for analysis. Lee (2020) It broadly reviews the concept of Health Promoting Schools, but does not yet provide a testable operational model of teacher exemplarity. This gap is relevant to early childhood education in Cenral Lombok Regency, NTB, given the challenges of healthy living behaviours and limited facilities, as well as the need to reinforce healthy behaviours. Health promotion research in schools that focuses on the exemplary role of early childhood teachers is needed to develop conceptual models and empirical evidence that can strengthen policies and practices for teaching healthy living behaviours in early childhood education institutions in the region.

The novelty and scientific relevance of this study lies in the development of a model framework that explains the systemic formation of healthy behaviours in children in school health promotion, particularly in the context of early childhood education in Cenral Lombok Regency, West Nusa Tenggara. This study offers a model for integrating health promotion based on teacher role modelling, combining educational dimensions such as knowledge, health messages and thematic learning with behavioural dimensions such as practical application, habit formation, daily routines and classroom culture. With this framework, health promotion is embedded in the early childhood education learning process, rather than being an additional activity. Teachers' exemplary behaviour is positioned as the driving force behind PHBS habits, because children in the golden age phase build habits through consistent, structured and repeated examples, such as washing hands with soap, classroom hygiene, healthy food choices and light physical activity. This study enriches the study of health promotion by linking personal factors of teachers, such as motivation, attitudes, and intentions to practise healthy lifestyles, with school environmental factors, including internal policy support, availability of sanitation facilities, organisational climate, and parent collaboration. The interaction between personal and environmental factors explains why PHBS practices are strong in some early childhood education centres but weak in others in Central Lombok Regency and the NTB region, especially when sanitation facilities are limited and home-school synergy is inconsistent. This research is highly relevant to health education policies in early childhood education in Indonesia and Southeast Asia. The resulting model can serve as the basis for role

model-based early childhood education teacher training, minimum standards for child-friendly healthy schools, integration of healthy lifestyles into the early childhood education curriculum and assessment, and strategies for involving parents in reinforcing healthy habits at home.

This study focuses on the integration of health promotion through teacher role modelling as a mechanism for shaping healthy behaviours in early childhood at early childhood education centres in Central Lombok Regency, West Nusa Tenggara. The aim is to identify examples of teacher role modelling in PHBS practices, such as personal hygiene, healthy eating and light physical activity, and to analyse the personal and environmental factors that influence their effectiveness. Personal factors include teachers' knowledge, motivation, and attitudes, while environmental factors include school support, sanitation facilities, and parent collaboration. This study also formulates a model for integrating health promotion based on role modelling and assesses the impact of its implementation on children's healthy behaviours in their daily learning activities at school.

2. Method

2.1 General Background

This study utilised a quantitative approach with a cross-sectional study design aimed at analysing the relationship between variables at a single point in time. The research was conducted in early childhood education institutions in Lombok Regency, West Nusa Tenggara Province, Indonesia. This region was chosen because there is still a gap in the implementation of PHBS in early childhood education schools due to limited sanitation facilities and variations in healthy living behaviours among teachers. The research period was from September to December 2025. The research focused on the integration of health promotion through teacher role modelling as a strategy for shaping healthy behaviours in early childhood education (PAUD) children in Central Lombok Regency, NTB.

2.2 Participants

The research population consists of 1,282 formal Early Childhood Education (PAUD) teachers in Central Lombok Regency. The sample size was determined based on the minimum requirement of ten times the number of model parameters, resulting in 220 respondents [9]. The sampling was conducted using the Proportional Random Sampling technique to ensure that each district is represented according to the proportion of the number of teachers. The research sample is distributed across 12 sub-districts, namely Praya District with 44 teachers, Pujut with 30 teachers, Praya Tengah with 23 teachers, Praya Timur with 22 teachers, Jonggat with 19 teachers, Janapria with 17 teachers, Pringgarata with 14 teachers, Kopang with 12

teachers, Batukliang with 12 teachers, Praya Barat with 11 teachers, Batukliang Utara with 9 teachers, and Praya Barat Daya with 7 teachers. The distribution of respondents covering all sub-districts indicates that the sample has proportionally represented the condition of formal early childhood education (PAUD) teachers in Central Lombok Regency. The inclusion criteria for the research include active teachers who have a Unique Educator and Education Personnel Number (NUPTK) and are willing to be respondents, while teachers who are absent, have health issues, or refuse to participate are excluded from the study.

2.3 Instruments and Procedures

Primary data was collected using a Likert scale questionnaire covering seven variables: work experience, task implementation conditions, knowledge, motivation, attitude, intention, and teacher exemplarity in PHBS. Each variable has specific indicators adapted from educational and health promotion theories, emphasising school-family interactions and the Health Promotion Model [10], [11] describe personal and environmental factors in the formation of healthy behaviour. Data collection was carried out with the help of trained enumerators, and the initial validation process was conducted through a pilot test on a portion of the population with similar characteristics.

2.4 Validity and Reliability Test

Validity testing was conducted using Corrected Item-Total Correlation in SPSS 26 software, with a criterion value of $r \geq 0.30$ to declare an item valid. Reliability testing was conducted using Cronbach's Alpha, where variables were declared reliable if $\alpha \geq 0.60$. Preliminary test results indicate that all questionnaire items are valid and reliable. This test ensures inter-item consistency and measurement reliability. This principle of reliability is consistent with Denzin & Lincoln, (2009); Sandberg, (2024) emphasising the importance of instrument stability in behavioural social research.

2.5 Data Analysis

Data analysis using Path Analysis to test direct and indirect relationships between exogenous variables, mediators, and endogenous variables. The analysis steps include: model specification, model identification, goodness-of-fit testing, parameter estimation, and model respecification [14]. The model validity criteria were based on Chi-square values ($p \geq 0.05$), GFI, NFI, CFI ≥ 0.90 , and RMSEA ≤ 0.08 . This analysis enabled testing of causal relationships between work experience, task conditions, motivation, knowledge, attitudes, intentions, and teacher role modelling in PHBS.

3. Results and Discussion

3.1. Results

The characteristics of the respondents indicate that the majority of formal early childhood education (PAUD) teachers in Central Lombok Regency are female, totalling 217 people (98.6%), while male teachers only number 3 (1.4%). Based on age, most respondents fall within the 39–56 year range (59.5%), followed by the 21–38 year range (25.9%) and over 57 years (14.6%). In terms of teaching experience, the majority of teachers have more than 9 years of service (44.1%), followed by 5–8 years (32.7%) and 1–4 years (23.2%).

In this study, the survey administration yielded an exceptional response rate. A total of 220 questionnaires were disseminated to the respondents, and all 220 instruments were returned fully intact and valid for statistical computing, achieving a 100% response rate. The absence of missing values or unreturned questionnaires guarantees high data integrity and safeguards the empirical findings from non-response bias. This absolute sample size $(N = 220)$ aligns precisely with established psychometric standards, ensuring stable parameter estimations and robust model fit calculations within the structural equation modeling (SEM) framework

Table 1. CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	16	15,732	12	,204	1,311
Saturated model	28	,000	0		
Independence model	7	462,448	21	,000	22,021

Table 2. RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	4,668	,980	,953	,420
Saturated model	,000	1,000		
Independence model	16,684	,667	,556	,500

Table 3. Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,966	,940	,992	,985	,992
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Table 4. Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,571	,552	,567
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

Table 5. FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	,072	,017	,000	,083
Saturated model	,000	,000	,000	,000
Independence model	2,112	2,016	1,713	2,352

Table 6. RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,038	,000	,083	,617
Independence model	,310	,286	,335	,000

Regarding the absolute fit indices, the model yields a non-significant Chi-square value ($X^2 = 15.732$, $df = 12$), ($p = .204$). This confirms that the covariance structure hypothesized in the theoretical model does not significantly deviate from the observed sample covariance matrix. This parameter is strongly supported by a normed chi-square ratio (CMIN/DF) of 1.311, which falls safely below the conservative upper limit of 2.00. Furthermore, both the Goodness-of-Fit Index (GFI = .980) and the Adjusted Goodness-of-Fit Index (AGFI = .953) vastly exceed the recognized benchmark of .90, establishing strong evidence for absolute data-to-model consistency.

Across the incremental fit dimensions, the model demonstrates exceptionally high performance. The Comparative Fit Index (CFI = .992), Tucker-Lewis Index (TLI = .985), Incremental Fit Index (IFI = .992), Normed Fit Index (NFI = .966), and Relative Fit Index (RFI = .940) all consistently surpass the rigorous .90 threshold. These parameters indicate that the baseline constraints are successfully minimized, and the specified pathways capture the underlying relationships with high precision.

Evaluation of the parsimonious fit metrics implies a negligible level of specification error. The Root Mean Square Error of Approximation (RMSEA) is recorded at .038, which satisfies the most stringent threshold of being below .05. This optimal value is further validated by a non-significant PCLOSE value of .617 ($p > .05$), rejecting the alternative hypothesis of a poor close fit. Collectively, these statistics systematically confirm that the structural model is empirical, valid, and fully prepared for subsequent hypothesis verification.

Table 7. Maximum Likelihood Estimates of Regression Weights

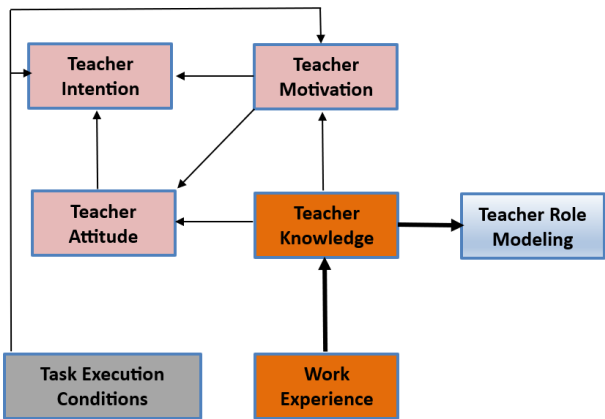
	Structural Path	Estimate	S.E.	C.R.	P
Teacher Knowledge	← Work Experience	0.696	0.049	14.192	***
Teacher Attitude	← Teacher Knowledge	0.904	0.054	16.723	***
Teacher Motivation	← Teacher Knowledge	0.100	0.064	1.573	0.116
Teacher Attitude	← Work Experience	-0.193	0.054	-3.548	***
Teacher	← Task	0.172	0.063	2.722	0.006

Motivation		Execution Conditions				
Teacher Intention	←	Teacher Motivation	0.126	0.047	2.702	0.007
Teacher Intention	←	Teacher Attitude	0.111	0.045	2.460	0.014
Teacher Exemplariness	←	Teacher Knowledge	0.873	0.279	3.129	0.002
Teacher Intention	←	Task Execution Conditions	0.281	0.044	6.371	***

Statistical significance within the structural model was determined based on the Critical Ratio (C.R.) and the corresponding *p*-values. The notation (***) represents a highly significant relationship at the *p* < 0.001 level. Out of the nine hypothesized structural paths, eight paths demonstrated statistical significance (*p* < 0.05), thereby supporting the respective hypotheses. Conversely, the path from Teacher Knowledge to Teacher Motivation was statistically non-significant ($\beta = 0.100$; C.R. = 1.573; *p* = 0.116 > 0.05), indicating that variations in teachers' cognitive proficiency do not directly account for changes in their motivational levels within this specific structural framework

Early childhood teachers are highly motivated and eager to implement PHBS in their teaching activities and daily routines. However, their level of knowledge and experience varies, especially among teachers who have not undergone health promotion training. This situation affects the consistency of PHBS practices and the quality of role modelling in early childhood settings.

Figure 1. Final Path Model of the research



The structural model reveals a highly sophisticated framework of interconnected pathways, demonstrating both single and multi-stage mediation mechanisms that define teacher behavioral outcomes. First, Teacher Knowledge serves as a pivotal primary mediator, bridging the gap between Work Experience and internal psychological factors, namely Teacher Attitude and Teacher Role Modeling. Second, Teacher Intention

operates as the ultimate endogenous endpoint, directly driven by Task Execution Conditions, Teacher Motivation, and Teacher Attitude. Notably, the model contains a critical multi-stage mediation pathway running from Work Experience through Teacher Knowledge and Teacher Attitude before terminating at Teacher Intention. This structural layout underscores that senior teachers' final behavioral intent is not directly dictated by their years of service, but is rather fully contextualized and filtered through the cumulative expansion of their professional knowledge and subsequent attitudinal refinement.

3.2. Discussion

The discussion of the results of this study aims to explain the relationships between variables influencing teacher role models in the implementation of Clean and Healthy Living Behaviors (PHBS) in Early Childhood Education (PAUD) in Central Lombok Regency. The discussion is based on empirical findings from path analysis using SPSS AMOS, using the theoretical frameworks used: Bandura's Social Learning Theory (1977) and Imitation Theory (Tarde, 1890), theories from various sources, and relevant previous research.

The final structural model (trimmed model) shows that teacher role models are directly influenced by teacher knowledge, while work experience, task conditions, motivation, attitudes, and intention to participate are indirectly affected, or do not show statistically significant effects. These findings indicate that the formation of PAUD teacher role models is a cognitive process and is not solely determined by affective or structural factors (Task Conditions).

- a. The Influence of Work Experience on Teacher Knowledge
- Work experience has a positive and significant impact on teachers' knowledge, which means that the longer teachers' experience in the field through direct interaction in learning practices, reflection on experiences, and solving classroom problems, the richer the professional knowledge teachers possess in the context of learning. Teacher knowledge in this study includes content knowledge, pedagogical content knowledge (PCK), and pedagogical skills necessary for effectively managing the teaching and learning process.
- The concept of experiential learning popularised by Dewey (1938) and developed within the framework of reflective learning explains that professional experience is the primary source of teachers' practical knowledge development. This statement is reinforced by the meta-analysis of Wolf et al. (2022), which concludes that work experience (in-service experience) and reflection on teaching practices are among the most important sources in the development of teachers' knowledge, even more influential than pre-service experience or mere formal education. Work experience

allows teachers to integrate theory with real classroom practice, refine teaching strategies through trial-and-error, and develop the ability to adapt to various learning conditions.

Empirical results in the context of Indonesian education also support this relationship. A study by Anggraini et al. (2025) shows that teaching experience significantly affects teachers' pedagogical competence, which is part of the professional knowledge structure of teachers, including the ability to design learning strategies and manage classrooms effectively. This study concludes that teachers with longer work experience tend to have better pedagogical competence compared to teachers with less work experience.

Furthermore, work experience plays a role in enriching teachers' pedagogical content knowledge through exposure to various learning situations and interactions with different types of students. Experienced teachers more frequently engage in discussions and collaborate with colleagues, thereby broadening their understanding of effective and innovative teaching approaches. Thus, the results of this study are consistent with empirical findings and professional learning theories that place work experience as one of the main determinants in the formation and development of teachers' knowledge.

Yi et al., (2024) found that teacher variables, including teaching experience, positively correlate with practical competence and knowledge that supports innovative behaviour in mathematics learning, affirming that experience provides teachers with more mature professional thinking abilities.

Additionally, Amir et al., (2025) show that professional development programs that actively involve professional experience strengthen teachers' knowledge (both objective knowledge and self-efficacy related to knowledge), thereby affirming that continuous experience affects the quality of knowledge.

Thus, it can be concluded that work experience not only enhances practical skills but also enriches teachers' conceptual and pedagogical knowledge, which ultimately has a positive impact on the quality of learning provided in the classroom. The practical implication is that teacher professional development programs need to pay special attention to mechanisms that facilitate the transformation of work experience into knowledge that can be applied in everyday learning contexts.

b. The Influence of Knowledge on Teacher Exemplary Behavior

The results of this study indicate that teachers' knowledge has a positive and significant impact on teachers' exemplary behaviour. These findings affirm that the level of teachers' understanding of concepts, values, and professional practices in the context of this research related to clean and healthy living behaviour

(PHBS) serves as an important foundation for the emergence of consistent exemplary behaviour in teachers' daily lives in the early childhood education (PAUD) environment. Theoretically, these findings align with Bandura's (1986) Social Learning Theory, which states that individual behaviour is formed through internal cognitive processes based on knowledge and understanding of the consequences of actions. Teachers with adequate knowledge not only know what to do but also understand why such behaviour is important, making them more capable of displaying consistent behaviour that is worthy of being emulated by students. Furthermore, Tarde's Theory of Imitation (1903) emphasises that the process of social imitation begins with figures who possess knowledge authority; in the context of early childhood education, highly knowledgeable teachers are more likely to serve as behavioural models for children.

Empirical support for these research findings is also demonstrated by various recent international studies. Alassaf, (2025) in the journal *Frontiers in Education* found that teachers' professional knowledge is strongly correlated with exemplary behavioural practices, particularly in the context of inclusive education. Teachers who possess a good conceptual and practical understanding tend to demonstrate attitudes and behaviours consistent with professional values. Furthermore, research by Abiltayeva et al. (2025) shows that teachers' knowledge competence plays a significant role in shaping teaching practices that reflect exemplary behaviour, especially in the integration of values and positive behaviours in the classroom. Similar findings were also reported by Li et al., (2021) who concluded that the cognitive capacity and professional knowledge of teachers are important predictors of moral leadership behaviour and exemplary conduct in schools.

Thus, the results of this study reinforce the argument that teacher knowledge is not merely a cognitive aspect, but a primary prerequisite for the emergence of teacher exemplarity. In the context of early childhood education, teachers who fully understand the concepts and practices of PHBS will be more capable of displaying real behaviours that can be imitated by children, making exemplarity the main mechanism for value internalisation from an early age.

4. Conclusion

The conditions under which teachers carry out their duties have been shown to significantly influence teacher motivation and intentions, but these influences do not directly affect teacher role models. This suggests that a supportive work environment acts as an initial/enabling factor that triggers teachers' psychological processes. Work experience significantly influences teacher knowledge, but does not directly influence role models. This finding confirms that work

experience is only meaningful when internalized into professional knowledge. Teacher motivation and attitudes play a role in shaping teacher intentions, but do not directly influence role models. This indicates that intention alone is not sufficient to produce role models without adequate knowledge.

The findings suggest that teacher role modelling may support the formation of healthy lifestyle routines in early childhood education settings, particularly when supported by school policies, sanitation facilities, and parent collaboration.

Declarations

Author Contributions

Conceptualization, Zulhakim and Mulyanto; methodology, Zulhakim; validation, Zulhakim, Mulyanto, and Suminah; formal analysis, Zulhakim; investigation, Zulhakim; resources, Mulyanto and Suminah; data curation, Zulhakim; writing original draft preparation, Zulhakim; writing review and editing, Mulyanto, Suminah, and Anik Lestari; visualization, Zulhakim; supervision, Mulyanto and Suminah; project administration, Zulhakim; funding acquisition, Not Applicable. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Funding

Funding information is not available.

Acknowledgments

The authors would like to express their sincere gratitude to all parties who contributed to the completion of this study through academic support, constructive feedback, and institutional assistance during the research and manuscript preparation process.

Institutional Review Board Statement

Not Applicable.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Ethical approval was granted by the Health Research Ethics Committee of Dr. Moewardi Regional General Hospital, Indonesia (Ethical Clearance No. 786/IV/HREC/2025), and the study was declared ethically feasible for implementation.

Conflicts of Interest

The authors declare no conflict of interest regarding the publication of this manuscript. Furthermore, ethical issues, including plagiarism, informed consent,

misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies, have been fully observed by the authors.

References

- [1] A. Bandura and R. H. Walters, *Social learning theory*, vol. 1. Prentice hall Englewood Cliffs, NJ, 2017.
- [2] I. Ajzen, "The theory of planned behaviour: Reactions and reflections," *Psychology & health*, vol. 26, no. 9. Taylor & Francis, pp. 1113–1127, 2021.
- [3] U. Bronfenbrenner, "Ecological systems theory (1992).," 2019.
- [4] I. M. Rosenstock, "Historical origins of the health belief model," *Health Educ. Monogr.*, vol. 2, no. 4, pp. 328–335, 2018.
- [5] K. Sørensen, "Defining health literacy: Exploring differences and commonalities," in *International handbook of health literacy*, Bristol University Press, 2019, pp. 5–20.
- [6] Kementerian Kesehatan Republik Indonesia, "Peraturan Menteri Kesehatan tentang Pedoman Pembinaan Perilaku Hidup Bersih dan Sehat (PHBS)," *Ikra-Ith Abdimas*, vol. 8, no. 2, pp. 1–97, 2011.
- [7] Kementerian Kesehatan Republik Indonesia, "Rencana Aksi Nasional 2022 - 2030: Cuci Tangan Pakai Sabun," *Pap. Knowl. Towar. a Media Hist. Doc.*, vol. 7, no. 2, 2022.
- [8] Dinas Kesehatan Provinsi NTB, "Profil Kesehatan Nusa Tenggara Barat Tahun 2023," *BPS Nusa Tenggara Barat*, vol. 4, no. 1, 2023.
- [9] J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage publications, 2017.
- [10] W. Lawrence, *Social research methods: qualitative and quantitative approaches*. PRENTICE HALL, 2021.
- [11] E. M. Landells and S. L. Albrecht, "The Positives and Negatives of Organizational Politics: A Qualitative Study," *J. Bus. Psychol.*, vol. 32, no. 1, pp. 41–58, 2017, doi: 10.1007/s10869-015-9434-5.
- [12] B. Sandberg, "Outcomes of Art-Based Leadership Development: A Qualitative Metasummary," *Behavioral Sciences*, vol. 14, no. 8. p. 714, 2024. doi: 10.3390/bs14080714.
- [13] N. K. Denzin and Y. S. Lincoln, "Qualitative research," *Yogyakarta: PustakaPelajar*, vol. 9, no. 2, pp. 139–160, 2009.
- [14] R. B. Johnson and L. Christensen, *Educational research: Quantitative, qualitative, and mixed approaches*. Sage publications, 2019.
- [15] S. B. Merriam and E. J. Tisdell, *Qualitative research: A guide to design and implementation*. John Wiley & Sons, 2020.
- [16] P. Leavy, *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*.

Guilford Publications, 2022.

- [17] M. A. Rosekrans, "Imitation in children as a function of perceived similarity to a social model and vicarious reinforcement," *J. Pers. Soc. Psychol.*, vol. 7, no. 3p1, p. 307, 2020.
- [18] F. Butera, A. Batruch, F. Autin, G. Mugny, A. Quiamzade, and C. Pulfrey, "Teaching as social influence: Empowering teachers to become agents of social change," *Soc. Issues Policy Rev.*, vol. 15, no. 1, pp. 323–355, 2021.
- [19] R. J. W. Cline, "Everyday interpersonal communication and health," in *The Routledge handbook of health communication*, Routledge, 2023, pp. 299–328.
- [20] C. Abraham and P. Sheeran, "Understanding and changing health behaviour: From health beliefs to self-regulation," in *Understanding and changing health behaviour*, Psychology Press, 2023, pp. 3–24.
- [21] I. Lim, "Effectiveness of Health Education in Improving Clean and Healthy Living Behavior (PHBS) in Rural Communities," *Healthc. Adv. J.*, vol. 1, no. 2, pp. 47–54, 2025.
- [22] S. Younie, S. Crosby, C. Firth, J. McNicholl, and K. Laird, "Bye-bye germs': respiratory tract infection prevention—an education intervention for children," *Educ. Sci.*, vol. 14, no. 3, p. 302, 2024.
- [23] N. T. Huong, T. T. Hue, and P. T. Thao, "Managing self-help skill development activities in early childhood institutions," *Tennessee Res. Int. Soc. Sci.*, vol. 7, no. 2, pp. 185–195, 2025.
- [24] Z. Yuniati and N. Hazizah, "Hubungan Keteladanan Guru dengan Kemampuan Moral Anak Usia 5-6 Tahun di PAUD Terpadu I'aanatuth Thalibiin Perawang Barat," *ALAYYA J. Pendidik. Islam Anak Usia Dini*, vol. 3, no. 2, pp. 87–101, 2023.
- [25] R. A. Natale, S. E. Messiah, L. Asfour, S. B. Uhlhorn, A. Delamater, and K. L. Arheart, "Role modeling as an early childhood obesity prevention strategy: effect of parents and teachers on preschool children's healthy lifestyle habits," *J. Dev. Behav. Pediatr.*, vol. 35, no. 6, pp. 378–387, 2024.
- [26] E. Elliott, C. Holly, and S. Porter, "Parents and Teachers as Role Models for Healthy Behaviors in Preschoolers," *Pediatr. Nurs.*, vol. 49, no. 3, 2023.
- [27] S. S. Machado, M. Burton, W. Loy, and K. A. Chapman, "Promoting school lunch fruit and vegetable intake through role modeling: a pilot study," *AIMS Public Heal.*, vol. 7, no. 1, pp. 10–19, 2020, doi: 10.3934/publichealth.2020002.
- [28] A. Bandura, "Social-cognitive theory," in *An introduction to theories of personality*, Psychology Press, 2014, pp. 341–360.
- [29] UNESCO and Unicef, *Global Report on Early Childhood Care and Education: The Right to a Strong Foundation*. UNESCO, 2024.
- [30] T. DeMarco and K. Sidney, "Enhancing children's participation in physical activity," *J. Sch.*

Health, vol. 59, no. 8, pp. 337–340, 2020.

- [31] A. A. M. Ardiansyah, "Strategi Membangun Anak Sehat, Cerdas, dan Bahagia melalui Integrasi Olahraga dalam Pendidikan Anak Usia Dini," *J. Pendidikan, Kepelatihan, Olahraga, dan Kesehatan*, vol. 1, no. 1, pp. 16–27, 2025.
- [32] N. Pender, *Health Promotion Model*. Jones & Bartlett Learning Burlington, MA, USA, 2021.
- [33] J. F. Sallis, N. Owen, and E. Fisher, "Ecological models of health behavior," *Heal. Behav. Theory, Res. Pract.*, vol. 5, no. 43–64, 2025.
- [34] E. L. Deci and R. M. Ryan, "Self-determination theory," *Handb. Theor. Soc. Psychol.*, vol. 1, no. 20, pp. 416–436, 2022.
- [35] N. Keshavarz, D. Nutbeam, L. Rowling, and F. Khavarpour, "Schools as social complex adaptive systems: a new way to understand the challenges of introducing the health promoting schools concept," *Soc. Sci. Med.*, vol. 70, no. 10, pp. 1467–1474, 2020.
- [36] M. Jimung, "Pengaruh Guru Sebagai Role Model terhadap Motivasi Penerapan PHBS Siswa di SMP Frater Parepare," *J. Kesehat. Lentera Acitya*, vol. 6, no. 2, 2019.
- [37] J. L. Hale, B. J. Householder, and K. L. Greene, "The theory of reasoned action," *Persuas. Handb. Dev. theory Pract.*, vol. 14, no. 2002, pp. 259–286, 2022.
- [38] K. R. McLeroy, D. Bibeau, A. Steckler, and K. Glanz, "An ecological perspective on health promotion programs," *Health Educ. Q.*, vol. 15, no. 4, pp. 351–377, 2021.
- [39] M. Moffa, R. Cronk, D. Fejfar, S. Dancausse, L. A. Padilla, and J. Bartram, "A systematic scoping review of hygiene behaviors and environmental health conditions in institutional care settings for orphaned and abandoned children," *Sci. Total Environ.*, vol. 658, pp. 1161–1174, 2019.
- [40] B. N. Damanik *et al.*, "Edukasi PHBS di Sekolah Dasar: Strategi Promotif-Preventif Bagi Anak dan Keluarga," *J. ABDIMAS MADUMA*, vol. 4, no. 2, 2025.
- [41] Y. Chrisnawati and D. Suryani, "Hubungan Sikap, Pola Asuh Keluarga, Peran Orang Tua, Peran Guru dan Ketersediaan Sarana Dengan Perilaku Hidup Bersih dan Sehat," *J. Ilm. Kesehat. Sandi Husada*, vol. 9, no. 2, pp. 1101–1110, 2020.

参考文献:

- [1] A. Bandura 和 R. H. Walters, 《社会学习理论》, 第1卷. 新泽西州恩格尔伍德克利夫斯: Prentice Hall, 2017年.
- [2] I. Ajzen, "计划行为理论: 反应与反思", 《心理学与健康》, 第26卷, 第9期. Taylor & Francis, 第1113–1127页, 2021年.
- [3] U.

Bronfenbrenner, “生态系统理论 (1992)”, 2019年。

[4] I. M. Rosenstock, “健康信念模型的历史起源”, 《健康教育专论》, 第2卷, 第4期, 第328–335页, 2018年。

[5] K. Sørensen, “健康素养的定义: 差异与共性的探讨”, 载于《国际健康素养手册》, 布里斯托大学出版社, 2019年, 第5–20页。

[6] 印度尼西亚共和国卫生部, “关于清洁与健康生活行为 (PHBS) 指导方针的卫生部长条例”, 《Ikra-Ith Abdimas》, 第8卷, 第2期, 第1–97页, 2011年。

[7] 印度尼西亚共和国卫生部, “2022—2030年国家行动计划: 用肥皂洗手”, 《Paper Knowledge Toward a Media History of Documents》, 第7卷, 第2期, 2022年。

[8] 西努沙登加拉省卫生局, “2023年西努沙登加拉省卫生概况”, 《西努沙登加拉中央统计局》, 第4卷, 第1期, 2023年。

[9] J. W. Creswell 和 J. D. Creswell, 《研究设计: 定性、定量与混合方法取向》。Sage Publications, 2017年。

[10] W. Lawrence, 《社会研究方法: 定性定量取向》。Prentice Hall, 2021年。

[11] E. M. Landells 和 S. L. Albrecht, “组织政治的积极与消极影响: 一项定性研究”, 《商业心理学杂志》, 第32卷, 第1期, 第41–58页, 2017年, doi: 10.1007/s10869-015-9434-5。

[12] B. Sandberg, “基于艺术的领导力发展成果: 一项定性元总结”, 《行为科学》, 第14卷, 第8期, 第714页, 2024年, doi: 10.3390/bs14080714。

[13] N. K. Denzin 和 Y. S. Lincoln, “定性研究”, 日惹: Pustaka Pelajar, 第9卷, 第2期, 第139–160页, 2009年。

[14] R. B. Johnson 和 L. Christensen, 《教育研究: 定量、定性混合取向》。Sage Publications, 2019年。

[15] S. B. Merriam 和 E. J. Tisdell, 《定性研究: 设计与实施指南》。John Wiley & Sons, 2020年。

[16] P. Leavy, 《研究设计: 定量、定性、混合方法、基于艺术和社区参与式研究取向》。Guilford Publications, 2022年。

[17] M. A. Rosekrans, “儿童模仿行为: 感知到的与社会榜样相似性及替代性强化的作用”, 《人格与社会心理学杂志》, 第7卷, 第3p1期, 第307页, 2020年。

[18] F. Butera, A. Batruch, F. Autin, G. Mugny, A. Quiamzade 和 C. Pulfrey, “教学作为社会影响: 赋能教师成为社会变革的推动者”, 《社会问题与政策评论》, 第15卷, 第1期, 第323–355页, 2021年。

[19] R. J. W. Cline, “日常人际沟通与健康”, 载于《Routledge健康传播手册》, Routledge, 2023年, 第299–328页。

[20] C. Abraham 和 P. Sheeran, “理解和改变健康行为: 从健康信念到自我调节”, 载于《理解和改变健康行为》, Psychology Press, 2023年, 第3–24页。

[21] I. Lim, “健康教育在改善农村社区清洁与健康生活行为 (PHBS) 方面的有效性”, 《Healthcare Advances Journal》, 第1卷, 第2期, 第47–54页, 2025年。

[22] S. Younie, S. Crosby, C. Firth, J. McNicholl 和 K. Laird, “‘再见, 细菌’: 呼吸道感染预防——面向儿童的教育干预”, 《教育科学》, 第14卷, 第3期, 第302页, 2024年。

[23] N. T. Huong, T. T. Hue 和 P. T. Thao, “幼儿教育机构中自助技能发展活动的管理”, 《Tennessee Research International Social Sciences》, 第7卷, 第2期, 第185–195页, 2025年。

[24] Z. Yuniati 和 N. Hazizah, “教师榜样作用与西帕拉旺 I’aanatuth Thalibiin 综合幼儿教育机构5—6岁儿童道德能力之间的关系”, 《ALAYYA: 伊斯兰幼儿教育杂志》, 第3卷, 第2期, 第87–101页, 2023年。

[25] R. A. Natale, S. E. Messiah, L. Asfour, S. B. Uhlhorn, A. Delamater 和 K. L. Arheart, “角色示范作为幼儿肥胖预防策略: 父母和教师对学龄前儿童健康生活习惯的影响”, 《发育与行为儿科学杂志》, 第35卷, 第6期, 第378–387页, 2024年。

[26] E. Elliott, C. Holly 和 S. Porter, “父母和教师作为学龄前儿童健康行为的榜样”, 《儿科护理》, 第49卷, 第3期, 2023年。

[27] S. S. Machado, M. Burton, W. Loy 和 K. A. Chapman, “通过角色示范促进学校午餐中水果和蔬菜摄入: 一项试点研究”, 《AIMS Public Health》, 第7卷, 第1期, 第10–19页, 2020年, doi: 10.3934/publichealth.2020002。

- [28] A. Bandura, “社会认知理论”, 载于《人格理论导论》, Psychology Press, 2014年, 第341–360页。
- [29] UNESCO 和 UNICEF, 《全球幼儿保育与教育报告: 坚实基础的权利》。UNESCO, 2024年。
- [30] T. DeMarco 和 K. Sidney, “促进儿童参与体育活动”, 《学校健康杂志》, 第59卷, 第8期, 第337–340页, 2020年。
- [31] A. A. M. Ardiansyah, “通过将体育融入幼儿教育来培养健康、聪明和快乐儿童的策略”, 《教育、训练、体育与健康杂志》, 第1卷, 第1期, 第16–27页, 2025年。
- [32] N. Pender, 《健康促进模型》。美国马萨诸塞州伯灵顿: Jones & Bartlett Learning, 2021年。
- [33] J. F. Sallis, N. Owen 和 E. Fisher, “健康行为的生态模型”, 《健康行为: 理论、研究与实践》, 第5卷, 第43–64期, 2025年。
- [34] E. L. Deci 和 R. M. Ryan, “自我决定理论”, 《社会心理学理论手册》, 第1卷, 第20期, 第416–436页, 2022年。
- [35] N. Keshavarz, D. Nutbeam, L. Rowling 和 F. Khavarpour, “学校作为社会复杂适应系统: 理解引入健康促进学校理念所面临挑战的新方式”, 《社会科学与医学》, 第70卷, 第10期, 第1467–1474页, 2020年。
- [36] M. Jimung, “教师作为榜样对帕雷帕雷 Frater 初中学生实施清洁与健康生活行为 (PHBS) 动机的影响”, 《Lentera Acitya 健康杂志》, 第6卷, 第2期, 2019年。
- [37] J. L. Hale, B. J. Householder 和 K. L. Greene, “理性行为理论”, 《说服手册: 理论与实践的发展》, 第14卷, 第2002期, 第259–286页, 2022年。
- [38] K. R. McLeroy, D. Bibeau, A. Steckler 和 K. Glanz, “健康促进项目的生态学视角”, 《健康教育季刊》, 第15卷, 第4期, 第351–377页, 2021年。
- [39] M. Moffa, R. Cronk, D. Fejfar, S. Dancausse, L. A. Padilla 和 J. Bartram, “孤儿和被遗弃儿童机构照护环境中卫生行为与环境健康条件的系统范围综述”, 《整体环境科学》, 第658卷, 第1161–1174页, 2019年。
- [40] B. N. Damanik 等, “小学清洁与健康生活行为 (PHBS) 教育: 面

- 向儿童和家庭的促进—预防策略”, 《ABDIMAS MADUMA 杂志》, 第4卷, 第2期, 2025年。
- [41] Y. Chrisnawati 和 D. Suryani, “态度、家庭教养方式、父母角色、教师角色及设施可用性与清洁健康生活行为之间的关系”, 《Sandi Husada 健康科学杂志》, 第9卷, 第2期, 第1101–1110页, 2020年。

Manuscript Information

Word count: 9,227 words (excluding references).

Peer-Review Record

Fast-track status: Not fast-tracked.

First-round reviews received: 3 reports.

Revision cycles completed: 3 rounds.

Final version submitted: June 16, 2026

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