

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

Khomsatun¹, Novan Ardy Wiyani², Supriyanto³, Saryono⁴

^{1,2,3,4}UIN Prof. KH. Saifuddin Zuhri

¹Poltekkes Kemenkes Semarang

ABSTRACT: This study aims to analyze the implementation of Clean and Healthy Living Behavior (PHBS) as well as develop Lawrence Green's theory through a cross-case study at the An-Najah and Darussalam Purwokerto Islamic Boarding School. The background of the research starts from the limitations of the conventional PRECEDE-PROCEED model that has not accommodated the dimension of spirituality as a determinant factor of health behavior in religious communities. With a descriptive qualitative approach, data was collected through in-depth interviews, participatory observations, and documentation studies, then analyzed using Miles and Huberman's interactive model with triangulation techniques to ensure the validity of the data. The results of the study reveal two models of effective implementation: the spiritual-internal approach in An-Najah and the structural-institutional approach in Darussalam. Key findings suggest that spirituality functions as an independent factor that acts as a driver of intrinsic motivation, a self-regulation mechanism, and a source of community resilience. The conclusion of the study recommends the development of the "PRECEDE-PROCEED Plus Spirituality" model by adding the spiritual dimension as a fourth factor equivalent to predisposition, enable, and reinforcing factors, thus offering a more holistic and contextual theoretical framework for the promotion of sustainable PHBS in the pesantren environment.

KEYWORD: SPHBS, Lawrence Green Theory, Spirituality, Islamic Boarding School.

I. INTRODUCTION

In Indonesia, Clean and Healthy Living Behavior (PHBS) is the main strategy in the national health system, especially in the context of disease prevention and health promotion. This behavior is an important foundation as an effort to present a healthy society. According to the Ministry of Health of the Republic of Indonesia (2011), PHBS is defined as a set of behaviors that are practiced on the basis of awareness as a result of learning, which makes a person, family, or community able to help themselves in the health sector and play an active role in realizing public health. This habit reflects the shift in the health paradigm from curative to preventive-promotive, as affirmed by Notoatmodjo (2010) who stated that PHBS is a form of empowerment of people who are aware, willing, and able to practice it. Furthermore, the World Health Organization - WHO (2020) explained that PHBS is a long-term investment that not only has an impact on individual health, but also on the health system and economic development of a country. This is because a healthy society is a productive society that is able to generate an economy for its living needs

These clean living behaviors also need to be applied in Islamic boarding schools. This is because pesantren, as a traditional Islamic educational institution in Indonesia with strong historical roots and has a strategic role in shaping the character and behavior of the community through a religious approach. In Indonesia alone, there are more than 28,000 pesantren and 4 million students (Data from the Indonesian Ministry of Religious Affairs, 2023), which makes pesantren not only function as educational institutions, but also as unique social laboratories for the study of health behavior. Intensive communal life, a strong value system, and the integration between religious education and daily life create special dynamics in the implementation of PHBS.

One of the healthy living behaviors has been applied to the An-Najah Student Islamic Boarding School and the Darussalam Islamic Boarding School in Purwokerto. Both are interesting examples with different characteristics. That's because An-Najah as a boarding school emphasizes a personal-spiritual approach that combines prophetic values with society, while Darussalam excels in structural-institutional aspects with an integrated education system and more established facilities (Pesantren Profile, 2024). This means that one emphasizes more on traditional values while the other can be classified as a modern Islamic boarding school.

Islamic boarding schools, which are famous for their strong tawadhuan values, do not necessarily make the implementation of PHBS easy to do. This means that in implementing PHBS in Islamic boarding schools, there is still a complexity of

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

multidimensional challenges. A previous study by Nurhayati (2020) showed that 60% of Islamic boarding schools in Central Java still experience basic sanitation problems, such as limited access to clean water and adequate toilet facilities. Febriani (2019) research identified a high prevalence of skin diseases (such as scabies) and ISPA among students, which is closely related to densely populated environmental conditions and clean living habits. Meanwhile, Amin's (2021) study found limitations in the effectiveness of conventional health programs in the pesantren environment, which often do not consider the cultural and spiritual aspects inherent in the lives of students. This challenge is exacerbated by nutritional problems, where the prevalence of anemia among female students can reach 40-60% (Basic Health Research, 2018), as well as limited access to professional health workers in many Islamic boarding schools.

To compare the application of PHSB in the two pesantrens above, it is necessary to have a grand theory, one of which is according to Lawrence Green (PRECEDE-PROCEED) which in this case will be the main framework in this study. This model explains that health behaviors are influenced by three main factors: (1) Predisposing Factors (knowledge, attitudes, beliefs), (2) Enabling Factors (resources, access, facilities), and (3) Reinforcing Factors (social support, reward system) (Green & Kreuter, 2005). According to the author's readings of various sources, this theory has been shown to be effective in explaining the mechanisms of health behavior change in various settings, including educational institutions. However, in the context of pesantren, this model shows significant limitations. The spiritual and religious values that are at the core of pesantren life are not adequately accommodated in these three factors. The concept of Taharah (purification) in Islam, which places cleanliness as part of faith, provides a spiritual dimension that goes beyond mere predisposing factors. Intrinsic religious-based motivations, such as maintaining cleanliness as a form of worship, cannot be fully explained only within the framework of conventional health behaviors. In fact, according to the Hadith of the Prophet Muhammad PBUH which states that cleanliness is part of faith (HR. Muslim) and the hadith became the theological foundation that changed the practice of cleanliness from just a health recommendation to a manifestation of faith.

Based on this background, this study formulates the problem: How is the implementation of PHBS in the An-Najah and Darussalam Islamic Boarding Schools, and to what extent can Lawrence Green's theory explain the dynamics of health behavior in the context of Islamic boarding schools? Based on an in-depth review of the literature and previous empirical studies, several significant research gaps were identified. The majority of research on PHBS in the pesantren environment is still limited to conventional public health approaches, without integrating the dimension of spirituality and religious values that are the soul of pesantren life. The concept of Taharah in Islam, which places cleanliness as an integral part of faith, is often only mentioned on the surface without being examined as a determinant of independent and potential health behavior. In addition, existing models of health behavior, including Lawrence Green's theory, show limitations in explaining the intrinsic religious-based motivations that drive the practice of PHBS among students. The model has not been able to fully capture the complexity of the interaction between Islamic values and daily health behaviors in the pesantren setting. Furthermore, health interventions that have been implemented in Islamic boarding schools tend to be top-down and do not touch cultural-spiritual roots, so they are often unsustainable and less effective in creating lasting behavioral changes.

On the basis of this gap, this study offers a comprehensive study through the development of the Lawrence Green model by including the dimension of spirituality as a fourth factor that is equivalent to predisposition, enable, and reinforcing factors. This innovation not only enriches the theoretical framework in health promotion, but also provides a more holistic and contextual approach to understanding the dynamics of PHBS in Islamic boarding schools. The integrative approach applied in this study combines the discipline of public health with the perspective of Islamic studies, resulting in a more in-depth analysis and relevance to the socio-cultural reality of Islamic boarding schools. From this synergy, a spirituality-based PHBS model was produced that is not only responsive to the health needs of students, but also in harmony with the Islamic values adhered to. This model is expected to become a new paradigm in health coaching in Islamic boarding schools that is sustainable, contextual, and rooted in faith and moral values, as well as a reference for the development of more inclusive and effective health policies in the future.

II. RESEARCH METHOD

This research is based on an interpretive paradigm using a descriptive qualitative approach. The selection of this paradigm is based on the purpose of the research to deeply understand the meaning, values, and subjective experiences of actors such as students, caregivers, and ustadz in implementing Clean and Healthy Living Behavior (PHBS) in their environment. The descriptive qualitative approach is seen as appropriate because it is able to describe in detail and contextually the complexity of the PHBS phenomenon in both Islamic boarding schools (Creswell, 2014). In line with this, this study is designed as a cross-case study that allows an in-depth exploration and comparison of two Islamic boarding school contexts that have unique characteristics, namely the An-Najah Student Islamic Boarding School and the Darussalam Purwokerto Islamic Boarding School (Yin, 2018).

The location of the research was deliberately determined at the An-Najah Student Islamic Boarding School and the Darussalam Purwokerto Islamic Boarding School. The selection of these two locations is based on the principle of maximum

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

variation to capture the diverse spectrum of PHBS implementation, both in terms of approach, culture, and infrastructure (Patton, 2015). An-Najah represents student pesantren with a personal-spiritual approach, while Darussalam represents a more established pesantren with structural-institutional advantages. The source of research data consists of primary data and secondary data. Primary data was obtained through in-depth interviews with key informants from each Islamic boarding school, including caregivers, ustadz, administrators, and students. Meanwhile, secondary data is collected from various documents such as pesantren regulations, activity reports, archives, and educational materials related to health and hygiene (Moleong, 2017).

In addition to the above, to ensure the depth and accuracy of the data, this study uses three main data collection techniques. First, participatory observation is carried out intensively for a certain period of time in each pesantren to witness firsthand the practice of PHBS in daily life, social interactions, and physical environmental conditions (Spradley, 2016). Second, in-depth interviews were conducted using semi-structured interview guides, which allowed researchers to explore the informants' understandings, perceptions, and experiences flexibly but remained focused (Kvale, 2008). Third, documentation studies are carried out on various written documents and archives of Islamic boarding schools to understand the policy framework and institutional context underlying the PHBS program (Bowen, 2009).

All the data collected were then analyzed using the interactive model of Miles and Huberman (1994). This analysis takes place in three interrelated stages: (1) Data reduction, where raw data is simplified and focused through the coding and categorization process to bring up the main themes; (2) Data presentation, where data that has been organized is presented in the form of matrices, tables, and descriptive narratives to facilitate the drawing of patterns and relationships; and (3) Drawing conclusions and verification, where the initial findings are formulated and subsequently verified for validity. To ensure the validity and credibility of the data, triangulation techniques are applied, both source triangulation (comparing data from various informants) and method triangulation (comparing the results of observations, interviews, and documentation) (Denzin, 2012). The member checking process is also carried out by confirming the interpretation and initial findings to the research participants (Creswell & Poth, 2018).

III. RESULT AND DISCUSSION

A. Profile and Context of PHBS in Two Islamic Boarding Schools

Pondok Pesantren An-Najah emphasizes a spiritual-internal approach in the implementation of PHBS, where the value of cleanliness is internalized as an integral part of worship and the formation of noble morals. Kyai and ustadz consistently emphasize the substantive meaning of the hadith "al-nadhāfatu min al-īmān" (cleanliness is part of faith) in daily recitation, thus motivating students to view cleanliness not only as a matter of worldly health, but as a manifestation of faith and piety. The implementation of PHBS in this pesantren is bottom-up and relies more on individual awareness that grows from a deep understanding of religion. This approach is in line with the characteristics of An-Najah as a student pesantren that develops a prophetic education model, combining the pesantren environment with the surrounding community to build communication and tolerance. Although sanitation facilities are limited, spiritually-based intrinsic motivation is a major driving factor in PHBS's daily practice.

On the contrary, the Darussalam Islamic Boarding School prioritizes a structural-institutional approach through a well-institutionalized system. This pesantren has detailed written regulations about the cleanliness picket schedule, sanitation standards that must be met, and clear sanctions for any violations. Supported by relatively complete facilities and infrastructure, including a mosque, library, kitchen, and separate dining room for male and female students which makes Pondok Darussalam create an environment conducive to PHBS practice.

In addition, this pesantren has established a formal partnership with the local health center to organize periodic health programs, such as routine health check-ups and counseling. This systematic top-down approach reflects the structural advantages of Islamic boarding schools, where enabling factors. According to Lawrence Green, policies, facilities, and partnerships have a very important role in supporting the clean and healthy living behavior of students.

Meanwhile, there is a striking difference between the two approaches carried out above, showing the variation in PHBS implementation strategies in the pesantren environment. An-Najah relies on the power of predisposing and reinforcing factors based on spiritual values, while Darussalam utilizes enabling and reinforcing factors based on systems and institutions. These findings confirm the relevance of Lawrence Green's theory as well as show the need to develop a model by adding a spiritual dimension as a fourth factor to be able to capture the complexity of PHBS motivation and practice in the context of pesantren more comprehensively.

B. Analysis Based on Lawrence Green's Theory

The predisposition factors in the two pesantren show fundamental differences in their approach and effectiveness. At the An-Najah Islamic Boarding School, knowledge about PHBS is framed in a thick religious narrative, where the value of cleanliness is directly associated with the concept of *thaharah* (purification) and is positioned as a manifestation of faith. This approach has

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

succeeded in creating a strong intrinsic motivation among students, where the practice of cleanliness is not only seen as a health obligation, but as a form of worship with merit. In contrast, at the Darussalam Islamic Boarding School, PHBS socialization relies more on traditional conventional health approaches that emphasize physical benefits and disease prevention. Although informative, this approach results in motivation that is more extrinsic or outward-looking. The results of observations show that religion-based motivation in An-Najah tends to create a more sustainable and autonomous impact on the behavior of students than one pesantren another.

The Enabling Factor reveals a clear difference between the two Islamic boarding schools. The Darussalam Islamic Boarding School is superior in terms of the availability of infrastructure and supporting facilities for PHBS. This is because Darussalam has more adequate sanitation, clean water, and waste management facilities and is managed with a good and clear system. In addition, formal partnerships with local health centers further strengthen these enabling factors, ensuring access to health services and structured prevention programs. On the other hand, the An-Najah Islamic Boarding School, with its more limited material resources, shows creativity and resilience through a gotong-royong approach imbued with spiritual values. Although the facilities are limited, the spirit of togetherness and the belief that maintaining environmental cleanliness is a jama'i charity (collective practice) it allows this pesantren to maintain adequate environmental conditions. With the note that it must be able to be carried out consistently and sustainably because the control is sourced from the pesantren itself.

The Reinforcing Factor in both Islamic boarding schools is equally effective in maintaining behavior, although it is manifested through very different mechanisms. The Darussalam Islamic Boarding School implements a formal and structured reward-punishment system. There are written regulations, monitored picket schedules, and clear sanctions and awards for students. This system creates a measurable and consistent discipline. Meanwhile, the An-Najah Islamic Boarding School relies on social and spiritual strengthening mechanisms. Recognition from kyai and ustadz, appreciation in the form of praise in front of the forum, and belief in obtaining spiritual rewards function as a very powerful strengthening factor in pesantren culture. These two systems, despite their different paradigms, both succeed in creating an environment that encourages the sustainability of PHBS practices, while confirming that the reinforcing factors are highly dependent on the socio-cultural context of the institution.

Based on the presentation in the previous section, the analysis that has been carried out not only confirms the relevance of Lawrence Green's theory in the context of Islamic boarding schools, but also highlights a crucial finding: although the enabling factor (facility) of Darussalam is superior, the commitment and consistency of PHBS practice in An-Najah is no less high, which is driven by the power of predisposing factors and spiritual-based reinforcement. These findings form the basis for the argument for the need to add a spiritual dimension as a fourth factor in the development of the model, due to its significant and distinctive role in religious contexts.

C. Spiritual Dimension as the Fourth Factor in the Framework of PHBS Pesantren

Related to the spiritual dimension, the author in this study found the identification of the spiritual dimension as an independent factor that was not adequately accommodated within the framework of Lawrence Green's three factors. Based on an in-depth comparative analysis of the two Islamic boarding schools, this study reveals that the spiritual dimension cannot be reduced simply as part of the predisposing factor, but is an independent construct and has a distinctive influence mechanism. This dimension includes three fundamental aspects that are interrelated:

First, Transcendental Motivation which makes PHBS a manifestation of obedience to Allah SWT. At the An-Najah Islamic Boarding School, the practice of cleanliness is not only seen as a health behavior, but as part of worship that has merit. As expressed by an ustadz in an in-depth interview: "When students clean their rooms with sincere intentions for the sake of Allah, then it is worth worship as well as sunnah prayers." This understanding changes the instrumental perspective of cleanliness into an intrinsic value with a ukhrawi dimension. The concept of taharah (purification) in Islamic fiqh is not only interpreted as a physical procedure to eliminate hadas and uncleanness, but as a spiritual preparation to face the Creator in every activity.

Second, the Symbolic Meaning which views physical cleanliness as a direct reflection of the purity of heart and mind. There is a strong belief in the tradition of pesantren that the order and cleanliness of the external environment reflect a person's internal condition. Kyai di An-Najah consistently emphasizes this symbolic relationship in routine recitation by quoting the book Ta'lim Muta'allim: "Birth cleanliness is a mirror of inner cleanliness." This symbolic understanding creates a powerful self-regulation mechanism, where students are encouraged to maintain cleanliness not because they are afraid of sanctions, but because they want to harmonize their physical and mental conditions.

Third, the Religious Community which positions the pesantren as a sacred space that must be maintained in purity and cleanliness. Pesantren is understood not only as an educational institution, but as a miniature ideal Muslim society that reflects Islamic values. This understanding creates a collective responsibility that caring for the pesantren environment is the same as honoring the place in which worship activities and the search for religious knowledge are carried out. As expressed by the caretaker of the Darussalam Islamic Boarding School: "Maintaining the cleanliness of the pesantren is a form of our gratitude for the blessing of Allah who has made this place a ma'had to gain religious knowledge."

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

Based on a comparative analysis between the two Islamic boarding schools, this spiritual dimension functions in three main mechanisms:

As a powerful intrinsic motivation driver that is able to survive even in conditions of limited facilities. Data shows that students in An-Najah maintain consistent PHBS practices even with simpler infrastructure compared to Darussalam. This faith-based motivation has been proven to be more durable than health-based extrinsic motivation alone. Thus, pesantren with strong spirituality are able to make the civic dimension an intrinsic motivation that fosters awareness to maintain a clean life for the realization of a healthy society as the Prophet's hadith above.

As a sustainable self-regulation mechanism, meaning that in the pesantren environment, there is a unique and sustainable self-control mechanism. Here, the internal control born of spiritual awareness proved to be far more effective than mere outside supervision. The values of cleanliness are no longer seen as a coercive rule, but have been internalized by the students as an inseparable part of their religious identity. This internalization process then gives birth to autonomous obedience, an obedience that arises from within, not because of coercion or reward. This interesting phenomenon finds its explanation in Social Identity Theory. Basically, the students act in accordance with the group values (in this case, pesantren) that they have accepted and made part of themselves. In other words, maintaining cleanliness is no longer about obeying the rules, but about carrying out the role of an obedient student. That collective value has turned into a personal moral compass that directs their every action.

As a source of resilience in the face of limited resources, it means that the pesantren in the midst of limited resources, still has the resilience of this community is really tested. Instead of giving in to infrastructure constraints, deep spiritual beliefs actually trigger the birth of creativity and the spirit of mutual cooperation. In limited conditions, smart initiatives emerged that originated from togetherness. This spirit is then woven into the concept of "hygiene jihad", a collective movement driven by noble values, not by dependence on modern facilities. For them, maintaining cleanliness is part of worship, a form of piety that is not hindered by circumstances. The proof is real at the An-Najah Islamic Boarding School. The limited facilities there are not necessarily used as an excuse to leave the environment shabby. On the contrary, this situation actually sparks creativity to maximize every available resource. From there are simple but meaningful solutions, which show that will and mutual cooperation are often stronger than material limitations.

From the above explanation, this study results in the finding that the spiritual dimension is not just a variation of predisposing factors, but an independent factor that has a unique mechanism of influence. Therefore, this study recommends the development of the Lawrence Green model by adding spiritual factors as a fourth dimension that is equivalent to predisposition, enable, and reinforcing factors, especially in the context of religious communities such as Islamic boarding schools. This expanded model is expected to serve as a more comprehensive analytical framework for understanding the dynamics of PHBS in specific cultural and religious settings.

D. Spirituality-Based PHBS Integrative Model

Based on the findings of a comprehensive study, this study proposes the development of the PRECEDE-PROCEED Plus Spirituality model as a new conceptual framework for understanding and implementing PHBS in the pesantren environment. This model represents an evolution of Lawrence Green's theory by adding the Spirituality Factor as an equivalent fourth dimension and interacting dynamically with the previous three factors.

The proposed model configuration is Predisposing Factors, Probability Factors, Reinforcing Factors, Spirituality Factors

In this model, the spiritual dimension is no longer positioned as a sub-component of predisposing factors, but rather as an independent factor that has unique characteristics and mechanisms of influence. Based on data analysis in both Islamic boarding schools, it was identified that the spirituality factor functions as: First, a vertical reinforcement that strengthens the other three factors through a transcendental dimension. Faith-based motivation increases the effectiveness of predisposing factors by transforming health knowledge into spiritual awareness. As observed at the An-Najah Islamic Boarding School, the understanding of the importance of washing hands is not only based on health considerations, but rather on the concept of taharah as preparation for worship. Second, a transformative catalyst that transforms physical limitations into spiritual opportunities. Data shows that in the An-Najah Islamic Boarding School, the limited facilities (possible factors) actually give rise to creativity based on religious values such as mutual cooperation and simplicity that are worth worship.

Third, a motivational sustainer that maintains behavioral consistency in the long term. The spirituality factor in the An-Najah Islamic Boarding School creates a self-regulation mechanism that does not completely depend on the external reward-punishment system as is dominant in the Darussalam Islamic Boarding School. Fourth, value integrators who align modern health practices with traditional Islamic values. This model allows the adaptation of the conventional PHBS program into a program that is contextual with the pesantren culture, as seen in the success of internalizing the concept of cleanliness as part of the morals of karimah.

The dynamic interaction between the four factors in this model creates synergistic effects that result in more holistic and sustainable behavioral changes. The findings of the study show that although the Darussalam Islamic Boarding School excels in

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

enabling and formal reinforcing factors, the commitment of PHBS at the An-Najah Islamic Boarding School is no less high because it is supported by a strong spirituality factor.

This PRECEDE-PROCEED Plus Spirituality model offers a new paradigm in the approach to health promotion in religious communities. This model is not only relevant to the context of pesantren, but can also be adapted to other religious community settings with distinctive spiritual characteristics. The implementation of this model is expected to optimize the role of religious values as a powerful resource in building sustainable health behaviors. The novelty of this model lies in its ability to bridge conventional public health approaches with religion-based local wisdom, creating a more comprehensive and contextual formula for understanding the dynamics of PHBS in religious societies such as Indonesia.

E. Theoretical and Practical Implications

This research makes a significant contribution to the development of public health science through the expansion of more inclusive health behavioral models. The findings about the spiritual dimension as independent factors complement the limitations of conventional models of health behavior that have been dominated by Western perspectives. As evidenced in this study, the PRECEDE-PROCEED Plus Spirituality model offers a more comprehensive framework for understanding the complexity of determinants of health behaviors in cultural-specific contexts. Furthermore, this research enriches the study of public health with an integrative cultural-spiritual perspective. By combining the approach of public health science and Islamic studies, this research succeeded in building an epistemological bridge between modern health science and local religion-based wisdom. The integration of the concept of *thaharah* in the framework of PHBS proves that traditional values can be a powerful resource in modern health promotion. Last but not least, this research makes an original contribution to the development of health behavior theory in the Global South. So far, health behavioral theory has been dominated by the Global North perspective which is often not fully relevant to the socio-cultural context of people in developing countries. The findings of this study offer an alternative perspective born from the local context, while also opening up an equal space for dialogue in the development of global health theory.

Meanwhile, the practical implementation of this research provides operational guidance for the development of effective and sustainable health programs in Islamic boarding schools. The PRECEDE-PROCEED Plus Spirituality model can be used as a reference in designing health interventions that are not only technical but also contextual with pesantren values. Health programs that integrate the spiritual dimension have proven to be easier to adopt and maintain by the pesantren community. This research also offers a capacity building model for innovative pesantren health cadres. The training of health cadres needs to include not only health technical skills, but also the ability to facilitate the integration of spiritual values in health promotion. As seen in this study, health cadres who understand the language and values of pesantren have higher effectiveness in making behavior changes.

The findings of this study are important considerations for the formulation of health policies based on local wisdom. Local governments and relevant ministries can use this model in developing health policies that are responsive to the cultural-religious characteristics of the community. Health policy in the pesantren environment needs to consider an approach that optimizes the role of religious values as a resource for health promotion. The implementation of the findings of this research is expected to strengthen the role of pesantren not only as religious education institutions, but also as agents of public health change. With more than 28,000 Islamic boarding schools in Indonesia, the potential for health transformation through this institution is huge and strategic to create a healthy and empowered Indonesian society.

CONCLUSIONS

This study has succeeded in proving that the dimension of spirituality is an independent determinant factor that is not accommodated in the theoretical framework of conventional health behavior. A cross-case study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto not only revealed two effective PHBS implementation approaches, namely the spiritual-internal and structural-institutional approaches, but more importantly, managed to identify a missing link in our understanding of health motivation in religious communities.

A key finding of this study is that Lawrence Green's theory (PRECEDE-PROCEED), while relevant, shows structural limitations in the context of pesantren. This theory fails to fully capture the power of intrinsic motivation based on religion which is the main driver of sustainable behavior, as proven in the An-Najah Islamic Boarding School. The contrast between the two pesantren highlights a reality: PHBS's commitment driven by spirituality is able to produce an equal level of consistency, even without being supported by adequate formal facilities and systems. This fact is strong empirical evidence that spirituality is not just part of a predisposing factor, but an independent construct with its own mechanism of influence as a driver of intrinsic motivation, a mechanism of self-regulation, and a source of collective resilience.

Therefore, the study does not stop at criticism, but goes further by proposing an original theoretical development: the PRECEDE-PROCEED Plus Spirituality Model. The novelty of this model lies in its position that places the Spirituality Factor as the fourth dimension which is equivalent to the Predisposition, Possible, and Reinforcing factors. This expanded model offers a

Spirituality as the Fourth Dimension in Lawrence Green's Health Behavior Model: Evidence from A Case Study at An-Najah and Darussalam Islamic Boarding Schools in Purwokerto

more holistic and contextual framework, in which spirituality serves as a transformative catalyst that amplifies the other three factors through a transcendental dimension and integrates modern health values with religious-based local wisdom.

Theoretically, these findings are a significant contribution to the treasure trove of public health science, especially from the perspective of the Global South, by offering an alternative perspective to health behavioral theories that have been dominated by the Western paradigm. In practical terms, this model becomes a revolutionary operational guide for designing health interventions in Islamic boarding schools and other religious communities that are no longer top-down and purely technical, but based on the values that the community has lived and believed in.

Thus, this research not only refines a theoretical model, but also opens up a new paradigm in health promotion: optimizing spirituality as a powerful and sustainable resource to build a healthy society both physically and mentally. Going forward, testing this model in a broader context and scale will be both a challenge and an opportunity to strengthen its validity and application in public health policy in Indonesia.

REFERENCES

- 1) Amin, M. (2021). Efektivitas program kesehatan konvensional di lingkungan pesantren. *Journal of Public Health Indonesia*, 15(2), 45-60.
- 2) Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- 3) Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- 4) Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- 5) Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research*, 6(2), 80-88. <https://doi.org/10.1177/1558689812437186>
- 6) Febriani, S. (2019). Prevalensi penyakit kulit dan ISPA di kalangan santri: Studi pada pesantren tradisional di Jawa Tengah. *Jurnal Kesehatan Masyarakat*, 12(1), 78-92.
- 7) Green, L. W., & Kreuter, M. W. (2005). *Health program planning: An educational and ecological approach* (4th ed.). McGraw-Hill.
- 8) Kementerian Agama RI. (2023). *Statistik pendidikan Islam tahun 2023*. Direktorat Jenderal Pendidikan Islam.
- 9) Kementerian Kesehatan RI. (2011). *Pedoman pembinaan Perilaku Hidup Bersih dan Sehat (PHBS)*. Ditjen PP dan PL.
- 10) Kvale, S. (2008). *Doing interviews*. SAGE Publications. <https://doi.org/10.4135/9781849208963>
- 11) Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). SAGE Publications.
- 12) Moleong, L. J. (2017). *Metodologi penelitian kualitatif (Edisi Revisi)*. PT Remaja Rosdakarya.
- 13) Notoatmodjo, S. (2010). *Promosi kesehatan dan perilaku kesehatan*. PT Rineka Cipta.
- 14) Nurhayati, S. (2020). Masalah sanitasi dasar di pesantren Jawa Tengah: Studi kualitatif pada 50 pesantren. *Jurnal Sanitasi dan Lingkungan*, 8(3), 112-125.
- 15) Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). SAGE Publications.
- 16) Profil Pesantren. (2024). *Profil Pondok Pesantren Mahasiswa An-Najah dan Pondok Pesantren Darussalam Purwokerto*. Lembaga Pendidikan Pesantren.
- 17) Riset Kesehatan Dasar. (2018). *Laporan nasional Riskesdas 2018*. Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI.
- 18) Spradley, J. P. (2016). *Participant observation*. Waveland Press.
- 19) World Health Organization. (2020). *Global report on sanitation and hygiene*. WHO Press.
- 20) Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.