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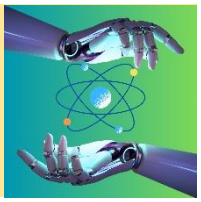

# Healthy Dayah Movement: Education and Promotion of Clean and Healthy Living Behaviours (PHBS) for Islamic Boarding School Students

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## Abstract

Clean and Healthy Living Behaviour (PHBS) plays an important role in improving individual and community health by encouraging people to adopt healthy practices in their daily lives consciously. This community service activity aimed to improve students' knowledge and understanding of PHBS at Dayah Nurul Huda Ajee Cut, Aceh Besar, through health education and counselling. The activity employed a pre-experimental method using a one-group pretest–posttest design. A total of 18 students were selected using total sampling. Participants' knowledge was assessed using a 20-item questionnaire administered before and after the educational intervention. The results showed that before the intervention, 5 participants (28%) had a high level of knowledge, 8 (44%) a moderate level, and 5 (28%) a low level. Following the health education and counselling intervention, all 18 participants (100%) demonstrated a high level of knowledge. The mean knowledge score also increased from 1.00 in the pretest to 2.00 in the posttest, indicating a significant improvement following the intervention. These findings demonstrate that health education and counselling activities positively contributed to improving students' knowledge and understanding of Clean and Healthy Living Behaviour. Therefore, educational interventions focusing on PHBS can serve as an effective approach to increasing health awareness and encouraging the implementation of clean and healthy practices among students in Islamic boarding school environments.

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## 1. Introduction

Health is a fundamental component of human development and plays an essential role in improving individual well-being and quality of life. Achieving optimal health conditions requires not only adequate access to healthcare services but also the active participation of individuals and communities in adopting preventive and health-promoting behaviours. Health promotion is a process that enables individuals and communities to increase control over the determinants of their health and consequently improve their overall health status [1]. In Indonesia, one of the major strategies implemented to encourage community participation in health promotion is the Clean and Healthy Living Behaviour

program, commonly referred to as Perilaku Hidup Bersih dan Sehat (PHBS). PHBS encompasses various health behaviours that individuals, families, groups, and communities consciously practice to maintain their health, prevent disease, and actively contribute to the creation of healthy environments [2]. The consistent implementation of PHBS is therefore an important strategy for strengthening preventive health practices and improving community health outcomes.

Educational institutions are strategic environments for promoting healthy behaviours because students spend considerable time studying, interacting, and participating in various activities within these settings. The implementation of comprehensive health promotion programs in educational institutions has been shown to improve students' health, well-being, and educational outcomes [3], [4]. In Indonesia, Islamic boarding schools, locally known as pesantren and referred to as dayah in Aceh, play an important role in religious education and community development. Students living in Islamic boarding schools, commonly known as santri, generally study, worship, interact, and perform daily activities within a communal environment. These characteristics provide significant opportunities for implementing collective health promotion programs. However, communal living conditions may also increase students' vulnerability to health problems when personal hygiene, environmental sanitation, and disease prevention practices are not adequately implemented [5], [6].

The implementation of PHBS in Islamic boarding schools involves several essential health practices, including proper handwashing with soap and clean running water, maintaining personal hygiene, consuming nutritious food, using clean sanitation facilities, disposing of waste appropriately, participating in regular physical activity, and maintaining environmental cleanliness. Previous studies have demonstrated that the implementation of clean and healthy living practices among Islamic boarding school students remains challenging and may be influenced by several factors, including students' knowledge, health awareness, availability of sanitation facilities, access to health information, institutional policies, and environmental conditions [5]–[8]. Inadequate implementation of PHBS may contribute to the occurrence and transmission of various health problems, particularly skin diseases, diarrhoea, respiratory infections, and other communicable diseases commonly associated with communal living environments [9], [10]. Therefore, systematic and continuous health promotion programs are required to improve students' knowledge and strengthen their awareness of the importance of adopting clean, healthy behaviours in their daily lives.

Health education and counselling are widely recognised as important strategies for increasing health knowledge and promoting positive behavioural changes. Through educational interventions, individuals can acquire relevant health information, improve their understanding of disease prevention, and strengthen their ability to make appropriate decisions concerning healthy practices. Health education is particularly important for adolescents because behaviours and habits developed during this stage of life can significantly influence health practices in adulthood [11], [12]. Previous studies have demonstrated that health education and counselling interventions can improve participants' knowledge, awareness, attitudes, and understanding regarding personal hygiene and healthy lifestyles [13]–[15]. Furthermore, educational interventions involving direct communication, discussion, demonstrations, and active participation may facilitate better understanding and encourage participants to apply health-related information in their everyday lives.

Community engagement programs implemented in collaboration with educational and religious institutions can serve as effective mechanisms for translating academic knowledge into practical interventions that address community health problems. Universities and health professionals have an important responsibility to collaborate with communities and educational institutions to identify health-related challenges and implement appropriate interventions. Community-based health education can help improve health literacy, strengthen disease prevention awareness, and encourage individuals to actively participate in maintaining healthy environments [16], [17]. Within Islamic boarding schools, health promotion programs should not be limited to the transfer of health information but should also empower students to understand, practice, and promote healthy behaviours within their communities. Therefore, PHBS education and counselling activities can be important components of community engagement programs aimed at fostering healthier, more sustainable Islamic boarding school environments.

Dayah Nurul Huda Ajee Cut, located in Aceh Besar, is an Islamic educational institution in which students participate collectively in educational, religious, social, and daily activities. The communal

characteristics of the dayah environment highlight the importance of strengthening students' knowledge and awareness regarding personal hygiene, environmental sanitation, disease prevention, and healthy lifestyles. Based on the identified community health needs, educational interventions were deemed necessary to improve students' understanding of PHBS and to encourage the consistent implementation of healthy behaviours in their daily lives. Therefore, the Healthy Dayah Movement was implemented through structured PHBS education and health counselling activities. The effectiveness of the educational intervention was evaluated using a one-group pretest–posttest approach to assess changes in students' knowledge before and after participating in the program [18], [19]. This approach enables community engagement programs not only to provide health education but also to evaluate the immediate outcomes of educational interventions quantitatively.

The primary objective of this community engagement program was to improve Islamic boarding school students' knowledge and understanding of Clean and Healthy Living Behaviour through structured health education and counselling activities at Dayah Nurul Huda Ajee Cut, Aceh Besar. The novelty of this program lies in implementing the Healthy Dayah Movement as an integrated, context-specific community engagement model that combines PHBS education, active santri participation, and quantitative pretest–posttest evaluation within the distinctive socio-cultural and religious environment of an Acehnese dayah. Unlike conventional health counselling programs that primarily emphasise one-way information delivery, this initiative positions santri as active participants and potential agents of behavioural change within the Islamic boarding school community. Furthermore, the program integrates health literacy improvement, participatory education, and measurable knowledge evaluation into a single community engagement framework. Thus, the Healthy Dayah Movement offers a practical and potentially replicable model for strengthening university–community collaboration, promoting sustainable health awareness, and encouraging the consistent implementation of clean and healthy living practices in Islamic boarding school environments.

## 2. Methodology

### *2.1. Study Design and Community Engagement Approach*

This community engagement program employed a quantitative evaluative approach using a pre-experimental one-group pretest–posttest design. The program combined health education, counselling, and knowledge assessment to improve Islamic boarding school students' understanding of Clean and Healthy Living Behaviour (Perilaku Hidup Bersih dan Sehat, PHBS). The intervention was implemented through the Healthy Dayah Movement, a community-based educational initiative designed to promote health awareness and encourage students to adopt clean, healthy behaviours. The one-group pretest–posttest design was selected to evaluate changes in participants' knowledge by comparing their pre- and post-intervention levels.

The community engagement activities were conducted at Dayah Nurul Huda Ajee Cut, Aceh Besar, Indonesia. This Islamic boarding school was selected as the program location based on the identified need to strengthen students' knowledge and awareness regarding personal hygiene, environmental sanitation, disease prevention, and healthy living practices. The program involved collaboration between the community engagement team and the Islamic boarding school community to facilitate the implementation of health education activities and encourage active student participation throughout the program.

### *2.2. Participants and Sampling Technique*

The target population consisted of students (santri) residing and studying at Dayah Nurul Huda Ajee Cut, Aceh Besar. A total of 18 students participated in the community engagement and research activities. The participants consisted of 10 female students (55.6%) and eight male students (44.4%). Based on age distribution, 11 participants (62%) were aged 12–17 years, four participants (22%) were aged 18–22 years, and three participants (16%) were aged 23–25 years.

The participants were selected using a total sampling technique, in which all available students who participated in the program were included as respondents. Participation in the educational activities and

knowledge assessments was conducted throughout the intervention process. The use of total sampling was considered appropriate because of the relatively small number of participants and the intention to involve all eligible students in the Healthy Dayah Movement activities.

*2.3. Community Health Education Intervention*

The Healthy Dayah Movement was implemented through structured health education and counselling activities that focused on PHBS. The intervention was designed to provide participants with relevant knowledge and practical understanding of clean and healthy living practices that could be implemented within the Islamic boarding school environment.

The educational materials covered several essential aspects of PHBS, including personal hygiene, proper handwashing, environmental cleanliness, appropriate waste disposal, healthy food choices, sanitation practices, disease prevention, and the importance of maintaining a clean, healthy boarding school environment. The educational activities were delivered directly by the community engagement team through interactive counselling, presentations, discussions, and question-and-answer sessions.

The intervention emphasised active participation by encouraging students to discuss common health problems encountered in their daily lives and to identify practical solutions that could be implemented within the dayah environment. Through this approach, students were expected not only to receive health information but also to develop a better understanding of the importance of applying PHBS principles in their everyday activities.

*2.4. Program Implementation Procedures*

The implementation of the Healthy Dayah Movement consisted of three main stages: preparation, intervention, and evaluation.

During the preparation stage, the community engagement team identified the health education needs of the target participants, coordinated the implementation of activities with the Islamic boarding school management, prepared educational materials, and developed the knowledge assessment instrument. The preparation process was conducted to ensure that the educational materials were relevant to the participants' characteristics and the health conditions of the Islamic boarding school environment.

During the intervention stage, participants first completed a pretest to assess their initial knowledge regarding PHBS. After completing the pretest, the community engagement team delivered structured health education and counselling activities. The participants received information regarding the principles, benefits, and practical implementation of PHBS in their daily lives. Interactive discussions and question-and-answer sessions were incorporated into the activities to facilitate participant engagement and improve their understanding of the educational materials.

During the evaluation stage, participants completed a posttest after receiving the health education intervention. The posttest was administered using the same knowledge assessment instrument as the pretest. The pretest and posttest results were subsequently compared to evaluate changes in participants' knowledge following the implementation of the Healthy Dayah Movement.

*2.5. Research Instrument and Knowledge Measurement*

Participants' knowledge of PHBS was measured using a structured questionnaire comprising 20 questions. The questionnaire was administered before and after the educational intervention to assess changes in participants' knowledge. Each correct answer was assigned a score of 1, whereas each incorrect answer was assigned a score of 0. Therefore, the total possible knowledge score ranged from 0 to 20.

The participants' knowledge scores were subsequently classified into three categories. Scores ranging from 0 to 7 were categorised as low knowledge; scores from 8 to 14 as moderate knowledge; and scores from 15 to 20 as high knowledge. This classification was used to describe changes in the distribution of participants' knowledge levels before and after the PHBS educational intervention.

*2.6. Data Collection*

Data collection was conducted at two measurement points. The first measurement was taken before the educational intervention using the pretest. The purpose of the pretest was to determine participants' baseline knowledge regarding PHBS. After completing the educational and counselling activities, the

same questionnaire was administered as a posttest to measure participants' knowledge following the intervention.
In addition to the knowledge assessment, demographic information, including participants' sex and age, was collected to describe participants' characteristics. All completed questionnaires were reviewed for completeness before the data were processed and analysed.

*2.7. Data Analysis*
The collected data were analysed using descriptive and inferential statistical approaches. Descriptive analysis was conducted to present participants' demographic characteristics and the distribution of knowledge levels before and after the educational intervention. The results were summarised using frequencies, percentages, mean values, and standard deviations, as appropriate.
The effectiveness of the educational intervention was evaluated by comparing the pretest and posttest results. A paired-samples statistical test was used to determine whether there was a significant difference in participants' knowledge before and after the implementation of the Healthy Dayah Movement. Statistical analysis was performed at a 95% confidence level, with a significance threshold of $p < 0.05$. A p-value below 0.05 was interpreted as indicating a statistically significant difference between participants' knowledge levels before and after the PHBS educational intervention.

*2.8. Program Evaluation*
The effectiveness of the Healthy Dayah Movement was evaluated based on changes in participants' knowledge levels between the pretest and posttest assessments. The evaluation focused on the distribution of participants across low, moderate, and high knowledge categories, as well as differences in knowledge scores before and after the intervention.
The program was considered effective when participants demonstrated improved knowledge scores and an increase in the proportion classified in the high-knowledge category following the intervention. This evaluation approach enabled the community engagement team to assess the program's immediate educational outcomes quantitatively and to identify the potential contribution of structured PHBS education to improving health awareness among Islamic boarding school students.

## 3. Result & Discussion

The implementation of the Healthy Dayah Movement at Dayah Nurul Huda Ajee Cut, Aceh Besar, aimed to improve students' knowledge and understanding of Clean and Healthy Living Behaviour (PHBS) through structured health education and counselling. The results of the program were evaluated based on participants' demographic characteristics and changes in their knowledge levels before and after the educational intervention. A total of 18 students participated in the program and completed both the pretest and posttest assessments. The findings are presented through a descriptive analysis of participants' sex and age distributions, pretest and posttest knowledge levels, and a comparison of mean scores before and after the intervention. These results provide an overview of the immediate outcomes of the Healthy Dayah Movement and serve as the basis for discussing the effectiveness of health education and counselling in improving PHBS knowledge among Islamic boarding school students.
**Table 1** presents the demographic characteristics of the 18 participants involved in the Healthy Dayah Movement at Dayah Nurul Huda Ajee Cut, Aceh Besar. Based on sex distribution, female participants constituted the majority, with 10 students (55.6%), while male participants accounted for eight students (44.4%). Although the proportion of female participants was slightly higher, the relatively balanced distribution indicates that the PHBS education and counselling activities involved both male and female students. This participation is important because implementing Clean and Healthy Living Behaviour should involve all members of the Islamic boarding school community, regardless of sex. Both male and female students perform various daily activities within the communal dayah environment and therefore share responsibilities for maintaining personal hygiene, environmental cleanliness, proper sanitation, and disease prevention. The involvement of both groups also provides an opportunity for the Healthy Dayah Movement to promote health awareness more broadly and to encourage collective responsibility for establishing a cleaner, healthier Islamic boarding school environment.

**Table 1**. Demographic Characteristics of Respondents Based on Sex and Age

| No. | Variable | Frequency (F) | Percentage (%) |
|---|---|---|---|
| | **Sex** | | |
| 1 | Female | 10 | 55.6 |
| 2 | Male | 8 | 44.4 |
| **Total** | | **18** | **100** |
| **Age (years)** | | | |
| 1 | 12–17 | 11 | 62 |
| 2 | 18–22 | 4 | 22 |
| 3 | 23–25 | 3 | 16 |
| **Total** | | **18** | **100** |

In terms of age distribution, most participants were aged 12–17 years, comprising 11 students (62%), four participants (22%) were aged 18–22 years, and three participants (16%) were aged 23–25 years. These findings indicate that the majority of participants were adolescents, a developmental stage during which individuals experience significant physical, psychological, and social changes and begin to develop behaviours that may influence their future lifestyles. Therefore, providing PHBS education during adolescence is particularly important for establishing health knowledge, awareness, and positive habits at an early stage. Meanwhile, the participation of students aged 18–25 years demonstrates that the Healthy Dayah Movement has also reached young adults, who may have greater independence and could serve as role models for younger students in implementing healthy practices. The diversity of participants' ages suggests that PHBS education in the dayah environment should consider differences in maturity, understanding, and learning needs. Overall, the demographic characteristics presented in Table 1 indicate that the program included participants from diverse age groups and both sexes, providing a solid foundation for promoting PHBS practices and strengthening collective health awareness within the Islamic boarding school community.

**Table 2** presents the participants' baseline knowledge levels regarding Clean and Healthy Living Behaviour (PHBS) before the implementation of the Healthy Dayah Movement educational intervention. Of the 18 participants, eight students (44%) demonstrated a moderate level of knowledge, representing the largest proportion of respondents. Meanwhile, five participants (28%) were classified as having a high level of knowledge, and another five (28%) as having a low level of knowledge. These findings indicate considerable variation in participants' initial understanding of PHBS concepts and practices. Although some students had already acquired adequate knowledge regarding clean and healthy living behaviours, the majority had not yet reached the high-knowledge category. The relatively large proportion of participants in the moderate and low categories suggests that knowledge of personal hygiene, environmental sanitation, disease prevention, and other PHBS practices still needs strengthening. This baseline condition therefore supports the need to implement structured health education and counselling activities within the dayah environment.

**Table 2**. Distribution of Participants' Knowledge Levels Based on Pretest Results

| No. | Knowledge Level | Frequency (F) | Percentage (%) |
|---|---|---|---|
| 1 | High | 5 | 28 |
| 2 | Moderate | 8 | 44 |
| 3 | Low | 5 | 28 |
| | **Total** | **18** | **100** |

Differences may influence variation in pretest knowledge levels among participants, including their previous exposure to health information, educational experiences, age, individual awareness, and access to health promotion activities. Students living in Islamic boarding schools interact intensively within a communal environment; therefore, an inadequate understanding of PHBS may affect not only individual health practices but also the overall health conditions of the boarding school community. The fact that 72% of participants were classified into the moderate and low knowledge categories

demonstrates a clear need for targeted educational interventions to improve their understanding and awareness of healthy behaviours. In this context, the Healthy Dayah Movement was designed to address these knowledge gaps through structured PHBS education, interactive counselling, discussions, and opportunities for participants to clarify health-related issues. Thus, the pretest findings presented in **Table 2** served as an important baseline for evaluating subsequent changes in participants' knowledge and determining the immediate effectiveness of the PHBS educational intervention.

**Table 3** presents the distribution of participants' knowledge levels following the implementation of the Clean and Healthy Living Behaviour (PHBS) education and counselling intervention. The posttest results demonstrate a substantial improvement over the baseline findings, with all 18 participants (100%) classified as having a high level of knowledge. No participants remained in the moderate or low knowledge categories after completing the educational intervention. This result contrasts markedly with the pretest findings, in which only five participants (28%) had a high level of knowledge, while eight participants (44%) and five participants (28%) were classified in the moderate and low knowledge categories, respectively. The increase in the proportion of participants with high knowledge, from 28% before the intervention to 100% after the intervention, indicates that the Healthy Dayah Movement successfully improved participants' immediate understanding of PHBS. These findings suggest that structured health education and counselling can effectively convey essential information on personal hygiene, environmental sanitation, disease prevention, and the adoption of clean, healthy behaviours in daily life.

**Table 3**. Distribution of Participants' Knowledge Levels Based on Posttest Results

| No. | Knowledge Level | Frequency (F) | Percentage (%) |
|---|---|---|---|
| 1 | High | 18 | 100 |
| 2 | Moderate | 0 | 0 |
| 3 | Low | 0 | 0 |
| | **Total** | **18** | **100** |

The improvement observed in the posttest results may be attributed to the educational approach used during the Healthy Dayah Movement, which combined direct health education, counselling, interactive discussions, and question-and-answer sessions. Such activities provided participants with opportunities not only to receive health information but also to discuss health-related issues and clarify concepts that had previously been inadequately understood. The high level of knowledge among all participants suggests that PHBS educational interventions are particularly relevant in the dayah environment, where students live and interact collectively and where individual health behaviours can influence the health of the wider boarding school community. Nevertheless, because the posttest was administered immediately after the intervention and the study involved a relatively small number of participants without a control group, these findings primarily reflect short-term improvements in knowledge rather than sustained behavioural change. Therefore, continuous health education, periodic monitoring, and follow-up activities are necessary to determine whether the increased knowledge is maintained over time and translated into consistent PHBS practices. Overall, the results presented in Table 3 provide positive evidence regarding the immediate effectiveness of the Healthy Dayah Movement in strengthening PHBS knowledge among students at Dayah Nurul Huda Ajee Cut, Aceh Besar.

**Table 4** presents the comparison of the mean scores obtained before and after the implementation of the PHBS education and counselling intervention. The results show that the mean score increased from 1.00 in the pretest to 2.00 in the posttest, indicating an improvement in participants' knowledge following the Healthy Dayah Movement. The pretest standard deviation was 0.000, while the posttest standard deviation was 0.767, indicating a shift in the distribution of scores after the intervention. Furthermore, the statistical analysis yielded a significance value of 0.000, which should be reported as $p < 0.001$ in scientific writing. This result indicates a statistically significant difference between the pretest and posttest measurements. The increase in the mean score is consistent with the descriptive findings presented in Tables 2 and 3, which showed that only 28% of participants were initially classified as having high knowledge, whereas all participants (100%) achieved the high-knowledge category after receiving the educational intervention. Collectively, these findings demonstrate a

substantial improvement in participants' immediate knowledge of Clean and Healthy Living Behaviour following the program's implementation.

**Table 4**. Comparison of Mean Pretest and Posttest Scores

| No. | Variable | Mean | SD | Sig. |
|---|---|---|---|---|
| 1 | *Pretest* | 1.00 | 0.000 | |
| 2 | *Posttest* | 2.00 | 0.767 | 0.000 |

The statistically significant improvement suggests that the structured educational activities delivered through the Healthy Dayah Movement contributed positively to strengthening participants' understanding of PHBS principles and practices. The combination of health counselling, direct information delivery, interactive discussion, and question-and-answer sessions may have facilitated participants' understanding of essential topics in personal hygiene, environmental sanitation, healthy lifestyles, and disease prevention. In the context of an Islamic boarding school, improving students' PHBS knowledge is particularly important because students live and interact within a communal environment where individual health practices can directly affect the wider community. Therefore, the significant difference between the pretest and posttest results provides empirical support for the use of structured health education as a practical approach to promoting health awareness among santri. However, the findings should be interpreted with caution because the study used a one-group pretest–posttest design with a small sample size and no control group. Consequently, the results demonstrate a significant short-term improvement in participants' knowledge but cannot independently establish long-term behavioural change or a definitive causal effect. Future community engagement programs should incorporate follow-up assessments, behavioural observations, and larger participant groups to evaluate the sustainability of PHBS practices and the broader impact of the Healthy Dayah Movement.

The novelty of this community engagement and research article lies in the implementation of the Healthy Dayah Movement as a context-specific and integrated health promotion model that combines structured PHBS education, interactive counselling, active participation of santri, and quantitative pretest–posttest evaluation within the distinctive socio-cultural and religious environment of an Acehnese Islamic boarding school. Unlike conventional community health education programs that primarily focus on one-way information delivery, this initiative positions santri as active participants in the learning process and potential agents of change who can promote clean and healthy living practices within their boarding school community. The program also integrates community engagement activities with measurable research-based evaluation, thereby providing empirical evidence of changes in participants' knowledge following the intervention. The substantial increase in the proportion of participants achieving a high level of PHBS knowledge, from 28% at pretest to 100% at posttest, further demonstrates the potential of this integrated approach. Thus, the Healthy Dayah Movement offers a practical and potentially replicable model for strengthening university–community collaboration, improving health literacy, and promoting sustainable, clean, and healthy living practices in Islamic boarding school environments, particularly in the local context of Aceh.

## 4. Conclusion

The Healthy Dayah Movement demonstrated that structured education and counselling on Clean and Healthy Living Behaviour (PHBS) positively improved students' knowledge and understanding at Dayah Nurul Huda Ajee Cut, Aceh Besar. The pretest results showed that participants had varying levels of initial knowledge, with 28% classified as having high knowledge, 44% as having moderate knowledge, and 28% as having low knowledge. Following the educational intervention, all participants (100%) achieved a high level of knowledge, with a mean score increasing from 1.00 on the pretest to 2.00 on the posttest and a statistically significant difference between the two measurements ($p < 0.001$). These findings indicate that context-specific health education, interactive counselling, and active participation can be effective approaches for strengthening PHBS knowledge among santri. The integration of community engagement activities with quantitative evaluation also highlights the Healthy

Dayah Movement's potential as a practical model for promoting health literacy and encouraging clean, healthy living practices within Islamic boarding school environments. However, given the small sample size, the absence of a control group, and the immediate post-intervention assessment, the findings should be interpreted primarily as evidence of short-term knowledge improvement. Future programs should involve larger participant groups, long-term follow-up assessments, behavioural observations, and continuous collaboration between universities and Islamic boarding schools to evaluate the sustainability of PHBS practices and strengthen the broader impact of health promotion initiatives in dayah communities.

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