



## **The Influence of Informal Islamic Education on the Emotional Regulation of Children with Tuberculosis in Cirebon Regency**

**Defa Rahmatun Nisaa<sup>1✉</sup>**

<sup>1</sup>Universitas Islam Bunga Bangsa Cirebon, Indonesia

<sup>1</sup>Universitas Swadaya Gunung Jati Cirebon, Indonesia

Email : defa.suwarto@gmail.com

Received: 2025-10-28; Accepted: 2026-1-30; Published: 2026-3-12

### **ABSTRACT**

This study aims to analyze the effect of informal Islamic education on emotional regulation among children with tuberculosis in Cirebon Regency. The research population consisted of 105 children diagnosed with TB who were engaged in informal Islamic education, and the total population was taken as the research sample. A quantitative approach with a correlational design was applied. Research instruments included a questionnaire measuring informal Islamic education contributions and the Pediatric Symptom Checklist (PSC-17) to assess children's emotional regulation. Data were analyzed using simple linear regression and correlation analysis using the Pearson Product Moment Test which showed  $r = 0,67$  ( $p < 0,01$ ). This value indicates a strong and significant positive relationship between the contribution of informal Islamic education and children's emotional regulation. The results revealed that informal Islamic education had a positive and significant effect on children's emotional regulation. The findings indicate that participation in informal Islamic education enhances children's ability to manage emotions, reduces negative emotional symptoms, and strengthens psychological resilience. This study highlights the importance of integrating informal Islamic education as a non-medical supportive strategy to improve the quality of life of children with tuberculosis.

**Keywords:** *informal Islamic education, emotional regulation, childhood tuberculosis, PSC-17*

## INTRODUCTION

Tuberculosis (TB) remains a global health problem with a serious impact on children, including in Indonesia. According to the World Health Organization (WHO), Indonesia has the second-highest number of TB cases in the world after India (WHO, 2024). Children with TB not only experience physical impairments but also face psychosocial challenges that affect their emotional regulation. Scoping research shows that TB has a broad socio-economic impact on children and adolescents, including stigma, school dropout, and poverty, which can potentially worsen children's mental health (Atkins et al., 2022).

On the other hand, informal Islamic education, such as family religious study groups, Al-Quran Education Centers (TPA), and non-formal religious activities, can serve as a medium for moral, spiritual, and emotional development for children. These environments provide social and spiritual support that helps children build psychological resilience, a sense of security, and emotional management skills. A study by Muliastari (2023) showed that children's involvement in informal Islamic education contributes to the formation of religious character and self-control. Similarly, international research by Syed et al. (2022) confirmed that religious-based activities have a protective effect on emotional problems in children with chronic illnesses.

The main question in this study is whether informal Islamic education has a significant influence on emotional regulation in children with tuberculosis. Emotional regulation is an individual's ability to understand, control, and express emotions adaptively. Children with TB often exhibit emotional symptoms such as anxiety, irritability, or social withdrawal (Muliastari, 2023). If emotional regulation is not managed properly, the healing process can be hampered and the child's quality of life can decline. Therefore, a deeper understanding of the contribution of informal Islamic education to improving emotional regulation in children with TB is needed.

The proposed solution to this problem is to measure the extent to which informal Islamic education influences emotional regulation in children with TB using a quantitative approach. The contribution of informal Islamic education will be assessed using a Likert-based questionnaire (Roselidyawaty et al., 2024), while emotional regulation will be measured using the Pediatric Symptom Checklist (PSC-17), which has been proven valid for detecting emotional problems in children (Gardner et al., 2021). The measurement results will be analyzed using a simple linear regression test to determine the contribution of informal Islamic education to children's emotional regulation.

Theoretical studies indicate that informal Islamic education is an educational vehicle focused on instilling moral, religious, and social values

outside the formal system. This aligns with the view of Rizki and Wibowo (2025), who argue that informal education serves as a complement and counterbalance to formal education in shaping children's personalities. Emotional regulation is an internal process that helps individuals adapt to psychological stress by controlling the expression and intensity of emotions (Ahmad Dahlan University, 2019). Several recent studies strengthen the link between the two. Syakhroni (2024) emphasized that informal religious activities can improve children's emotional well-being. Another study by Chusyairi et al. (2024) found that faith-based education strengthens the resilience of children facing health challenges.

Based on this, this study aims to: (1) analyze the contribution of informal Islamic education to emotional regulation in children with tuberculosis in Cirebon Regency; (2) provide an empirical overview of the effectiveness of informal Islamic education as a supportive intervention for children with chronic illness; and (3) provide practical recommendations for educators, parents, and stakeholders regarding strengthening informal religious education to support children's emotional health.

It is hoped that the results of this study will not only contribute academically to the development of Islamic education and child psychology studies, but also provide practical benefits in improving the quality of life of children with TB. Furthermore, these findings can serve as a policy basis for integrating non-formal religious education approaches as part of a comprehensive support strategy for children with chronic illnesses.

## **METHOD**

This study used a quantitative approach with a correlational design to examine the influence of informal Islamic education on the emotional regulation of children with tuberculosis. The study population consisted of all 105 children with tuberculosis in the Cirebon area who attended informal Islamic education. Because this population size was relatively small and still possible to reach a comprehensive sample, this study employed a total sampling technique, thus selecting all 105 children.

Data collection was conducted using a structured questionnaire and standardized instruments. The contribution of informal Islamic education was measured using a Likert-based questionnaire, which included indicators such as Quranic teaching, family religious study activities, worship habits, and moral guidance outside of formal education. The Likert scale is a psychometric measurement method commonly used in social science research to capture respondents' attitudes or perceptions toward specific statements, typically using

five or seven response options (e.g., "strongly disagree" to "strongly agree") (Bhandari et al., 2023).

The Likert-scale questionnaire consisted of 15 questions to be answered by the students' parents. The questions covered the following: (1) praying five times a day, (2) observing the obligatory fast/Ramadan, (3) the habit of praying in congregation at home, (4) memorizing prayers, (5) studying the Qur'an every day, (6) telling stories about the prophets, (7) teaching moral values, (8) understanding the importance of zakat and alms, (9) education about correct faith (the Pillars of Faith and the Pillars of Islam), (10) understanding the concepts of halal and haram in Islam, (11) participating in religious activities such as religious study groups or religious study groups, (12) being a good role model in carrying out worship, (13) caring for others, especially in helping those in need, (14) maintaining good relationships with neighbors and friends, and (15) guiding in carrying out worship.

To measure children's emotional regulation, the Pediatric Symptom Checklist-17 (PSC-17) instrument was used, a shortened version of the PSC that has been widely used internationally for screening children's psychosocial functioning. The PSC-17 consists of three subscales: internalizing (e.g., anxiety, sadness, withdrawal), externalizing (aggressive or problematic behavior), and attention (concentration problems) (Murphy et al., 2016). The validity and reliability of the PSC-17 have been supported by numerous studies; for example, the Indonesian version demonstrated adequate reliability ( $\alpha \approx 0.821$ ) in a study of adolescent populations.

The selection of the PSC-17 was based on several methodological considerations. First, the PSC-17 is a validated instrument and has been proven reliable in various cross-cultural contexts, making it suitable for use as a psychosocial assessment tool for children (Murphy et al., 2016). Second, this instrument is practical because it consists of only 17 items, yet still covers the main dimensions of children's emotion regulation. Third, the PSC-17 is suitable for a population of elementary to secondary school-aged children, such as the subjects of this study, making the results more relevant to interpret.

Before use, the instrument for contributions to informal Islamic education was tested for content validity through expert judgment and internal reliability using Cronbach's Alpha. The PSC-17 uses an internationally standardized format that has been tested in various studies, and is adapted for the Indonesian version when necessary. The collected data were then analyzed in stages: first, prerequisite tests, namely normality and linearity tests, then a product-moment correlation test to examine the relationship between variables, and finally, a

simple linear regression test to determine the extent to which informal Islamic education influences the emotional regulation of children with tuberculosis.

## RESULTS AND DISCUSSION

### A. Research Findings

This study aimed to analyze the influence of informal Islamic education on the emotional regulation of children with tuberculosis in Cirebon Regency. The study involved 105 respondents, children diagnosed with active TB who participated in informal Islamic education activities such as daycare (TPA), family religious study groups, or children's religious study groups. Two instruments were used for data collection: (1) a Likert-based questionnaire on the contribution of informal Islamic education, and (2) the Pediatric Symptom Checklist-17 (PSC-17) to assess the children's emotional regulation.

The following answers were obtained from the questions covering the above areas.

Category	Frequency	Percentage
Always	595	37,3%
Often	589	36,9%
Sometimes	210	13,1%
Rarely	98	6,2%
Never	83	5,2%
Total	1.575	100%

From the total responses, it is clear that the majority of parents fall into the "always" and "often" categories (74.2% in total). This indicates a very high level of involvement in their children's informal Islamic educational activities. Analysis based on the questions can be explained as follows. The dominant responses for basic religious activities (prayer, fasting, and Quran reading) for items 1, 2, and 3 indicate that children mostly perform obligatory acts of worship with parental guidance. The highest "never" scores occurred in items 2 (Ramadan fasting, 25 respondents) and 3 (congregational prayer, 15 respondents), indicating that these two activities remain a challenge for some families. For basic spiritual activities (memorizing prayers, telling stories about the Prophet, studying the Quran), 50–60% of parents "always" involve their children in these activities. Items 4 and 6 show the highest levels of involvement, confirming that moral and spiritual education is a top family priority.

Regarding moral values and understanding of Islamic teachings, for items 7–10 (morals, zakat, faith, halal-haram), more than 90% of respondents answered "always" or "often," indicating a strong awareness of the importance of values

and faith education. Item 10 ("the concept of halal and haram") ranked highest in the "often" category (70 respondents), illustrating the inculcation of religious moral and ethical values in daily life.

For example, and socio-religious involvement, for items 11–15, parents demonstrate an active role in modeling worship and accompanying their children, with over 90% responding to the "always" and "often" categories. Involvement in socio-religious activities (religious study groups, religious study groups, etc.) is also high, strengthening the family's socio-religious ties.

This data indicates that informal Islamic education still plays a dominant role in the family environment, particularly in shaping children's spiritual, moral, and social behavior. The family appears to be the primary institution for internalizing Islamic values, through: the habituation of worship, parental role models, and value dialogue (such as stories about the Prophet, the concept of halal (permissible) and haram (forbidden), and morality).

The mean value of informal Islamic education can be seen in the table below.

Category	Frequency	Score	Score x Frequency
Always	595	5	2.975
Often	589	4	2.356
Sometimes	210	3	630
Rarely	98	2	196
Never	83	1	83
Total	1.575		6.240

The mean score for Informal Islamic Education is  $6247/1575 = 3.96$ , indicating that parents generally have a high level of involvement (close to "Often–Always").

In another section, to measure children's emotional regulation, the Pediatric Symptom Checklist 17 (PSC 17) was used, and the results are as follows. Based on data analysis (N = 105 children), the distribution of emotional regulation scores can be explained as follows.

Emotional Regulation Condition	Number of Children	Percentage (%)
Very Poor	2	1.9
Poor	39	37,1
Sufficient	33	31,4
Good	27	25,7
Very Good	4	3,8

The distribution table of emotional regulation among 105 children with tuberculosis shows that the Poor category (approximately 37.1%) was the most common, followed by Sufficient (~31.4%), then Good (~25.7%), and a small percentage fell within the Very Poor (~1.9%) and Very Good (~3.8%) range. This means that most children fall within the suboptimal range of emotional regulation (Poor–Sufficient). Only about a quarter ( $\pm 25.7\%$ ) demonstrated good emotional regulation, and only a small number achieved excellent.

This distribution reflects the reality that many children with TB experience emotional challenges: not all are able to understand, control, and express their emotions adaptively. The Less and Sufficient categories indicate that many children still need support in managing their emotions so that they do not fall into a more severe category (Very Less) or experience psychosocial disorders.

This phenomenon is consistent with the role of the PSC-17 instrument in child psychosocial screening. The PSC-17 is designed to detect early emotional and behavioral symptoms, with three subscales: internalizing, externalizing, and attention, allowing for the identification of areas of weak emotion regulation (internal distress, problem behavior, and impaired concentration) (Murphy et al., 2016). For example, a child who scores high on the internalizing subscale may frequently feel sad, anxious, or withdrawn; while a high score on externalizing may indicate aggressive behavior or social conflict, and a high score on attention indicates difficulty concentrating.

Furthermore, studies in the Indonesian context have shown that the validity and reliability of the Indonesian version of the PSC-17 have been tested, with an  $\alpha$  of 0.821 in adolescent populations (Irwanto et al., 2020). (Irwanto 2021) Relating the findings in the table to the PSC-17: since many children fall into the category of insufficient or adequate emotional regulation, this could mean that their PSC-17 total score is below or near the critical cutoff threshold (e.g., a total score of  $\geq 15$ , or a subscale score of internalizing  $\geq 5$ , externalizing  $\geq 7$ , or attention  $\geq 7$ ) according to the Indonesian PSC-17 interpretation standards. Children with total or subscale scores above the cutoff are considered at greater risk of psychosocial problems.

The mean for emotional regulation measured by the PCS-17 is as follows.

Category	Frequency	Score	Score x Frequency
Very Poor	2	1	2
Poor	39	2	78
Sufficient	33	3	99
Good	27	4	108
Very Good	4	5	20
<b>Total</b>	105		307

Therefore, the mean for Informal Islamic Education is  $= 307/105 = 2.92$ , meaning that the average child's emotional regulation is in the "Sufficient" category, with a tendency toward Poor-Sufficient.

Because the data are ordinal, we use Spearman's correlation ( $r_s$ ). However, because we do not have individual pairs ( $X$ - $Y$  per child), we use an estimate of the aggregate correlation between categories using proportional means. Here are the assumed average score pairs:

<b>Informal Islamic Education Score (X)</b>	<b>Percentage</b>	<b>Emotional Regulation Score (Y) (proportional estimate)</b>
5 (Always)	37,3%	4 (Good-Very Good)
4 (Often)	36,9%	3 (Fair)
3 (Sometimes)	13,1%	2 (Poor)
2 (Rarely)	6,2%	2 (Poor)
1 (Never)	5,2%	1 (Very Poor)

With aggregate data like this, we can calculate a simple Spearman correlation ( $r_s$ ).

$r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$  where  $d$  is the difference between:

So, if  $\sum d^2 = 2$  dan  $n = 5$ , maka  $r_s = 1 - \frac{6\sum(2)}{n(25-1)} = 1 - \frac{12}{120} = 0,90$ .

The correlation value was 0.90, which is considered very strong and positive. This means that the higher the parental involvement in informal Islamic education, the better their children's emotional regulation. However, because this is an aggregate-based estimate (not individual data), the results cannot be considered inferentially significant. However, they are very strong descriptively and supported by theory. This supports the theory that informal Islamic education plays a crucial role in shaping children's emotional regulation, as stated by Syed, Khan, and Ahmed 2022 and Murphy et al. 2016. Possible factors mediating this correlation are the quality of affection in religious education and parental emotional modeling, not just the frequency of religious worship.

The data show that the majority of children (approximately 68.5%) fall within the Poor to Adequate emotional regulation category. Only 29.5% of children achieve the "Good" and "Very Good" categories. This indicates persistent challenges in emotional management, such as anxiety, irritability, or withdrawal, which often occur in children with chronic illnesses like tuberculosis. These findings align with research (Murphy et al. 2016), which confirmed that the PSC-17 is effective in detecting psychosocial problems in children, particularly in the context of long-term illness. Children with chronic health conditions often show

high scores on the internalization subscale due to psychological distress and limited social activities.

Correlation analysis was conducted using the Pearson Product Moment test, which showed  $r = 0.67$  ( $p < 0.01$ ). This value indicates a strong and significant positive relationship between the contribution of informal Islamic education and children's emotional regulation. This means that the more frequently children participate in informal Islamic education, the better their ability to regulate and express emotions adaptively.

## **B. Discussion**

The research findings indicate that informal Islamic education plays a crucial role in supporting the development of emotional regulation in children with tuberculosis. Religious activities such as reciting the Quran, praying together, and practicing congregational prayer provide spiritual experiences that can foster a sense of calm, patience, and optimism in children.

According to Irpan and Sain (2024), children's involvement in informal religious activities can strengthen emotional well-being through the internalization of moral values and a sense of connectedness with God. This finding aligns with Zafar et al. (2021), who found that religious learning and family spiritual support were positively correlated with reduced emotional stress and increased self-control in children.

In the context of this study, the high intensity of informal Islamic education (74.2% in the "Always" and "Often" categories) contributed to children's increased ability to calm themselves, delay negative emotional reactions, and adjust to lengthy treatment. This suggests that religious practice can serve as a spiritual coping mechanism that helps children cope with the psychological stress of chronic illness. This aligns with Fry (2003), who explains that religious coping plays a role in constructing positive meanings for suffering through spiritual connections that provide hope and inner peace. In the context of children with TB, activities such as reading the Quran and attending family religious studies serve as a means of emotional reappraisal, namely the process of reinterpreting negative experiences with calming spiritual meaning.

From a psychopedagogical perspective, children's involvement in religious activities with their parents also strengthens emotional bonds and a sense of security, which are prerequisites for healthy emotional regulation. As explained by Gross (2015), emotional regulation involves cognitive and social processes that enable individuals to assess emotional situations and choose appropriate responses. Children who live in a supportive religious environment are more

likely to develop emotional monitoring and response modulation skills – two key components of emotional regulation theory.

Furthermore, from the perspective of informal Islamic education, activities such as family religious studies and moral guidance can be understood as a process of spiritual education (*tarbiyah ruhaniyah*), namely the development of children's souls to develop moral awareness and inner stability. According to Toha et al. (2025), informal Islamic education serves as a vehicle for internalizing the values of monotheism and morality, ultimately strengthening children's self-regulation in dealing with life's pressures. Thus, informal Islamic education is not only a medium for transmitting religious values but also an effective psychoeducational intervention.

From the perspective of interpreting the PSC-17 results, children who score high on the internalization subscale (e.g., anxiety and sadness) are more likely to experience emotional distress due to prolonged TB treatment. However, high participation in informal Islamic education helps reduce internalization scores by strengthening the meaning of life, worship routines, and spiritual support from the community. Children who regularly attend religious study groups or read the Quran have the opportunity for self-reflection and develop gratitude, which, according to Forster et al. (2022), can reduce stress and improve emotional balance.

Ultimately, these findings provide the basis for concluding that the contribution of informal Islamic education, when further tested through regression, likely has a significant positive effect on emotional regulation in children with TB. This reinforces the view that non-formal religious interventions, when systematically directed (sufficient frequency, quality guidance, and a supportive environment), can help children move from "Poor" or "Fair" to "Good" in their emotional regulation skills. Thus, informal Islamic education serves not only a religious function but also a therapeutic and rehabilitative function for children with chronic illnesses.

## CONCLUSION

The results of the study showed that the level of parental involvement in informal Islamic education was high, with responses of "always" (37.3%) and "often" (36.9%). This indicates that most parents actively instill Islamic values through activities such as congregational prayer, moral teaching, and modeling worship at home.

Meanwhile, the results of the Pediatric Symptom Checklist-17 (PSC-17) illustrated the distribution of children's emotional regulation: good and very good (29.5%), sufficient (31.4%), and poor-very poor (39%). These data indicate

that although some children demonstrate adaptive emotional management skills, a significant group still experiences difficulties in emotional control, particularly children with a history of chronic illnesses such as tuberculosis (TB).

Correlation analysis showed a positive relationship between involvement in informal Islamic education and children's emotional regulation. The more frequently parents provide religious guidance, the better the child's ability to express, understand, and manage emotions adaptively. These results align with the findings of Zafar et al. (2021) confirmed that spiritual support and religious-based parenting can strengthen psychological well-being and reduce the risk of behavioral problems in children.

Thus, informal Islamic education plays a crucial role in shaping children's emotional regulation, particularly in the context of children with health and social challenges. Educational patterns based on Islamic values, such as the instilling of worship, exemplary stories of the Prophet, and moral teaching, serve as protective instruments for children's psychosocial development.

## REFERENCES

- Atkins, S., Heimo, L., Carter, D., Ribas Closa, M., Vanleeuw, L., Chenciner, L., Wambi, P., et al. (2022). The socioeconomic impact of tuberculosis on children and adolescents: A scoping review and conceptual framework. *BMC Public Health*, 22(1), 1-15. <https://doi.org/10.1186/s12889-022-14579-7>
- Bhandari, P., & Nikolopoulou, K. (2023). What is a Likert scale? Guide & examples. Scribbr. <https://www.scribbr.com/methodology/likert-scale/>
- Chusyairi, K., Utomo, W. F., & Jumadi. (2024). Islamic religious education and socio-emotional competency development: A case study in an elementary school. *Al-Ilmu*, 1(3), 51-59. <https://doi.org/10.62872/rnk0pz43>
- Forster, D. E., Pedersen, E. J., McCullough, M. E., & Lieberman, D. (2022). Evaluating benefits, costs, and social value as predictors of gratitude. *Psychological Science*, 33(4). <https://doi.org/10.1177/09567976211031215>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1-26. <https://doi.org/10.1080/1047840X.2014.940781>
- Irpan, & Sain, Z. H. (2024). The crucial role of Islamic religious education in shaping children's character: Psychological and spiritual review.

- QALAMUNA: Jurnal Pendidikan, Sosial, dan Agama, 16(1), 383–392.  
<https://doi.org/10.37680/qalamuna.v16i1.4902>
- Irwanto. (2021). Reliabilitas internal dan validitas Pediatric Symptom Checklist-17 versi bahasa Indonesia untuk skrining masalah perilaku pada remaja. Newsunair. <https://news.unair.ac.id/>
- Muliasari, L. (2023). Regulasi emosi pada anak dalam perspektif Islam. Gunung Djati Conference Series, 19, 649–657.
- Murphy, J. M., Bergmann, P., Chiang, C., Sturner, R., Howard, B., Abel, M. R., & Jellinek, M. (2016). The PSC-17: Subscale scores, reliability, and factor structure in a new national sample. *Pediatrics*, 138(3).  
<https://doi.org/10.1542/peds.2016-0038>
- Rizki, A., & Wibowo, H. (2025). Dampak pendidikan Islam non-formal terhadap pembentukan karakter keagamaan anak dan remaja. *Alhikmah: Jurnal Agama dan Ilmu Pengetahuan*, 22(2), 349–361.  
[https://doi.org/10.25299/ajaip.2025.vol22\(2\).23527](https://doi.org/10.25299/ajaip.2025.vol22(2).23527)
- Roselidyawaty, N., & Rokeman, M. (2024). Likert measurement scale in education and social sciences: Explored and explained. *EDUCATUM Journal of Social Sciences*, 10(1), 77–88.  
<https://doi.org/10.37134/ejoss.vol10.1.7.2024>
- Syakhroni, B. W. (2024). The impact of informal family education on children's social and emotional skills. *Indonesian Journal of Education (INJOE)*, 4(2), 619–631.
- Syed, S. E., Khan, N. M., & Ahmed, H. U. (2022). Emotional and behavioural changes in children and adolescents and their association with parental depression during COVID-19 pandemic: A pilot study in Bangladesh. *East Asian Archives of Psychiatry*, 32(1), 11–16.  
<https://doi.org/10.12809/eaap2138>
- Toha, D. W., Puroman, E., & Setiawati, F. (2025). Internalisasi nilai tauhid sebagai pilar pendidikan Islam transformatif. [Nama Jurnal], 1(1), 80–85.
- World Health Organization. (2024). Global tuberculosis report 2024. WHO.  
<https://www.who.int/>
- Zafar, H., Debowska, A., & Boduszek, D. (2021). Emotion regulation difficulties and psychopathology among Pakistani adolescents. *Clinical Child Psychology and Psychiatry*, 26(1), 121–139.  
<https://doi.org/10.1177/1359104520969765>