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Education and Application of Deep Breathing Relaxation Techniques as a Means of Maintaining Psychological Health

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Abstract
Children living in orphanages are vulnerable to psychological distress due to limited emotional support, shared living environments, and previous adverse experiences. This community service program aimed to improve foster children's knowledge and practical skills in stress management through education and deep breathing relaxation techniques at Griya Yatim and Dhuafa Solo Branch. The program employed a face-to-face educational approach consisting of a pre-test, counseling session, direct practice of the 4-2-6 deep breathing technique, discussion, and post-test evaluation. Of the 16 registered foster children, 14 participated in all stages of the activity. The results showed a substantial improvement in participants' knowledge following the intervention. The proportion of participants in the good knowledge category increased from 21.4% in the pre-test to 85.7% in the post-test, while the poor knowledge category decreased from 28.6% to 0%. The mean knowledge score increased from 52.86 to 88.57. Participants were also able to perform the breathing technique correctly and reported feeling more relaxed after the exercise. In conclusion, education combined with direct deep breathing relaxation practice effectively improved foster children's understanding of psychological health and stress management. This approach provides a simple, low-cost, and applicable strategy for supporting psychological well-being in orphanage settings. Regular implementation of this intervention may help strengthen independent coping skills and emotional self-regulation among foster children in a sustainable manner.

INTRODUCTION

An individual's health is not only determined by physical conditions but also by balanced psychological and mental well-being. One community group that is particularly vulnerable to psychological health challenges is children living in orphanages or Children's Social Welfare Institutions (Lembaga Kesejahteraan Sosial Anak/LKSA), including those at Griya Yatim and Dhuafa Solo Branch. As foster children in this institution, they experience a complex living structure that differs from the circumstances of children raised in nuclear families (Dewi, 2022). The transition from family-based care to institutional care may affect emotional attachment due to reduced access to consistent and personalized parental support. Within an orphanage environment, children must adapt to diverse group dynamics, limited privacy, and shared access to facilities and caregiver attention (Organization, 2024a, 2024b). These conditions, combined with previous adverse experiences such as parental loss, neglect, or family economic difficulties, may contribute to accumulated psychological stress (Kusuma

& Mardiyono, 2024). Research has shown that children living in foster care have a higher risk of psychological distress than those living with their families due to limited individual emotional support (Sari & Handayani, 2022).

Psychological distress that is unmanaged during childhood and adolescent development can affect learning concentration, social interactions among peers, and immune function. However, awareness and independent skills in recognizing and managing stress (stress management) among children and adolescents in orphanage settings remain limited. On the other hand, orphanage managers often prioritize basic needs, physical facilities, and formal education, resulting in limited implementation of psychological health maintenance programs (Pratiwi et al., 2024).

One of the effective, accessible, and non-pharmacological approaches for maintaining psychological stability is the deep breathing relaxation technique (Anggraini & Wardani, 2023). Physiologically, this self-regulation technique can stimulate the parasympathetic nervous system, reduce stress responses, decrease muscle tension, regulate heart rate, and promote a calming effect on the central nervous system (Purnomo & Utami, 2023; Wijaya, 2025). Regular practice of deep breathing relaxation exercises has been reported to reduce anxiety levels and improve emotional regulation in community settings (Rahmawati & Setiawan, 2023).

Considering the strategic location of Griya Yatim and Dhuafa Solo Branch in an urban environment with high activity intensity, mental health education interventions are highly relevant. Therefore, this community service activity was conducted to equip foster children and orphanage managers with practical skills to independently maintain psychological health through structured relaxation techniques (Indonesia., 2008b, 2008a) .

A. Problem Solving

Based on the situational analysis and psychological vulnerabilities experienced by the partners, the service team proposed promotive, preventive, and self-applied solutions. The main intervention involved education and the application of stress management strategies through deep breathing relaxation techniques designed to suit the dynamics of orphanage life. The service team provided fundamental knowledge regarding the importance of maintaining emotional stability, recognizing early signs of psychological distress, such as anxiety, irritability, and difficulty concentrating, as well as understanding how communal living environments may influence psychological well-being (Chiang et al., 2009; Khng, 2017).

The approach was conducted interactively to encourage foster children to provide mutual support (peer support) when observing signs of stress among their peers. The service team also provided direct training for foster children and orphanage administrators on the correct implementation of the deep breathing relaxation technique.An individual's health is not only judged from the physical dimension, but also from the psychological and mental dimensions that are balanced. One of the community groups that has a fairly high vulnerability to psychological health challenges is children living in orphanages or Children's Social Welfare Institutions (LKSA), one of which is Griya Yatim and Dhuafa Solo Branch. As foster children in Griya Yatim and Dhuafa Solo Branch, they are faced with a complex life structure and are different from children in general (Bargale et al., 2021; Sridhar et al., 2019; Zaccaro et al., 2018). The shift in parenting from the nuclear family to institutional parenting often triggers a loss of emotional attachment that is intimate and personal. In the orphanage environment, they have to adapt to the heterogeneous dynamics of group life, limited privacy space, and the need

to share facilities and caregivers' attention. This condition, when coupled with the shadow of past trauma such as the loss of a parent, neglect, or the economic difficulties of the family of origin, can create an accumulation of heavy psychological burden. Research shows that children living in foster care have a higher risk of psychological distress than children living with an entire family due to limited personal emotional support (Sari & Handayani, 2022).

Psychological conditions that are depressed or not managed properly in children of growth and development age can affect their concentration of learning, social interaction between fellow dormitory residents, and their immunity. Unfortunately, awareness and independent ability to recognize and manage stress (*stress management*) at the level of children and adolescents in orphanage environments are often still limited. On the other hand, orphanage managers generally focus more on meeting basic logistical needs, physical facilities, and formal education, so that the applicable aspects of mental health maintenance have not been optimally facilitated (A. E. Pratiwi & al., 2024).

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One of the most effective, easy-to-learn, and no-cost non-pharmacological methods for maintaining psychological stability is the deep breathing relaxation technique. Physiologically, this self-intervention technique is able to stimulate the parasympathetic nervous system to reduce the production of stress hormones (cortisol), reduce muscle tension, decrease pulse frequency, and provide a calming effect on the central nervous system (Purnomo & Utami, 2023 in Wijaya, 2025). When implemented regularly, deep breathing exercises have been shown to significantly lower community-based anxiety levels and improve emotion regulation (Rahmawati & Setiawan, 2023).

Seeing the strategic location of Griya Yatim and Dhuafa Solo Branch which are located in urban areas with dense activities, interventions in the form of mental health education are very relevant. Therefore, this community service activity is important to be carried out to equip foster children and orphanage managers with practical skills in maintaining psychological health independently through structured relaxation techniques.

B. Problem Solving

Based on the analysis of the situation and psychological vulnerability faced by the partners, the service team offers solutions that are promotive, preventive, and self-applied. The main solution offered is education and the application of stress management through deep breathing relaxation techniques, which are specially designed to fit the dynamics of dormitory life. The service team will provide a fundamental understanding of the importance of maintaining emotional stability, recognize early signs of psychological distress (such as anxiety, irritability, or difficulty concentrating), as well as how the dynamics of boarding life can affect their mentality. The approach is carried out interactively so that foster children can support each other (*peer-support*) each other when they see their friends starting to show symptoms of stress.

The service team will also train foster children and orphanage administrators directly to perform the correct deep breathing technique.

METHODS

The community service activity was conducted through face-to-face meetings with the following stages:

1. Pre-test: A pre-test was administered to assess participants' initial knowledge regarding stress management and deep breathing relaxation techniques.
2. Counseling and Practice: Participants received education on stress management and practiced deep breathing relaxation techniques directly with guidance from the service team.
3. Discussion: A discussion session was conducted to explore participants' experiences and understanding of stress management and deep breathing relaxation techniques after the practice session.
4. Post-test: A post-test was administered to evaluate changes in participants' knowledge after the intervention and assess the effectiveness of the program (Afifah & Nugroho, 2024).

The target participants of this activity were 16 children from Griya Yatim and Dhuafa Solo Branch. The activity was conducted on Thursday, June 25, 2026, starting at 08:00 until completion, at Griya Yatim and Dhuafa Solo Branch.

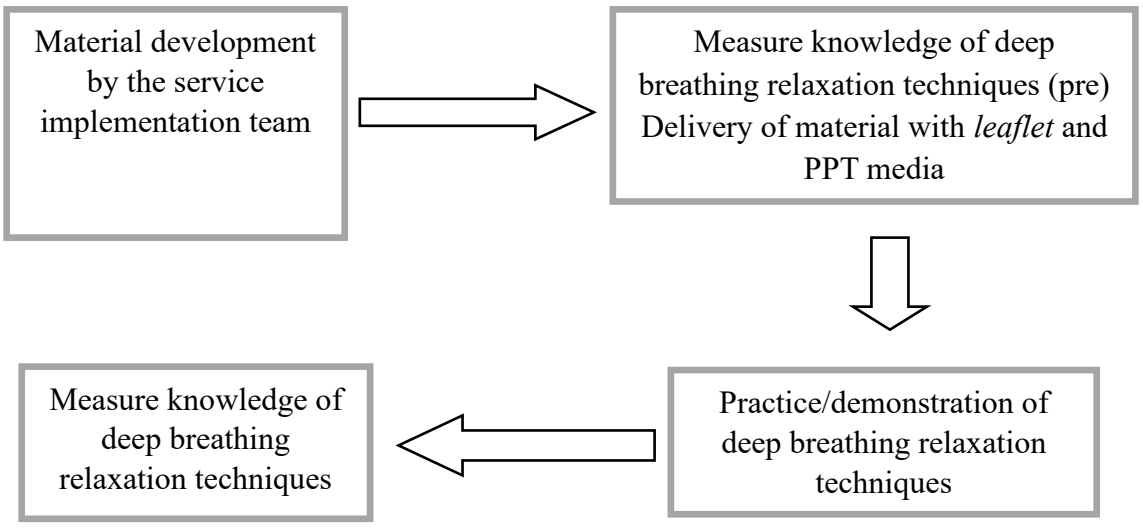

Figure 1. Flow Diagram for the Implementation of Service Activities

Table 1. Division of Duties in the Implementation of Counseling

Yes	Departments	Duties
1.	Editor-in-chief	a. Discussion with Foundation stakeholders b. Digging into the initial data c. Preparing Activity Proposals Prepare a scheme and schedule of activities together with the foundation . Developing learning materials according to the needs of the

		foundation f. Conducting counseling and practice/demonstration g. Evaluate activities h. Create activity reports
2.	Member I	a. Develop counseling materials with the chief proposer b. Preparing assessment instruments (Questionnaire) Coordinating the infrastructure of activities with the foundation d. Assist the chief proposer in compiling the report activities and publications.
3.	Member II	a. Become an MC (Master of Ceremony) during the activity b. Acting as an administrator of activity files :. Help Members Setting Up Research/Assessment Instruments Become a facilitator of participants during interactive discussion sessions.
4.	Member III	a. Distribute the Leaflet to all participants in the class . Help set up equipment (laptop, projector, sound system) and classroom setting c. Become a facilitator of participants during the activity.
5.	Member IV	a. Document the entire series of activities (photo and video) as report material. Assisting member III in preparing technical equipment such as laptops, projectors, and sound systems. Managing the attendance of children in counseling orphanages through attendance sheets d. Assist the Proposer Chairman in collecting data ;tionnaire.
6.	Members V and VI	a. Distributing snacks to participants Accompanying students during group discussion sessions to keep the atmosphere conducive. Help with room arrangement (*place setting*) before and after the activity ends. Ensure that all educational media (*leaflets*) have been received by every student in the class

RESULTS AND DISCUSSION

Community service activities have been carried out smoothly and orderly on Thursday, June 25, 2026 at Griya Yatim and Dhuafa Solo Branch. The activity began with the introduction of the service team and remarks from the supervisor of the service team. Before presenting the material, the service team gave *pre-test questions* to find out the level of knowledge of participants about deep breathing relaxation techniques. After that, counseling on deep breathing relaxation techniques was carried out as an effort to maintain psychological health. After completing the material, practicing deep breathing relaxation techniques and discussion sessions, the service team provides *post-test questions* to determine the increase in participants' knowledge.

The total number of foster children registered in the orphanage is 16 children. At the time of the counseling, as many as 14 children attended and participated in all stages of the activity from start to finish, while 2 children could not attend due to illness.

Characteristics of Respondents by Age

Table 3. Characteristics of Respondents Based on Attendance Status

Yes	Attendance Status	Frequency (n)	Percentage (%)
1	Attend counseling	14	87,5 %
2	Absent (sick)	2	12,5 %
	Total Foster Population	**16**	**100**

Characteristics of Respondents by Gender

Of the total 16 foster children in the orphanage, there are 2 girls and 14 boys. Because 1 girl was sick at the time of the activity, the female respondents who attended the activity amounted to 1 person (7.1%), while the male respondents amounted to 13 people (92.9%). The distribution of data is presented in the following table 4:

Table 4. Characteristics of Respondents by Gender

Yes	Gender	Population (n=16)	Attendees (n=14)	Percentage of Participants (%)
1	Male	14 (87,5 %)	13	92,9 %
2	Women	2 (12,5 %)	1	7,1 %
	Total	**100 %**	**14**	**100 %**

Characteristics of Respondents Based on Education

Based on the level of formal education that was being pursued by the 14 participants who attended, the audience consisted of 9 children (64.3%) at the elementary school (SD) level and 5 children (35.7%) at the junior high school level, as detailed in table 5:

Table 5. Characteristics of Respondents Based on Education

Yes	Attendance Status	Frequency (n)	Percentage (%)
1	Elementary (Ages 7-12)	9	64,3 %
2	Junior High School (Ages 13-15 years)	5	35,7 %
	Total Foster Population	**14**	**100%**

Characteristics of Respondents Based on Knowledge of Deep Breathing Relaxation Techniques

The success rate of knowledge transfer was evaluated through the provision of a questionnaire instrument containing 5 objective questions (score per question = 20, maximum total score = 100). The category of knowledge level of participants is grouped into three levels based on the percentage standard: Good: Score 80 – 100 (able to answer 4 to 5 questions correctly) Sufficient: Score 60 (able to answer 3 questions correctly) Low: Score ≤ 40 (only able to answer 0 to 2 questions correctly) Comparison of the distribution of participants' knowledge level categories before education (*pre-test*) and after education and relaxation technique training (*post-test*) is presented in detail in the following table 6:

Table 6. Characteristics of Respondents Based on Knowledge of Deep Breathing Relaxation Techniques

Yes	Knowledge Categories	Pre-test		Post-test	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1	Good (Score 80-100)	3	21,4 %	12	85,7 %
2	Enough (Score 60)	7	50 %	2	14,3 %
3	Less (≤ 40)	4	28,6 %	0	0 %

Based on the data in table 6 above, there is a very significant increase in the percentage of success. Increase in the Good category: The number of respondents who had a good level of knowledge jumped drastically from 3 people (21.4%) during *the pre-test* to 12 people (85.7%) during *the post-test*, or an increase of +64.3%. Decrease in the sufficient category and elimination of the insufficient category: Respondents in the sufficient category were reduced from 7 children (50.0%) to 2 children (14.3%), and respondents in the Less category which originally amounted to 4 children (28.6%) were fully reduced to 0 children (0.0%). Increase in Average Score: The average knowledge value of foster children increased by +35.71 points, from 52.86 (poor-adequate category) to 88.57 (very good category), reflecting a 67.5% increase in intervention effectiveness from the baseline score.

The psychological health of foster children in orphanages is a fundamental determinant for optimizing growth and development, building independent character, and achieving academic achievement. Children living in LKSA orphanages have psychosocial challenges, where they have to get used to the limited attention sharing of caregivers and the lack of private personal space in the dormitory environment. This often triggers mild to moderate emotional distress which manifests in the form of anxiety, irritability, and difficulty concentrating while studying (Sari & Handayani, 2022; Pratiwi et al., 2024). The results of the evaluation analysis before the activity (*pre-test*) confirmed that most foster children (78.6%) did not have an adequate understanding of the concept of biological stress and how to overcome it, where 50.0% of respondents were in the sufficient category and 28.6% in the poor category with an average group score of only 52.86. Children generally consider palpitations, tense muscles, or dizziness when facing problems as purely physical illnesses and do not know that it is a physiological response to stress that can be controlled through breathing. The provision of health education through *power point* media combined with *leaflets* has proven to be effective in bridging participants' understanding, especially in the elementary (64.3%) and junior high (35.7%) age groups. The delivery of material in communicative, simple language, and interspersed with analogies of the human body made participants enthusiastic about following the course of counseling. This is in line with research by (Fauzi & Lestari, 2025) which states that an attractive mix of instructional visual media at the target age of children and adolescents has been shown to significantly improve cognitive retention and self-efficacy in stress management.

The most essential aspect of this devotional program is the training sessions and hands-on demonstrations of breathing relaxation techniques in the 4-2-6 rhythm pattern diaphragm. Intensive one-on-one assistance by a team of lecturers and six implementing students allowed

each foster child to practice how to breathe deeply through the nose (4 seconds) until the stomach expands, hold it for a moment (2 seconds), and exhale it slowly through the mouth (6 seconds) for 5 to 10 cycles. Neurophysiologically, the children's success in mastering the 4-2-6 breathing rhythm triggers direct stimulation of the vagus nerve that activates the parasympathetic nervous system. This process decreases the transmission of sympathetic impulses, decreases heart rate, and relaxes the tension of striated muscle fibers throughout the body (Wijaya, 2025) During the practice session, participants verbally conveyed that their bodies felt lighter, relaxed, and the tension in the head subsided. The success of this counseling method and practice is clearly reflected in the results of *the post-test*, where 85.7% of participants (12 children) managed to achieve a good category score and there are no more participants who are in the poor category, with an average score of 88.57. This practical skill is permanent, independent, and free of charge, so it can be applied at any time by foster children in the dormitory room before going to bed at night or before starting learning activities together at Griya Yatim and Dhuafa Solo Branch.

CONCLUSION

The community service program on education and the application of deep breathing relaxation techniques at Griya Yatim and Dhuafa Solo Branch demonstrated a substantial improvement in foster children's knowledge and practical understanding of stress management. Of the 16 registered foster children, 14 participated in all stages of the program, which consisted of a pre-test, counseling session, practical demonstration, discussion, and post-test. The proportion of participants in the good knowledge category increased from 21.4% before the intervention to 85.7% after the intervention, while the proportion of participants in the poor knowledge category decreased from 28.6% to 0%. In addition, the mean knowledge score increased from 52.86 to 88.57, indicating that the combination of psychoeducation, visual learning media, and direct practice of the 4-2-6 deep breathing technique effectively improved participants' understanding of psychological health maintenance and independent stress management. Participants were also able to perform the breathing technique appropriately and reported feeling more relaxed after the exercise. These findings indicate that deep breathing relaxation education is a practical, accessible, and low-cost approach that can be independently applied by foster children in their daily activities.

Future research and community service programs are recommended to involve a larger number of participants from multiple Children's Social Welfare Institutions (Lembaga Kesejahteraan Sosial Anak/LKSA) to improve the generalizability of the findings. Subsequent studies should also include longer follow-up periods to determine whether improvements in knowledge and deep breathing skills are maintained over time and whether regular practice produces measurable changes in anxiety levels, perceived stress, emotional regulation, sleep quality, or other psychological outcomes. The use of validated psychological instruments and physiological indicators, such as heart rate or autonomic responses, may further strengthen the evaluation of intervention effectiveness. In addition, future programs may compare deep breathing relaxation techniques with other non-pharmacological stress management strategies or integrate them with peer support, mindfulness-based approaches, and structured psychosocial education. Continuous involvement of orphanage caregivers is also recommended to ensure that deep breathing relaxation exercises can be incorporated into routine activities and

practiced consistently as a sustainable strategy for supporting foster children's psychological well-being.

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