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Empowering Posyandu Cadres: Psychoeducation on the Psychological Role of Parents in Preventing Childhood Stunting

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ABSTRACT

Background: *Stunting affects approximately 149 million children globally, with Indonesia reporting 24% prevalence in 2022. Inappropriate parenting practices and parental psychological factors significantly contribute to stunting. This community service aimed to enhance community knowledge about the psychological role of parents in stunting prevention through psychoeducation intervention.*

Methods: *Participatory Action Research (PAR) method was employed involving 20 posyandu cadres from Pagesangan sub-district, Surabaya. The intervention consisted of a 90-minute psychoeducation session, accompanied by leaflet distribution. The research stages included intake process, assessment, psychoeducation implementation, and evaluation. Pre-test and post-test assessments were administered verbally to measure knowledge changes.*

Results: *Significant knowledge improvement was observed. Pre-test showed 85% of participants understood stunting only as malnutrition, while post-test revealed 100% could comprehensively explain stunting as multifaceted growth failure. All participants (100%) demonstrated improved understanding of psychological factors including psychosocial stimulation, parenting practices, and maternal mental health. Knowledge about stunting risks increased substantially, with all participants identifying cognitive, motor, and verbal developmental impairments. Follow-up assessment indicated 93% of participants disseminated information to their communities and 80% implemented preventive measures in posyandu activities.*

Conclusion: *Psychoeducation effectively increased community knowledge about parental psychological aspects in stunting prevention. This community-based approach can be implemented to reduce stunting rates through empowering posyandu cadres as health information disseminators.*

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INTRODUCTION

According to UNICEF, stunting remains a significant global nutritional problem, particularly in low- and middle-income countries (1). The World Health Organization (WHO) defines stunting as a growth and developmental disorder in children resulting from chronic malnutrition, recurrent infections, and inadequate psychosocial stimulation (2). Stunting increases the risk of morbidity and mortality, impairs brain and motor development, and negatively affects cognitive function. In the long term, stunting is associated with poor academic performance and reduced human capital quality, which ultimately hinders national development (3). Therefore, comprehensive efforts from both government and community stakeholders are essential to address this issue.

Data from the Indonesian Nutrition Status Survey (SSGI) indicate that the prevalence of stunting in Indonesia remains at 24%, affecting approximately 6 million children under five. This figure exceeds the WHO threshold of 20% (4). In Surabaya, stunting also remains a public health concern. According to the Surabaya City Office of Women's Empowerment, Child Protection, Population Control, and Family Planning (DP3APPKB), 1.100 cases of stunting were recorded as of September 2022 (5). These cases are distributed across all subdistricts, highlighting the need for sustained preventive interventions to support the city government's target of significantly reducing stunting rates.

Maternal knowledge of child nutrition significantly influences stunting outcomes. Inappropriate parenting practices, the absence of exclusive breastfeeding during the first six months of life, and improper timing of complementary feeding are important determinants. Early introduction of complementary foods may disrupt the child's digestive system and result in inadequate nutrient intake. Additionally, the provision of instant or nutritionally imbalanced foods, along with permissive parental attitudes toward children's eating habits, further increases the risk. Family economic factors, parents' educational background, environmental hygiene, and socio-cultural factors also have an influence on stunting in children (6).

Stunting represents growth faltering caused by the cumulative effects of nutritional deficiencies occurring from pregnancy until the child reaches 24 months of age (3). This indicates that stunting prevention must begin during the prenatal period. Maternal psychological conditions, such as depression and anxiety during pregnancy, can adversely affect fetal health and increase the risk of low birth weight (LBW), which is a known risk factor for stunting (7). Therefore, both the physical and psychological well-being of pregnant women are critical components of stunting prevention strategies.

Clinically, stunting is defined as impaired linear growth, reflected in height-for-age measurements below standard references due to chronic malnutrition and recurrent infections (8)(9). It is influenced by inadequate intake of essential nutrients such as protein, calories, and vitamin D, which plays a role in iron absorption (10), as well as factors including infectious diseases, poor sanitation, early marriage, low birth weight, parental education and employment, and overall household socioeconomic conditions (11). The effects extend into adulthood; according to WHO, stunting is associated with impaired cognitive, motor, and verbal abilities, lower academic achievement, and an increased likelihood of lower educational attainment and income, thereby perpetuating intergenerational cycles of poverty and poor health (12).

From a psychosocial perspective, parental factors also influence stunting outcomes. Parents of stunted children may experience stress, shame, and social withdrawal, which can negatively affect caregiving practices and family well-being (13). Maternal age is

another important determinant; younger mothers may lack the emotional maturity, knowledge, and experience necessary for optimal childcare practices. Emotional instability during pregnancy may also increase the risk of preterm birth (14). Furthermore, inadequate supervision of children's hygiene, limited understanding of exclusive breastfeeding and appropriate complementary feeding practices, and poor household sanitation increase susceptibility to infections that exacerbate nutritional deficiencies.

Given these multifactorial determinants, community-based empowerment initiatives are necessary to address not only nutritional factors but also parenting practices and parental psychological well-being. Therefore, this empowerment program was implemented in Pagesangan Village, Surabaya. The selection of this location was based on the presence of stunting cases in the area and the active involvement of the local Family Welfare Movement (PKK) mothers' group, which has strong potential to function as community change agents.

This community service activity aimed to enhance the knowledge and capacity of posyandu cadres regarding the psychological role of parents in stunting prevention, enabling them to serve as health educatores within their communities. Through a psychoeducational approach focusing on nutritional knowledge, parenting practices, and parental psychological awareness, it is expected that PKK members will disseminate preventive strategies within their communities. Psychoeducation has previously been shown to be effective in improving community knowledge and parenting practices related to stunting prevention. Overall, this program is expected to contribute to reducing the risk of stunting and to support the Surabaya City Government's efforts to promote healthier and higher-quality future generations.

METHODS

This study uses the Participatory Action Research (PAR) method, with the aim of involving active participation from parties outside the research team. The PAR method is a method that actively involves stakeholders or related parties in analyzing ongoing problems with the aim of making changes and improvements for the better (15). Therefore, we involved posyandu cadres in each RT and RW of the Pagesangan urban village to be the subjects of our research.

The subjects were 20 posyandu cadres selected through purposive sampling from various RT and RW in Pagesangan sub-district. Inclusion criteria included is active posyandu cadres for at least one year, aged 25-55 years, willing to participate in the entire research process, and having direct interaction with mothers and pregnant women in their community. The posyandu cadres in Pagesangan Village conduct routine integrated health service posts monthly, with coordination meetings held every four weeks.

The psychoeducation session was strategically scheduled during their regular December coordination meeting on December 16, 2022, to ensure optimal attendance and facilitate integration of the new knowledge into their ongoing community health activities. Data collection utilized semi-structured interview guides for the intake and assessment stages; pre-test and post-test questionnaires administered verbally containing five main questions about stunting knowledge, psychological factors, and prevention strategies; field observation notes; and psychoeducation leaflets as educational media.

Materiales we used in this research are: (1) the intake process stage, conducted through introductions with stakeholder representatives; (2) the assessment stage; conducted through problem analysis that can be changed or improved through a group approach and planning; (3) the psychoeducation implementation stage, conducted

through material presentation; and (4) the evaluation stage, conducted by reviewing what has been implemented (16).

Intake Process Stage (September 16-17, 2022)

Conducted through introductions with stakeholder representatives, including the village head, posyandu coordinator, and posyandu cadres. Initial rapport building was established through home visits and informal meetings. Asset mapping was conducted on September 17, 2022, to identify community strengths including individuals, organizations, physical structures, economy, and socio-cultural aspects.

Assessment Stage (September 23 - November 21, 2022)

Conducted through problem analysis using PRA techniques including social mapping, seasonal calendars, Venn diagrams, and trend analysis tables. Information discussion was held on September 23, 2022, with key community members. Problem consultation meeting was conducted on November 21, 2022, involving PKK mothers, KSH cadres, and village officials. Primary data were collected through interviews with stakeholders and direct observations of posyandu activities. Secondary data were obtained from Surabaya City Health Office reports. Based on the assessment, high stunting rates in Pagesangan Village were identified as the main problem, while active participation of PKK mothers, posyandu staff, and KSH cadres was recognized as significant potential for intervention.

Planning Stage (December 3, 2022)

Following the assessment, researchers collaboratively designed the psychoeducation intervention with stakeholders. The planning meeting determined the intervention format, material content, target participants, and implementation schedule. This collaborative planning process ensured that the intervention was contextually appropriate, feasible, and aligned with community needs.

Psychoeducation Implementation Stage (December 16, 2022)

A 90-minute structured psychoeducation session was conducted at the Pagesangan Village Hall. The session covered definition and criteria of stunting, causes of stunting with emphasis on parenting practices, psychological factors including maternal age, mental health during pregnancy and breastfeeding, and emotional stability, impacts of stunting on child development including cognitive, motor, and verbal aspects, and interactive discussion and question-answer session. Visual aids including PowerPoint presentations and educational leaflets were distributed to enhance understanding and provide reference materials for participants.

Evaluation Stage (December 16, 2022, and Follow-Up)

Pre-test and post-test assessments were administered verbally immediately before and after the psychoeducation session. Participants' responses were recorded and categorized thematically. Follow-up interviews were conducted for two weeks' post-intervention to assess knowledge retention and behavioral changes

Qualitative data from interviews and observations were analyzed using thematic analysis approach. Pre-test and post-test responses were compared descriptively to identify knowledge changes. Response accuracy was measured based on completeness and correctness of answers according to established stunting literature.

RESULTS

The psychoeducation intervention conducted in this study demonstrated significant improvements in participants' knowledge about stunting and the psychological role of parents in its prevention. The psychoeducation activity was conducted on December 16, 2022, at the Pagesangan Village Hall with 20 posyandu cadres in attendance. The session began with a pre-test assessment, followed by a 90-minute structured presentation covering comprehensive information about stunting and parental psychological factors.

The atmosphere during the activity was highly engaging, with participants showing enthusiastic involvement throughout the session. The session concluded with a post-test assessment to evaluate immediate knowledge gains. The collaborative involvement of stakeholders, including the village head and posyandu coordinator, strengthened the implementation and demonstrated strong community support for stunting prevention initiatives.



Figure 1. Providing Psychoeducation Related to Editing to The Audience

The pre-test administered verbally by the presenter revealed limited understanding among participants regarding comprehensive aspects of stunting. As shown in Table 1, when asked about the definition of stunting, none of the participants (0%, n=0) provided a comprehensive correct answer. While 85% of participants (n=17) mentioned malnutrition, they failed to include other essential components such as brain development impairment and metabolic disorders, resulting in 100% incorrect responses (n=20). All participants (100%, n=20) identified poor nutrition as the sole cause of stunting, indicating a narrow perspective on the etiology of this condition, which was categorized as incorrect (n=20) due to the incomplete understanding of multiple causative factors.

Notably, no participants (0%, n=0) were aware that parental psychological aspects could contribute to stunting occurrence before the intervention, resulting in 100% incorrect responses (n=20) for question 3. When asked about psychological factors causing stunting (question 4), only 11 participants (55%) mentioned stress and received partial credit as correct answers, while 9 participants (45%) could not identify any psychological contributors and were marked incorrect. Furthermore, no participants (0%, n=0) could articulate the specific risks associated with stunting, with all 20 participants

(100%) providing general or no responses, demonstrating a significant knowledge gap that needed addressing.

Table 1. Psychoeducational Pretest (n = 20)

No.	Question	Answer	Correct Answers n (%)	Incorrect Answers n (%)
1.	Do you know what stunting is?	85% of participants answered malnutrition (incomplete understanding)	0 (0%)	20 (100%)
2.	What are the causes of stunting?	100% of participants answered poor nutrition only (single factor)	0 (0%)	20 (100%)
3.	Did you know the parents' psychological aspects can be a cause of stunting?	0% of participants were aware	0 (0%)	20 (100%)
4.	What psychological aspects are factors causing stunting?	55% of participants answered stress; 45% could not answer	11 (55%)	9 (45%)
5.	What are the risks of stunting that you know of?	0% of participants could identify specific risks	0 (0%)	20 (100%)

Following the 90-minute psychoeducation session, substantial knowledge improvements were observed across all assessed domains (Table 2). All participants (100%, n=20) demonstrated a comprehensive understanding of stunting definition, correctly identifying it as "growth failure due to malnutrition that also causes impaired brain development, metabolism, and physical growth in children. This represents a significant shift from the pre-intervention understanding, where stunting was perceived merely as a nutritional problem.

Regarding causes of stunting, post-test results showed that all participants (100%, n=20) could identify multiple contributing factors, including: parental ignorance about healthy and nutritious food during pregnancy, lack of exclusive breastfeeding, poor hygiene practices, and economic factors. This multi-causal understanding represents a 100% improvement from the baseline where only single-factor causation was recognized.

Awareness of psychological aspects showed remarkable improvement, with all participants (100%, n=20) acknowledging that parental psychological factors can cause stunting. Specific psychological factors identified by participants included: lack of psychosocial stimulation, inappropriate parenting practices, history of mental disorders, and maternal hypertension. This represents a complete transformation from pre-intervention, where psychological factors were largely unknown or limited to stress alone.

Knowledge about stunting risks also improved substantially. All participants (100%, n=20) could mention several risks including impaired cognitive, motor, and verbal development. Many participants (65%, n=13) additionally mentioned long-term consequences such as reduced academic performance and lower earning potential in

adulthood, indicating deep processing of the educational material provided.

Table 2. Psychoeducational Posttest (n =20)

No.	Question	Participants' Response	Correct Answers n (%)	Incorrect Answers n (%)
1	Do you know what stunting is?	All participants correctly defined stunting as growth failure caused by chronic malnutrition, leading to impaired brain development, metabolism, and physical growth in children.	20 (100)	0 (0)
2	What are the causes of stunting?	All participants identified several causes of stunting, including inadequate parental knowledge of nutrition during pregnancy, lack of exclusive breastfeeding, poor hygiene practices, and socioeconomic factors.	20 (100)	0 (0)
3	Did you know that parents' psychological aspects can contribute to stunting?	All participants acknowledged that parental psychological factors could contribute to stunting.	20 (100)	0 (0)
4	What psychological aspects contribute to stunting?	Participants mentioned psychological factors such as lack of psychosocial stimulation, inappropriate parenting practices, maternal mental health problems, and maternal hypertension.	20 (100)	0 (0)
5	What risks of stunting do you know?	All participants identified risks of stunting, including impaired cognitive, motor, and verbal development.	20 (100)	0 (0)

There was a noticeable difference in the participants' answers before and after they were given material about stunting, the risks of stunting, the causes of stunting, and the relationship between stunting and the psychological aspects of parents. From the two tables above, it can be concluded that there was a change in knowledge about the causes and definition of stunting. In addition to changes in knowledge, participants also gained additional knowledge about how parents' psychological aspects can affect stunting in children and the dangers of stunting on children's growth and development in the future, starting from cognitive, motor, and verbal aspects.

DISCUSSION

The empowerment activity was carried out by researchers using the Participatory Rural Appraisal (PRA) technique in Pagesangan Village, Surabaya. The empowerment involved all parties in Pagesangan Village, starting from the head of Pagesangan Village, the head of the Pagesangan Village health center, and the women of the Pagesangan Village Family Welfare Movement (PKK). In the empowerment activity, the researcher divided the implementation process into four stages, namely the intake process stage, the assessment stage, the psychoeducation activity implementation stage, and the evaluation stage.

The intake process stage included selecting the area to be empowered and then building trust with one of the representatives of the local community. The trust-building process was carried out as an introduction and an opening step to reach other elements of the community. In this empowerment program, the researchers visited the home of one of the members of the Pagesangan village to establish a relationship and hold discussions (17).

The next stage was the assessment stage, which was carried out to explore the problems that existed in the Pagesangan village area. From the problems that emerged, an analysis was then carried out on the factors causing the problems and also examined what could be done to overcome and resolve the problems that occurred. To facilitate this stage, the researchers conducted asset mapping, which included all the strengths of the Pagesangan urban village, ranging from individuals, organizations, physical structures, economy, and socio-culture (14).

Efforts to explore the problems and potential in Pagesangan Village were carried out using several PRA empowerment techniques. First, a social map was used to obtain an overview of the Pagesangan area. Second, a seasonal calendar was used to understand the patterns of life of the Pagesangan community so that the busy and free time of the Pagesangan Village community could be identified. Third, a Venn diagram was created to understand the relationship and influence of the institutions in Pagesangan Village on the Pagesangan community. Finally, a table of trends and changes was created to understand the developments and various changes that have occurred in Pagesangan Village (12).

In addition to using PRA techniques, the researchers also obtained primary data by conducting interviews with members of the Pagesangan village KSH and through direct observation. In addition to primary data, the researchers also used secondary data from the Surabaya city website. Based on the data obtained, it was found that the problems and potential of the Pagesangan village community are as follows: (a) Problems: the stunting rate is still high in Pagesangan Village; and (b) Potential: PKK mothers, posyandu (integrated health service post) staff, and KSH cadres are very active in helping Pagesangan Village to reduce the stunting rate.

An assessment process was also carried out to identify influential figures or stakeholders to be included in the empowerment activities conducted by the researchers. The stakeholders involved were the village officials, especially the village head of Pagesangan, the head of the PKK, and the head of the Posyandu, who were directly in contact with the women in Pagesangan Village to convey the information provided by the researchers regarding the problem of stunting and the psychological factors of parents that also play a role in the occurrence of stunting (12).

After conducting the assessment stage, the researcher chose to carry out an intervention in the form of psychoeducation related to the psychological role of parents

in preventing stunting in children. Psychoeducation itself is an intervention technique that focuses on educating participants about the challenges or problems that exist in the community. Psychoeducation was chosen as the form of intervention because it can be used for both individuals and groups. In addition, psychoeducation was chosen in line with the researcher's objective, which was to change the knowledge of mothers or parents in Pagesangan Village regarding misinformation about stunting and to increase their knowledge about the role of parents' psychological aspects in stunting in children (18).

The material provided included the definition and criteria of stunting in children, the causes focused on parenting practices, the psychological condition of mothers during pregnancy and breastfeeding, and social support from the community for parents, especially mothers, to prevent stunting in children, as well as risk factors for stunting in child development. The material was selected according to the actual problems occurring in Pagesangan Village. Before the education session, the community was given a pre-test on the material to be presented. The pre-test was conducted verbally using a question-and-answer technique directly by the presenter. The verbal method was chosen because the conditions were deemed unsuitable for a questionnaire format (18).

The evaluation stage was conducted to determine whether there were changes in the knowledge of the PKK mothers in Pagesangan Village after the psychoeducation was conducted by the researchers. There were 20 participants who attended the psychoeducation on the psychological role of parents in stunting in children. Pre-tests and post-tests were administered verbally to participants before and after the presentation of the material by the presenter. The pre-test and post-test questions included general knowledge about stunting, such as the causes and risks of stunting in children, participants' knowledge about the influence of psychological aspects of parents on stunting in children, and what psychological aspects can affect stunting in children.

From the results of the empowerment related to the provision of psychoeducation about stunting, it can be seen that there is a difference between before and after the psychoeducation was given. Before it was given, almost all of the community understood that stunting was caused by one problem, namely poor nutrition. In addition, many of the participants did not know that the psychological aspects of parents also had an effect on stunting in children. After receiving material related to general knowledge about stunting, such as the causes and risks of stunting in children, participants' knowledge about the influence of parents' psychological aspects on stunting in children, and also what psychological aspects can affect stunting in children, they learned that stunting can also be caused by poor parenting (19).

From the observations made, the community tended to be very enthusiastic about the psychoeducation conducted. This could be seen during the psychoeducation session. Many community members actively participated in the presentation of the material; some took notes, some recorded the presentation, and there were also several mothers who answered or responded when the material was presented. Community engagement through active participation is critical to ensure that intervention messages resonate with audiences and lead to meaningful knowledge change. Therefore, after psychoeducation was given, there was a difference in understanding. At first, the community did not understand, but eventually they understood the dangers of stunting for children's growth and development as well as their psychological well-being (20).

The findings of this study provide important implications for strengthening the role of health cadres at the community level. Through the PAR method, the empowerment of posyandu cadres proved effective in shifting the paradigm that stunting is not merely a

matter of height or nutritional intake alone but is also significantly influenced by parental psychosocial and mental factors. The practical implication is the need to integrate mental health and psychological parenting materials into routine posyandu programs, so that stunting prevention is carried out holistically. Theoretically, this study supports findings that psychoeducation-based interventions can significantly improve community health literacy.

Despite demonstrating positive results, this study has several limitations that warrant attention. The use of verbal testing methods for pre-test and post-test may introduce social desirability bias, where participants might answer simultaneously following other participants' responses. This study also only involved 20 cadres in one sub-district area; thus, the findings cannot be generalized to broader populations or regions with different cultural characteristics. The evaluation was conducted within a relatively short period following the intervention. This limit understanding regarding the sustainability of translating the acquired knowledge into long-term parenting behaviors within their respective home environments.

Based on the community activity findings and evaluation conducted, several recommendations are proposed. For parents and the community, it is expected that parents, especially pregnant mothers, pay greater attention to emotional stability and stress management, given that depression during pregnancy constitutes a significant risk factor for future stunting occurrence. For cadres and health workers, continuous and regular socialization regarding stunting prevention from a psychological perspective is necessary, rather than focusing solely on supplementary feeding programs. For future researchers, it is recommended to expand the sample size and diversity of research subjects. Subsequent studies should also employ more objective instruments and conduct long-term monitoring to examine the direct correlation between increased psychological knowledge and decreased stunting rates in the relevant areas.

CONCLUSIONS AND SUGGESTIONS

The community empowerment program in Pagesangan Village using psychoeducation demonstrated positive outcomes by improving community knowledge and correcting misconceptions about childhood stunting. The results, as shown in the table, indicate a significant increase in participants' understanding following the psychoeducation intervention. The recommendations include encouraging parents of children at risk of stunting to provide optimal stimulation and adequate nutrient-rich complementary feeding, promoting regular antenatal care visits for pregnant women to monitor fetal growth and development, and strengthening the role of Pagesangan Village health center cadres in routinely monitoring the health of pregnant women, infants, and toddlers while consistently delivering psychoeducation on childhood stunting prevention.

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DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

AI tools were used solely for grammar and language editing. The authors take full responsibility for the content and integrity of the manuscript.

CONFLICT OF INTERESTS

The author states that no conflicts of interest were identified in the implementation of this community service activity.

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