

## Validity And Reliability Of Parents' Knowledge And Attitudes Toward Hearing Impairment In Children Questionnaire Adaptation In Bahasa Indonesia

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### ABSTRACT

*Hearing impairment in children is a health issue that significantly affects communication abilities and social development. The role of parents is crucial in the early detection and intervention process, which is influenced by the level of knowledge and attitude toward the child's condition. The research aim to evaluate the validity and reliability parents' knowledge and attitudes toward hearing impairment in children questionnaire adaptation in bahasa indonesia. In the context of the Deaf Family Solo Raya (DFSR) community. This research employed a descriptive quantitative approach with a cross-sectional design. The sample consisted of 30 parents who are members of the DFSR community. The instrument used was a questionnaire adapted from the 2007 Position Statement and studies by Kaspar et al. and Alsudays et al., comprising 25 items on knowledge and 6 items on attitude. Validity was tested using Pearson correlation, and reliability was assessed using Cronbach's Alpha. The relationship between variables was analyzed using Pearson correlation with the assistance of SPSS version 26. All items on the knowledge and attitude variables were declared valid ( $p < 0.05$ ) and reliable, with Cronbach's Alpha values of 0.963 (knowledge) and 0.761 (attitude). A significant positive correlation was found between parental knowledge and attitudes toward childhood hearing loss ( $r = 0.761$ ;  $p = 0.000$ ). A high level of knowledge is closely associated with a positive attitude in addressing childhood hearing loss. This study recommends the importance of community-based educational and parental empowerment programs to support optimal early detection and intervention.*

**KEYWORDS** hearing loss; parental knowledge; attitude; deaf children; DFSR community



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## INTRODUCTION

Hearing impairment in children is a significant health issue with wide-ranging impacts on their communication, social, and cognitive development (Bennett, 2025; Hoffman et al., 2019; IBITOYE, 2021; Moore et al., 2020). According to the World Health Organization, approximately 34 million children worldwide experience hearing loss, with the highest prevalence in developing countries (Guo et al., 2024; Haile et al., 2021; LeClair & Saunders, 2019; Li et al., 2022). In Indonesia, data from the 2018 Basic Health Research (*Riskesdas*) indicate that around 2 to 3 out of every 1,000 live births experience permanent hearing impairment. This condition can negatively affect a child's language development and academic performance if not detected and addressed early. In managing hearing impairment, the family—particularly parents—plays a crucial role in decision-making regarding screening, diagnosis, and necessary interventions.

Parents' knowledge serves as the foundation for forming appropriate attitudes and actions to support children with hearing loss (Davids, 2020; Elrefaei et al., 2022; Kaspar et al., 2017; Mazlan & Dar, 2024). Without adequate knowledge, there is a greater risk of delayed detection and early intervention. A study by Gur (2019) showed that low levels of audiological health literacy among parents contribute to delays in accessing services. Beyond knowledge, attitude is also a key indicator of readiness to support a child's needs emotionally, socially, and practically. A positive attitude can foster active involvement in rehabilitation. Validity and Reliability of Parents' Knowledge and Attitudes Toward Hearing Impairment in Children Questionnaire Adaptation in Bahasa Indonesia

processes, while a lack of support may lead to psychosocial barriers that are detrimental to the child (Anaby et al., 2022; Maciver et al., 2019; Martin Ginis et al., 2016).

Several international studies, such as those by Alsudays et al. (2020) in Saudi Arabia and Kaspar et al. (2017) in the Solomon Islands, have identified a strong correlation between parents' level of knowledge and their attitudes toward childhood hearing loss. However, most of these studies have been conducted within general populations or hospital settings, with limited exploration into family-based communities such as the Deaf Family Community of Solo Raya (DFSR). Communities like DFSR actively support fellow parents with similar experiences and provide informal spaces for discussion and knowledge sharing. Community-based studies have the potential to offer more contextual and in-depth insights into how knowledge and attitudes are shaped within supportive social environments.

To date, empirical research in Indonesia that specifically explores the relationship between parents' knowledge and attitudes toward childhood hearing impairment remains scarce—especially studies involving communities with educational social structures. Research by Greenhalgh (2023) indicates that parental understanding of hearing loss is influenced by personal experiences and access to relevant information. However, such research has primarily focused on perceptions and has not quantitatively examined the relationship between knowledge and attitudes. This gap highlights the need for research that not only describes conditions but also systematically analyzes the relationships between variables within educational community contexts such as DFSR.

Considering the urgency of addressing hearing loss in children and the vital role parents play in this process, this study focuses on analyzing the relationship between parents' knowledge and attitudes toward hearing impairment, using the Deaf Family Community of Solo Raya as a case study. Furthermore, this research seeks to analyze the relationship between parental knowledge and attitudes, as well as to describe the profile of parental knowledge and attitudes in the context of community-based social support. This approach is expected to contribute theoretically to the development of child health and family education studies, while also offering practical insights for designing community-based educational programs.

## METHOD

This research is a quantitative descriptive study with a cross-sectional approach conducted within the Deaf Family Solo Raya (DFSR) community, which consists of parents of children with hearing impairment. The study aims to examine the relationship between parents' knowledge and attitudes toward hearing impairment in children. The research was carried out after obtaining approval and permission from the community administrators and adhered to ethical research principles.

The study subjects consisted of 30 parent respondents who are active members of the DFSR community. Inclusion criteria included parents who have children with hearing impairment, reside in the Solo Raya area, and are willing to complete the questionnaire independently. No additional exclusion criteria were applied, under the assumption that all respondents already met the basic eligibility requirements of community membership. Data collection was conducted directly with researcher assistance to ensure respondents' comprehension of the instrument.

The research instrument was a structured questionnaire adapted from the 2007 Position Statement and the study by Kaspar et al., (2017) as also utilized in the research by Alsudays et al. (2020). The questionnaire underwent linguistic and cultural adaptation into the Indonesian language. This adaptation process involved independent bilingual translators and was followed by a panel of experts to determine the most contextually appropriate word choices for the local community. The questionnaire consisted of 25 statement items for the knowledge variable and 6 statement items for the attitude variable.

Before being used in data collection, the questionnaire was subjected to a limited pilot test to evaluate language clarity and contextual relevance. Content validity was then assessed through expert judgment, and empirical validity was evaluated using Pearson correlation coefficients to ensure that each item accurately measured the intended construct. Instrument reliability was tested using Cronbach's Alpha coefficient to assess internal consistency among the items within each variable.

Data were analyzed using SPSS version 26.0. The analysis included descriptive statistics to portray respondent characteristics and frequency distributions, instrument validity and reliability testing, and Pearson correlation analysis to examine the relationship between parents' knowledge and attitudes. All statistical procedures were conducted with a significance level ( $\alpha$ ) of 0.05 and followed standard statistical interpretation guidelines in social and public health research.

## RESULT AND DISCUSSION

A total of 30 respondents were obtained from the Deaf Family Solo Raya (DFSR) Community, which is a community of parents who have children with hearing impairment. This study aimed to examine the relationship between parents' knowledge and attitudes toward hearing impairment in children. The results are presented to include respondent characteristics, validity testing, reliability testing, and correlation analysis between the studied variables.

**Table 1. Characteristics of Parent Respondents**

Criteria	Frequency	Percentage (%)
<b>Gender</b>		
Man	10	33.33
Female	20	66.67
<b>Ages</b>		
28 - 33 Years old	8	26.67
34 - 39 Years old	11	36.67
40 - 45 Years old	7	23.33
46 - 52 Years old	4	13.33
<b>Educational level</b>		
Elementary School	3	10.00
Senior High School	10	33.33
Junior High School	1	3.33
Diploma	1	3.33

Bachelor	12	40.00
Other	3	10.00

Source: Primary data processed by researchers, 2024

The respondent characteristics data show that the majority of parents in the DFSR community are female (66.67%), while male respondents account for only 33.33%. This indicates that mothers play a more dominant role in actively participating in the community related to children with hearing impairment. The most common age range among respondents is 34–39 years (36.67%), followed by 28–33 years (26.67%). This suggests that most respondents are in their productive age, which allows them to actively seek information and the best solutions for their children's condition.

In terms of educational background, most respondents are university graduates (40%), followed by high school graduates (33.33%). This reflects a relatively high level of education, which may contribute to a better understanding and attitude toward childhood hearing impairment. Meanwhile, only a small portion of respondents have a lower educational background (elementary and junior high school), accounting for 10% and 3.33%, respectively.

**Table 2. Validity Test of Parents' Knowledge and Attitude Variables using Pearson Correlation Coefficient**

Variable	Items	r	Sig.
Knowledge	K1	.439*	0.015
	K2	.767**	0.000
	K3	.819**	0.000
	K4	.762**	0.000
	K5	.722**	0.000
	K6	.845**	0.000
	K7	.829**	0.000
	K8	.852**	0.000
	K9	.808**	0.000
	K10	.773**	0.000
	K11	.708**	0.000
	K12	.821**	0.000
	K13	.820**	0.000
	K14	.862**	0.000
	K15	.782**	0.000
	K16	.619**	0.000
	K17	.602**	0.000
	K18	.702**	0.000
	K19	.702**	0.000
	K20	.764**	0.000
	K21	.757**	0.000
	K22	.820**	0.000
	K23	.468**	0.009
	K24	.590**	0.001
	K25	.429*	0.018
Attitude	ATT1	.830**	0.000
	ATT2	.714**	0.000

ATT3	.715 <sup>**</sup>	0.000
ATT4	.762 <sup>**</sup>	0.000
ATT5	.560 <sup>**</sup>	0.000
ATT6	.738 <sup>**</sup>	0.000

Source: Statistical analysis using SPSS 26

The validity test was conducted using the Pearson correlation coefficient and showed that all items in the knowledge variable (K1–K25) had significance values of  $< 0.05$ , indicating that they are valid. Most correlation values were very high, with some items scoring above 0.80 such as K3 (.819), K8 (.852), and K14 (.862) indicating that these items are particularly strong in measuring the knowledge construct. Similarly, for the attitude variable (ATT1–ATT6), all items demonstrated strong correlations. Overall, the questionnaire items for both variables met good validity criteria and were deemed suitable for further analysis.

**Table 3. Reliability Test of Parental Knowledge using Cronbach's Alpha Coefficient**

Question Items	Cronbach's Alpha if Items Deleted
K1	0.963
K2	0.961
K3	0.960
K4	0.961
K5	0.961
K6	0.960
K7	0.960
K8	0.960
K9	0.960
K10	0.961
K11	0.962
K12	0.960
K13	0.960
K14	0.960
K15	0.961
K16	0.962
K17	0.963
K18	0.961
K19	0.962
K20	0.961
K21	0.961
K22	0.960
K23	0.963
K24	0.962
K25	0.963
<b>Scale : Knowledge</b>	<b>Cronbach's Alpha = 0.963</b>

Source: Statistical analysis using SPSS 26

**Table 4. Reliability Test of Parents' Attitudes using Cronbach's Alpha Coefficient**

Question Items	Cronbach's Alpha if Item Deleted
ATT1	0.729
ATT2	0.769

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ATT3	0.765
ATT4	0.752
ATT5	0.840
ATT6	0.759
<b>Scale : Attitude</b>	<b>Cronbach's Alpha = 0.761</b>

Source: Statistical analysis using SPSS 26

For the attitude variable, the Cronbach's Alpha value was 0.761, indicating that the instrument's reliability falls within the good category ( $> 0.7$ ). Although not as high as the knowledge variable, this value still reflects that the items used are sufficiently consistent in measuring parents' attitudes. ATT5 had the highest "alpha if item deleted" value (0.840), suggesting that this item may have a weaker correlation with the other items.

**Table 5. Pearson Correlation of the Relationship between Parents' Knowledge and Attitudes Towards Hearing Loss in Children**

**Correlations**

		<b>Knowledge</b>	<b>Attitude</b>
<b>Knowledge</b>	Pearson Correlation	1	.761**
	Sig. (2-tailed)		.000
	N	30	30
<b>Attitude</b>	Pearson Correlation	.761**	1
	Sig. (2-tailed)	.000	
	N	30	30

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Statistical analysis using SPSS 26

The results of the Pearson correlation analysis showed a very strong and significant relationship between parents' knowledge and attitudes toward hearing impairment in children, with a correlation value of 0.761 and a significance level of 0.000 ( $p < 0.01$ ). This indicates that the higher the parents' knowledge about hearing impairment, the more positive their attitude in addressing the condition.

This study involved 30 respondents from the Deaf Family Solo Raya (DFSR) community, which consists of parents of children with hearing impairment. The majority of respondents were female (66.67%) and within the productive age range, particularly between 34–39 years old (36.67%). This indicates that mothers play a crucial role in supporting and managing children with hearing loss. Furthermore, 40% of respondents were university graduates, reflecting a relatively high level of education. Higher educational attainment is often associated with better health literacy, including early recognition of hearing impairments and the effective use of intervention services.<sup>8 12</sup>

The validity test of the research instrument showed that all items in both the knowledge variable (K1–K25) and the attitude variable (ATT1–ATT6) had significant correlation values ( $p < 0.05$ ), with most correlation coefficients ( $r$ ) above 0.70. This indicates that each item in the questionnaire strongly contributes to measuring its respective construct. Items such as K8 ( $r = 0.852$ ), K14 ( $r = 0.862$ ), and ATT1 ( $r = 0.830$ ) demonstrated very high correlation strengths. These findings support previous research emphasizing the importance of validating

instruments within local cultural contexts to obtain accurate and representative data.<sup>13</sup> Good validity reinforces the conclusion that the items used genuinely measure the intended knowledge and attitude constructs in this study.

The reliability for the knowledge variable showed excellent results, with a Cronbach's Alpha of 0.963. This indicates a very high internal consistency among all items, making the measurement results highly trustworthy. No single item increased the alpha value when deleted, suggesting that each item is highly relevant to the overall construct. An alpha value above 0.90 reflects excellent reliability,<sup>14</sup> and this result aligns with previous findings by Moon et al. (2022) and Alkholaifi et al., 2022 who stated that instruments with alpha values greater than 0.80 can provide consistent measurement across various contexts.

Meanwhile, the attitude variable yielded a Cronbach's Alpha of 0.761, categorized as fairly good. Although not as high as the knowledge variable, this value still indicates an acceptable level of internal consistency among the items. The highest "alpha if item deleted" value was found for ATT5 (0.840), suggesting that this item ma (2023) mentions that an alpha greater than 0.7 already reflects a reliable instrument, supporting the conclusion that the attitude scale effectively measures parents' perceptions and views toward childhood hearing impairment.

The Pearson correlation test showed a very strong and significant relationship between parental knowledge and attitudes, with a correlation value of  $r = 0.761$  and  $p = 0.000$ . This means that the more knowledge parents have about hearing impairment, the more positive their attitudes in dealing with the condition. This finding is in line with the studies by Spahn et al. (2003) and Walker et al., (2022) who stated that knowledge serves as the foundation for forming supportive attitudes toward managing children with special needs, including those with hearing loss. Adequate knowledge enables parents to accept their child's condition, participate actively in therapy, and make better-informed decisions throughout the rehabilitation process.<sup>20</sup>

Based on these findings, it can be concluded that educational and empowerment programs for parents in communities like DFSR are highly important and should be strengthened. The correlation between knowledge and attitude indicates that informative interventions can serve as an initial step in shaping positive perceptions and active parental support for their children. As Alsudays et al. (2020) pointed out, the success of hearing loss management heavily depends on parents' readiness to be emotionally, socially, and technically involved throughout the care process. Therefore, the results of this study can serve as a foundation for designing community-based programs that prioritize hearing health education and parenting skills training for parents of deaf children at the local level.

## CONCLUSION

This study concludes a very strong and significant positive relationship between parents' knowledge and attitudes toward hearing impairment in children, where higher knowledge levels foster more supportive attitudes and decision-making during rehabilitation. The adapted questionnaire demonstrated high validity and reliability, with strong Cronbach's Alpha for knowledge and acceptable consistency for attitudes, making it suitable for community-based psychosocial mapping of family roles in supporting children with sensory disabilities. Emphasizing community approaches, such as partnerships with the Deaf Family Validity and Reliability of Parents' Knowledge and Attitudes Toward Hearing Impairment in Children Questionnaire Adaptation in Bahasa Indonesia

Solo Raya, the findings advocate cross-sector collaboration among health professionals, educators, and facilitators for sustainable training programs promoting early detection and management. For future research, longitudinal studies could track how knowledge-attitude interventions impact long-term child outcomes in diverse Indonesian communities.

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