Original Article

Characteristics of Health Cadres in Efforts to Prevent Anemia and Stunting in Aceh Besar Regency, Indonesia

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ABSTRACT

OBJECTIVE: This research aims to identify health cadres' characteristics in the Aceh Besar Regency village.

METHODOLOGY: This study was an exploratory descriptive with a sample of 268 cadres using a purposive sampling method. Data collection used a demographic questionnaire with G-form, which was analyzed using univariate analysis.

RESULTS: The study results showed that the majority of respondents were in the early adulthood category (26-35 years; 35%), the majority's occupation was as housewives 216 (80.6%), the final education level was in the middle category 155 (57.8%) respondents, length of experience as a cadre was <5 years 136 (50.7%). In general, 235 (87.7%) had attended cadre training, 139 (51.9%) had never participated in anemia training, and 215 respondents (80.2%) had attended stunting training.

CONCLUSION: The study results showed that most cadres had never attended special training related to Anemia. Improving knowledge and skills regarding early detection of Anemia in pregnancy and stunting among children is necessary because they are part of the efforts to improve maternal and child health.

KEYWORDS: Child Health, Female, Pregnancy, Health Cadres, Anemia, Stunting

INTRODUCTION

Anemia in pregnant women is a major global problem, especially in developing countries like Indonesia, and has a significant influence on the quality of human resources. It is estimated that every second pregnant woman throughout the world experiences anemia[1]. Anemia is also one of the factors causing stunting, which can be prevented so that mothers and babies remain healthy and free of stunting starting from the first thousand days of life[2].

Anemia occurs due to the absence of iron stores and signs of impaired iron supply to the tissues. Children and women of childbearing age are the groups most susceptible to Anemia, including pregnant women[21]. The occurrence of Anemia during pregnancy is one of the factors that can affect the baby's birth weight. Severe Anemia during pregnancy can increase the likelihood of a baby being born with low birth weight, stunting, bleeding before and during childbirth, and even death of the mother and baby[1]. Pregnant women who experience Anemia will experience impaired oxygen and nutrient distribution from the mother to the placenta and fetus, which will affect the function of the placenta and result in impaired fetal growth and development[2]. Pregnant women who suffer from Anemia are 4 times more likely to cause children to become stunted compared to mothers who do not suffer from Anemia during pregnancy[28]

Anemia and stunting are two things that need special attention. Stunting is a condition where children under five (babies under five years) fail to thrive due to lack of nutrition during pregnancy, which results in the child's height being inadequate for their age[3]. According to the World Health Organization, the stunting rate worldwide in 2022 will reach 148.1 million, or 22.3% of children under 5 years of age. The incidence of stunting in the world is 52% of children living in Asia and 36.4% in Southeast Asia. Stunting has long-term impacts on individuals and society, which reduce cognitive and physical development, reduced productive capacity and poor health, and increased risk of degenerative diseases such as diabetes. If this condition continues to happen, then in 2025, the stunting rate for children under 5 years will reach 127 million people. Therefore, the World Health Organization requires investment and action to reduce the stunting rate to 100 million[4].

Prevention of stunting and anemia are two things that are interconnected and cannot be separated so that prevention can start during pregnancy. Improving maternal status and the health of infants and toddlers is one of the focuses of the MDGs by reducing morbidity and mortality rates and preventing diseases, including Anemia and stunting. Various efforts to avoid Anemia and stunting continue to be made, including community empowerment through the involvement of health cadres. Cadres are the main drivers of Integrated Service Post (*Posyandu*) activities. The active role of cadres is vital because it can influence the success of the *Posyandu* program, especially in monitoring children's growth and development[5].

Cadres are essential in collecting weight data and

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measuring body length/height, which is recorded in the Healthy Way Card. Cadres also provide knowledge about supplementary foods and vitamin A and provide nutritional education to pregnant women[5]. However, not all health cadres have received training in knowledge and skills related to Anemia and stunting, even though this is the basis for a cadre to carry out their societal role.

In improving maternal status, cadre characteristics are an essential factor that needs to be studied. Differences in the characteristics of a group can affect the ability to understand the knowledge and skills provided. To achieve targeted interventions, it is essential to carry out a study to find out the characteristics of health cadres, specifically in Aceh Besar District.

METHODOLOGY

Study Design

This study is an exploratory, descriptive study to obtain an overview of the characteristics of health cadres in preventing Anemia and stunting in Aceh Besar, Indonesia.

Population and Sample

This study's population was health cadres in the working area of Aceh Besar District Health Center. This study was conducted at 6 of the 23 selected Community Health Centers in the Aceh Besar Regency working area using a simple random sampling technique (using a lottery). The research was conducted from June-August 2024. Furthermore, from these 6 Community Health Centers, Health Cadres are determined according to the criteria assisted by the coordinating midwife. The sample for this study was 268 women health cadres using a purposive sampling technique. Respondents were recruited using the inclusion criteria: Active cadres, able to read and write, and willing to become respondents. Researchers worked with the midwife coordinator to select the participants based on the criteria. Data was collected in each village chosen by meeting cadres during activities.

Instrument

This study instrument consists of socio-demographic data consisting of age divided into five age levels (17-25 years, 26-35 years, 36-45 years, 46-55 years, and 56-65 years), occupation (working and housewife), an education level (low, middle, and high education), length of experience (< 5 years, 5-10 years, and > 10 years), general and specific training of cadre that has been received (Anemia and stunting training). Three experts from the maternity nursing department tested the instrument for consent.

Data Analysis

Data were analyzed using univariate analysis with frequencies and percentages of 8 characteristics of Health Cadres in Aceh Besar. The results obtained were entered into the frequency table. Univariate analysis was performed using the formula central tendency using SPSS software.

Ethical Statement

This research was approved by the Ethics Committee of Nursing Faculty, Syiah Kuala University, Banda Aceh, with code number 113001310724. All participants provided written informed consent. To maintain the confidentiality of respondent identity data, only researchers store respondent data, and it is only used for data analysis and is not disseminated. In addition, the published data does not include the names and addresses of respondents.

RESULTS

The Following results were obtained from the data collected from 268 respondents. **Table I** shows the characteristics of the total respondents. Most respondents were in the early adulthood category (26-35 years; 35%). The majority's occupation was as housewives (216 respondents; 80.6%), the final education level was in the middle category (155 respondents; 57.8%), and the majority length of experience as a cadre was <5 years (136 respondents; 50.7%). In general, 235 respondents (87.7%) had attended cadre training, and a total of 139 respondents (51.9%) had never participated in anemia training, while 215 respondents (80.2%) had attended stunting training.

Table I: Frequency Distribution of Data on Characteristics of Health Cadres (n = 268)

Characteristics	Frequency	Percent
Age (years)		
17-25	37	13.8
26-35	96	35.8
36-45	95	35.4
46-55	38	14.2
56-65	2	2
Occupation		
Housewife	216	80.6
Working	52	19.4
Education		
Low	31	11.6
Middle	155	57.8
High	82	30.6
Length of experience		
< 5 years	136	50.7
5-10 years	79	29.5
> 10 years	53	19.8
General Training of Cadres		
Yes	235	87.7
No	33	12.3
Training of cadres (Anemia)		
Yes	129	48.1
No	139	51.9
Training of cadres (Stunting)		
Yes	215	80.2
No	53	19.8

DISCUSSION

The following discussion explains five characteristics of health cadres: age, occupation, education, length of experience, and cadre training.

Age of Health Cadre

Based on statistical tests, it was found that the age characteristics of health cadres in Aceh Besar Regency were in the early adulthood category, which was 26-35 years (35.8%). Productive age is an age that has solid roles and activities as well as good cognitive abilities. This follows research in Gombong, Indonesia, which found that human understanding and thought patterns increase as people age, so the knowledge and understanding obtained becomes better[6]. Apart from that, as people get older, their experience, ethics, and quality of work will also increase[7]. The older a person, the more mature their maturity and strength will be in thinking and working.

Regarding public trust, someone more mature is more trusted than someone less mature. The respondent's age significantly influences a person's performance because experience changes will affect changes in age in a person's physical and mental condition, which will be reflected in daily life [8]. The role of health cadres is good because they are in the productive age range. At this age, a person becomes more independent and has a more realistic view of the future. Health cadres who are in the early adulthood stage already have insight and experience in caring for toddlers, so at that age, they have the awareness in themselves to provide the expertise they have by becoming a health cadre because by becoming a health cadre they can share their experiences with mothers who have a toddler. A person's age can form a broad knowledge base; the older they get, the wider the insight that health cadres have. This condition raises cadres' motivation to act according to their role.

As community leaders, health cadres have broader insight, so they are expected to develop community abilities in dealing with health problems [9]. Cadres are often associated with routine services at *Posyandu*, so a *Posyandu* cadre must be willing to work voluntarily and sincerely, willing and able to carry out *Posyandu* activities, and willing and able to mobilize the community to carry out and participate in *Posyandu* activities. A cadre must be willing to work voluntarily as a form of service to society. Cadres are also local community health workers selected by residents based on their ability, integrity, loyalty, and commitment to improving the community's health status and playing a role in developing strategies to overcome stunting [10].

Occupation of Health Cadre

The study showed that most cadres or community health providers' occupations were homemakers, with 216 respondents (80.6%). This makes cadres more focused on carrying out their role as health providers in the community, especially in improving the health of pregnant women, preventing Anemia in pregnant women, and preventing stunting. This follows research conducted in Tegal, Indonesia, which found that in both the control and intervention groups, the majority of cadres were homemakers, 71.9% in the intervention group and 93.8% in the control group. It showed that most respondents make cadres their primary job, so allocating time to increase knowledge is more optimal. Homemakers can obtain information through the surrounding social environment as well as mass media and social media so that they can have a better understanding than working mothers regarding the prevention of Anemia in pregnant women and the prevention of stunting[11].

Other studies also mentioned that cadres, as homemakers, are more concerned about improving their performance in carrying out *Posyandu* activities to improve the health of mothers, babies, and children. In addition, homemakers can update their knowledge by always following training at the health center level and in the village. This can increase the cadre's motivation and be optimal in carrying out their role in preventing stunting [12].

Education of Health Cadre

The analysis showed that most respondents' final education level was at secondary education level, with 155 respondents (57.8%) having a high school educational background and 82 respondents (30.6%) having a tertiary education level. Educational level characteristics can influence a person's knowledge [13]. Education plays a vital role in obtaining information, such as health information, to improve the quality of life and self-actualization. The higher a person's level of education, the easier it is to receive information, gain more knowledge, and improve their performance; this makes it easier to accept newly developed values[14].

This research was supported by a previous study in North Sumatra, Indonesia, which stated that most cadres' education was in high school (50%) [15]. Prior research about the knowledge and motivation of health cadres in stunting prevention among children in Indonesia also stated that the highest level of cadre education was at the high school level of 139 respondents (38.29%) [10]. Another research study regarding stunting prevention in Indonesia stated that 24 respondents (60%) had a high school education level[13].

The cadres' education level will impact maternal and child health services. Cadres who have a high level of education can carry out good management and learn more things so that they can have an impact on the surrounding community [16]. Therefore, a cadre needs to have a high level of education to more easily receive information or knowledge in efforts to prevent Anemia in pregnant women and stunting in children. The higher the education level of health cadres, the better the knowledge, skills, and education that can be provided to the community.

Length Experience

Based on the results of this study, it was found that

the majority of cadres with experience < 5 years as cadres in Aceh Besar were <50.7% (136 respondents). It showed that the cadre's expertise in the knowledge and skills in preventing Anemia and stunting is still lacking. One of the essential experiences for cadres is collecting data on pregnant women and toddlers. Qualitative research in Makassar involved KPM (human development cadres) as the primary information; 13.6% of village cadres had not entirely performed their duties in socializing stunting prevention policies to the community. Data were collected through interviews with mothers.

Meanwhile, for toddlers, the baby's length and height are measured as an early detection of stunting. Cadres are also tasked with providing outreach about the importance of maintaining toddler nutrition, which is carried out at Posyandu. If a toddler is not present at the posyandu, the cadre is tasked with visiting the toddler from house to house with a manual questionnaire and using an application[17].

The active involvement of cadres is very effective in improving maternal and child health. The cadres' knowledge and skills influence cadre activity in preventing Anemia and stunting. Another research conducted in South Sumatra on cadres using intervention and control groups found an increase in cadres' knowledge in preventing stunting through demonstration methods using an emotional approach in the form of interactive games; the P-value between before and after the intervention was 0.002. In contrast, the control group had no significant change, with a P-value of 0.321[18]. Other research to increase cadres' knowledge in preventing Anemia in pregnant women took the form of training for cadres through iron supplement control and education in providing education and skills in processing foods high in iron[19]. The longer someone has been a cadre, the greater their knowledge and skills. So that they are more proficient in carrying out their duties as health cadres in the village.

Health cadres Training

In general, 235 respondents (87.7%) had attended training, 215 respondents (80.2%) had participated in anemia training, and 168 respondents (62.7%) had attended stunting training. Anemia in pregnant women is a national health problem and has a significant impact, potentially endangering the fetus and pregnant mother [21]. So, cadres are needed as front guards in early detection or community screening, including Anemia and stunting[22]. The research results on 12 *Posyandu* cadres in cadre empowerment activities in Kediri District found that seven cadres had sufficient knowledge before giving the activities, and five cadres had good knowledge. Then, after providing the activities, it was found that 100% of the cadres had good knowledge about Anemia regarding the attitudes of the cadres. Before being given material about preventing and treating Anemia in pregnancy, seven cadres had a negative attitude. Then, the attitude of the cadres after being given the material was around 100%, and the cadres had a positive attitude[23].

Health cadre training on preventing Anemia in pregnant women in Bojonegoro Regency for 30 respondents showed increased knowledge (86.73%). The average value of communication, information, and education practices for most of the training participants was very good, with 21 participants (70%). All training participants could counsel 30 respondents (100%)[24]. Furthermore, research conducted on 30 health cadres on Kelapa Island and Harapan Island received community-supported interventions for treating Anemia in pregnant women. Knowledge and self-efficacy assessments before and after the intervention showed that the community support intervention significantly increased health cadres' knowledge about Anemia in pregnant women ($p < 0.05$). Furthermore, health cadres' self-efficacy also experienced a significant increase after the intervention ($p < 0.05$), where health cadres' knowledge of controlling Anemia in pregnant women (p-value= 0.000) and self-efficacy in preventing Anemia in pregnant women (p-value = 0.000)[25].

Cadre training has also proven to improve cadres' ability to detect stunting and risk factors early in toddlers. The training was carried out through learning activities for health cadres using the lecture method, question and answer method, and brainstorming accompanied by booklet/module training and demonstrations involving 53 health cadres at Tomini Health Center, Palu, Indonesia. The results of the different tests for each variable showed that the p-value of pre-post-test knowledge, attitudes, and skills of health cadres was 0.000 ($p < 0.05$). In addition, the average score for each variable obtained after health cadre training was more significant than before, including knowledge 17.392 > 12.264, attitude 33.603 > 27.226, and skills 90.019 > 62.113[26].

Another research conducted on 363 health cadres in 8 districts/cities in West Java Province showed that the majority of health cadres, which was 81.27%, had good knowledge; it was significantly influenced by the level of education and marital status with a P-value of <0.05. Meanwhile, 47.66% had moderate motivation, and 39.12% had high motivation. This motivation was significantly influenced by education level, marital status, and age, with a p-value of <0.05[10].

Previous research in Yogyakarta studied the effect of short courses on increasing cadre knowledge in reducing stunting through home visits to 30 *Posyandu* cadres. This research showed a significant increase in cadre knowledge in post-tests 1 and 2 and an increase in knowledge about monitoring child growth and development, monitoring child development, and feeding tiny babies among cadres. This short course also increases self-efficacy, self-confidence, and the ability to accompany stunted children through home visits[27].

Meanwhile, health cadres in Aceh Besar District have not been optimal in increasing their knowledge and

skills in preventing Anemia and stunting. The cadre training from several sub-districts in the five Aceh Besar Health Center Areas, such as health education, is primarily conventional. For this training, workshops and demonstrations are needed, which are more interactive to stimulate cadres to carry out their duties. The term of service for cadres in Aceh Besar District is less than 5 years due to a change in cadre formation. Still, research conducted at Kalangjadari and Cimangu Central Java showed no relationship between cadres' length of service (less than 5 years) and cadre knowledge. This is because cadres will receive regular training from health workers to carry out their duties and activities.

CONCLUSION

Based on the research objectives, it can be concluded that the characteristics commonly found in health cadres in Aceh Besar Regency are health cadres at the productive age (26-35 years), the majority's occupation is as housewives, the final education level is in the middle category, length of experience as a cadre is <5 years. In general, respondents had attended cadre training. In general, 235 respondents (87.7%) had participated in cadre training, and a total of 139 respondents (51.9%) had never attended anemia training, while 215 respondents (80.2%) had participated in stunting training. Efforts are needed to develop interventions specifically designed to increase the knowledge and skills of health cadres so that their involvement can have a direct impact on reducing the rate of Anemia and stunting in pregnant women.

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Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

AUTHOR CONTRIBUTION

Darmawati D: Coordinated the entire research process, wrote the initial manuscript, and critically reviewed the manuscript.
Juwita R: Carried out health education as part of a series of interventions.
Fitra A: Conducted the data collection and contributed to the data analysis.
Rizkia M: Wrote the protocol and monitored the data collection.
Kiftia M: Conducted the data collection and contributed to the data analysis.
Halifah E: Conducted the data collection and contributed to the data analysis.
Ardhia D: Conducted the data collection and contributed to the data analysis.
All authors have approved the final version of the article.

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