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DEMOGRAPHIC FACTORS AND COMMUNITY KNOWLEDGE OF DESA SIAGA FOR ENHANCHING MATERNAL AND NEONATAL HEALTH

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ABSTRACT
Community knowledge in health empowerment strategies is a crucial element for the success of health programmes. However, many factors influence the level of public knowledge about a programme. This study aims to identify the relationship between demographic factors such as gender, age, education, and occupation, and the level of community knowledge about the Desa SIAGA programme as a community empowerment approach to improve maternal and neonatal health. This research employs a descriptive correlational design with a quantitative survey method. The study involved 107 respondents from Desa Jati, Sukoharjo District, using a simple random sampling technique. The data was collected through a questionnaire survey containing questions to explore the public's knowledge about the SIAGA Village program to improve maternal and neonatal health. The collected data was then analyzed using bivariate analysis and tested using the Pearson Product Moment. The results indicate that the majority of respondents have sufficient knowledge about the Desa SIAGA programme. Age and gender were found to have a significant relationship with knowledge level, with older age and female gender being associated with better knowledge. In contrast, no significant relationship was found between education level and occupation with the level of knowledge about the Desa SIAGA programme. These findings highlight the importance of more intensive outreach and community-based approaches to improve public understanding of the Desa SIAGA programme, particularly among older age groups and men.

Keywords: community empowerment; community knowledge; demographic factors; desa SIAGA; maternal health; neonatal health

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INTRODUCTION

Improving maternal and newborn health remains a priority in Indonesia. In 2020, Indonesia held the seventh position among countries with the highest maternal mortality rates globally, despite a decrease in its maternal mortality ratio (MMR) from 272 deaths per 100,000 live births in 2000 to 173 deaths per 100,000 live births in 2020. Despite this decrease, Indonesia is still far from the WHO target of 70 maternal deaths per 100,000 live births (WHO, 2023). The steady decline in the maternal mortality rate (MMR) has occurred alongside a reduction in the neonatal mortality rate (NMR), which fell from 22.8 deaths per 1,000 live births in 2000 to 13.4 deaths per 1,000 live births by 2017 (Bank Dunia, 2021). Improving maternal and newborn health outcomes in this country faces several significant challenges, including the insufficient quality of maternal healthcare services, the skill levels of healthcare providers, and the limited availability of adequate healthcare facilities (Rosyidah et al., 2019). Over the last few decades, the Indonesian government has implemented various strategies to improve maternal and neonatal health (Andriani et al., 2022). One such strategy is the Desa SIAGA (Alert Village) programme. The Desa SIAGA initiative is a community-based approach developed by the government in the early 2000s, aimed at empowering local communities to actively participate in birth preparedness and complication readiness (Hill et al., 2014).

The Desa SIAGA programme seeks to improve maternal and newborn health by addressing the "three delays"—delays in decision-making, delays in accessing healthcare facilities, and delays in receiving care during childbirth—which are thought to contribute to the high maternal and newborn mortality rates (Kusuma et al., 2016; Thaddeus & Maine, 1994). Research shows that the Desa SIAGA programme has the ability to increase family and community knowledge and awareness about danger signs and childbirth preparedness, leading to collective social responsibility and enhanced community capacity (Anwar Fachry, 2009; Hill et al., 2014). A recent study using a comparative case study method to assess the effects of the Desa SIAGA programme on maternal and newborn health outcomes in Indonesia discovered that the programme has the potential to enhance maternal and neonatal health (Yulian, 2021). The study's main findings reveal several factors that either support or hinder the delivery and implementation of the Desa SIAGA programme. These include reports from stakeholders expressing concerns about the lack of clarity regarding roles and workload, as well as limited training to support the programme's implementation. Additionally, the lack of awareness about the Desa SIAGA programme among pregnant women and the community seems to impact the degree of their involvement in the programme (Adawiyah & Ramadhan, 2020). This highlights the need for further research on the community's understanding of Desa SIAGA as an approach to improving maternal and neonatal health. As research suggests that demographic factors can influence knowledge levels, it is crucial to explore the connection between these demographic factors and the community's knowledge of Desa SIAGA as a community empowerment strategy to improve maternal and neonatal health.

The study was carried out in Desa Jati, a village in Sukoharjo Regency known for implementing the Desa SIAGA programme to enhance the health of women and children. Based on preliminary interviews with several stakeholders, Desa Jati appears to be active in carrying out various community-based innovations, such as the Sabu-Sabu programme (One Cadre, One Mother) aimed at improving maternal and neonatal health. This programme involves health cadres who are volunteers from the local community. The community empowerment strategy in Desa Jati seems to be running well, however, further research is needed to assess the community's understanding of Desa SIAGA as one of the strategies for improving maternal and neonatal health and its correlation with the demographic factors. This study aims to examine the relationship between demographic factors and the level of community knowledge about the SIAGA Village program to improve maternal and neonatal health.

METHOD

This study is a descriptive correlational research. Data collection was conducted in Jati Village, which is within the working area of Gatak Community Health Centre, Sukoharjo Regency, Central Java, in August 2024, with a total population of 2,838 people. The sampling method used was simple random sampling, with inclusion criteria of Jati Village residents aged 17 to 60 years, who are able to read and write, and who have been exposed to the Desa SIAGA programme. The sample size in this study was 107 people, determined using the Slovin formula. This study received ethical approval from the Ethics Committee of the Faculty of Medicine, Universitas Muhammadiyah Surakarta, with approval number 5 275/B,2/KEPK-FKUMS/VII/2024. All respondents voluntarily participated in the survey without any coercion or incentives. Before completing the questionnaire, the respondents were given an explanation about the study, asked to sign an informed consent, and were informed that they had the right to withdraw from the study at any time without any consequences. However, by the end of this study, no respondents had withdrawn.

The research instrument used was a questionnaire consisting of two parts: demographic data and knowledge about the Desa SIAGA programme, which had been used in similar studies by the research team in the working area of other health centers. Kuesioner terdiri dari 16 item pertanyaan yang terdiri dari beberapa elemen untuk menggali pengetahuan masyarakat tentang Desa SIAGA untuk meningkatkan kesehatan maternal dan neonatal. Kuesioner telah diuji validitas dan reabilitasnya di wilayah kerja puskesmas lain yang juga telah menerapkan Desa SIAGA dengan karakteristik responden yang sama. Hasil uji validitas dan reabilitas kuesioner menunjukkan bahwa kuesioner valid dengan nilai p = 0,05 dan reliable dengan nilai Cronbach's Alpha lebih tinggi dari nilai dasar yaitu 0,762 > 0,70. The collected data were then analysed using bivariate and tested using the Pearson Product Moment.

RESULT

The respondents in this study totaled 107, with various different backgrounds. The demographic factors tested for correlation with knowledge levels in this study include gender, age, education, and occupation.

Knowledge Level Based on Demographic Data

1) Knowledge Level Based on Gender

In this study, the female group was more dominant in terms of the number of respondents (62 women compared to 45 men), and also had a higher number of individuals with good knowledge (11 women compared to 2 men) (Table 1). The majority of respondents from both genders had adequate knowledge of the Desa SIAGA programme, with 47 women and 35 men falling into this category. Men had more individuals with limited knowledge (8 men) compared to women, who had only 4 individuals in this category.

Table 1.
Knowledge Level Based on Gender

Gender	Knowledge Level			Total
	Good	Adequate	Limited	
Men	2	35	8	45
Women	11	47	4	62

Based on gender, women have more good knowledge about the Desa SIAGA programme to improve maternal and neonatal health compared to men, although adequate knowledge remains the dominant category in both groups (Table 1). There is a slight difference between men and women in the level of limited knowledge, with men having a slightly higher number of individuals with limited knowledge.

2) Knowledge Level Based on Age

The majority of respondents from all age groups have an adequate level of knowledge, with the largest numbers in the age groups of 17-25 years and 46-60 years. The 17-25-year age group has the highest number of individuals with good knowledge (8 people), while most still fall into the adequate knowledge category. The 26-35 year age group shows a more balanced distribution between adequate, good, and limited knowledge, with slightly more respondents having adequate knowledge. The 36-45 year and 46-60 year age groups are dominated by adequate knowledge, with a small number having good knowledge and a few with limited knowledge.

Table 2
Knowledge Level Based on Age

Age	Knowledge Level			Total
	Good	Adequate	Limited	
17-25	8	26	1	35
26-35	3	21	3	27
36-45	1	14	3	18
46-60	1	21	5	27

Based on this data, it can be observed that the majority of respondents in all age groups have adequate knowledge. While there are some individuals with good knowledge, there are also a number of people with limited knowledge, especially in the 36-45 years and 46-60 years age groups.

3) Knowledge Level Based on Educator

The majority of respondents from all education levels have adequate knowledge of the Desa SIAGA programme. The senior high school (SMA/SMK) education level has the highest number of respondents (57 people), with most having adequate knowledge, although some have good knowledge and a few have limited knowledge. Respondents with an elementary school (SD/MI) background are fewer in number (4 people), with the majority having adequate knowledge and a few having limited knowledge. Meanwhile, respondents with a background in junior high school (SMP/MTS), diploma, and bachelor's degree show variation in the distribution of knowledge levels, although the majority still have adequate knowledge. No group has a dominant number of respondents with good knowledge, although the SMA/SMK group has slightly more respondents with good knowledge compared to the other groups.

Table 3
Knowledge Level Based on Education

Education	Tingkat Pengetahuan			Total
	Good	Adequate	Limited	
SD/MI	0	3	1	4
SMP/MTS	2	16	4	22
SMA/SMK	7	44	6	57
Diploma	2	3	0	5
Sarjana	2	16	1	19

Based on education level, adequate knowledge predominates, especially in the SMA/SMK group, which is the largest group in this study. While there are a number of individuals with good knowledge, the majority fall into the adequate knowledge category, while some have limited knowledge.

4) Knowledge Level Based on Occupation

The majority of respondents from various occupations have an adequate level of knowledge about the Desa SIAGA programme to improve maternal and neonatal health. Some groups, such as civil servants (PNS), farmers, and entrepreneurs, tend to have adequate knowledge, while others show a more diverse distribution of good, adequate, and limited knowledge. Housewives (IRT) have the largest number of respondents (36 people), with most having an adequate level of knowledge. Employees and traders show a more even distribution between good, adequate, and limited knowledge levels. Table 4 shows that the community's knowledge of the Desa SIAGA programme varies depending on their occupation.

Table 4
Knowledge Level Based on Occupation

Occupation	Knowledge Level			Total
	Good	Adequate	Limited	
Civil	0	2	0	2
Servantse	0	7	1	8
Entrepreneurs	2	14	2	18
Employees traders	2	5	2	9
farmers	0	5	2	7
Housewives	3	30	3	36
Other	6	19	2	27

The Relationship between Demographic Factors and Knowledge Level about the Desa SIAGA

1) Results of the Correlation Test Between Gender and Knowledge Level About the Desa SIAGA Programme

The results of the correlation test between gender and respondents' knowledge level indicate a significant negative relationship between gender and knowledge level at a 0.01 significance level. This negative correlation suggests a weak to moderate relationship between gender and knowledge level, with gender differences tending to be followed by differences in knowledge level. Since the significance value (p-value) is less than 0.01, it can be concluded that the relationship between gender and knowledge level is not due to chance and has strong statistical significance (Table 5).

Table 5
Results of the Correlation Test Between Gender and Knowledge Level About the Desa SIAGA

		Gender	Knowledge Level
Gender	Pearson Correlation	1	-.252**
	Sig. (2-tailed)		.009
	N	107	107
Knowledge Level	Pearson Correlation	-.252**	1
	Sig. (2-tailed)	.009	
	N	107	107

2) Results of the Correlation Test between Age and Knowledge Level About the Desa SIAGA Programme

Findings show that there is a significant positive relationship between age and knowledge level at the 0.01 significance level. The correlation of 0.285 indicates a weak to moderate relationship, meaning that as the respondent's age increases, their level of knowledge tends to be higher, although the relationship is not very strong. Since the significance value (p-value) is less than 0.01, it can be concluded that the relationship between age and knowledge level is statistically significant and not due to chance. This finding suggests that as people age, the experience and learning they accumulate may increase their knowledge level. However, the weak correlation (0.285) indicates that other factors may also play a role in influencing knowledge level, aside from age.

Table 6
Results of the Correlation Test Between Age and Knowledge Level about the Desa SIAGA Programme

		Age	Knowledge Level
Age	Pearson Correlation	1	.285**
	Sig. (2-tailed)		.003
	N	107	107
Knowledge Level	Pearson Correlation	.285**	1
	Sig. (2-tailed)	.003	
	N	107	107

3) Results of the Correlation Test between Education Level and Knowledge about the Desa SIAGA Programme

Table 7 shows that there is no significant relationship between education and knowledge level at the 0.05 significance level, as the p-value = 0.135 is greater than 0.05. The negative correlation (-0.145) indicates a very weak relationship and is not strong enough to conclude that there is a real connection between the two variables. Given that this correlation is not

significant, there is insufficient evidence to say that education level influences knowledge level, or vice versa, in the given data. These results suggest that, within the analyzed sample, education and knowledge level do not significantly influence each other. Although there is a negative correlation, this relationship is very weak and not strong enough to serve as a basis for further actions or decisions. Other factors, besides education, may play a larger role in influencing the respondents' knowledge level, or there may be more complex relationships that are not detected in this simple correlation analysis.

Table 7
Results of the Correlation Test between Education Level and Knowledge about the Desa SIAGA

		Education	Knowledge Level
Education	Pearson Correlation	1	-.145
	Sig. (2-tailed)		.135
	N	107	107
Knowledge level	Pearson Correlation	-.145	1
	Sig. (2-tailed)	.135	
	N	107	107

4) Results of the Correlation Test between Occupation and Knowledge Level about the Desa SIAGA Programme

Table 8 shows the results of the correlation test between occupation and the respondents' knowledge level about Desa SIAGA. The data indicates that there is no significant relationship between occupation and knowledge level, as the p-value = 0.217 is greater than 0.05, meaning this relationship cannot be considered statistically significant. The negative correlation (-0.120) suggests a very weak relationship, meaning that although there is a slight negative trend, the relationship is minimal and not strong enough to be deemed relevant. These results indicate that occupation does not have a significant impact on the respondents' knowledge level in the analyzed sample. Since the correlation is very weak and insignificant, it cannot be concluded that a person's occupation has a direct or significant influence on their knowledge level. Other factors, besides occupation, may play a larger role in influencing knowledge level, or the relationship between these two variables may not be well detected in this simple correlation analysis.

Table 8.
Results of the Correlation Test between Occupation and Knowledge Level about the Desa SIAGA

		Occupation	Knowledge Level
Occupation	Pearson Correlation	1	-.120
	Sig. (2-tailed)		.217
	N	107	107
Knowledge Level	Pearson Correlation	-.120	1
	Sig. (2-tailed)	.217	
	N	107	107

DISCUSSION

This study aims to identify the relationship between demographic factors, such as gender, age, education, and occupation, with the level of community knowledge about the Desa SIAGA programme as a community empowerment effort to improve maternal and neonatal health. Based on the results obtained, several key findings have emerged that warrant further discussion.

Overall, the results of this study show that the majority of respondents have a sufficient level of knowledge about the Desa SIAGA programme. This reflects the effectiveness of the programme in educating the community. However, although most respondents have adequate knowledge, a small portion still has limited knowledge, particularly among men. This finding suggests that women tend to have better knowledge compared to men, which may be related to women's social roles in maternal and childcare within the community. This is consistent with previous studies which indicate that men's involvement in maternal and neonatal health programmes is often lower than that of women (Gibore & Bali, 2020).

Women tend to have better knowledge about the programmes due to their traditional roles as primary caregivers in pregnancy and child-rearing. Previous research also revealed that women are more involved in maternal and neonatal health programmes because they are generally more responsible for caring for sick or pregnant family members (Tiumelissan et al., 2021). This aligns with previous research showing that women are more involved in maternal health programmes because of their caregiving responsibilities. Men, on the other hand, often have less knowledge and involvement, as societal norms link them more to financial provision than caregiving (Jeong et al., 2021). The study suggests that despite women's higher knowledge, there is a significant need to engage men more actively in these health programmes. Efforts to challenge gender stereotypes through inclusive outreach and educational campaigns can help ensure that both men and women have equal access to information, improving the overall effectiveness of maternal health initiatives like Desa SIAGA (Sood & Rimon, 2024).

Statistical analysis revealed a significant relationship between age and knowledge about the Desa SIAGA programme. This finding suggests that as people get older, their experience and learning may contribute to a better understanding of the programme. This supports the view that knowledge develops over time with life experiences and learning opportunities, which allows individuals to more easily understand the health information provided (Nutbeam & Lloyd, 2020). However, the weak correlation (0.285) indicates that other factors, besides age, such as access to information and participation in the programme, also play a role in influencing knowledge levels. In general, education level is considered a factor that can influence an individual's knowledge, with those having higher education typically having better access to information and the ability to absorb knowledge more easily (Alkema et al., 2016).

However, in the context of this study, no significant relationship was found between education level and the community's knowledge of the Desa SIAGA programme. This may occur because the knowledge required to understand a programme like Desa SIAGA is not always taught in formal education curricula but depends more on health outreach programmes provided to the community. A previous study by Sujarwoto & Maharani (2022) also revealed that education level does not always correlate with people's knowledge of certain health programmes. One possible reason for this is that, while individuals with higher education have the ability to understand information, they may not be directly exposed to the programme or may not receive relevant information regarding maternal and neonatal health, especially if the programme does not reach them through appropriate communication channels.

Regarding occupation, this study found variation in the level of knowledge about the Desa SIAGA programme, with groups such as farmers and traders showing lower levels of knowledge compared to other groups. This finding aligns with studies that show that access to

information is often limited for those working in the informal sector or those with busy work routines (Hill et al., 2014). Therefore, outreach about the Desa SIAGA programme needs to be tailored to the socio-economic and occupational conditions of the community. A community-based approach, which empowers local health cadres, such as through the Sabu-Sabu programme in Desa Jati, could be a solution to improve community engagement and knowledge in these sectors. Focused outreach and interventions aimed at increasing awareness and involvement, regardless of educational background and occupation, are greatly needed.

The community's knowledge of the Desa SIAGA programme is heavily influenced by outreach and the media used to disseminate information. Communities that are not reached by outreach programmes or who lack exposure to mass media or digital information may have low levels of knowledge, even if they have a good educational background. For example, in a study by National Academies of Sciences Engineering and Medicine (2018) it was found that although individuals with higher education may find it easier to access information, they may not be aware of local or community-based health programmes if these programmes are not well-socialized at the village or local level. This is also relevant to the findings of this study, which show that while there is variation in knowledge levels across different educational backgrounds, many other factors influence their knowledge, such as participation in community activities, exposure to health education, and support from health cadres.

CONCLUSION

This study shows that demographic factors, such as age and gender, are significantly related to the community's knowledge level about the Desa SIAGA programme. However, although the majority of the community has adequate knowledge, there is still a need to enhance knowledge, particularly among older age groups and males. More intensive outreach, as well as a community-based approach, are essential to improve public understanding of this programme.

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