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Evaluation of Elsimil Application Data Management System for Stunting Prevention By BKKBN¬ Of Central Java

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Abstract

The stunting data management system supports the stunting reduction program through data collection and management, with the Elsimil application developed by BKKBN in 2022 as a tool for recording intervention data. This study aims to evaluate its implementation in Central Java using a descriptive qualitative method with in-depth interviews based on the input–process–output approach. Informants consisted of BKKBN Central Java staff and TPK cadres. The findings show that Central Java has 27,948 TPK cadres, with qualifications limited to owning Android phones and no age restrictions. Cadres receive training, although none was held this year, and are given an honorarium of IDR 100,000 per month. Guidelines are available in e-book format but are not fully followed, while facilities such as cellphones, data packages, and forms exist though form printing is self-funded. Data input for prospective brides and pregnant women faces errors and workload barriers, while supervision through monitoring and evaluation is hindered by slow central follow-up. Coverage targets have not been achieved, with only 45,607 of 56,671 prospective brides and 39,533 of 137,542 pregnant women assisted. The study concludes that strengthening cadre training, improving guideline compliance, enhancing application performance, and developing quantitative indicators are essential for optimizing Elsimil implementation.

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Introduction

Stunting is a national health problem in Indonesia. It has the potential to pose a threat to Indonesia's future generations (1). According to the Indonesian Ministry of Health, stunting is a condition in which a toddler's height is below the average for children their age. This impaired growth is caused by insufficient nutritional intake, over a long period of time. Indonesia ranks fifth in the world for stunted toddlers and second in Southeast Asia for stunting prevalence, after Timor Leste (2). This situation is the reason stunting was declared a national priority program and prompted the President to issue Presidential Regulation No. 72 of 2021 concerning the Acceleration of Stunting Reduction (3).

According to the Indonesian Nutritional Status Survey (SSGI) conducted by the Ministry of Health in January 2023, the prevalence of stunting in Indonesia decreased from 24.4% in 2021 to 21.6% in 2022. The Indonesian Health Survey (SKI) recorded a 21.5% prevalence in 2023. Therefore, it can be concluded that there was a 0.1% decrease in the prevalence of stunting in toddlers in 2023, a figure smaller than the 2.8% decrease in the prevalence of stunting in toddlers in 2022 (4). In 2023, the prevalence of stunting in Central Java, according to the Health Profile, was 20.7%. The city/district with the highest percentage of stunting cases was Tegal Regency at 18.4%, and the lowest was Semarang City at 1.14% (5).

Based on the results of an initial survey conducted by the Central Java Provincial Development Planning Agency (Bappeda), it was discovered that the Central Java government has implemented eight Convergence Actions for Stunting Reduction as part of training and evaluation efforts to accelerate

stunting reduction. The eight Convergence Actions have been implemented in 35 regencies/cities in Central Java Province. The eight integrated Convergence Actions for Stunting Reduction are: Action 1: Situation Analysis; Action 2: Program Plan; Action 3: Stunting Consultation; Action 4: Regent/Mayor Regulations to Accelerate Stunting Reduction; Action 5: Guidance for Village/Kelurahan Actors and Governments; Action 6: Stunting Data Management System; Action 7: Stunting Measurement and Publication; Action 8: Annual Performance Review (6).

This research focuses on one of the stunting convergence actions, the Stunting Data Management System. This action was selected based on the 2024 Performance Assessment Results document, which revealed that almost all regencies and cities face issues related to data management that could hinder the acceleration of stunting reduction. A stunting data management system is a data management effort from the village/sub-district level up to the district/city level (7). This data will be used to support the implementation of integrated nutrition interventions and assist management programs or activities to accelerate stunting reduction (8). The stunting data management system includes the following activities: identifying required data, collecting data, processing data, and utilizing the data to generate accurate information (9).

Elsimil (Electronic Ready for Marriage and Pregnancy) is a crucial system in providing the data needed to support stunting interventions in Indonesia (10). Elsimil, as a big data platform, can provide an analytical overview of the health status of target populations at risk of stunting (11). Therefore, researchers wanted to conduct a study evaluating the data management system in the Elsimil application to determine its role in stunting reduction and prevention efforts. This research was conducted at the BKKBN (National Population and Family Planning Board) of Central Java Province, and the theory used was a management systems approach. The elements of a management system include input, process, and output.

Methods

This research is classified as qualitative research using a descriptive approach. This type of descriptive qualitative research is used because it aims to produce a picture or description related to the evaluation of the stunting intervention program coordinated by the Central Java BKKBN. The variables in this study are input, process, and output. In this study, the sample was selected using a purposive sampling technique. Purposive sampling is a sampling technique based on specific criteria relevant to the research theme. The criteria that must be met by prospective informants are age over 25 years, male or female, BKKBN staff directly involved in and familiar with the Elsimil application, TPK cadres who serve as TPK cadre coordinators in the village, and willingness to be research informants. The sample or informant in this study was divided into two, namely Key Informant (IU), Key informant in this study were two staff of the data and information work team of the Central Java Province BKKBN, and Triangulation Informant (IT), Triangulation informant for this study were TPK cadres in Candi Village, Candisari District, and TPK cadres in Karanganyar Gunung Village, Candisari District. Before the interview, each informan will read the informed consent and fill out the respondent's consent sheet. The instruments used are interview guidelines, stationery, and a voice recorder. Data collection was carried out through in-depth interviews and document collection. Data analysis in this study includes data collection, data reduction, data presentation, conclusion drawing, and verification.

Results

1. Input

a. Man

Elsimil's implementation in the field is highly dependent on human resources, specifically the Community Empowerment and Family Planning (TPK) cadres. The primary informant emphasized that the TPK team composition consists of midwives, Posyandu (Integrated Service Post) staff, and family planning (KB) staff, while the triangulation informant added another variation, namely the involvement of PKK (Family Welfare Movement) and IMP (Community Empowerment) cadres. This difference in emphasis indicates that the TPK team structure is flexible, adapting to the availability of human resources in each region.

The number of cadres in Central Java is considered sufficient, at 27,948. Interviews with triangulation informants from two sub-districts confirmed this: in Candi Sub-district, there are 27 cadres (divided into 9 teams for 10 neighborhood associations), while in Karanganyar Gunung there are 18 cadres in 6 teams. This indicates that the distribution of cadres is relatively

proportional to the number of neighborhood associations (RW), so no serious obstacles were encountered in terms of human resource quantity.

However, there are discrepancies in the information regarding qualifications. The primary informant stated that the minimum education requirement is high school, while the triangulation informant assessed that there are no specific educational or age requirements, but rather that Android skills are more important. This indicates a difference in perception between formal standards and field practice. Furthermore, the selection of PKK and IMP cadres is based more on their closeness to the community and local knowledge, rather than solely on educational background.

Regarding TPK cadre training, the primary informant emphasized the training provided by the BKKBN Latkom team. The triangulation informant confirmed that the training had been conducted twice, but there were no follow-up activities in 2025.

b. Money

Both the primary and triangulation informants agreed that TPK cadres receive an honorarium from the Civil Registration Office (Disdalduk), but this is based on the cadre's active reporting. This suggests that the honorarium serves not only as compensation but also as a tool for monitoring cadre performance.

The triangulation informant from Candi Village reported an amount of IDR 100,000 per month. This amount is relatively small compared to the workload of cadres, who not only input data but also provide mentoring, education, and manual reporting. Therefore, despite incentives, financial rewards for cadres' work are still far from adequate.

c. Method

The Elsimil SOP is available in e-book format, as stated by the Key Informant. However, the Triangulation Informant emphasized that cadres only received a presentation, not a physical copy of the SOP, so understanding and compliance with the SOP depend on the quality of socialization.

Cadre compliance in inputting data into Elsimil varied across regions; Candisari Village was considered quite good, while Karanganyar Gunung Village was still low. This indicates that the socialization of the SOP to TPK cadres is a more important factor in determining compliance with program implementation in the field.

d. Material

The Key Informant emphasized the importance of target data (prospective mothers, pregnant women, postpartum women, and toddlers) as the main source of information. Triangulation informants explained that in addition to data, cadres also require supporting tools in the form of mentoring forms, mobile phones, and data packages.

This indicates that Elsimil implementation depends not only on data quality but also on the availability of input devices. Without adequate material support, the quality of data entering the system is at risk of being compromised.

Figure 1 Elsimil application dashboard

e. Machine

All informants agreed that mobile phones are the primary tool in Elsimil implementation. However, manual recording (mentoring forms) is still used as a backup. Interestingly, most forms are printed independently by cadres, except in Candisari, which receives support from the village head.

This fact indicates variations in institutional support across regions. Areas that receive support from the village head make it easier for cadres, while in other areas the cost of printing the forms is borne personally by the cadres.

2. Process

a. Planning

According to the Key Informant, Elsimil planning focuses on the primary targets: prospective brides and grooms, pregnant women, postpartum mothers, and toddlers. Triangulation informants reinforced this by mentioning promotional efforts using social media (Instagram, TikTok) conducted by the BKKBN advocacy team. This data comparison shows that although the targets are clear and standardized nationally, the outreach strategy emphasizes a digital approach.

b. Organizing

The key informant stated that various work teams within the Central Java BKKBN are involved in organizing Elsimil. The triangulation informant added that field cadres have primary duties such as mentoring, education, data input, and recommending targeted aid recipients. This indicates that the organizational structure is hierarchical but still provides significant technical work space for cadres. This emphasizes the cadre's role as the spearhead, while the BKKBN's role is more of a coordination and supervision function.

c. Actuating

According to the Key Informant, data on prospective brides and grooms can be input independently or by TPK cadres, while data on pregnant women, postpartum women, and children under five are only input by cadres. The Triangulation Informant supported this statement and added that target responses differed; targets in rural areas were more open, while those in urban areas tended to be more closed. Furthermore, technical obstacles such as

application errors were frequently reported by both the Key Informant and the Triangulation Informant, indicating similar problems were experienced across regions.

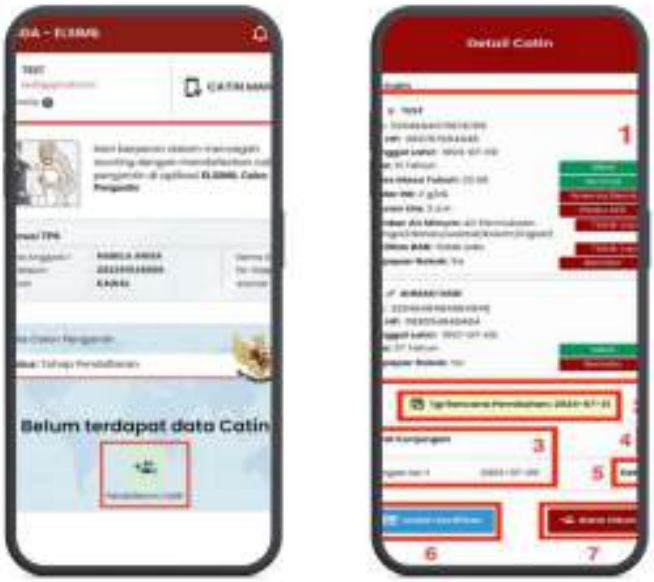

Figure 2 Elsimil display for filling in prospective bride and groom data

Figure 3 Elsimil display for filling in pregnant women's data

d. Controlling

According to the Key Informant, supervision is carried out in stages, from the provincial level (national program control meetings) down to the sub-district level. The Triangulation Informant reinforced this by explaining that there are evaluations at the sub-district level and follow-up in the form of feedback. However, discrepancies emerged when the Triangulation Informant from Karanganyar Gunung assessed that follow-up at the provincial level was relatively slow due to the national scope. This highlights the gap between ideal supervision and the speed of follow-up in the field.

3. Output

The key informant explained that the target is determined by the central BKKBN based on the number of targets in the region, and the indicator of success is target achievement. The key informant added that in the first quarter of 2025, performance was suboptimal due to application errors and a

lack of outreach for new cadres. This indicates that technical (application) and non-technical (cadre competency) factors equally influence achievement.

According to a triangulation informant from Karanganyar Gunung Village, Elsimil's success indicators are influenced by application performance and cadre engagement. A triangulation informant from Candi Village even stated that there are no clear success indicators. This discrepancy in information indicates that success indicators must be uniform and quantitative or measurable to measure the success of a program.

Discussion

1. *Input*

Human resources for implementing the Elsimil application consist of Family Assistance Team (TPK) cadres, which must be present in every neighborhood unit (RW), including midwives, Family Welfare Movement (PKK) cadres, and Community Empowerment (IMP) cadres. Cadres must have a minimum high school diploma and be able to operate Android devices, with no age restrictions. Before going into the field, cadres receive training on the Elsimil application from the National Population and Family Planning Board (BKKBN) Latkom Team, but by 2025, training had not been distributed evenly. The number of cadres in Central Java reached 27,948, but medical personnel were still lacking, so they were replaced by Posyandu cadres. This is in line with Aris Toening Winarni's research, which states that the implementation of the Elsimil application involves TPK cadres, consisting of three elements, who received training from the Pati KB Training Center (12).

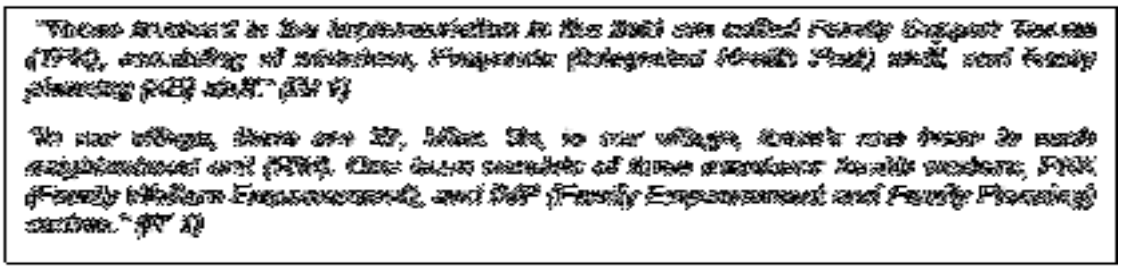

Figure 4 Man

TPK cadres receive an honorarium of Rp 100,000 per month from the Population and Civil Registration Office (Disdalduk), not only for data input into the application but also for mentoring and reporting. The honorarium is based on the cadre's active performance. Rezka Zahra Humaira's research also indicates that TPK cadres receive an incentive of IDR 100,000 per month and IDR 110,000 in mobile phone credit, although the incentive based on active reporting is no longer applicable in Sinjar Bulan Village (13).

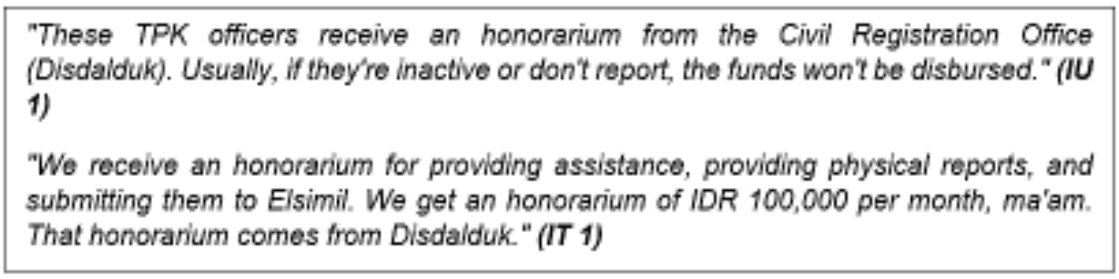

Figure 5 Money

The implementation of the Elsimil application is supported by a publicly accessible e-book-based Standard Operating Procedure (SOP). The SOP outlines the technical steps for data input and the mentoring process. However, there are still challenges in disseminating it, especially for new cadres, as it is only presented during training. While compliance with the SOP is good in some sub-districts, delays in data input are still encountered in Karanganyar Gunung. This is supported by research by Syafruddin Pohan, who stated that the Elsimil application guide module is only intended for prospective brides and grooms (14).

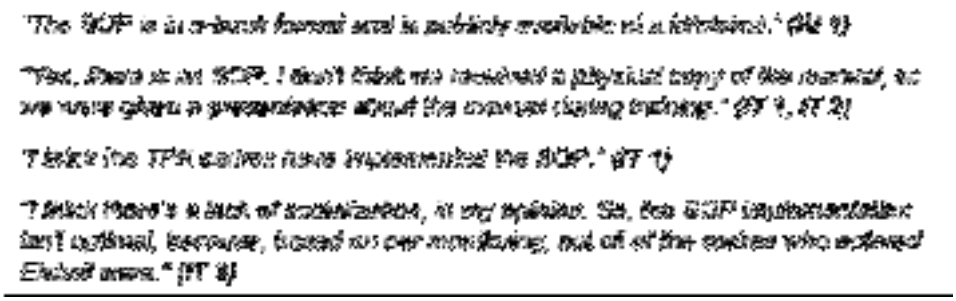

Figure 6 Method

According to in-depth interviews with key informants, the materials needed to implement the Elsimil application are target data collected by TPK cadres. The data collected varies depending on the target group, such as prospective brides and grooms, pregnant women, postpartum mothers, and toddlers (15). This information aligns with the results of in-depth interviews with two triangulation informants, who stated that implementing the Elsimil application requires infrastructure in the form of a support form to record data from the target group. Additionally, a mobile phone and data package are required for data entry into Elsimil (16). Dita Ayu Amelia Anggraeni's research also revealed that the inputted data includes height, weight, hemoglobin (Hb), blood pressure (LiLA), and smoking habits of prospective grooms and grooms. Internet availability is a crucial factor to ensure data input is smooth (17).

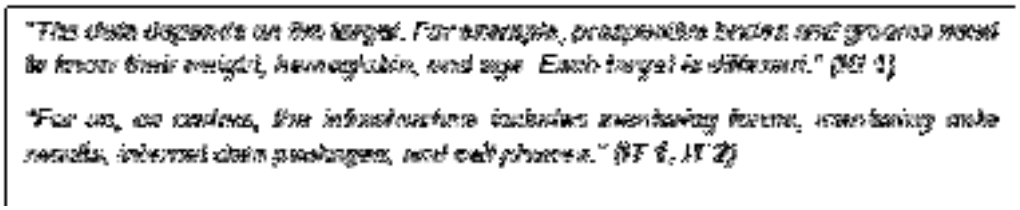

Figure 7 Material

The primary implementation tool is a mobile phone with internet access. Some areas provide mentoring forms in hard copy format as an alternative when the network is unavailable, such as in Candi Village. However, in Karanganyar Gunung, cadres must print the mentoring forms themselves, increasing the cost burden for TPK cadres. Siti Marfuah's research also mentioned that TPK cadres' equipment during mentoring includes a mobile phone, mentoring form, and registration book (18).

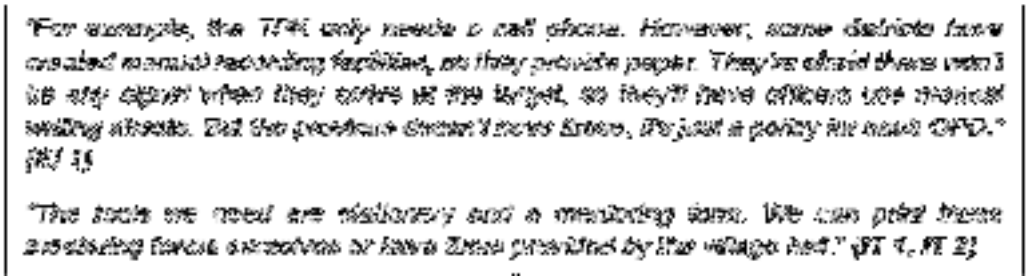

Figure 8 Machine

The Elsimil program targets prospective brides and grooms, pregnant women, postpartum mothers, and toddlers. The National Population and Family Planning Board (BKKBN) advocacy team promotes the program through social media platforms such as Instagram and TikTok. Family Planning (FP) counselors actively create independent content. This is supported by Wahyu Widyo's research, which states that program planning was carried out in detail and monitored regularly (19).

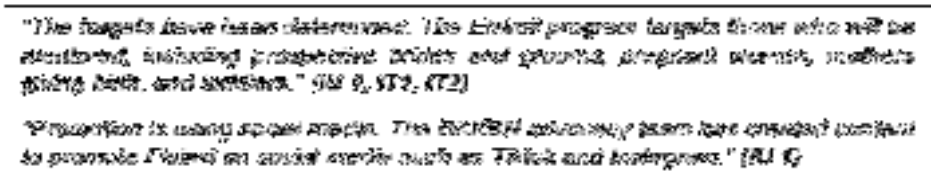

Figure 9 Planning

The Central Java Province BKKBN involves targeted work teams, such as a family planning team for pregnant and postpartum women, a KSPK team for toddlers and prospective brides and grooms, and a data and information team. The interviews also revealed that a TPK cadre has several duties: providing assistance to targets, providing education to targets, inputting target data into Elsimil, and recommending targets for assistance. This information aligns with the results of interviews with triangulation informants, stating that a TPK cadre's duties include mentoring targets, inputting target data into Elsimil, providing education on the importance of immunization, and reminding targets, such as pregnant women, to undergo regular check-ups (20). Netty Dyah Kurniasari's research also explains that the main duties of a TPK cadre include mentoring, counseling, data input, facilitating referrals, and providing social assistance (21).

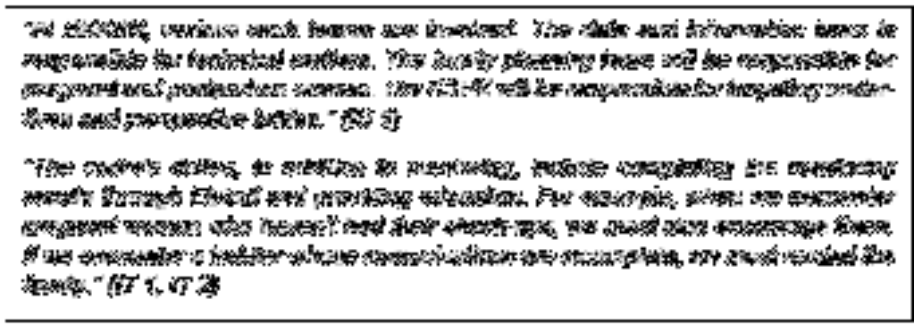

Figure 10 Organizing

Data input is carried out by TPK cadres for all targets, while prospective brides and grooms can input data independently. Mentoring is conducted routinely every month, both door-to-door and at Integrated Health Posts (Posyandu). The main obstacles are frequent application server errors, poor signal reception, and low participation among target groups in urban areas. These obstacles cause input delays and impact target achievement.. Rural targets tended to be open, while urban targets tended to be more closed (22). Siti Nur Hafidoh's research also revealed that prospective brides and grooms could use the app independently, while other targets were still input by cadres, with technical difficulties and low community response (23).

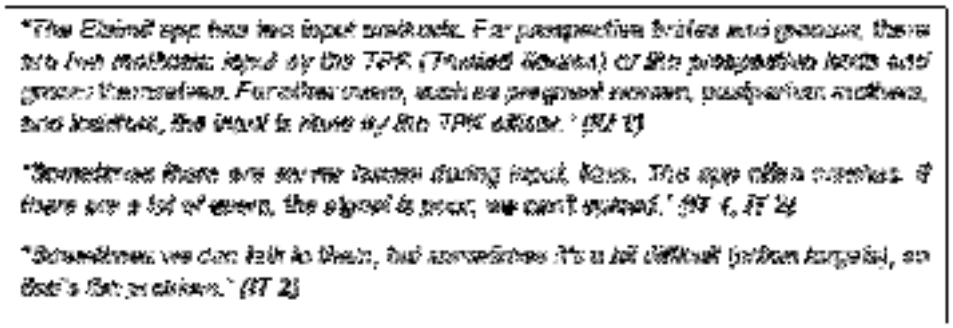

Figure 11 Actuating

Elsimil oversight is carried out through monitoring and evaluation from the provincial level down to the sub-district level. Monitoring at the national level takes the form of program control meetings with irregular timings. Follow-up is provided in the form of feedback and re-monitoring after improvements. At the sub-district level, evaluations are conducted during coordination meetings, a faster follow-up than at the central level, which is slower due to the national scale of monitoring. Khalifatul Syuhada's research also stated that the BKKBN evaluates the achievements of the Elsimil program, providing follow-up guidance to TPK cadres to optimize mentoring (24).

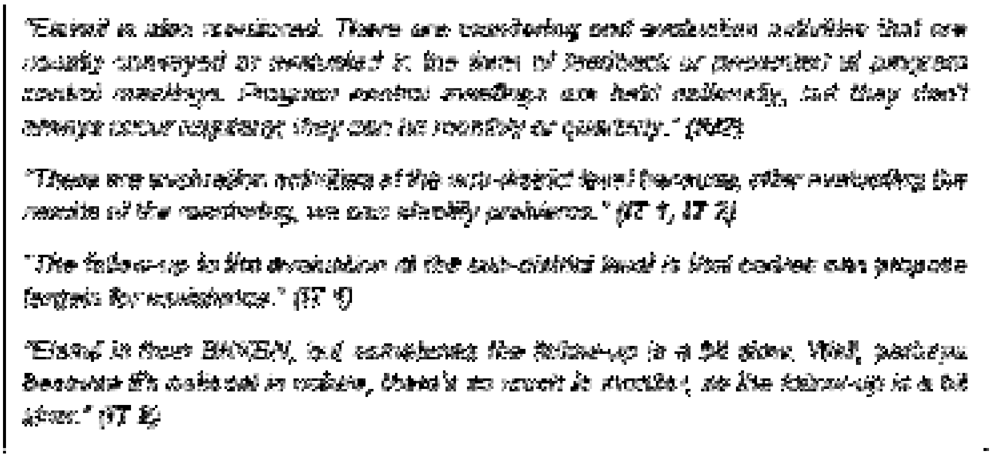

Figure 12 Controlling

Elsimil application achievement targets are determined by the central government based on the number of targets per region. In the first quarter of 2025, the target was not optimally achieved due to frequent application errors, uneven distribution of Elsimil application information to new TPK cadres, and low cadre reporting. The success of the Elsimil program implementation is measured based on the active reporting by cadres to Elsimil and application performance, although there are no quantitative success indicators. This is in line with Nurma Yunita's research which stated that the Elsimil target in Pugaan District in 2024 had not been achieved due to server disruptions and lack of application mastery by cadres (25).

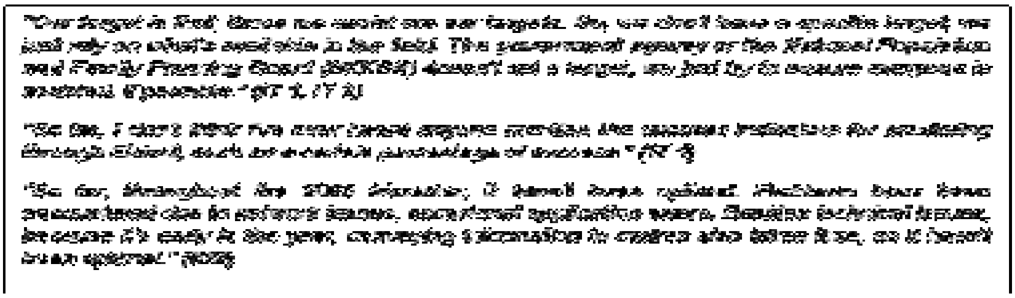

Figure 13 Output

Tabel 1 Elsimil Aplication Matrix Program

Man	Job Description	Program Objectives	Targets	Money	Output	Obstacles
• EKKEN Data and Information Team • EKKEN Family Planning Team • EKKEN Family Welfare and Empowerment Working Team • EKKEN Advocacy Working Team • TPK Cadres	• The Data and Information Team is responsible for the technical aspects of the Elsimil application • The Family Planning Team is responsible for targeting pregnant and postpartum women • The KSPK Team is responsible for targeting prospective brides and toddlers. • The Advocacy Team is responsible for promoting the Elsimil application. • TPK cadres are responsible for providing mentoring, providing education, reporting data to the Elsimil application, and recommending targets for expert assistance	• As an early detection or screening tool for target health, as part of stunting intervention efforts. • Educational media on marriage readiness, pregnancy, and nutrition related to stunting risk factors	• Brides to be • Pregnant women • Postpartum women • Toddlers	TPK cadres receive an honorarium of IDR 100,000 per month.	Elsimil application target for the first quarter of 2025 has not been achieved.	• The Elsimil application frequently crashes • Training for TPK cadres has not been conducted in 2025 • Some cadres still do not regularly input data into the Elsimil application • The absence of quantitative indicators to facilitate measurement of the Elsimil application program's performance

Conclussion

The human resources for implementing the Elsimil application in Central Java involve a Family Assistance Team (TPK) consisting of health workers (midwives), Family Welfare Movement (PKK) cadres, and Family Welfare Movement (IMP) cadres, totaling 27,948 people. This is considered quantitatively sufficient, but still faces challenges such as a shortage of health workers and the lack of training for new cadres by 2025. Cadres must have a minimum high school education and be proficient in Android devices.

They receive an incentive of IDR 100,000 per month from the district/city Population and Civil Registration Office (Disdalduk) based on the TPK cadre's activity. Standard operating procedures (SOPs) are available in an e-book and are publicly accessible, but dissemination is not yet widespread, resulting in some cadres not complying. The primary tool used is a mobile phone with internet access, and a support form is provided as a backup, although not all areas provide this. The primary material for implementing the Elsimil application is target data (prospective mothers, pregnant women, postpartum mothers, toddlers) obtained through interviews and observations. The target plan and promotional development are clear, carried out by a team from the central government and the Central Java Provincial BKKBN. The organizational structure was systematically established from the central to the sub-district level, and TPK cadres were tasked with providing mentoring, education, recording, reporting, and recommending assistance to target groups. During the implementation phase, data input was carried out by cadres, except for prospective brides and grooms (prospective brides), who could input data independently, using door-to-door methods or Posyandu (Integrated Service Posts). Challenges that arose included low target response in urban areas, application server errors, and poor internet connectivity. Supervision was conducted from the central government down to the sub-district level, with monitoring at the national level tending to be slower than at the more responsive sub-district level. In terms of output, the mentoring target for the first quarter of 2025 was not optimally achieved due to technical constraints, lack of training for new cadres, low reporting, and the absence of quantitative indicators of success in the field. These findings have several implications for BKKBN, particularly the need to establish a continuous training system for cadres, strengthen digital infrastructure of Elsimil to reduce connectivity and server issues, and develop clear quantitative indicators to monitor success for Elsimil program.

Suggestions

In terms of input, efforts are needed to ensure that new TPK cadres receive training on the Elsimil application before entering the field, along with widespread dissemination of work guidelines, improving cadre discipline and adherence to work guidelines, and providing pre-printed mentoring forms to minimize burdens for cadres. From a process perspective, it's crucial to establish clear, quantitative success indicators to facilitate measurement of the Elsimil application program's performance, improve and enhance the quality of the application's system server to minimize technical issues, and ensure prompt follow-up of central-level monitoring results. Meanwhile, from an output perspective, increased cadre discipline is needed in inputting target data into the Elsimil application and disseminating information about the application to new TPK cadres to optimize program implementation.

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