



Exploring Health Workers' Role in Low Birth Weight Prevention in Indonesia: A Qualitative Study Informed by The Theory of Planned Behavior

Anafrin Yugistiyowati^{1*}, Ari Probandari², Muhammad Akhyar³, and Suminah⁴

¹ Community Development/ Empowerment Counselling in Health Promotion, Postgraduate School, Universitas Sebelas Maret, Surakarta, Indonesia

² Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

³ Community Faculty Teacher Training and Education, Universitas Sebelas Maret, Surakarta, Indonesia

⁴ Faculty of Agriculture, Universitas Sebelas Maret, Surakarta, Indonesia

*anafrin.yugistiyowati@almaata.ac.id

Abstract. Low birth weight (LBW) continues to be the leading cause of neonatal death in Indonesia. Therefore, it is crucial that community health centers conduct appropriate antenatal care examination services for pregnant women. Moreover, these services should be evaluated in order to determine effectiveness of pre-existing LBW prevention strategies. The present study sought to explore the role of health workers in preventing LBW incidents based on aspects of the Theory of Planned Behavior (TPB) model. A qualitative approach was used with a holistic single case study design. Purposive sampling resulted in the recruitment of health workers (N=12) who had served at the Maternal and Child Health Polyclinic for a minimum of one year. The research team developed an interview guide based on TPB constructs. Validity was assessed via triangulation, and thematic analysis was conducted using the Colaizzi Model. Eleven key themes were identified, including the various roles that health workers play as: (1) communicators, (2) facilitators, (3) counsellors, and (4) motivators, as well as (5) the role of health centers in LBW prevention, (6) barriers to LBW prevention programs, (7) budget development and allocation of funds for LBW prevention, (8) the performance of health workers, (9) resources needed to support LBW prevention program implementation, (10) timing of LBW prevention programs, and (11) the importance of cross-program collaboration. In TPB, performance in roles such as communicators, counsellors, facilitators, and motivators is related to an individual's attitudes, norms, and motivation. These aspects of the model should be considered when improving health worker performance, and ongoing evaluation of facilitators and barriers to implementing future LBW prevention programs in low-resource settings such as Indonesia should be supported.

Keywords: Low Birth Weight, Health Workers, Theory of Planned Behavior, Indonesia, Maternal and Child Health

INTRODUCTION

Maternal and child health, family planning, and reproductive health remain top priorities for improvement according to the National Medium-Term Development Plan for 2020-2024 in Indonesia [1]. One promising trend is the recent decline in the neonatal mortality rate; in the last five years, neonatal mortality in Indonesia decreased from 14.8% to 12.6% of deaths [2]. However, this decline is quite slow compared to recent declines in infant and toddler mortality rates. Importantly, neonatal death is closely related to maternal death [3]. Neonatal deaths are most often caused by abnormalities during pregnancy, as well as due to premature birth, neonatal infection, and low birthweight (LBW)[4]. The Sustainable Development Goals (SDGs) program targets a reduction in the

global prevalence of LBW cases by 30% from 2012 to 2030. However, based on the current prevalence of LBW cases, this target is unlikely to be achieved by 2030 [5].

LBW babies weigh less than 2500 grams at birth regardless of gestation time [6]. In addition to increased risk for neonatal mortality, LBW cases are also at increased risk for morbidity, growth and development problems (e.g., cognitive and language development), stunting, and chronic disease into adulthood [7-9]. In 2020, it was reported that the main cause of neonatal death for babies aged 0-28 days in Indonesia was LBW cases, with prevalence at 35.2% [1]. Cases of infant deaths due to LBW in 2021 have since decreased to 34.2%, although the Infant Mortality Rate (IMR) due to LBW remains high and should be considered a major public health concern [10].

The highest prevalence of LBW cases in D.I Yogyakarta Province during the 2015-2020 period were reported in Kulon Progo Regency, with a case percentage of 42.32% [11]. Based on data from the Kulon Progo District Health Service, the incidence of LBW in the last five years, from 2017 to 2021, has remained above 300 cases per year [12]. Therefore, there is a particular need for greater understanding of the facilitators and barriers to LBW prevention in this setting.

Current promotive and preventive interventions to support child survival aim to reduce the IMR to 16 per 1000 live births in 2024 [3]. Based on existing knowledge, it is well-established that the Indonesian government needs to increase Antenatal Care (ANC) examination visits via health promotion programs while also maintaining the integrity and quality of service provided in ANC facilities [13]. ANC facilities can offer knowledge and behavioral support for pregnant women to minimize the occurrence of LBW and proper care when LBW occurs [14]. Previous research indicates a significant relationship between ANC and the incidence of LBW, noting that the role of health workers needs to be better understood in order to encourage greater ANC attendance and sustained care [15,16].

One strategy for bolstering promotive and preventive efforts is to leverage the Theory of Planned Behavior (TPB) model. In this model, behavior can be predicted using a social psychology approach to understanding the determinants (e.g., maternal behavior during pregnancy) of health behavior, which can be applied to LBW prevention and care in this case [17]. More specifically, the behavior displayed by a person is seen as being influenced by their intentions which are shaped by three main factors: (1) attitude towards the desired behavior, (2) perceived subjective norms about the desired behavior, and (3) perceived behavioral control pertaining to the desired behavior. Apart from that, a person's intentions are also influenced by individual- and social-level factors, as well as knowledge [18].

Pregnant women's intentions to seek health information is a function of psychological variables. Attitude is the most important factor influencing the intention to seek health information, and intention has a positive and significant effect on health information-seeking behavior [19]. It has been hypothesized that the three aforementioned aspects of TPB (e.g., attitude, subjective norms, and behavioral control) can be influenced to optimize ANC service for LBW prevention [20,21].

In order to improve health worker behaviors in ANC settings, it is important to understand their perceived roles. In TPB, a person's role is closely related to the program being implemented, which in this case, would be ANC care or LBW prevention [22]. In general, the role of health workers includes preventive and promotive services to provide good quality public health [23,24]. Understanding preventive services can subsequently help to determine next steps for improving a case such as LBW [25].

LBW prevention efforts should be carried out directly with pregnant mothers. Health services at the downstream level (e.g., sub-district health centers) must be optimized in order for program targets to be achieved in accordance with the target goals (e.g., the global SDGs) [26,27].

Based on findings from interviews conducted at the Nanggulan Community Health Center in Kulon Progo District with staff and pregnant women receiving services, several challenges were identified, including a lack of knowledge and awareness regarding the importance of LBW prevention among pregnant women and low clinic attendance. Pregnant women interviewed believed that the role of health workers was very important, especially in supporting mothers' knowledge regarding nutritional needs during pregnancy. From the perspective of health workers, efforts to prevent LBW have been implemented in the past, but these efforts require strengthening which can be done using the TPB model for better understanding promotive and preventive efforts.

SUBJECT AND METHOD

The present study sought to explore the role of health workers in preventing the incidence of LBW at the Kulon Progo District health center, guided by the following questions: What is the role of health workers in LBW prevention at the Kulon Progo District health center, using the TPB model?; How can we better evaluate the role of health workers regarding their performance, organizational factors, resources, budget development, fund allocation, programs and schedules, and cross-program and sectoral collaboration for future programs?

Study Design and Participants

The data collected were qualitative based on a holistic single case study research design [28]. We chose this approach because it seeks to describe human life and actions specifically in certain locations with a focus on one case, namely the role of health workers in preventing LBW. This research was conducted at the Nanggulan Community Health Center with twelve informants as participants. Purposive sampling was used to select participants. The inclusion criteria for this study were: (1) being a health worker serving in the maternal and child health polyclinic; (2) being actively involved in LBW prevention service programs, and (3) having worked a minimum of one year in this position.

Materials and Procedure

Two instruments were utilized to (1) explore the role and performance of health workers based on the TPB model (e.g., their attitudes, beliefs about norms, and intentions) and (2) evaluate the role of health workers regarding organizational factors, resources, budget development, fund allocation, programs and schedules, and cross-program and sectoral collaboration. These instruments were developed by the research team and each consisted of 10 questions total.

Data collection was carried out by conducting in-depth interviews using the developed interview guides, as well as voice recorders and field notes. The interview guides were used to ask participants questions, and probe when necessary. Field notes served as a tool for recording participants' non-verbal responses during interviews, while voice recorders recorded participants' verbal responses.

Data collection occurred between January and February 2023. A trained researcher explained the aims and procedures of the research to obtain consent from recruited individuals who met the inclusion criteria. Each participant was then interviewed at two time points. The first interview explored the performance of health workers, and the second interview (conducted the following day) evaluated the role of health workers and was used for triangulation. The triangulation techniques chosen were data triangulation and method triangulation. Data triangulation was carried out by conducting interviews with the person in charge of the maternal and child health polyclinic, while method triangulation was carried out by collecting field notes in the form of participants' non-verbal responses during interviews, in addition to recording verbal responses. The data obtained from the field was then confirmed by the person in charge of the relevant maternal and child health polyclinic regarding the LBW prevention program, program implementation indicators, and the role of health workers in implementing the program. Given this, more complete data were able to be obtained thereby minimizing bias. Overall, the average length of each interview lasted 45 to 60 minutes total.

Data Analysis

Data analysis was based on the Collaizi approach. This method includes six sequential steps [29], including: (1) bracketing by writing a reflective journal about the researcher's perceptions before and after the interview, (2) identifying important statements from the transcribed data, (3) grouping significant statements into meaningful groups, (4) compiling textual descriptions of experiences through the formulation of themes, (5) structuring descriptions of participants' experience statements, and (6) building and combining textual descriptions and structural descriptions so that they represent the overall essence of the participant's experience. This process is repeated for each participant until no new information is obtained (e.g., data saturation is reached). The process of translating codes into final themes was carried out through discussions between the research team.

Ethical Consideration

This research was approved by the ethics committee of Alma Ata University (KE/AA/I/101015/EC/2023). Research participants were given an explanation of the research objectives, data confidentiality, data published, and their right to withdraw from the research, prior to beginning the interviews.

Rigor

The trustworthiness of qualitative data is assessed based on credibility, dependability, confirmability, transferability, and authenticity [29]. In the present study, credibility was confirmed by member checking, triangulation, and reflective journal writing. Checking was carried out by checking the accuracy of the data that was collected from participants, while triangulating the data and methods. Confirmability was assessed using exploratory audit procedures by consulting transcripts and the analysis process with the research advisor. Transferability and authenticity were confirmed by collecting descriptions of interview transcripts and quoting participant statements that supported the conclusion.

RESULTS

A total of 12 health workers were interviewed by trained researchers. Participants completed all questionnaires regarding demographic information, and the sociodemographic characteristics of health workers can be found in **Table 1**.

Based on **Table 1**, the majority (83.3%) of participants were female and over 30 years old. Most (58.3%) had an education level of at least a Diploma certificate, about one-third (33.3%) were midwives, and about two-thirds (66.7%) had been working in the field for more than 10 years. Based on the results of additional analyses, several key themes emerged based on the intended research objectives. There were eleven themes total; four regarding the first research question and seven regarding the second research question and about two-thirds (66.7%) had been working in the field for more than 10 years. Based on the results of additional analyses, several key themes emerged based on the intended research objectives. There were eleven themes total; four regarding the first research question and seven regarding the second research question. **Table 2**, demonstrates these qualitative study findings.

Table 1. Participant Characteristic

Code	Characteristics				
	Age (years)	Gender	Education level	Profession	Length of work (years)
P1	40	Female	Diploma	Midwife	17
P2	43	Female	Diploma	Midwife	15
P3	46	Female	Bachelor	Health promoter	16
P4	40	Female	Diploma	Midwife	17
P5	29	Female	Diploma	Nurse	4
P6	30	Female	Bachelor	Nutritionist	4
P7	30	Male	Bachelor	Doctor	1
P8	54	Male	Bachelor	Nutritionist	30
P9	44	Female	Diploma	Midwife	24
P10	41	Female	Diploma	Nurse	13
P11	29	Female	Bachelor	Health promoter	5
P12	38	Female	Diploma	Nurse	10

Table 2. Qualitative study findings

Themes	Sub-Themes
Theme 1: The role of health workers as communicators	Subtheme 1: Communicator's attitude Subtheme 2: Behavior that needs to be emphasized as a communicator Subtheme 3: Norms believed to be a communicator Subtheme 4: Controlling behavior as a communicator Subtheme 5: Lack of intention as a communicator
Theme 2: The facilitative role of health workers	Subtheme 1: Provision health education media Subtheme 2: The role of community health center program innovation Subtheme 3: Good facilitator attitude Subtheme 4: Behavioral norms as a facilitator Subtheme 5: Perceived control which is believed to be a facilitator Subtheme 6: Intention as a good facilitator
Theme 3: The role of health workers as counsellors	Subtheme 1: Provision counselling service media Subtheme 2: Preparing counselling materials Subtheme 3: The attitude when becoming a counsellor Subtheme 4: The norms believed to be a counsellor
Theme 4: The motivational role of health workers	Subtheme 1: Personal approach efforts Subtheme 2: Sense of empathy Subtheme 3: Share experiences with patients
Theme 5: The role of community health centers in preventing LBW	Subtheme 1: The role of supervision Subtheme 2: Empowerment of health cadres Subtheme 3: The role of midwives in ensuring ownership and use of KIA books
Theme 6: Obstacles and barriers to LBW prevention programs	Subtheme 1: Obstacles and barriers from pregnant women Subtheme 2: Obstacles and barriers for health workers
Theme 7: Budget development and allocation of funds for LBW prevention	Subtheme 1: Special fund allocation Subtheme 2: Providing additional food budget Subtheme 3: Regulation of the use of funds Subtheme 4: Budget sources Subtheme 5: Budget reporting
Theme 8: Performance of health workers	Subtheme 1: Profession and role of health workers involved Subtheme 2: Monitoring and evaluation program implemented
Theme 9: Resources that can support program implementation	Subtheme 1: Readiness of human resources Subtheme 2: Facilities and infrastructure in program implementation
Theme 10: Timing of LBW prevention program implementation	Subtheme 1: Class schedule for pregnant women Subtheme 2: Integrated ANC schedule Subtheme 3: Schedule for administering iron supplement tablets

Themes	Sub-Themes
	Subtheme 4: Schedule of examinations for pregnant women
Theme 11: Cross-program collaboration	Subtheme 1: Program service areas Subtheme 2: Forms of cross-program collaboration activities

Theme 1: The role of health workers as communicators

The first theme describes the role of health workers as communicators. There are four subthemes based on the experiences shared by participants during their interviews. Participants tended to agree that in order to play the function of a communicator, a health worker must have a polite attitude, build a relationship of mutual trust, and display relaxed communication; that calm behavior and giving praise should be emphasized; norms should be in accordance with Community Health Center regulations and standard operating procedures; control behavior such as empathy, caring and being a good listener should be present; and health workers need to have intention as a communicator, especially commitment to the standard operating procedures (SOP) and completion of educational materials. Several participants conveyed their experiences as follows:

"What builds communication is that we have to build a relationship of trust, that is, we need to apply polite attitudes, a relationship of mutual trust and relaxed communication to patients." (P1)

"... when carrying out an examination, don't be in a hurry, we will provide the results of the examination and then we will essentially give appreciation if the family is there." (P3)

Theme 2: The facilitative role of health workers

The second theme relates to the role of health workers as facilitators; participants conveyed the importance of: (1) providing health education media such as food models, leaflets, “*Kesehatan Ibu dan Anak*” or KIA books, and flip sheets; (2) the role of innovation in public health center programs such as rescue groups for high-risk pregnant women, classes for pregnant women, giving iron supplement tablets to young women, and classes for prospective brides; (3) the attitude as a facilitator being enthusiastic and caring; (4) behavioral norms as a facilitator, namely politeness and providing facts; (5) the perception of control which is believed to be a personal approach and blending into society; and (7) intentions as a good facilitator, resulting in customer satisfaction and increased capacity building of pregnant women. Related participant statements were as follows:

"... We also use food models. Sometimes mothers ask and I give examples of good vegetables like this, animal protein like this with a set of food models." (P6)

"Because there are people who are sad too, what if it's like this, Doc? We have to be able to calm down but also provide facts." (P7)

Theme 3: The role of health workers as counsellors

The third theme, namely the role of health workers as counsellors, includes (1) providing counseling service media such as WhatsApp group, Facebook Community Health Center, and Instagram Community Health Center; (2) preparing counselling materials regarding the health of pregnant women and children; (3) attitudes when becoming a counsellor being open and using language that is easy to understand, and providing feedback; and that (4) the norms believed to be a counsellor include a personal approach, implementing communication stages, and encouraging relaxation among patients:

"... during counseling, we give theories first. We use language that is easy to understand, although sometimes there are health terms that we have to explain to pregnant women." (P5)

"There are actually no rules, but in communicating, we have pre-interaction, implementation, and evaluation stages." (P9).

Theme 4: The motivating role of health workers

The fourth theme, namely the motivating role of health workers, includes efforts to take a personal approach and empathize and share experiences with patients. Participant statements were as follows:

"The first time we meet a pregnant woman we have to build trust first. We build trust so that he will automatically say what the problem is." (P2)

"In providing motivation, I usually try to make the patient believe that it is right or wrong. I share my experience and hope that patients will be motivated to do the same." (P11)

Theme 5: The role of community health centers in preventing LBW

In the second question regarding the adequate evaluation of the role of health workers, seven themes were formed, including (1) the role of Community Health Centers in preventing LBW; (2) obstacles and barriers to LBW prevention programs; (3) development of budget and allocation of funds for LBW prevention; (4) performance of health workers; (5) resources that can support program implementation; (6) timing for implementing the LBW prevention program; and (7) cross-program collaboration. The fifth theme conveyed by participants was the role of community health centers as a single health service agency in preventing LBW incidents. Participants conveyed the importance of supervision activities for the LBW prevention program by (1) empowering health workers and (2) employing the role of midwives in ensuring ownership and use of KIA books. Related participant statements included:

"... so for monitoring we also involve cadres. So, for example, cadres ask every day whether their PMT has run out via WA communication." (P8)

"... during ANC, midwives must ensure that pregnant women have books. But sometimes it is not read, so health workers can ask whether pregnant women read MCH books at home." (P9)

Theme 6: Obstacles and barriers to LBW prevention programs

The sixth theme is obstacles and barriers to LBW prevention programs, including (1) obstacles and barriers from pregnant women, namely not being willing to visit, being too busy, non-cooperative responses, and cultural beliefs; and (2) obstacles and barriers for health officers, including unplanned schedules, poor communication between staff, busy workload, limited number of human resources, and differences in health worker performance targets. Sentiments shared included:

"... LBW prevention programs mean classes for pregnant women and most mothers work, so they don't go to those meetings." (P4)

"... which is an obstacle because of the environment in the village, so the traditional beliefs are still strongly believed. Then there is influence from grandmothers or in-laws because they will provide information that has been passed down from generation to generation." (P12)

Theme 7: Budget development and allocation of funds for LBW prevention

The seventh theme is budget development and fund allocation for LBW prevention programs, with supporting sub-themes such as (1) special fund allocation, (2) Providing additional food budget, (3) regulation of the use of funds, (4) budget sources; and (5) budget reporting. Relevant participant statements included the following:

"Most of the budget sources come from BOK, while procurement of PMT biscuits comes from the center." (P8)

"Reporting on the allocation of allocated funds such as RPK, and every month there is a UKM meeting. For example, at the beginning of each year, what we want to do is then broken down every month; at the next UKM meeting, each program is communicated." (P9)

Theme 8: Performance of health workers

The eighth theme is the performance of health workers in preventing LBW. The sub-themes included here were (1) the role of the health workers involved, namely the role of the midwife, the role of the nutritionist, the role of the health promoter, the role of the nurse, and the role of the doctor; and (2) the implementation of monitoring and evaluation, namely monitoring by the coordinating midwife and monitoring from the overarching Health Service. Related participant statements were:

"Midwives and nutritionists, sometimes together with health promoters. "But more often midwives have roles and duties in implementing preventive LBW services in the form of classes for prospective brides and grooms who educate about LBW risk factors and their impact on children." (P9)

"Yesterday, there was supervision at the end of the year from the family health sector asking about the reasons for the high LBW. "It turns out that most mothers who give birth are LBW due to hypertension and other comorbidities." (P10)

Theme 9: Resources that support program implementation

The ninth theme regarding evaluation of the role of health workers entails resources that can support program implementation, with subthemes of (1) readiness of human resources (HR and competency improvement programs, and (2) facilities and infrastructure in program implementation, namely teaching aids, assessment sheets, scales, metline, and ultrasound equipment. Participants stated that:

"There is a real need for updated knowledge; science is increasingly developing, so we need occasional training or workshops or other activities to increase knowledge of whether there are better resolutions in preventing LBW." (P2)

"Yes, it is very adequate, there are also anthropometric examinations and ultrasound examinations." (P9)

Theme 10: Timing of implementing LBW prevention programs

The tenth theme revolves around the timing of LBW prevention program implementation, including activities for pregnant women's classes, integrated ANC, giving iron supplement tablets to young women, and the routine examination of pregnant women. Some participant statements were as follows:

"... clear preventive services, namely ANC twice a week on Wednesdays and Saturdays. This service provides five units of maternal and child health, dental health, nutritional counseling, laboratory checks, and general health services. LBW preventive services in this building are good. "For services outside the building, we don't really understand whether there is a regular schedule or not." (P7)

"...class activities for pregnant women 4 times a year." (P2)

Theme 11: Cross-program collaboration

The final theme is cross-program collaboration, which is supported by the sub-themes of: (1) program service areas, namely public health efforts and individual health efforts; and (2) forms of cross-program collaboration activities, namely collaboration to update knowledge, discuss problem-solving, and network development. Here, participant statements included:

"... actually UKP and UKM are mutually sustainable; if pregnant women check at the Community Health Center, the services are also the same from medical records, KIA, dental clinic, nutrition clinic, laboratory, pharmacy, and general clinic." (P7)

"This form of collaborative activity provides many benefits, we in one sub-district can get to know each other and the programs we deliver can also be understood." (P1)

DISCUSSION

Based on the key themes and sub-themes which emerged from these data, aspects of the TPB model can be leveraged to inform the targeting of health worker attitudes, norms, perceived behavioral control, intentions and behavior for improved performance, organizational factors, resources, development of budgets and fund allocations, programs and implementation schedules, as well as cross-program collaboration, regarding LBW prevention programs in Indonesian community health centers.

Regarding communication, which refers to the way in which we convey information to other people [30], health workers serve as communicators for patients, the community, and other sectors. According to [31], health workers' communication skills are included in non-technical abilities, which are related to social and cognitive abilities. The ability to adequately communicate is a basic requirement of health workers to be able to provide their intended services [32].

Research conducted by Yusriani and Colleagues on health worker communication influencing the behavior of pregnant women in preventing hypertension, found that effective health worker communication greatly influences how pregnant women respond to information about hypertension [33]. In the present setting, the most common cause of LBW reported via the Nanggulan Community Health Center is hypertension among high-risk pregnant women. Therefore, health workers must improve and maintain their role in providing appropriate information to pregnant women in order to reduce negative health outcomes such as LBW.

We also found that the material presented by health workers for LBW prevention included information on women's reproductive health, physical and psychological health, the purpose and prevention of LBW, the impact of LBW events, fetal growth and development, and nutrition and supplements that need to be consumed during pregnancy. One causes of LBW is premature rupture of membranes [34,35], which was found to be true in previous research stating that the majority of pregnant women interviewed did not understand reproductive health. Therefore, health workers need to be more active in providing educational materials to pregnant women, starting from pre-marriage preparation and continuing during the pregnancy process. Providing repeated education can help expecting mothers remember and abide by the health materials given to them.

Apart from providing health services, health workers also play a facilitating role. A facilitator is usually tasked with helping a group of people understand a commonly shared goal, and in this case, health workers act as a medium to facilitates the achievement of the goal of decreased LBW cases [23]. Presently, it was found that health workers provided educational media in the form of food models, leaflets, KIA books, and flip sheets. these materials made it easier to transfer information to pregnant women. This is in line with previous research, which found that the effect of health education using leaflets on the knowledge of pregnant women and leaflet media was more effective in increasing the knowledge of pregnant women [36].

Health workers at the Nanggulan Community Health Center created the "*Kelambu Siti*" or rescue group for high-risk mothers. This innovation was carried out in an effort to prevent and monitor high-risk pregnant women. Thus, the role of health workers in efforts to prevent LBW can be said to be responsive in an effort to support the success

of the program. The need for innovation to reduce maternal mortality rates by monitoring high-risk pregnant women is in accordance with previous research [37] which found a monitoring program could be used by both cadres and health workers using an application to make monitoring at-risk pregnant women easier. This was done to reduce the deaths of pregnant women because monitoring can be carried out optimally and as early as possible. This innovation could be considered for implementation at the Nanggulan Community Health Center, considering that the LBW rate is still high in the area.

Apart from innovations for high-risk pregnant women, the implementation of classes for pregnant women, which are carried out as an effort to prevent LBW, is considered not very effective because not all pregnant women can take the class, and it has not been proven to reduce the incidence of LBW. This is supported by previous research [38,39], which stated that there was no difference in cases of LBW between subjects who attended classes for pregnant women and those who did not take classes for pregnant women.

Anemia is one of the major concerns for young women in the present setting. If a teenage girl becomes pregnant, she may not be able to provide nutrients for herself and the child she is carrying, so she is at increased risk of LBW. Therefore, giving iron supplement tablets to young women may be necessary, and has been implemented at the Nanggulan Community Health Center. The administration of iron supplement tablets has shown an increase in hemoglobin (Hb) levels in young women. This is in line with previous research [40], stating that giving iron supplement tablets had a significant effect on increasing Hb levels among anemic adolescent girls.

The behavioral norms and attitudes of health workers when acting as facilitators must be taken into account when developing and evaluating LBW prevention programs. One of the behaviors of interest is the providing of education to pregnant women about pregnancy, recommendations for taking iron supplement tablets, as well as the risks experienced by pregnant women during their pregnancy and the impact on the pregnant mother and her fetus [23]. This is also confirmed by research conducted by [41], which states that there is a significant relationship between the behavior of health workers in disseminating iron supplement tablets and the compliance of pregnant women with taking iron supplement tablets. It is known that if pregnant women lack iron, it will cause anemia, which can result in the risk of LBW.

The findings of this research are that there are still many pregnant women who do not know the benefits of taking iron supplement tablets given by officers. Health workers must explain this by first investigating the history of taking iron supplement tablets during pregnancy and then showing it with facts. If pregnant women do not take iron supplement tablets regularly, the risk of anemia will increase by showing laboratory results of low Hb levels. Then, the risks that pregnant women can experience if they experience anemia are explained. It is hoped that by providing these facts, pregnant women can change their behavior and become more willing to take iron supplement tablets.

A counsellor is someone who has expertise in the field of counseling services. Health workers are required to be able to provide counselling to both individuals and the community. In terms of efforts to prevent LBW, health workers should provide adequate counselling for pregnant women [23]. In other words, a counsellor must be able to explore all possible problems experienced by the patient. Special attention must

be paid to one's professional attitude when serving as a counsellor. These attitudes include responsibility, awareness of behavioral norms that must be maintained, skill in using a personal approach and broad insight with openness with the person being counselled [42]. A personal approach to pregnant women in providing counseling may increase pregnant women's compliance, as seen in previous research [43] which found that there is a significant relationship between counselling and the level of compliance of pregnant women with consuming iron supplement tablets.

Apart from counselling using a personal approach, counselling can also be done by utilizing developments in information technology. This can be done via WA group media, Facebook, and also Instagram. The COVID-19 pandemic has forced health workers to think of other ways to provide counseling, not only face-to-face but also by utilizing media such as WA Group and other social media [44]. This was also found in previous research [45] which stated that counsellors can successfully use online counseling media through the WA Group application.

In addition to counseling media, something that must also be considered is counseling material. To increase the knowledge of pregnant women, it is necessary to provide clear supplemental materials. According to Astuti [46], the difference in the level of knowledge of pregnant women who receive counselling and those who do not receive counseling has a significant relationship with the compliance of pregnant women in consuming iron supplement tablets. Therefore, counsellors should continue to provide materials to pregnant mothers throughout the course of their pregnancy.

Motivation is something that encourages mentality and drives human behavior. Health workers must serve as motivators for pregnant women in this regard [47,23]. to encourage pregnant women to improve desired health behaviors and reduce the risk of complications during pregnancy for both the mother and child.

According to Ryan and Deci [48] there are two basic forms of motivation, one of which is extrinsic motivation, in which motivation stems from outside a person. According to recent research [49] pregnant women are vulnerable to health problems or disorders, one of which is poor mental health. Therefore, health workers should try to take a personal approach to talking with women and empathize with them by serving as motivators who are willing to assist during and after pregnancy. Apart from that, health workers may also share their experiences with pregnant women so they do not feel alone in their own experiences.

A major role of health workers is to monitor pregnant women over the course of pregnancy. In line with previous research [50], active posyandu cadres (or health workers) are agents of change. The role of these workers in suppressing maternal and infant mortality includes conducting data collection, effectively communicating with patients, using persuasive approaches, visitations, being a liaison, and carrying out supervision and evaluation. This was also discovered when researchers conducted research where health workers actively participated in monitoring pregnant women in the Nanggulan area and joined a rescue group for high-risk pregnant women.

Presently, it was found that midwives played a role in the use of KIA books. Apart from that, the KIA book is a simple but effective tool as an information tool that health workers can use as an educational medium. This is in line with research [51] which states that there is a relationship between book use and pregnant women's attitudes toward health. In this prior study, mothers' negative attitudes towards health were greater

among those who did not read KIA books. From this, the use of KIA books educational media can change mothers' attitudes towards health.

The program to prevent LBW incidents at the Nanggulan Community Health Center has not been optimized or properly evaluated. Obstacles and barriers to the program can be seen by both the pregnant women and also from health workers. The research findings include obstacles from pregnant women, namely not being willing to visit, having a busy schedule, the response of pregnant women, and also the culture that pregnant women still believe in. This can happen because pregnant women feel less satisfied with the services provided by health workers. Research [52] has previously stated that factors related to pregnant women's satisfaction include the quality of health facilities and access to these health facilities. Regarding health workers, an obstacle described was the heavy workload. Health workers are burdened with multiple tasks, so they cannot always carry out their duties optimally. Other research [53] similarly found that there is an association between workload and performance when caring for patients.

When implementing program activities, community health centers usually receive funding from the central government through health operational assistance (called BOK). Unfortunately, in the list of activities in the BOK budget, there are no specific activities mentioned for preventing LBW. To provide additional food for pregnant women with Chronic Energy Deficiency, community health centers usually do not budget themselves but instead providing additional food (called local PMT) in the form of biscuits for pregnant women from the central government. Meanwhile, local PMT funded by BOK is specifically designed for underweight toddlers. This is due to regulations from the center regarding the use of BOK funds with targets that have been determined by looking at the results of the previous year's program achievements in the budget desk. The budget is then used for activities that have been approved by the Ministry of Health, whose reporting is monitored every month by the Health Service and the Ministry of Health [54,55].

In terms of PMT for pregnant women, the local government itself does not budget specifically, so PMT for pregnant women only comes from the Ministry of Health in the form of biscuits. This has been reported on previously [56] in which Community Health Centers were found to lack the human resources and infrastructure needed to manage the KIA program, in addition to a lack of operational funds available for preventive and promotive activities from the regional expenditure revenue budget.

The role of health workers in preventing LBW include being a communicator, counsellor, facilitator, and motivator. These roles are carried out in accordance with the competence of each health worker. One of them is the role of midwives in providing counseling to pregnant women. When carrying out a pregnancy check at the community health center, the examination is carried out by a midwife. During each examination, the midwife will provide counselling to pregnant women. This aims to increase the capacity, knowledge and skills of pregnant women. Skills in conducting counseling itself may influence the results of the counselling [57,58].

Research Erlandia & Gemiharto, has shown that all midwives carry out counselling, but not all midwives carry out counselling correctly. Therefore, it is necessary to monitor and evaluate both the coordinating midwife and the health service to improve the quality of services that are already running [59]. This was also expressed in her research entitled Quality of Minimum Service Standards for Pregnant Women's Health, which

stated that the output of health services for pregnant women has not met the target, so the quality of service standards for pregnant women needs to be improved [60].

Resources in efforts to prevent LBW incidents consist of human resources and infrastructure. The readiness of human resources in providing services to pregnant women must be considered, especially in regard to providing educational materials, knowledge, and self-confidence. Apart from that, the competency of health workers must also comply with standards so that they can provide services in accordance with their respective professional competencies. Competency development is also needed to update old knowledge with new knowledge [61]. It was previously found Suhartina research that there was a significant influence on patient satisfaction between competence, reliability, insight, empathy, and physical evidence [62]. Apart from that, according to another study [63], leadership at the community health center has a very important role in improving performance and service quality. Obstacles to improving the performance of community health center organizations include a lack of training and job guidance to improve the competency of health workers [64].

Facilities and infrastructure such as scales, metline, and ultrasonography are supporting factors for LBW prevention program services. The infrastructure provided by health facilities is one of the factors that influences the health status of pregnant women. This is confirmed by research conducted by Susanti, which states that midwife competence, community knowledge, and health facilities influence the health status of pregnant women [65].

Programs carried out by health workers to prevent LBW include pregnant women's classes, bride and groom classes (*"kelas catin"*), and youth posyandu, as well as integrated ANC. In addition, there is a PMT program to provide additional nutrition by providing biscuits, iron supplement tablets, and folic acid. Programs run by health workers are carried out according to a predetermined schedule. However, some programs and implementation days do not match the predetermined schedule. Pregnancy classes are held four times a year, in classes two times a year, and ANC programs are held every week on Wednesdays and Saturdays. The class for pregnant women itself is carried out to increase the knowledge of pregnant women. This is in line with research conducted by [66], which states that mothers who take classes related to pregnancy will have better knowledge and a positive attitude in recognizing risks that may arise during their own pregnancy.

Implementing integrated ANC can help to prevent LBW by improving the health status of pregnant women, and is a method that should be promoted in the present setting. Using this method, risks can be detected early on during integrated ANC examination visits [67]. This is in line with research conducted by Siwi *et al.*, that the reason pregnant women must undergo an integrated examination is that pregnant women will detect risk factors so that they can be anticipated and treated early [68].

Cross-program collaboration includes collaboration between public health efforts (UKM) and individual health efforts (UKP) at Community Health Centers. Health service facility that organizes first-level UKM and UKP by prioritizing promotive and preventive efforts [69]. Collaboration across LBW prevention programs includes maternal and child health, nutrition, health promotion, environmental health, and doctor programs. The benefit of cross-program collaboration is that these various programs can complement each other in such a way that the knowledge gained by pregnant

women is more comprehensive. The obstacle experienced in cross-program collaboration in the present study was conflicting schedules, which can be addressed by health centers working together better.

Research conducted by Mahirawati states that cross-program involvement is needed to reduce the prevalence of chronic lack of energy [70]. This is in accordance with findings that services for pregnant women must involve cross-programs to provide maximum services from several sciences that will complement each other. According to other researchers Chabibah & Khanifah, one form of cross-sectoral collaboration in the health sectors involves training facilitators to be agents of change within their communities, and this can be further explored as a method for future reduction of maternal and infant mortality [71].

Limitations of the present study include a small sample size (N=12), however, based on data and method triangulation techniques, we believe data saturation was reached. Future research should seek to include more voices in the exploration of perceptions regarding facilitators and barriers to LBW prevention.

CONCLUSION

The conclusions of this research include the following: Health workers responsible for carrying out the LBW prevention program at the Kulon Progo district health center include doctors, nutritionists, nurses, midwives, and health promotion. Health workers who participated in this study had a minimum education of a diploma certificate, with a minimum length of service of 1 year and a maximum of 30 years; The performance of health workers pertains to their role as communicators, counsellors, facilitators, and motivators in relation to attitudes, subjective norms, and motives of health workers in implementing LBW prevention programs. These three aspects are integrated to form behavior that will support the implementation and success of the LBW prevention program; The completeness of facilities, implementation of supervision, and evaluation determines the performance of officers in implementing LBW prevention program. Organizations that do not support the needs of health workers will experience obstacles and hinder performance; Human resources supporting the success of LBW prevention programs are determined by HR readiness, HR competency, and competency improvement programs; Budget development and allocation of funds that are not focused on LBW prevention programs will hinder the success of the program. The program and schedule for implementing the LBW program should be focused so that the program objectives can be effectively achieved; Cross-program and sectoral collaboration needs to be improved, especially regarding schedule management and collaboration of skills of health workers.

In closing, we evaluated the facilitators and barriers to implementing LBW prevention programs and recommend future programs and policies focus on management and administration in order to achieve optimal program implementation and subsequent improved health outcomes in Indonesia and other low-resource settings globally.

ACKNOWLEDGEMENTS

The authors would like to thank the participants who shared their personal experiences with us, as well as Emma C. Lewis for serving as a reviewer of this manuscript.

References

- [1] Indonesian Ministry of Health. (2021). Indonesia Health Profile 2020. Jakarta: Indonesian Ministry of Health.
- [2] Riskesdas. (2018). National_Report_RKD2018_FINAL.pdf. In Agency for Health Research and Development (pp. 221–222). http://labdata.litbang.kemkes.go.id/images/download/report/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf.
- [3] Central Bureau of Statistics. (2020). 2020 Maternal and Child Health Profile. Directorate of Public Welfare Statistics.
- [4] Perry SE, Hockenberry MJ, Lowdermilk DL & Wilson D. (2010). Maternal Child Nursing Care. fourth Edition. Missouri: Mosby Elsevier.
- [5] WHO. (2019). UNICEF-WHO Low Birthweight Estimates: Levels and Trends 2000-2015 (No. WHO/NMH/NHD/19.21). Geneva: World Health Organization.
- [6] Noorbaya, S., Johan, H., & Kurnia, N. W. (2019). Care for Neonates, Infants and Preschool Children. Yogyakarta: Goshen.
- [7] Pristya TY, Novitasari A & Hutami MS. (2020). Prevention and Control of LBW in Indonesia: Systematic Review. Indonesian Journal of Health Development, no. 2, vol. 3, p. 175-182.
- [8] Hockenberry MJ & Wilson D. (2015). Wong's Nursing Care of Infants and Children. St Louis: Mosby Inc.
- [9] Kamilia, A. (2019). Low Birth Weight with Incidence of Stunting in Children. Sandi Husada Health Scientific Journal, 8(2), 311-315.
- [10] Indonesian Ministry of Health. (2022). Indonesia Health Profile in 2021. Jakarta: Indonesian Ministry of Health.
- [11] DIY Health Service. (2021). Yogyakarta Special Region Health Profile 2020. Yogyakarta: DIY Provincial Health Service.
- [12] Kulon Progo District Health Service. (2021). 2021 Health Profile (2020 Data). Kulon Progo Regency Health Profile Report for 2021.
- [13] Safitri, H. O., Fauziningtyas, R., Indarwati, R., Efendi, F., & McKenna, L. (2022). Determinant Factors of Low Birth Weight in Indonesia: Findings From The 2017 Indonesian Demographic and Health Survey. Journal of Pediatric Nursing, 63, e102-e106.
- [14] Rifai, N.A., Abdullah, M.T., Russeng, S.S., Moedjiono, A.I., Seweng, A. & Hidayanti, H. (2019). The Influence of Maternal Age, Pregnancy Stress, Nutritional Status and Utilization of Anc against the Incidence of Low Birth Weight Infant in Public Hospital Public, Bantaeng Regency. Age (Omaha), 36(42), p.9.
- [15] Weyori, A. E., Seidu, A. A., Aboagye, R. G., Holmes, F. A., Okyere, J., & Ahinkorah, B. O. (2022). Antenatal care attendance and low birth

- weight of institutional births in sub-Saharan Africa. *BMC Pregnancy and Childbirth*, 22(1), 283.
- [16]Uwimana, G., Elhoumed, M., Gebremedhin, M. A., Azalati, M. M., Nan, L., & Zeng, L. (2023). Association Between Quality Antenatal Care and Low Birth Weight in Rwanda: A Cross-Sectional Study Design Using The Rwanda Demographic And Health Surveys Data. *BMC Health Services Research*, 23(1), 1-10.
- [17]Aschenbrenner, A. P., Hanson, L., Johnson, T. S., & Kelber, S. T. (2016). Nurses' Own Birth Experiences Influence Labor Support Attitudes and Behaviors. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 45(4), 491-501.
- [18]Conner M & Sparks P. (2015). *Theory of Planned Behaviour and The Reasoned Action Approach. Predicting and Changing Health Behaviour: Research and Practice with Social Cognition Models. Third Edition.* England: Open University Press.
- [19]Shamlou, Z., Saberi, M. K., & Amiri, M. R. (2022). Application of Theory of Planned Behavior in Identifying Factors Affecting Online Health Information Seeking Intention and Behavior of Women. *Aslib Journal of Information Management*, 74(4), 727-744.
- [20]Ajzen, I. (2005). *EBook: Attitudes, Personality, and Behaviour.* McGraw-Hill Education (UK): Open University Press.
- [21]Islam, M. H., Jubayer, A., Nayan, M. M., Nowar, A., & Islam, S. (2023). Maternal Pregnancy Intention and Antenatal Care Seeking Behaviors in Bangladesh: Evidence From Bangladesh Demographic and Health Survey, 2018. *International Journal of Public Health*, 68, 1605944.
- [22]Olaniran, A., Smith, H., Unkels, R., Bar-Zeev, S., & van den Broek, N. (2017). Who is a Community Health Worker?—A Systematic Review of Definitions. *Global Health Action*, 10(1), 1272223.
- [23]Malcarney, M. B., Pittman, P., Quigley, L., Horton, K., & Seiler, N. (2017). The Changing Roles of Community Health Workers. *Health Services Research*, 52, 360-382.
- [24]WHO. (2018). *WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes.* World Health Organization.
- [25]Salkeld, G. (1998). What are The Benefits of Preventive Health Care?. *Health Care Analysis*, 6(2), 106-112.
- [26]Luthfia, A. R., & Alkhajar, E. N. S. (2019). Public Service Practices: Community Health Centers as the Front Guard of Health Services. *DECISION: Journal of Public Administration*, 1(2), 71-81.
- [27]Mays, G. P., Hesketh, H. A., Ammerman, A. S., Stockmyer, C. K., Johnson, T. L., & Bayne-Smith, M. (2004). Integrating Preventive Health Services Within Community Health Centers: Lessons From WISEWOMAN. *Journal of Women's Health*, 13(5), 607-615.
- [28]Notoatmodjo, S. (2012). *Health Research Methodology.* Jakarta: PT Rineka Cipta.

- [29] Creswell, J. W., & Poth, C. N. (2007). *Qualitative Inquiry and Research Method: Choosing Among Five Approaches*. United States: Sage Publications.
- [30] Thomas, M. J. (2017). *Training and Assessing Non-Technical Skills: A Practical Guide*. CRC Press.
- [31] Prineas, S., Mosier, K., Mirko, C. & Guicciardi, S. (2021). Non-technical skills in healthcare. *Textbook of patient safety and clinical risk management*, pp.413-434.
- [32] World Health Organization. (2015). *Core Competencies in Adolescent Health and Development for Primary Care Providers: Including a Tool to Assess the Adolescent Health and Development Component in Pre-Service Education of Health-Care Providers*. World Health Organization.
- [33] Yusriani, Y. (2021). Health Workers' Communication Influences Pregnant Women's Behavior in Preventing Hypertension. *An-Nadaa: Journal of Public Health*, 8(2), 196-203.
- [34] Setiati, A. R., & Rahayu, S. R. S. (2017). Factors that Influence the Incidence of LBW (Low Birth Weight) in the Neonatal Intensive Care Room at Dr Moewardi Hospital in Surakarta. (*JKG*) *Journal of Global Nursing*, 2(1).
- [35] Wijaya, D., & Darusalam, D. (2022). The Impact of Premature Rupture of Membranes (PROM) and Low Birth Weight (LBW) Infant Outcomes to the Survival Rate. *Indonesian Journal of Obstetrics and Gynecology*, 72-78.
- [36] Buraini, B. (2023). *The Effect of Health Education Through Leaflet Media on Pregnant Women's Knowledge of Stunting in the Work Area of the Kotu Health Center, Anggeraja District, Enrekang Regency, South Sulawesi Province in 2023* (Doctoral dissertation, Universitas Hasanuddin).
- [37] Surya, S., Chalid, S. M. T., & Ahmad, M. (2022). Feasibility of an Android-Based Preeclampsia Screening Application for Pregnant Women ≤ 20 Weeks. *Permas Scientific Journal: STIKES Kendal Scientific Journal*, 12(3), 559-564.
- [38] Agustiniingsih, N., & Muwakhidah, S. K. M. (2018). Effectiveness of the Pregnant Mother Class Learning Program on Nutrition Knowledge, Anemia Status, Chronic Lack of Energy, and Low Birth Weight in Grogol District, Sukoharjo Regency (Doctoral dissertation, Universitas Muhammadiyah Surakarta).
- [39] Yulisa, R., & Imelda, I. (2018). Incidence of Low Birth Weight (LBW) in Aceh Hospitals. *Nursing Faculty Student Scientific Journal*, 3(3).
- [40] Mozaffari-Khosravi, H., Noori-Shadkam, M., Fatehi, F., & Naghiaee, Y. (2010). Once Weekly Low-Dose Iron Supplementation Effectively Improved Iron Status in Adolescent Girls. *Biological Trace Element Research*, 135, 22-30.
- [41] Lubis, D. S., & Hastuty, M. (2018). Behavior of Health Workers in Disseminating Iron Tablets with Pregnant Women's Compliance with Taking Iron Tablets in the Sentajo Raya UPTD Health Work Area, Kuantan Singingi Regency. *Doppler Journal*, 2(1).

- [42]Kim, K. B., Kim, M. T., Lee, H. B., Nguyen, T., Bone, L. R., & Levine, D. (2016). Community Health Workers Versus Nurses as Counselors or Case Managers in A Self-Help Diabetes Management Program. *American Journal of Public Health*, 106(6), 1052-1058.
- [43]Juwita, R. (2018). The Relationship between Counseling and Family Support on Pregnant Women's Compliance with Taking Fe Tablets. *Endurance Journal: Scientific Study of Health Problems*, 3(1), 112-120.
- [44]Naslund, J. A., Shidhaye, R., & Patel, V. (2019). Digital Technology for Building Capacity of Non-Specialist Health Workers For Task-Sharing and Scaling Up Mental Health Care Globally. *Harvard Review of Psychiatry*, 27(3), 181.
- [45]Habibah, S., Diniaty, A., Diniyah, D., Hasgimianti, H., & Adawiyah, P. R. (2021). Use of Online Counseling Media during the Covid-19 Pandemic. *Educational Guidance and Counseling Development Journal*, 4(2), 8-86.
- [46]Astuti, R. (2023). The Effect of Providing Counseling Using Video and Booklet Media on Increasing Knowledge of Fe Tablet Consumption in Anemic Pregnant Women. *Journal of Health and Development*, 13(26), 137-147.
- [47]Mayseless, O. (2015). *The Caring Motivation: An Integrated Theory*. Oxford University Press.
- [48]Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- [49]Arisanti, A. Z. (2021). Psychological Impact of Pregnant Women During the COVID-19 Pandemic (Literature Review). *Sehat Masada*, 15(2), 241-250.
- [50]Susanto, A. (2017, June). The Role of Posyandu Cadres as Behavior Change Agents for Pregnant Women in Efforts to Reduce Maternal and Infant Mortality Rates. In *Proceedings of the 2nd National Seminar on Applied Science and Technology (SENIT) (Vol. 2, No. 1, pp. 189-193)*.
- [51]Pandora, J., Kartasurya, M. I., & Winarni, S. (2018). Use of KIA Books as Educational Media for Pregnant Women (Study in the Tlogosari Kulon Community Health Center Work Area, 2018). *Journal of Public Health (Undip)*, 6(2), 63-73.
- [52]Murti, N. H., Widjanarko, B., & Rahfiludin, M. Z. (2018). Analysis of Factors Associated with Pregnant Women's Satisfaction with the Quality of Pregnancy Class Services in Semarang City. *Indonesian Journal of Health Management*, 6(2), 121-131.
- [53]Hakman, H., Suhadi, S., & Yuniar, N. (2021). The Influence of Workload, Work Stress, Work Motivation on the Performance of Nurses for Covid-19 Patients. *Nursing Care and Health Technology Journal (NCHAT)*, 1(2), 47-54.
- [54]Naftalin, F., Ayuningtyas, D., & Nadjib, M. (2020). Analysis of the Implementation of Health Operational Assistance (BOK) with Coverage for Handling Obstetric Complications in Bekasi City Health Centers in 2019. *Aceh Public Health Journal (JUKEMA)*, 6(2), 154-164.

- [55]Nuryana, H., Usman, A., & Rahayu, S. (2023). Implementation of Health Operational Assistance Funds (BOK) at Puskesmas X Bogor City in 2022. *PROMOTOR*, 6(1), 16-25.
- [56]Laeliyah, S. N., & Nadjib, M. (2017). Relationship Between Utilization of Health Operational Assistance Funds (BOK) and Increasing Coverage of K4 Antenatal Visits at Serang City Health Centers in 2014-2016. *J Indonesian Health Policy* , 6(3), 115.
- [57]McLellan, J.M., O'Carroll, R.E., Cheyne, H. & Dombrowski, S.U. (2019). Investigating midwives' barriers and facilitators to multiple health promotion practice behaviours: a qualitative study using the theoretical domains framework. *Implementation Science*, 14, pp.1-10.
- [58]Weeks, A., Liu, R.H., Ferraro, Z.M., Deonandan, R. & Adamo, K.B. (2018). Inconsistent weight communication among prenatal healthcare providers and patients: a narrative review. *Obstetrical & Gynecological Survey*, 73(8), pp.486-499.
- [59]Erlandia, D. R., & Gemiharto, I. (2014). Evaluation of the Village Midwife Communication Model as the Spearhead of Efforts to Reduce Maternal Mortality Rates in Sukabumi Regency, West Java Province. *Journal of Communication Studies*, 2(2), 186-199.
- [60]Marita, I., Budiyo, B., & Purnaweni, H. (2021). Minimum Quality Service Standards for Pregnant Women's Health. *HIGEIA (Journal of Public Health Research and Development)*, 5(1), 39-51.
- [61]Lestari, T. R. P. (2020). Efforts to Improve the Quality of Services at Community Health Centers Through a Health Human Resources Management Approach. *Study*, 23(3), 157-174.
- [62]Suhartina, S., Ginting, T., Suyono, T., & Sipayung, W. A. (2020). The Influence of Competency and Quality of Health Workers on Outpatient Satisfaction at the Sei Agul Health Center, Medan. *Prima Indonesian Public Health Journal*, 4(2), 86-97.
- [63]Amir, A., Lesmana, O., Noerjoedianto, D., & Subandi, A. (2021). The Role of Leadership in Community Health Centers on Organizational Performance and Quality of Health Services. *Journal of Telenursing (JOTING)*, 3(2), 526-537.
- [64]Yolanda, A. (2023). Implementation of Fulfillment of Health Personnel Standards at the Banjarmasin City Health Center (Doctoral Dissertation, Kalimantan Islamic University MAB).
- [65]Susanti, R. (2017). The Influence of Midwife Competence, Community Knowledge and Health Facilities on the Health Status of Pregnant Women in Banjarmasin City. *KINDAI*, 13(2).
- [66]Kaspirayanthi, N. K. D., Suarniti, N. W., & Somoyani, N. K. (2019). The Relationship between Mother's Participation in Pregnancy Classes and Knowledge of Danger Signs of Pregnancy and Childbirth in the Denpasar City Area. *The Journal of Midwifery*, 7(2), 116-127.
- [67]Schulz, A., & Wirtz, M. A. (2020). Assessing the Quality of Midwifery Care From The Woman' S Perspective.
- [68]Siwi, R. P. Y., Wulandari, A., Retnaningtyas, E., & Astikasari, N. D. (2023). Analysis of Pregnant Women's Motivation and Family Support On

- Integrated Antenatal Care Participation. *Journal for Quality in Women's Health*, 6(1), 42-50.
- [69] Sulaiman, E. S. (2021). *Health Management: Theory and Practice in Community Health Centers*. Yogyakarta: UGM Press.
- [70] Mahirawati, V. K. (2014). Related Factors of Chronic Energy Deficiency at Pregnant Woman in Kamoning and Tambelangan Sub District, Sampang District, West Java. *None*, 17(2), 20898.
- [71] Chabibah, N., & Khanifah, M. (2019). Sustainable Pregnant Women's Health Services. *GEMASSIKA: Journal of Community Service*, 3(1), 69-82.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

