Focused Postpartum Care (Focused-PPC): An integrated postpartum care, education, and support model for women in Ghana

Lay Report

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INTRODUCTION

Background

The first cry of a newborn baby is an introduction of new life and a sound that many mothers anxiously await as they undergo each stage of pregnancy. Unfortunately, for millions of women around the world, the reality of childbirth and maternity comes with great tragedy and loss. Each day, approximately 810 women die from preventable causes related to pregnancy and childbirth, and according to the World Health Organization, 70% of these maternal deaths occur in Sub-Saharan Africa (World Health Organization [WHO], 2022). As of 2020 in the Western African country of Ghana, 308 maternal deaths occurred out of 100,000 live births: a comparatively high proportion of deaths, most of which could have been prevented. Working to improve maternal healthcare has been recognized as a global health priority by the United Nations. Increased attention must be given to women in lower or middle income countries–such as Ghana– where the risk of maternal death is greater.

Maternal health refers to the health of women before and during pregnancy, during childbirth, and after childbirth. The time following delivery up until one year after birth is also known as the postpartum period (WHO, 2013). The postpartum period is a sensitive time physically, emotionally, and socially for women. During this period, there is the greatest risk for pregnancy-related health issues or infections, mental health issues such as depression, and worsening of already existing health concerns. Receiving care in the first 24 hours following birth is considered to be one of the most effective strategies for improving maternal health, but continued care in the following weeks and months after birth sets women up for long-term maternal health and wellbeing (Appiah et al., 2021). In fact, the World Health Organization recommends that women receive postpartum checks in a healthcare facility for at least 24 hours after birth, and then at 48-72 hours, 7-14 days, and six weeks after birth (WHO, 2013).

Health care for women in the postpartum period should include components of education, clinical care and checks, and support for women who often face unexpected challenges after childbirth. Patient education about what to expect and what to watch for during the postpartum period prepares and empowers women to make informed decisions about their health. If a woman is properly educated, she is much more likely to identify life-threatening symptoms –such as vaginal

bleeding or abdominal pain– after birth. Additionally, negative outcomes are much more likely to be prevented if a woman quickly recognizes the need to find care (Nikiéma et al. 2009).

Those providing postpartum care should be respectful of each woman and each culture. If health care workers mishandle their power or treat women with disrespect, women will be less likely to seek out future care, and this could greatly harm their health. A supportive community is also necessary to ensure postpartum maternal well-being. After a woman gives birth, certain stressors can occur, which make social support from family, friends, and partners very important in helping a mother's postpartum recovery.

Reason for Study

Postpartum practices in Ghana, and around the world, have room for improvement in the quality of care provided to new mothers. From our prior projects and experiences within the setting, we noticed that after giving birth, healthcare providers often direct their attention to the babies, missing an opportunity to provide direct attention to the mothers and their needs. Additionally, new mothers are often left without enough knowledge about what to expect and what to look out for after giving birth (Adams & Sladek, 2022). After delivery, mothers are at risk of blood clots, blood loss, high blood pressure, severe infections, postpartum depression, and more. Without proper medical care, these problems could lead to death. Therefore, it is very important that women get the care and attention they need to avoid preventable and dangerous health problems.

Currently in Ghana, women are expected to manage their own postpartum care by themselves 48 hours after delivery (Ghana Statistical Service & Ghana Health Service, 2017). The current standard of care after birth often does not include all of the necessary components of high quality postpartum care, education, and support for mothers. The lack of long-lasting and complete postpartum care contributes to maternal deaths and negative health outcomes in Ghana. Therefore, the goal of our study was to create an improved model of care for women after childbirth. This new model is called Focused-Postpartum Care or Focused-PPC.

Focused-PPC provided new mothers with proper attention and examinations from healthcare workers, education about possible medical problems and what to look for, and a support group of other new mothers to freely talk with. Making sure women are assessed by a midwife at the right times after birth is very important to make sure the mother is healthy and to catch any problems early.

Education about issues that may arise after birth allows new mothers to learn about their bodies, and be ready to seek medical attention quickly if a problem arises. Support groups help women deal with feelings of hopelessness, loneliness or sadness which can be common after giving birth. It was our hope that carrying out this study to test our new version of postpartum care (Focused-PPC) would, and will continue to, reduce deaths and major health problems faced by new mothers in Ghana.

METHODS

The Intervention (What We Did)

The Focused-Postpartum Care (Focused - PPC) intervention allowed mothers to receive care for themselves and their babies after birth, in a group setting. Each woman receiving Focused - PPC joined a group of 8 postpartum mothers led by midwives. These groups met several times after birth, including 1-2 weeks after birth, 6 weeks after birth, and once every month until 1 year after birth.

When Focused - PPC groups met, all women and their babies received health checks and advice from midwives for themselves and their babies. They were also taught about the important topics, such as breastfeeding, family planning, and what symptoms to watch for after having a baby. Women had the chance to ask midwives about any topics they were concerned about or wished to learn more about. Focused-PPC care was delivered in a group setting so that women could easily support each other during the physically and emotionally difficult time after childbirth. Women were encouraged to share their hardships and successes with each other, and were able to develop a trusting relationship with the other members of their group.

Recruitment (How We Got Women to Participate)

Women were allowed to participate in the Focused - PPC study if they were 18 years of age or older, were admitted to the postnatal ward after birth, had a live newborn with no major health issues, and were able to speak and understand English or Dagbani. During antenatal care appointments in the third trimester of pregnancy, our research team approached women to ask if they would be interested in participating in the study. The team described how the study would operate and ensured women that participating was completely their choice. If a woman was interested in participating and was allowed to participate in the study based on our criteria, she was provided with information to

contact the research team and provided her own contact information so that she could be reached again after delivery.

Control vs. Intervention Arm (Explanation of the Different Groups)

After delivering her baby, each woman was officially enrolled into the study and assigned to either the control group or the Focused-PPC intervention group. These two groups were equal in size, and the assignment to either group was completely random. Those assigned to the intervention group received the Focused-PPC group version of care, described earlier. Focused-PPC groups met at 1-2 weeks after birth, 6 weeks after birth, and each month after until 1 year after birth. Those assigned to the control group simply received the usual version of care provided after birth in Ghana, including individual postnatal care visits at 2 weeks after birth, 6 weeks after birth, and child welfare clinic (CWC) visits once a month until one year after birth. The usual version of postnatal care provided in Ghana heavily focuses on care of the baby. Meanwhile, the Focused-PPC version of care was designed to provide care for the mother herself in addition to providing care for her baby.

The reason women were randomly assigned to either the intervention group or control group was so that we could clearly recognize any differences between Focused-PPC postnatal care and the regular version of postnatal care. We expected that those assigned to the Focused-PPC intervention group would experience better care and results.

Outcomes (What We Looked For)

Over the course of this study, we kept track of many results. We measured how much knowledge women had about warning signs or symptoms that may occur after birth and damage a woman's health. Prior to the study starting, we supposed that those receiving Focused-PPC care would have better knowledge of warning signs or symptoms than those receiving usual care as time progressed. We also tracked women's health behaviors, including how many postnatal appointments they attended, and their breastfeeding, diet, and family planning practices. We also supposed that these health behaviors would differ between those receiving Focused-PPC care and those receiving usual care. Other measures of health were monitored, including mental health, illness or health problems, blood pressure, weight, and heart rate.

Some findings that we tracked required follow-up action by our research team. For example, if a woman did not attend a postnatal appointment, she was contacted and reminded to come in and

receive care. If a woman appeared to be at high risk for mental health problems, such as depression or suicide, midwives were informed immediately in order to get women proper counselling and support. Midwives regularly performed health checks with postpartum women, and any incidences of illness or other health concerns were treated quickly. For example, postpartum women with high blood pressures were assisted through medical advice or medication to lower blood pressure back to a normal, healthy range.

In order to make sure that the Focused-PPC approach was successful, we held group discussions at the end of our project with both participants and midwives involved in the study. These discussions allowed us to hear women's thoughts about the effectiveness and benefits of our new approach to postpartum care. We were also able to hear suggestions about how to improve or maintain the Focused-PPC model of care in the future. In order for an approach such as Focused-PPC to become more commonly practiced, it is important to consider the opinions of those most involved and make improvements accordingly.

FINDINGS

Participant Characteristics

Participants' age, gender, income, education and marital status, along with previous history of pregnancy and/or childbirth were very similar in both control and Focused-PPC groups, showing that the randomization was successful. Overall, nearly all women were married, half did not attend school, and half had a source of income. Only one fifth of women attended higher education such as tertiary or vocational school. Additionally, nearly all women delivered their baby vaginally with help from a midwife or nurse, attended weighing while pregnant, planned to breastfeed, and were informed to return to a health facility for a check-up after delivering their baby. For most women, this was not their first pregnancy - most had been pregnant once before and many women had another child. Control and Focused-PPC participants were told to return to health facilities around the same amount and at the same times after giving birth.

Knowledge of Postpartum Warning Signs/Danger Signs

Focused-PPC and control participants started the study with the same knowledge and confidence in identifying postpartum warning signs. By 1-2 weeks after birth, the control group's knowledge stayed the same, but the Focused-PPC groups were identifying many more of the warning

signs. By 3 months after birth, almost all Focused-PPC participants were able to identify all warning signs. Focused-PPC participants also remembered all warning signs up to 6 months after birth. On the other hand, the control group identified less warning signs as the study progressed. By 6 months after birth, nearly 10% of those in the control group could not identify any warning signs at all.

The control group felt less confident in their ability to recognize the warning signs throughout the course of the study. On the other hand, the Focused-PPC group got more confident in their ability to recognize warning signs and were able to recognize more warning signs as the study progressed. By 6 months after birth, more than 90% of Focused-PPC participants identified every warning sign and felt very confident in identifying most warning signs. **Table 7 in appendix** shows the individual warning signs identified by control and Focused-PPC participants at each check-in point.

In Choggu, all participants regardless of whether in control or Focused-PPC had a fairly high knowledge of warning signs immediately after delivery. This knowledge was maintained through the first check-in at 1-2 weeks for both groups, but by the 3 month mark the Control group could no longer identify as many warning signs as the Focused-PPC group. At both the 3 and 6 month check-ins, the Focused-PPC group identified significantly more (nearly all) warning signs. In comparison, the Control group's ability to identify warning signs decreased from 8-9 signs at baseline to only 2-3 warning signs at the 6 month check-in. In Choggu, although there was good knowledge of warning signs in the beginning, without the continued reinforcement of this knowledge over time, there was knowledge loss in the control group.

In Bagabaga, all participants started out at a baseline of only being able to identify around 1-2 warning signs on average. From the first check-in at 1-2 weeks through the most recent check-in at 6 months, the Focused-PPC group demonstrated a significant increase in ability to identify warning signs. On the other hand, the control group did not increase knowledge of warning signs; their knowledge stayed the same throughout the study. Similarly, Kalpohini and Kanvilli's participants' ability to identify warning signs was low at the baseline, but the Focused-PPC group's ability significantly increased over time. The only difference is that the control group's ability to identify warning signs fluctuated, first increasing from baseline to 3 months and then decreased at the 6 month mark. **Figure 1 in appendix**, shows the average overall knowledge of warning signs of the Control and Focused-PPC groups at each health center over time.

Confidence to Recognize Health Issues

At baseline, Focused-PPC and control participants had the same level of confidence in their ability to recognize each warning sign. With the exception of infection and hemorrhage, which participants felt somewhat confident in recognizing at baseline, participants were less than somewhat confident in recognizing each warning sign. As the study continued, the control participants became less confident in their ability to recognize every warning sign. By the 6 month check-in, the average control participant said they were not confident in recognizing blood clots in veins, blood clots in lungs, disease in the heart, hypertension, and postpartum depression. Control participants, on average, kept somewhat similar levels of confidence in recognizing hemorrhage and infection at the 6 month check-in. The Focused-PPC participants became more confident in their abilities to recognize every warning sign starting at the first check-in. By the 3 month check-in, Focused-PPC participants nearly reached their peak confidence in ability to recognize each warning sign, which can be seen in the much smaller increase in confidence between the 3 month and 6 month check-ins. For the warning signs participants felt the most confident recognizing at baseline (hemorrhages and infections), Focused-PPC participants felt very confident on average in their ability to recognize these warning signs by the 6 month check-in. Compared to control participants, Focused-PPC participants at 6 months felt more than somewhat confident, on average, in their ability to recognize blood clots in veins, blood clots in lungs, disease in the heart, hypertension, and postpartum depression. **Figure 2** shows the average confidence in recognizing each warning sign at check-ins throughout the duration of the study for control and FPPC participants.

Postpartum Health Behaviors

More Focused-PPC participants reported knowing about the 4 star diet and using family planning methods at each timepoint than control participants. At their 1-2 week and 6 week check-ins, control and Focused-PPC participants reported eating the 4 star diet 3-4 days a week. After that, the control participants kept eating this diet the same amount every week until their 12 month check-ins, where most reported that they no longer followed the diet. Focused-PPC participants increased the frequency they ate the 4 star diet up to 5-6 days a week by the time of their 6 week check-in. At the 3 month check-in, a quarter of the Focused-PPC participants followed the diet every day, with another

third of participants eating the diet at least 3-4 days a week. At their 6 month and 12 month check-ins, Focused-PPC participants mainly reported following the diet either every day or 3-4 days a week.

More Focused-PPC participants reported using family planning methods at each timepoint than control participants. Despite most of the women reporting that they definitely did not want to get pregnant within the next 6 months and that they would be extremely worried if they did get pregnant within the next 6 months, most control participants did not use any family planning methods throughout the study. On the other hand, over the course of the study, more Focused-PPC women reported using family planning methods at each check-in, ending at nearly one third of all Focused-PPC participants using a family planning method by the 12 month check-in. **Figure 3** shows the frequency of participant's health behaviors over time.

Health Measures

Physical Health.

Assessments, and measures of blood pressure were performed on Focused-PPC participants at every session. When first starting the study, nearly half of all Focused-PPC participants had high blood pressure. By 6 months, only a quarter still had high blood pressure, and by the end of the study that number decreased to only 13% of Focused-PPC participants.

Mental Health.

Stress and depression were measured over time using the Perceived Stress Scale (PSS) and Edinburgh Postnatal Depression Scale (EPDS). Overall, perceived stress and EPDS were linked with participants' groups (Focused-PPC or control) over time and location over time. Facilities that spiked in stress and depression scores showed lower scores by the next check-in. Similarly, Focused-PPC participants reached lower depression and stress scores sooner than control participants. **Figures 4 and 5** show participants' average stress and depression scores over time, respectively.

CONCLUSIONS & BENEFITS

The Focused-PPC care model was created to help reduce maternal deaths and improve women's health after childbirth. This study included a control group and an experimental group. The control group was made up of women who gave birth and then received the normal postpartum clinical care given in Ghana. The experimental group was made up of women who gave birth and received a new model of care after delivery, called Focused-Postpartum Care (Focused-PPC). Women receiving Focused-PPC attended educational sessions, participated in group discussions, got health checks by trained midwives, and completed surveys made by our team.

We noticed that women receiving Focused-PPC experienced several benefits compared to women who simply received the usual version of post-birth care. Importantly, women receiving Focused-PPC care knew many more warning signs of dangerous problems that commonly occur after birth and can lead to death. This may mean that the women receiving usual care did not receive adequate education about these important warning signs, while women receiving Focused-PPC care received enough education to recognize and remember the warning signs. We also noticed that women receiving Focused-PPC care felt much more confident in their ability to recognize a health problem after birth, meaning they were more likely to know when to seek care to take care of a problem. Women receiving Focused-PPC care also experienced less stress and fewer feelings of sadness and depression over time. This means that Focused-PPC care is able to improve the mental health of women in the difficult time after childbirth, likely due to the support these women received from midwives and their fellow mothers. Women in the Focused-PPC group also demonstrated better knowledge of good nutrition and were more likely to eat healthy meals than those receiving usual care. Additionally, women in the Focused-PPC group were more likely to begin using family planning methods after delivery. These results show that the education provided in Focused-PPC helped women to make better decisions for their health.

Overall, we found that the Focused-PPC model of care helped to improve the knowledge and health of women in Tamale, Ghana after childbirth. While Ghana has high rates of maternal death, improvements to after-birth care, such as those offered in Focused-PPC, can help to decrease these numbers. We designed Focused-PPC as an important step towards stopping preventable deaths and improving maternal health, and our results show that it may be capable of both. We will continue to work to improve Focused-PPC and the care given to all postpartum women in Ghana.

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APPENDIX

Table 7. Identification of Individual Warning Signs

Sign	Baseline		1-2 Weeks		3 month		6 month	
	Control n=96	FPPC n=96	Control n=88	FPPC n=84	Control n=90	FPPC n=79	Control n=88	FPPC n=76
Pain in chest	51.0%	46.9%	51.1%	82.1%	40.0%	100.0%	42.0%	98.7%
Obstructed breathing / shortness of breath	38.5%	34.4%	47.7%	71.4%	32.2%	100.0%	26.1%	94.7%
Seizures / convulsions / twitching	35.4%	33.3%	35.2%	58.3%	21.1%	98.7%	17.0%	97.4%
Thoughts of hurting yourself	29.2%	31.2%	35.2%	67.9%	13.3%	97.5%	20.5%	97.4%
Severe bleeding	79.2%	79.2%	80.7%	96.4%	75.6%	100.0%	62.5%	98.7%
Incision taking long to heal	41.7%	45.8%	45.5%	70.2%	33.3%	98.7%	22.7%	93.4%
Swollen leg / pain in leg	32.3%	28.1%	31.8%	46.4%	12.2%	98.7%	13.6%	96.1%
Fever/ High Temperature	49.0%	51.0%	52.3%	78.6%	40.0%	98.7%	47.7%	96.1%
Severe Headache	55.2%	55.2%	52.3%	84.5%	46.7%	98.7%	47.7%	97.4%
None of above	7.3%	8.3%	5.7%	1.2%	3.3%	0.0%	10.2%	0.0%

Figure 1. Average Number of Warning Signs Identified

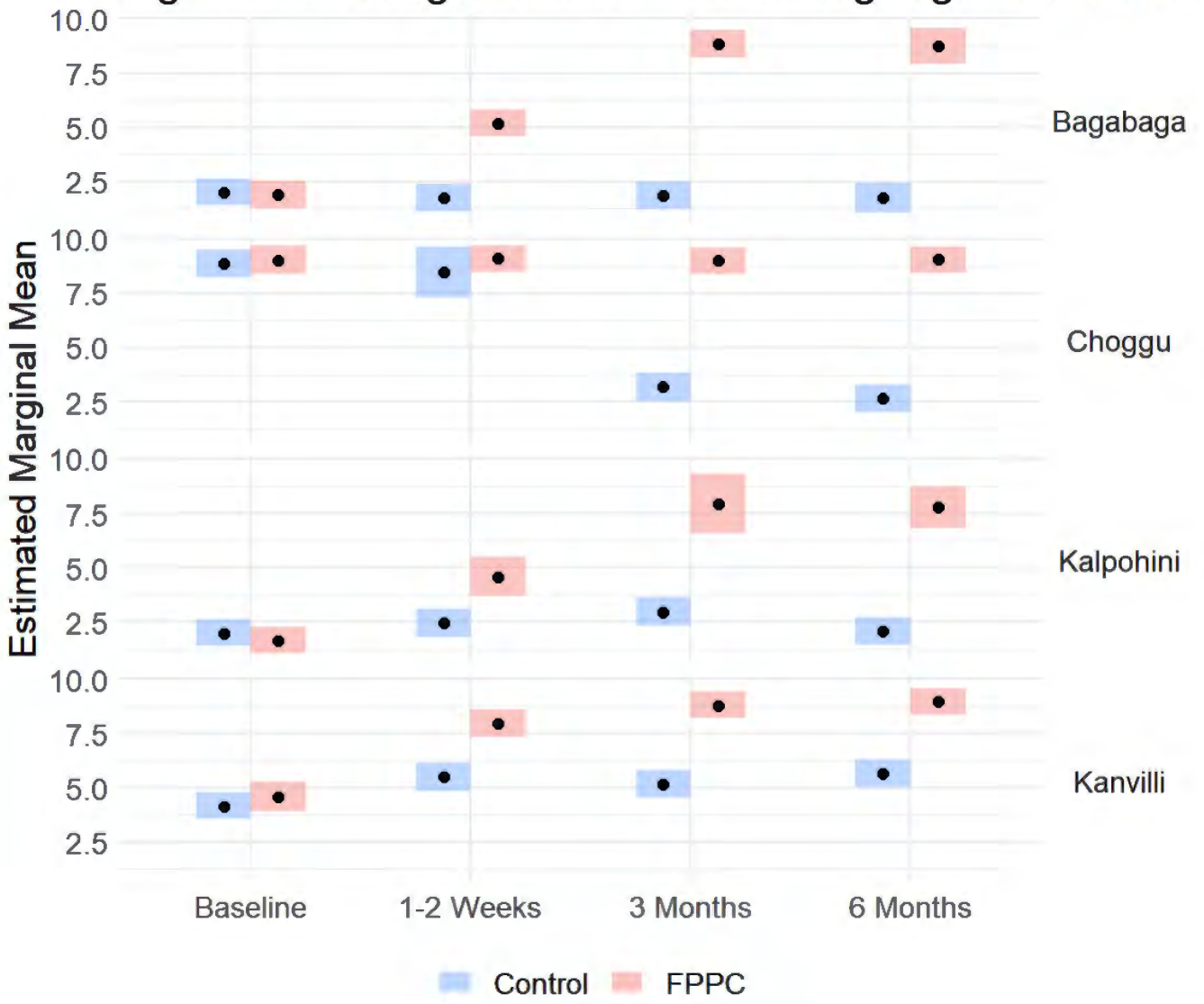

Figure 2. Participants Average Confidence in Their Ability to Recognize Complications

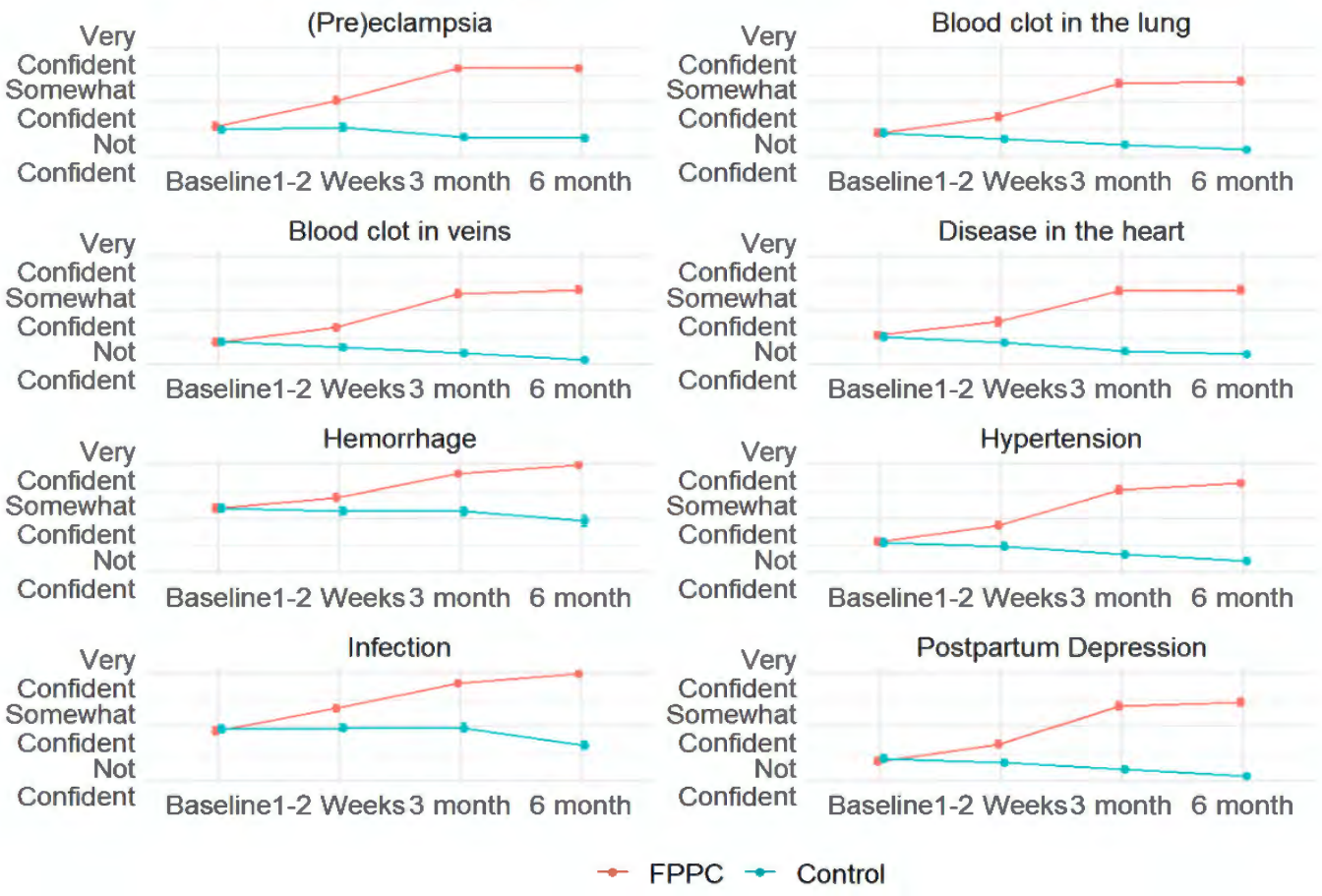

Figure 3. Participant's Health Behaviors Over Time

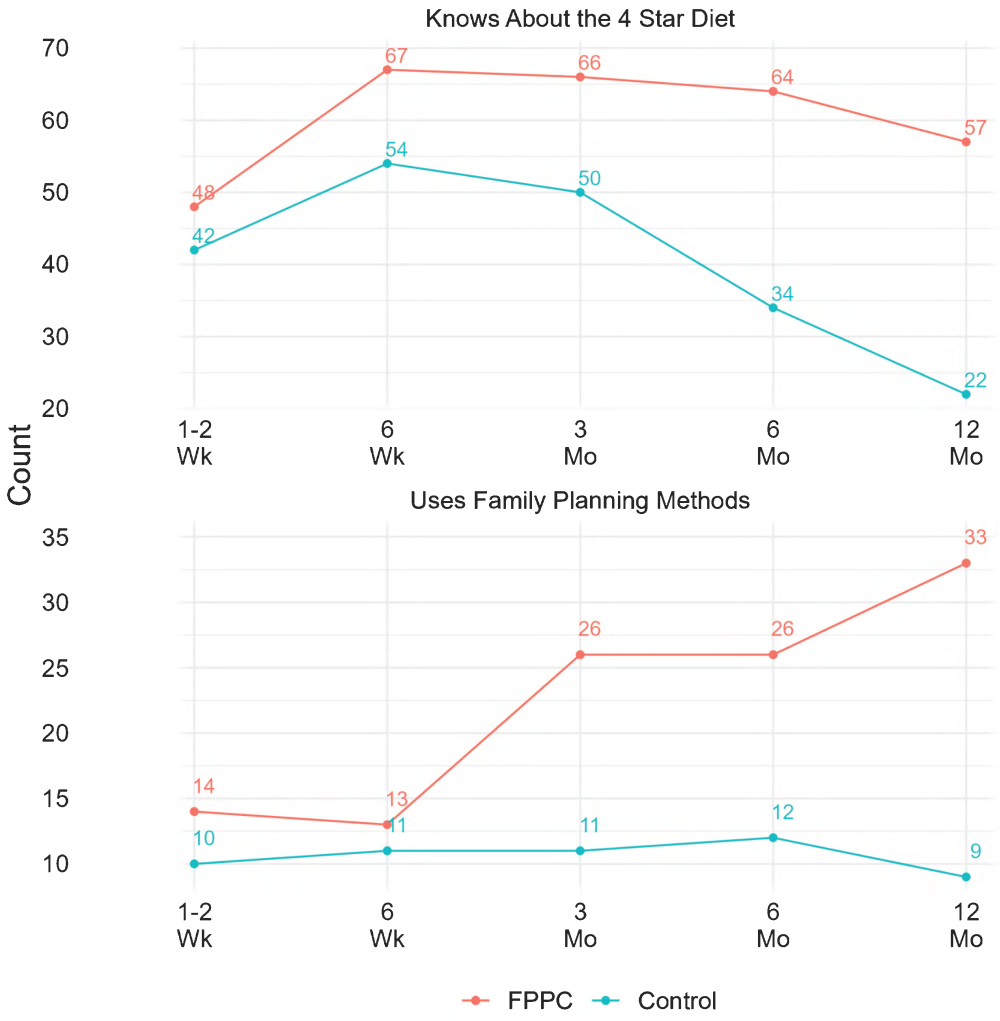

Figure 4. Average Participant Perceived Stress Scores Over Time

Figure 5. Average Participant Edinburgh Postnatal Depression Scores Over Time