Outcome of Midwife-Led Debriefing on Postpartum Depression in Western Region, Kenya

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ABSTRACT

Context: Giving birth is a traumatic experience for women, and if unresolved, the emotions it causes can have a lasting negative impact on mental health, including depression in the postpartum period. Depression is a prevalent mental illness that can have major repercussions, particularly after giving birth. There is evidence of postpartum depression. However, many studies have concentrated on the prevalence of postpartum depression. In middle-income countries, including Kenya, very few studies have assessed the outcome of midwife-led debriefing for the prevention of postpartum depression.

Aim: The study aimed to assess the outcome of a midwife-led debriefing on postpartum depression in the Western region of Kenya.

Methods: The study was a quasi-experimental design with pre and post-test assessments. The study used the postnatal register as the sampling frame. Systematic random sampling was used to identify and allocate participants to the study's intervention and control groups. The target population was women of childbearing age. The study participants were women who gave birth during the study period, of which a sample of 212 participated in the study. The 165 participants were allocated to the intervention group, while 47 participants were in the control group, based on the 22% Prevalence of Postpartum Depression (PPD). Data was collected using a structured questionnaire on demographic characteristics and the Edinburg Postpartum Depression Scale (EPDS) for assessment of postpartum depression level.

Results: The study results show that midwife-led debriefing significantly reduced the symptoms of postpartum depression (t=14.672, p-value=0.003). The Odds ratio (OR= 5.41) indicated an association between the intervention of midwife-led debriefing and the outcome (Reduced symptoms of depression) as compared with the standard care. The coefficient of β=0.871 shows a proportional shift in postpartum depression prevention of 0.871 units for every unit increase in midwife-led debriefing. At the 5% significance level, the null hypothesis was rejected (*p*=0.003), suggesting that postpartum depression could potentially be prevented using midwife-led debriefing.

Conclusion: Midwife-led debriefing reduces postpartum depression symptoms. The study recommends that the national and county government health systems integrate midwife-led debriefing into the standard practice for postpartum care.

Keywords: Outcome, Postpartum depression, Midwife-led debriefing

1. Introduction

Transition into motherhood is a joyful life event for women and their families. However, it is marked by complex and mixed feelings, both positive and negative, which can affect the woman's psychological response to childbirth *(Shorey et al., 2023)*. Based on studies, mothers are occasionally overwhelmed with stressful experiences during the entire pregnancy, childbirth, and breastfeeding *(Budiman et al., 2019)*.

Postpartum depression (PPD) places a burden on maternal health, and it exerts a negative impact on maternal health and the child's life, too. Global prevalence ranges between 17% to 29% *(Taylor et al., 2021)*. The majority of the depression cases were from low, middle-income countries as compared to the developed countries. From the epidemiology of maternal depression, women had more cases of depression than men, of which the cases during the postnatal period were high and associated with stress following labor *(Gelaye et al., 2016)*.

After giving birth, women who suffer from postpartum depression may feel extremely depressed, anxious, and exhausted, which may make it difficult for them to take care of themselves or other people regularly *(Gelaye et al., 2016)*. If postpartum depression is left untreated, it can result in a persistent disease that affects the mother-child bond and, in rare instances, can lead to suicide or infanticide *(Nguyen et al., 2022)*.

Postpartum depression can show itself through symptoms including insomnia, sobbing in severe cases, self-doubt, lack of confidence, dread of getting wounded, and concerns about

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not being able to feed and care for the child. Suicidal thoughts and feelings, in addition to feelings of hopelessness, can result in child suicide *(Nguyen et al., 2022)*.

According to *Netsi et al. (2018),* mental anxiety and feelings of losing control not only negatively impact the mother but also have recognized negative repercussions on the child. Postpartum depression symptoms and signs begin after the baby is born and can last for up to a year. As a result, although postnatal care is given the least attention, the early postnatal period is critical for enhancing the health and survival of both the mother and the newborn *(Netsi et al., 2018)*.

The childbirth experiences have also been proposed to have a strong effect on both the health of the mother and the child *(Anokye et al., 2018)*. For years, studies have been done to ascertain the cause and incidence of postpartum depression (PPD). However, postpartum depression, like other depression cases, may not have a definite cause but could be a combination of different factors like physical, biological, and hormonal factors *(De Bruijn et al., 2020)*. Evidence of a range of psychological morbidities following childbirth is now compelling, and postnatal debriefing is one intervention that has been implemented in an attempt to reduce this morbidity after childbirth *(Abdollahpour et al., 2020)*.

Debriefing is a structured psychological interview and discussion during which the interviewer explores a client's or patient's stress experience of a traumatic event to reduce emotional/psychological distress after the unusual event or trauma. In the case of a midwife-led debriefing, the midwife becomes the lead person and performs the interview discussion with the women after delivery *(Abdollahpour et al., 2020)*.

According to a systematic review, debriefing has been tried to avert and correct psychological problems arising from a stressful event with attempts of midwife-led debriefing in developed countries *(Budiman et al., 2019)*. One key intervention that was used to prevent morbidity due to postnatal depression was midwife-led debriefing, which allowed the women to talk out their issues related to birth experiences and, therefore, reduced the probability of ending up with postpartum depression *(Fonseca et al., 2019)*. Debriefing, therefore, becomes one of the health-promoting strategies to maintain the good health of women, babies, and their families *(Bastos et al., 2015)*. This approach improves the family's well-being and reduces the burden of regular health visits seeking treatment and care *(Shorey et al., 2023)* Midwife-led debriefing has shown positive effects among mothers in the United Kingdom, hence reduced expenditure.

2. Significance of the study

According to *Taylor et al. (2021)*, mothers after childbirth were more likely to develop depression, though this may be diagnosed in only 50% of the women with prominent symptoms during the first year post-delivery. There is scanty information from studies in Africa on the magnitude of postpartum depression. A systematic review of fifteen articles showed that Low Middle-Income Countries (LMICs) were more rampant with cases of postpartum depression by 25%, of which South Africa (6.9-43%),

Uganda (43%), and Kenya (13-18.7%) *(Atuhaire et al., 2020)*.

Midwife-led debriefing has not been explored in African countries, including Kenya. Therefore, this study assessed the outcome of midwife-led debriefing on postpartum depression. It will also identify standards and recommendations to improve the quality of life for the mother, baby, and the entire family. This study's findings will help midwives improve the quality of individual maternal health, impacting the community positively, reducing expenditure, and improving individual and community economy. The study's findings will help inform the development of county and national health system policies to improve the quality of life after childbirth. The results will help inform the development and review of curricula in training institutions. It will also be used to develop programs to support and enhance using of midwife-led debriefing during the postnatal period for women after childbirth. Finally, it will contribute to the body of knowledge.

3. Aim of the study

The study aims to assess the outcome of midwives' led debriefing on postpartum depression in the Western Region of Kenya.

3.1. Research Hypothesis

There is no difference in postpartum depression symptoms between postpartum women exposed to midwife-led debriefing intervention and a control group.

3.2. Operational definitions

Effectiveness: The extent to which it measures the beneficial effect under normal clinical settings and from the midwife-led debriefing intervention, EPDS will be <13.

Intervention: A procedure of health care that has the potential to change the course of events of a health care condition, and for this study, a midwife-led debriefing was the intervention.

Midwife-Led Debriefing: This includes a variety of post-birth discussions that provide women with an opportunity to talk about their birth experiences and their fears. It includes pregnancy, labor, delivery, postnatal, breastfeeding, care of the baby, future pregnancies, and family members. It incorporates seven stages by the Critical Incident Stress Debriefing (CISD) Model.

Midwife: A person trained, registered, and licensed by the Nursing Council of Kenya (NCK) to practice as a midwife. This person takes care of maternal health before, during, and after pregnancy.

Postpartum Depression: This is an umbrella that encompasses several mood disorders that follow delivery, like emotional highs and lows, frequent crying, fatigue, guilt, anxiety, and trouble caring for their baby.

Postpartum: This is the period for a woman after the delivery of a baby up to six weeks.

4. Subjects & Methods

4.1. Research Design

The study adopted a quasi-experimental design, manipulating the independent variable with pre- and post-assessments. The design allowed identifying and relating events to particular exposures and defined it regarding time. Participants were assigned to both intervention and control groups. The design also enabled the researcher to observe the influence of the intervention and standard care on postpartum depression. This design included observing change over time in particular subjects *(WennMacker et al., 2018)*.

4.2. Study setting

The study was conducted in Kakamega and Bungoma counties (Kakamega and Bungoma County Referral Hospitals) in Western Kenya. The hospitals were major referral hospitals receiving clients from neighboring counties within and outside the western region.

Kakamega and Bungoma counties are among the forty-seven counties in Kenya's administrative and political structure. They are in the western region of Kenya. Kakamega County covers an area of 3020.0 square kilometers and is the most populous rural county, with a population of 1,867,579 *(Kenya National Bureau of Statistics (KNBS), 2019)*. The population density is estimated at $618/KM^2$ *(KNBS, 2019)*.

Kakamega County Teaching and Referral Hospital is in Lurambi sub-county, within the county headquarters. Being the only County Referral Health facility. It receives referrals from the 12 sub-counties and beyond. The hospital has a maternity unit with a bed capacity of 100, and the estimated number of deliveries per month ranges between 500 to 700, with an average of 600 clients. Operative/cesarean section cases were estimated to be 200 cases per month.

Bungoma County Referral Hospital is in Bungoma County and within the county headquarters. It is a referral hospital within Bungoma County and its environs. Bungoma County had a population of 1,670,570, covering a land area of 2023.9 square kilometers and a population density of $552/KM^2$ *(KNBS, 2019)*. Data from Bungoma County Teaching and Referral Hospital reported deliveries ranging from 350 to 550, with an average of 450 per month, of which operative deliveries range from 100 to 110.

4.3. Subjects

This longitudinal study included women of childbearing age who had gone through childbirth. The subjects were selected based on the inclusion criteria that included childbearing women between ages 18 to 49 years giving birth at term, women who delivered at the health facility and were within 72 hours post-delivery, the mother should have had her first or second delivery, and resident in the study area during the study period after childbirth up to one year.

Participants who had more than two children did not participate in the study because of repeated experiences in childbirth, and they were assumed to have other coping mechanisms to avert postpartum depression (PPD).

The sample size was calculated using the formula by *Cohen (1992)*, considering the effect size. According to *WHO (2014)*, 22% of mothers get postpartum depression. Therefore, 22% was the effect size. The postnatal register was used as the sampling frame, and participants were selected using systematic sampling. The first participant was randomly selected, and after that, every third participant was chosen until the sample calculated was obtained. The sample size was 212, and the formula for calculating the sample size was:

$$n = 2\left[\frac{(Z_{1-\alpha} + Z_{1-\beta})}{d - \delta}\right]^2 \times p \times (1 - p)$$

Where:

δ = Is a clinically acceptable margin;

n= sample size;

d= the anticipated difference between two group treatment effects;

p= the response rate of the standard /control group;

p_0= the response rate of the new treatment (intervention) group;

Z is the standard normal deviation for one or two-sided. For 5% $Z_{1-\alpha} = 1.645$ $Z_{1-\beta} = 0.845$,

p=0.22, p_0=0.78, d=0.2, and δ =0.1, the sample size becomes

$$n = 2\left[\frac{(1.645 + 0.845)}{0.2 - 0.1}\right]^2 \times 0.22 \times (1 - 0.78) = 212$$

Thus, using 22%, we obtained the sample size of the control and intervention groups.

n_1 =0.22*212= 47 (Control group);

n_2 =0.78*212=165 (Intervention group)

4.4. Tools of data collection

4.4.1. Structured Interview Questionnaire

To assess the outcome of midwife-led debriefing, data was collected using structured questionnaires to capture participants' demographic information, including age, marital status, level of education, occupation, religion, mode of delivery, and parity of the mother. The questionnaires were developed by the researcher and pretested to ensure they captured the intended information.

4.4.2. Edinburg Postpartum Depression Scale (EPDS)

It was adopted from *Cox et al. (1987)*. It was used to assess postpartum depression levels. The EPDS consisted of 10-item questions, each with four options from zero to three (0-3). From the EPDS, the scores <13 indicated no depression symptoms, while ≥13 interpreted participants to have depression symptoms postpartum.

Every question in the tool was weighted based on 3 points being the highest, with symptoms of depression, and 0, meaning lowest, with no symptoms of depression. The maximum score was 30 points. The EPDS tool was both in English and Kiswahili. The Kiswahili version of EPDS was translated by *Kumar et al. (2015)*. The assessment using the EPDS tool was done in pre- and post-for intervention and control groups. The control group was assessed

simultaneously with the intervention group, though they received standard/routine care. Data was collected mainly by the researcher with the assistance of trained research assistants.

4.5. Procedures

Validity refers to the significance and correctness of conclusions drawn from research findings *(Mugenda & Mugenda, 2003).* It is legitimate if an instrument measures what it says it will measure. The degree to which the data collected accurately depicts the study's variables is known as validity. The degree to which data gathered with a specific tool represents a particular domain of indicator or content of a particular notion is known as content validity. The EPDS tool's sufficient degree of content validity indicates that each item on the scale provides a comprehensive depiction of the postnatal depression concept *(Cox et al., 1987).*

A research instrument's reliability is measured by consistently producing data or outcomes after multiple trials *(Mugenda & Mugenda, 2003).* Compared to other approaches, the researcher employed the Edinburg postpartum depression scale (EPDS) tool, developed by *Cox et al. (1987).* Its validity and reliability have been evaluated to measure postpartum depression.

An instrument's reliability, or its consistency in measuring what it is supposed to assess, was established by first ensuring the internal constancy strategy was followed by conducting a pilot study. It was deemed dependable if a questionnaire's Cronbach's Alpha coefficient was higher than 0.70. Using SPSS version 26, a reliability test was conducted on the independent variable (midwife-led debriefing) and dependent variable (postpartum depression). The results are displayed in Table 1. In the pilot study, 10% of the sample population was included. The findings showed that it is variable and had a Cronbach's Alpha of 0.795, meeting the required level of internal consistency of data of 0.70. *(Mugenda & Mugenda, 2003).*

Table (1): Reliability test

Variable	Cronbach alpha
Midwife-led debriefing	0.795

Validity test: The extent to which a test captures what it is intended to capture is known as data validity. Validity is defined by *Mugenda and Mugenda (2003)* as the extent to which the research findings derived from the data analysis accurately depict the phenomenon being studied. The validity test is tabulated in Table 2.

Table (2): Test for validity

Factors	KMO test	Barlett's test of sphericity		
		Chi-Square	Df	Sig.
Midwife-led debriefing	0.885	318.41	3	0.029

Extraction Method: Principal Component Analysis.

Ethical consideration: Ethical approval to conduct the study was obtained from the Institutional Ethics Review Committee (IERC) (Ref. MMU/COR: 403012 vol 2(87)) of Masinde Muliro University of Science and Technology. It was important to ensure that all the study protocols conformed to the study's ethical issues and focused on ensuring excellent research practices according to global research standards. This conformity paved the way to obtaining a research permit from the National Commission of Science, Technology, and Innovation (NACOSTI) (NACOSTI/P/20/6010). The Letter of research authorization was obtained from both Kakamega and Bungoma County Health offices and the County Teaching and Referral Hospitals. The study subjects were educated on their rights in the study. Informed verbal and written consent were obtained from the respondents, who were assured that their participation was voluntary and confidential.

Data collection was done using the Edinburg Postnatal Depression Scale (EPDS) tool for baseline assessment and post-assessment for both intervention and control to test the outcome of midwife-led debriefing on postpartum depression groups.

Pre-intervention activities

Recruiting and training of research assistants: Research assistants were identified in the two hospitals for data collection and the debriefing intervention. Since the intervention was midwife led debriefing, midwives were identified based on their interest and commitment in the research process. The identification process included an advertisement, shortlisting, and interview to give those willing an equal chance to participate. The principal investigator came up with the selection criteria. Upon selection, the research assistant for the intervention group was given a questionnaire to evaluate knowledge regarding postpartum depression and midwife-led debriefing. After which, they were trained, and later, a post-test was given to assess understanding.

Pretest: All the midwives understood postpartum depression and were knowledgeable about its signs and symptoms. However, they gave different definitions and understandings of midwife-led debriefing. From their descriptions, each one understood midwife-led debriefing differently. However, they had an idea that the midwife was involved in talking with the mother post-delivery to help prevent postpartum depression. All participants did not know of any approach that could be used during debriefing or any type of debriefing model.

The midwives acknowledged that they had no idea how debriefing could be done. Based on their understanding of the significance of postpartum depression, they all proposed that midwife-led debriefing was necessary to avert the condition's upward trend. Role plays were conducted to ensure a good understanding of the midwife-led debriefing process.

Post-test: Upon completion of the training, the midwives were given the questionnaire to test their understanding of the debriefing approaches, models, and the debriefing process.

Intervention activities

The intervention was a midwife-led debriefing conducted by the trained research assistants in the intervention group. The research assistants started by collecting sociodemographic and obstetric data per individual participant. A baseline assessment using EPDS was then followed by a midwife-led debriefing.

Before data collection was done, the research assistant introduced themselves and explained the study's purpose, including the benefits of the study, procedure, risks involved, confidentiality, willingness to participate, and whom to contact as the principal investigator. The researcher then obtained individual consent, both verbal and written and requested participants to allow to tape the proceedings of the discussion without any video taken. Each subject was given a unique number. The second researcher took notes and taped the discussions. Data collection started upon acceptance of written consent by the individual participants.

Process of executing the midwife-led debriefing intervention: The process ensured that research assistants addressed entry requirements, included participants placed in a conducive and suitable environment, and introduced themselves and the organization, which took approximately 1 to 2 minutes. They then explained the purpose of the study using the provided questions by order. The step-by-step interview and discussion during the midwife-led debriefing entailed the seven stages of the critical incident stress debriefing (CISD) model. The research assistant ensured enough responses, documenting and taping the whole process. Finally, they concluded the interview, thanked the participants, and reminded them of the follow-up.

Midwife-led Debriefing Process: The researcher adapted the 7-step debriefing process from the Critical Incident Stress Debriefing (CISD) Model. This model involved seven steps starting from entry to planning for departure. The seven steps were modified to fit into the discussion for women who had gone through labor and childbirth. The debriefing process was as follows:

1: Engagement (Midwife explains the procedure of the debriefing),

 2: Facts (Information about the birthing process, such as what transpired when your labor began?),

3: Thoughts (Explaining thoughts at the moment, such as What were your primary thoughts during labor and delivery?),

4: Feelings and reactions (Describing feelings during events that were perceived as stressful (e.g., how did you feel when you were in labor / going for operative delivery ...? How did you react?),

5: Normalization (The midwife emphasizes the normality of the woman's response to a stressful situation (labor and delivery),

6: Education (brief) on coping with early parenting, identifying sources of assistance if emotional problems continue, and

7: Disengagement: The midwife brings the discussion to an end.

Midwives, who were identified as research assistants, carried out the midwife-led debriefing intervention. The debriefing approach used was Mitchel's Critical Incident Stress Debriefing (CISD) Model developed by *Cox et al. (1987)*. The seven steps adopted were modified for use in postpartum women. The follow-up involved an in-depth discussion about the participants' needs and concerns.

Intervention Group: The intervention group was identified based on the inclusion criteria within 72 hours of childbirth, and a baseline assessment was done. They then received standardized midwife-led debriefing sessions in a specified and conducive room. Participants were coded with 'Yes' for those who had EPDS scores ≥13 (with symptoms of depression), and those who had <13 (without symptoms of depression) were coded as 'No.' The actual score per participant was indicated, and according to EPDS scores, there were ten questions with a maximum score of 30 points. The scores enabled the researcher during follow-up to ascertain changes to either depression or non-depression symptoms.

Participants identified as having more needs, and those who requested more information were given an opportunity for individual discussion while still in the postnatal word. The participants, therefore, were given instructions on what to report and when to return to the health facility if they felt the need. After debriefing, mothers were discharged home for follow-up every three months, and post-assessment was done to assess the postpartum depression (PPD) symptoms and ascertain any change as an outcome.

The second assessment was done for all participants in intervention and control groups regardless of their scores. However, the assessment was to follow the initial coding of 'Yes' (≥13) and 'No' (<13); this was to evaluate for any change, whether positive or negative. Their scores remained with no symptoms of depression for those participants who had EPDS <13, though there was some slight improvement in the scores.

Participants scoring ≥13 were still followed monthly until the sixth month, when another assessment was done. They were then followed until nine months. All participants were assessed at nine months to assess the outcome. After nine months, those mothers whose EPDS scores remained above ≥13 and had severe symptoms of depression were referred for further review and follow-up by the expert. From the EPDS assessments, those mothers who scored <13 (no symptoms of depression) did not change to ≥13 (with symptoms of depression). However, those participants who had EPDS ≥13 were also assessed, and some improved to no depression symptoms, and this formed a basis for analysis in assessing the outcome.

Control Group: This group was also identified within 72 hours, and the baseline assessments were done using EPDS and another questionnaire to capture relevant data. After that, they received standard postnatal care and were followed up every three months up to nine months for the post-test assessments using the Edinburg Postpartum Depression Scale.

4.6 Data Analysis

Descriptive statistics organized and summarized the quantitative data to enable meaningful interpretation and conclusion-making. Descriptive statistics and frequencies were also used to interpret the participant demographic data.

Inferential analysis using a t-test was used to ensure the researcher could draw inferences from the data collected. It allowed us to compare the results of the postpartum mothers who scored ≥13 and were in the intervention group versus those who were in the control group concerning the outcome

of midwife-led debriefing on postpartum depression. A logistic regression model was used to assess the influence of the time-based outcomes regarding midwife-led debriefing.

5. Results

This section brings in the results indicating the demographic characteristics, participants' emotions, the prevalence of postpartum depression, and a comparison between intervention and control groups. It also shows results on the outcome of midwife-led debriefing on postpartum depression.

The information on the respondent's age, marital status, degree of education, employment, religion, parity, and mode of delivery were analyzed to determine their proportions concerning their depression status. Participants who scored <13 using EPDS did not change to ≥13, which could not require analysis. The primary goal of these frequencies and proportions was to identify any patterns in the respondent profile that could influence the effectiveness of midwife-led debriefing on the prevention of postpartum depression. A total of sixty-five (65), i.e. (49 intervention and 16 control groups) participants had EPDS ≥13 points, indicating symptoms of depression, hence forming a basis of analysis in determining their outcome.

The demographic characteristics and the frequencies of participants who scored ≥13 were tabulated in Table 3. It was evident that the majority 67.3% (intervention group) and 62.5 (control) of the women were between the ages of 18 to 34, indicating that the majority of them were young mothers and 61.2% (intervention) and 62.5 % (control) were not living together with spouse regardless of the being married or cohabiting. The level of education ranged between primary school (36.7%) and no formal education at 22.5%. Most participants were first-time mothers, para 1 being 55.1% (intervention) and 43.8% (control). Table 3, shows baseline assessment, which was done before intervention, while post assessment was after intervention and participants assessment during follow-up.

The following were observed from the respondents regarding their feelings during labor and delivery using descriptive statistics. Table 4 reveals that most of the participants had feelings of anxiety and sleep disturbance (52.4%; 50%) while crying, sadness, irritability, and confusion (4.7%; 4.2%; 2.8% & 0.01%). Women also expressed this during the discussion since they were not sure of the labor outcome, and therefore, anxiety was prominent to most of the participants. Sleep disturbance was also one of the experiences that participants had.

Figure 1 illustrates the prevalence of postpartum depression. The study results show that the prevalence of postpartum depression in women after childbirth was 30.7%, as shown in Fig. 1.

The participants who scored both EPDS <13 and ≥13 were identified and coded into groups for follow-up, enabling the researcher to examine the change during follow-up. From the study findings during follow-up, the group with EPDS scores <13 did not have a negative change; in any case, the majority had their scores reduced even more below 13 points. As a result, the results showed improvement and maintenance of no depression for participants who scored

<13 EPDS scores. The other group of participants with EPDS scores ≥13 was a total of 65 (30.7%) who were interpreted to have symptoms of postpartum depression. A total of 65 (30.7%) participants served as the basis for follow-up and analysis to ascertain the effect of postpartum depression symptoms on the outcome of midwife-led debriefing.

From the Edinburg postpartum depression scale scores (EPDS), the pre-and post-intervention assessments were compared. Participants who scored <13 (without depression) from both intervention and control did not deviate to depression. Therefore, those who scored ≥13 were analyzed to assess the outcome following midwife-led debriefing, as shown in Table 5. The study results indicate a t-test value of 4.627, suggesting a significant difference between the two groups being compared. In this case, the midwife-led debriefing group likely experienced different outcomes compared to the control group and a p-value of 0.0250, suggesting a significance in the intervention compared to the control groups. Additionally, the pre/post-test comparison of the control group reveals no statistically significant difference at a p-value of 0.582, as shown in Table 5.

The outcome of midwife-led debriefing on the prevention of postpartum depression was examined through the application of odds ratio analysis. According to the findings, those who received standard care were more likely to score as depressed using the Edinburgh Postnatal Depression Scale (EPDS) than those who received midwife-led debriefing. Odds ratio analysis was done to determine the outcome of midwife-led debriefing and standard care, as shown in Table 5.

A higher proportion of women in the midwife-led debriefing group showed improvement, and this was evidently seen in Table 6, which revealed there was a difference with the odds ratio of 5.41, 95% confidence interval (0.68 to 0.96), and p value= 0.02 (<0.05 indicating significance. Since the confidence interval lies below one), therefore, there was statistical significance.

Based on the study results presented in Table 7, the R-square value is 0.528. This finding suggests that midwife-led debriefing accounted for 54.2% of the difference in postpartum depression prevention. The findings, at a p-value of 0.05 level of significance, indicated that in this model, the independent variable, namely, midwife debriefing intervention, is important in predicting the prevention of postpartum depression in Western Kenya as indicated by significance p-value=0.003, which is less than 0.05 level of significance (p=0.003 < 0.05).

The study findings reveal that midwife-led debriefing had significance in preventing postpartum depression (t-statistic=14.672, p-value=0.003< 0.05). The t-statistic measured the significance of the coefficient. In this case, the t-statistic is 14.672. A high t-statistic suggests that the coefficient is significantly different from zero, indicating that there is a strong relationship between midwife-led debriefing and the prevention of postpartum depression.

Table (3): Frequency and percentage distribution of demographic characteristics for participants who scored ≥13 during baseline (Pre-assessment) and follow-up (post-assessment).

Demographic and obstetric variables	Intervention n =49				Control n =16			
	Baseline assessment		Post Assessment		Baseline assessment		Post Assessment	
	No.	%	No.	%	No.	%	No.	%
Age								
18-34	33	67.3	12	24.5	10	62.5	7	43.8
35-49	16	32.7	9	18.4	6	37.5	5	31.3
Current marital status								
Single	13	26.5	7	14.3	5	31.3	3	18.7
Married	11	22.4	7	14.2	4	25	3	18.7
Divorced/separated	8	16.3	3	6.1	2	12.5	2	12.5
Widowed	7	14.3	4	8.2	2	12.5	2	12.5
Cohabiting	10	20.5	6	12.2	3	18.7	3	18.7
Currently living with partner/spouse/husband								
Yes	19	38.8	11	22.4	6	37.5	4	25
No	30	61.2	10	20.4	10	62.5	8	50
Highest level of education								
None	11	22.5	7	14.3	2	12.5	2	12.5
Primary	18	36.7	6	12.2	5	31.3	3	18.8
Secondary	14	28.6	5	10.2	5	31.3	4	25
College/University	6	12.2	3	6.1	4	25	3	18.8
Current occupation								
Housewife	8	16.3	3	6.1	3	18.8	2	12.5
Student	9	18.4	4	8.2	3	18.8	2	12.5
Self-employed	10	20.4	6	12.2	2	12.5	2	12.5
Formal employment	4	8.2	2	4.1	2	12.5	1	6.1
Casual labour	10	20.4	4	8.2	3	18.8	2	12.5
Unemployed	8	16.3	2	4.1	3	18.8	3	18.8
Religion of the respondent								
Catholic	15	30.6	8	16.3	5	31.2	4	25
Protestant	24	48.9	7	14.3	8	50	5	31.3
Muslim	10	20.5	6	12.2	3	18.8	3	18.8
Mode of delivery								
SVD (Vaginal)	26	53.1	9	18.4	9	56.3	7	43.8
C/S	17	34.7	10	20.4	5	31.2	4	25
AVD (Assisted Vaginal Delivery) / Vacuum	6	12.2	2	4.1	2	12.5	1	6.3
Parity								
Para 1	27	55.1	14	28.8	7	43.8	4	25
Para 2	22	44.9	7	14.3	9	56.3	8	50

Table (4): Frequency and percentage distribution of participants feelings after delivery (n=202).

| Variables	Yes (n)	%	No (n)	%
Experienced the feelings of a crying episode after delivery?	10	4.7	202	97.3
Experienced feelings of sadness after delivery?	9	4.2	201	94.8
Experienced feelings of irritability after delivery?	6	2.8	205	96.7
Experienced feelings of confusion after delivery?	2	0.01	207	97.6
Experienced feelings of anxiety after delivery?	111	52.4	101	47.6
Experienced feelings of sleep disturbance after delivery?	106	50	106	50
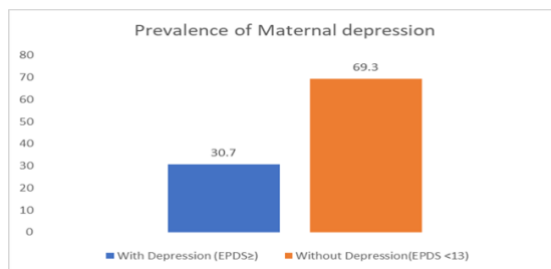
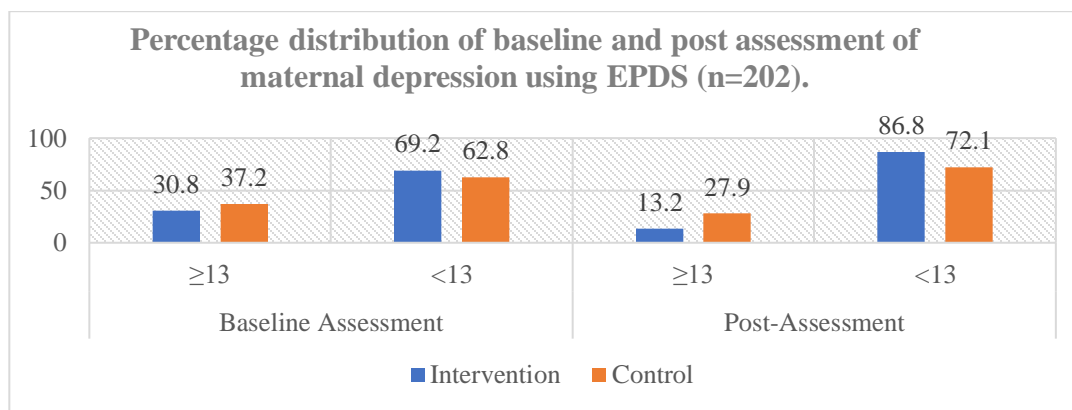**Figure (1): Percentage distribution of baseline assessment of maternal depression (n=202).**

Figure 2. Pre and post-assessment percentage distribution between intervention and control groups for both depressed and non-depressed (<13 & ≥13).

Table (5): Pretest and post-test assessment comparisons between intervention and control group depressed (≥13) at baseline assessment (n=65).

Groups	Pretest with depression		Post-test with depression		t-test	p-value
	n	%	n	%		
Intervention (Midwife-led Debriefing)	49	75.4	27	41.5	4.627	0.0250
Control (Standard care)	16	24.6	14	21.5	3.217	0.582

Table (6): Edinburgh postpartum depression scale scores for midwife-led debriefing and control/standard care groups after a follow-up.

Group	Mean (SD)	Depressed (Score ≥13)		Not depressed (Score < 13)		Odds ratio (95% CI)	t	p-value
		No.	%	No.	%			
Midwife-led Debriefing	9.14 ±6.18	21	13.2	138	86.8	5.41 (0.68 to 0.96)	13.027	0.026
Control/Standard care	8.20±5.84	12	27.9	31	72.1	1.0		

Table (7): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.542[a]	0.528	0.503	2.93906

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	303.127	1	303.127	4.518	.003[b]
	Residual	1288.874	195	6.6096		
	Total	1592.001	196			

	Coefficients of Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.158	1.858		1.294	0.159
	Midwife Debriefing	0.871	.051	0.839	14.672	0.003

a. Dependent Variable: prevention of postpartum depression

b. Predictors: (Constant= control), midwife-led debriefing.

6. Discussion

This section discusses the study results. The study entailed determining the status of depression before and after midwife-led debriefing and standard care regarding postpartum prevention. Therefore, the study's purpose was to assess the outcome of midwife-led debriefing on postpartum depression in western Kenya.

The prevalence of postpartum depression was 30.7%, which is way above the estimated World Health Organization of 22% *(World Health Organization, 2014)*. According to the study done by *Atuhairie et al. (2020),* Kenya's prevalence of postpartum depression ranged between 13% and 18%. The study results indicated higher

than this, which may be attributed to the participants' characteristics or environment.

The study results on the proportion of maternal feelings and emotions after delivery show that around half of the participants portrayed feelings of anxiety and sleep disturbance. According to *Nguyen et al. (2022),* maternal anxiety and sleep disturbance were above 50% among the postnatal mothers because of fear. This higher percentage of anxiety could be a result of feelings of uncertainty about the outcome of labor in regard to whether she would deliver spontaneously or the baby would be alive and well.

During baseline assessment, the proportion among all participants showed that nearly one-third of the participants had symptoms of depression. *Atuhaire et al. (2020),* in a study done in South Africa, Uganda, and Kenya, showed the proportion of maternal depression ranging from 13% to 48%. This study's proportion of depression lies within this range. Following intervention and follow-up of the control groups, participants from the intervention improved greatly to have reduced symptoms of depression, as seen in 30.8% (with symptoms of depression) to 13.2% (without depression). This improvement was also observed in studies reviewed by *Abdollahpour et al. (2020).* The improvement was most likely observed following the midwife-led debriefing in which participants could share their experiences and listen to other mothers who had gone through the same labor and delivery process. This finding, therefore, indicates that when mothers are given the chance to discuss their feelings with others in the same cohort, they tend to improve.

Based on the study findings, the outcome of midwife-led debriefing would significantly reduce signs and symptoms of depression. Hence, participants improved to no depression, as shown by the significance of p=0.003 (<0.05). The odds ratio of 5.4 indicated that the midwife-led debriefing was effective more than five times and accounted for 54% of the difference in the reduction of PPD. The results also showed a strong relationship between midwife-led debriefing and prevention of postpartum depression, and this was evident from the t-statistic of 14.672, suggesting a coefficient significant difference from Zero. The study showed a positive outcome based on the midwife-led debriefing intervention. It, therefore, indicates that every time there is midwife-led debriefing as an intervention, there will be an improvement in non-depression with a unit increase of 0.871 (87.1%).

This change was observed after a face-to-face midwife-led debriefing within 4 to 9 weeks after childbirth. This result agrees with a study done in Iran, where its results showed a reduction of postpartum signs and symptoms of depression at 4 to 6 weeks and at three months following childbirth (*Chaharrahifard et al., 2021*). *Bastos et al. (2015),* a systematic review of 8 out of 12 articles, agreed with the findings, showing the effectiveness of psychological debriefing. However, in the same systematic review, 4 out of 12 articles showed no difference when debriefing was done. In contrast, a study done by *Martín-Gómez et al. (2020)* disagrees, and its findings indicate that psychological debriefing had very little effectiveness in preventing postpartum depression. Following a critical review of twelve articles by *Abdollahpour et al. (2020),* eight indicated positive benefits after midwife-led debriefing intervention on primiparous. However, four articles showed no difference between intervention and non-intervention groups.

The outcome of the midwife-led debriefing was exhibited by the degree of lowered EPDS <13 points. The probable rationale for observed differences and outcomes could be attributed to the debriefing approach and other associated factors. From this study, midwife-led debriefing could help avert and prevent postpartum depression, hence being effective as a preventive measure. Midwives are at the forefront of taking care of mothers during childbirth. Therefore, this study acknowledges the key role midwives can play in early identification and reducing incidences of PPD. Furthermore, improving the quality of life, both for the mother and the baby.

Finally, the null hypothesis was rejected at the 5% level of significance, suggesting that midwife-led debriefing had a beneficial effect on preventing postpartum depression. The coefficient of B=0.871 indicates a proportional shift in postpartum depression prevention of 0.871 units for every unit increase in midwife-led debriefing techniques.

This result shows that midwife midwife-led debriefing had a significant influence on the reduction of postpartum depression among women who were included in the intervention group and were offered the intervention of midwife midwife-led debriefing after delivery. This intervention was intended to reduce the effects of the stressful labor and delivery process.

7. Conclusion

The study found that midwife-led debriefing was effective as an outcome in reducing symptoms of postpartum depression.

8. Recommendations

The County and National governments implement midwife-led debriefing to prevent postpartum depression by integrating it into the standard practice for postpartum care.

Health systems to develop and implement policies that will strengthen social support to mothers to prevent postpartum depression.

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