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Association of Birth Companionship by Former Traditional Birth Attendants with Birthing Experiences of Parturient Women in Kakamega County, Kenya

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Abstract:
The current model of maternity care is institution-centred, rather than woman-centred. Women's experiences illuminate midwives' efforts to maintain power and control by situating birth as a medical event and to secure status by focusing on the technical elements of care, including controlling bodies and knowledge. A study conducted in Kenya, India and Ghana concluded that regardless of the setting, women are not getting adequate person-centred maternity care and that such care varied by socioeconomic status, type of provider and type of facility. Most women in Kakamega county labour alone. As a result, women in labour experience 'emotional distress', 'stressful circumstances', 'lack of social support' and may not open up to service providers contributing to unfavourable birth outcomes. To investigate the association between supportive companionship provided by traditional birth attendants and birthing experiences of parturient women during labour and childbirth in Kakamega County, Kenya. A quasi-experimental cross-sectional mixed method design was adopted involving 2367 parturient women in Kakamega county, Kenya. Former traditional birth attendants were trained and deployed as birth companions providing emotional support in the form of encouragement, advice, information, comfort measures and physical support to women during labour and childbirth in intervention health facilities. Measurements were taken at baseline and after implementation of the birth companion intervention from control and intervention health facilities using a questionnaire capturing data on client satisfaction, anxiety and self-esteem. Data was summarized using frequency distributions and cross tabulations and presented in the form of tables and graphs. Associations were determined using Pearson's correlation and independent sample t-test. The study found traditional birth attendant as birth companions significantly improved birthing experiences of parturient women. Supported women they had higher levels of satisfaction, lower anxiety and higher self-esteem than those who were not supported.

Keywords: Traditional Birth Attendant (TBA), Birthing Experiences, Patient-Centred Care, Emotional Support, Continuous Labour Support

1. Introduction

The global focus on demand creation and increasing access to facility maternity services has not led to improved maternal and newborn outcomes (Souza, *et al.,* 2013). Between 2003 and 2013 coverage of facility delivery has increased in all regions of the World (Montagu *et al.,* 2017). Despite this, retention, equity, dignity and quality of care along the continuum of maternal health care remains a challenge (Kinney, Boldosser, and McCallon., 2016).

The current model of maternity care is institution-centred, rather than woman-centred. Women's experiences illuminate midwives' efforts to maintain power and control by situating birth as a medical event and to secure status by focusing on the technical elements of care, including controlling bodies and knowledge (Bradley et al., 2016). A study conducted in Kenya, India and Ghana concluded that regardless of the setting, women are not getting adequate person-centred maternity care and that such care varied by socioeconomic status, type of provider and type of facility (Afulani et al., 2018).Most women in Kakamegacounty labour alone (Afulani, Kusi, Kirumbi and Walker, 2018). As a result, women in labour experience 'emotional distress', 'stressful circumstances', 'lack of social support' and may not open up to service providers contributing to unfavourable birth outcomes (McLeish L, Redshaw M. 2017). Despite global and national policies

in Kenya recommending re-orientation of former traditional birth attendants into the new role of being birth companions (ROK-MOH, 2007; WHO, 2010), the more than 2,500 Traditional Birth Attendants (TBAs) in the county have not been re-oriented on the new birth companion roles and continue to provide unskilled delivery services. This could partly be attributed to paucity of evidence on effectiveness and acceptability of the new birth companion role of traditional birth attendants (TBAs). This study sought to investigate the association between supportive companionship provided by traditional birth attendants and birthing experiences of parturient women during labour and childbirth in Kakamega County, Kenya.

- • Main Objective: To investigate the association between supportive companionship provided by traditional birth attendants and birthing experiences of parturient women during labour and childbirth in Kakamega County, Kenya.

2. Materials and Methods
- • *Design:* A quasi-experimental mixed method study design comprising qualitative and quantitative arms.

Research design notation:

| Intervention | N | O_1 | X | O_3 |
| Control | N | O_2 | | O_4 |

N refers to non-equivalent O_1 refers to a baseline observation in the intervention site, O_2 baseline in the control site, X was the intervention (Birth companionship by TBAs) that took place in the intervention site only; while O_3 and O_4 represented the endline assessments in the intervention and control sites respectively. The baseline in the two sites took place simultaneously in the intervention and control sites before the intervention from January to March 2016. The baseline was intended to determine the initial state of the measurement indicators as well as determining comparability of the intervention and control sites. Former traditional birth attendants were trained to perform the new birth companion role in the experimental health facilities only.

2.1. Study Participants
The primary respondents were parturient in the immediate post-partum period before discharge from hospital.
- • Inclusion criteria: Delivered in implementation health facilities by spontaneous vaginal delivery
- • Exclusion: Registered women who developed complications during labour and childbirth; Women who did not delivery in the implementing health facilities and eligible women that declined to give consent.

2.2. Outcome Measures
#/% of respondents satisfied with the delivery process measured using a validate tool-the CQI-2 tool *www.biomedexperts/CQI-2* (Mercer S. and Howie J. 2006).

#/% of respondents experiencing reduced anxiety during childbirth measured using a validated tool - the Spielberger State-Trait Anxiety Inventory (STAI) (Spielberger, 1983).

#/% of respondents experiencing increased self-esteem measured by a validated tool - the Rosenberg self-esteem scale (*www.selfesteem2go.com/Rosenberg-self-scale.html*).

2.3. The Intervention
Former traditional birth attendants were trained and deployed as birth companions providing emotional support in the form of encouragement, advice, information, comfort measures and physical support to women during labour and childbirth in intervention health facilities.

2.4. Procedure
Level 3 Health facilities with highest delivery workload were selected from six of the twelve sub-counties in Kakamega County and randomly allocated/assigned into control and intervention groups of health facilities. Parturient women were recruited into the study on admission to maternity based on the inclusion criteria. Participants in the intervention health facilities received supportive companionship provided by traditional birth attendants while those in the control group received usual care. Measurements were taken at baseline and after implementation of the birth companion intervention from control and intervention health facilities using a questionnaire capturing data on client satisfaction, anxiety and self-esteem constructed from the validated tools.

2.5. Statistical Analysis
Data was summarized using frequency distributions and cross tabulations and presented in the form of tables and graphs. Variation within the data sets were established and described using frequency, means, and distribution. The approach used to establish whether the observed outcomes were due to the birth companion intervention included statistical analysis with the Chi-square test, comparison of mean scores of the outcome measures using the independent t-test. Logistic regression was performed to explore associations between the dependent variables and the time period of data collection; i.e., before and after the birth companion intervention as the main independent variable. Confounders, mainly socio-demographic factors (age, marital status, religious affiliation, highest level of education) were tested for their effects on client satisfaction, client state anxiety and client self-esteem.

All analyses were conducted with IBM SPSS Statistics, Version 22.0 (IBM Corp., Armonk, NY, USA) and Stata 11.

3. Results

3.1. Perceptions on Birthing Experiences

Figure 1 below shows respondent perceptions of birth experiences before and after the birth companion intervention. The main outcome measures in this study were client satisfaction, state anxiety and client self-esteem. This section provides findings of descriptive statistics in relation to presence or absence of birth companionship.

Tracer indicators were used to represent the experiences. Client satisfaction was measured using feeling of being taken care of and comfort. Client enablement was measured using willingness to deliver\normally again. Client state anxiety was measured using the level of feeling frightened. Client self-esteem was determined by the feeling of confidence. Quantitative findings collaborate well with perceptions of respondents on birthing experiences.
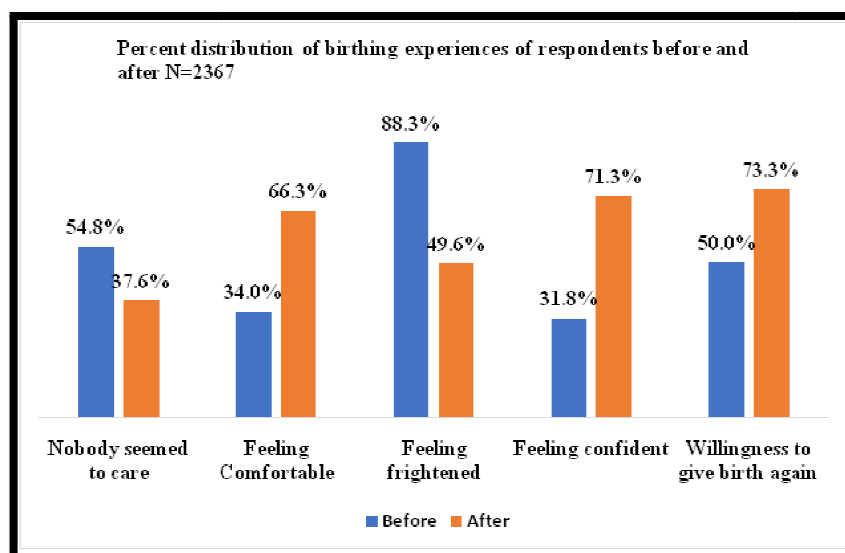

Figure 1: Birthing Experiences of Respondents

Overall, it was observed that more respondents reported positive feelings after than before the birth companion intervention. Whereas only 34.0 percent felt comfortable before introduction of the birth companion intervention, 66.3 percent of respondents reported feeling comfortable after it was introduced implying that respondents felt more satisfied by the support provided.

One supported respondent had this to say*'My previous birth took a long time. This time round, I found it easier and quicker to deliver. Thanks to the comforting touch and nice talk by the birth companion'*FGD respondent 6, Bushiri.Similarly, whereas only 31.8 percent of respondents reported feeling confident during labour and childbirth before introduction of the birth companion intervention, 71.3 percent reported feeling confident after introduction of the birth companion intervention. It was evident that the birth companion intervention appeared to increase self-esteem among respondents *'The birth companion encouraged me so much that I became very confident that I will manage'*FGD respondent 4, Matungu.

Respondents felt more enabled after the birth companion intervention than before. This was shown by the increase willingness to deliver normally in future from 50.0 percent before introduction of the birth companion intervention to 73.3 percent after introducing the intervention. This is evidence of client empowerment as a result of the intervention.

Birth companionship appeared to allay fears and therefore reduced anxiety after the intervention was introduced. Whereas 88.3 percent of respondents reported feeling afraid before introduction of the birth companion intervention, only 49.9 percent felt so after the intervention was introduced. This was collaborated by FGD respondents as quoted below.

*'I had a lot of fear during birth of my second born. The birth companion allayed my fears and really encouraged me to labour on. The birth experience was much easier with less pain than I anticipated'*R 6, Matungu after giving birth to her third born assisted by a Birth companion.

3.2. Association of Client Satisfaction with Background Characteristics

Results showed there were associations between client satisfaction with age p-value 0.004, religion p-value 0.000 and level of education p-value 0.021. There was no association with the marital status p-0.465 – table 1 below.

1243 + 1124 + 2367	Association				
	Low Satisfaction		High Satisfaction		p-value
Background Characteristics	N	%	N	%	
Age					
15 to 21 years	337	27.1%	372	33.1%	0.004
22 to 26 years	420	33.8%	382	34.0%	
29 to 35 years	393	31.6%	296	26.3%	
Above 35 years	93	7.5%	74	7.1%	
Marital Status					
Single	121	9.7%	115	10.2%	0.465
Married	1107	89.1%	989	88.0%	
Separated/divorced	15	1.2%	20	1.8%	
Religion					
Christian	920	74.0%	1025	91.2%	0.000
Muslim	353	26.0%	99	8.8%	
Highest Level of Education					
No formal education	6	0.5%	7	0.6%	0.021
Primary level	886	71.3%	861	76.6%	
Secondary level	291	23.4%	217	19.3%	
Tertiary Level	60	4.8%	39	3.5%	

Table 1: Association of Birth Companionship with Client Satisfaction by Background Characteristics

3.2. Association of birth companionship with State Anxiety by background characteristics
        It was observed that there was an association between levels of client anxiety with the religious affiliation p-value 0.001 and level of education p-value 0.020. There was no association with the respondent age p-value 0.298 and marital status p-value 0.108 - Table 2 below.

	Association				
	Low State Anxiety		High State Anxiety		p-value
Background Characteristics	N	%	N	%	
Age					
15 to 21 years	359	30.3%	350	29.6%	0.298
22 to 26 years	416	35.2%	386	32.6%	
29 to 35 years	324	27.4%	365	30.8%	
Above 35 years	84	7.1%	83	7.0%	
Marital Status					
Single	129	10.9%	107	9.0%	0.108
Married	1041	88.0%	1055	89.1%	
Separated/divorced	13	1.1%	22	1,9%	
Religion					
Christian	1005	84.9%	941	79.5%	0.001
Muslim	179	15.1%	243	20.5%	
Highest level of education					
No formal education	9	0.7%	5	0.4%	0.020
Primary level	877	84.1%	870	73.5%	
Secondary level	263	22.2%	245	20.7%	
Tertiary Level	35	3.0%	64	5.4%	

T*able 2: Association of Birth Companionship with Client State Anxiety by Background Characteristics*

3.3. Association of Birth Companionship with Self-Esteem by Background Characteristics
        Results showed that there was an association between client self-esteem with age p-0.022, marital status p-0.013 and religious affiliation p-0.000 but no association with level of education p-0.146 -Table 3 below.

Background Characteristics	Low Self-esteem		High Self-esteem		p-value
	N	%	N	%	
Age					
15 to 21 years	405	27.7%	304	33.6%	0.022
22 to 26 years	504	34.5%	298	32.9%	
29 to 35 years	446	30.5%	243	26.8%	
Above 35 years	106	7.3%	61	6.7%	
Marital Status					
Single	125	8.6%	111	12.3%	0.013
Married	1315	90.0%	781	86.2%	
Separated/divorced	21	1.4%	14	1.5%	
Religion					
Christian	1108	75.8%	837	92.4%	0.000
Muslim	353	24.2%	69	7.6%	
Highest level of education					
No formal education	6	0.40%	7	0.8%	0.146
Primary level	1096	75.00%	651	71.9%	
Secondary level	306	20.90%	202	22.3%	
Tertiary Level	53	3.60%	46	5.1%	

Table 3: Association of Birth Companionship with Client Self-Esteem by Background Characteristics

3.4. Correlation of Supportive Companionship with Outcome Measures

Table 4 below shows correlation of client satisfaction, state anxiety and self-esteem with labour support by a birth companion. Results show a positive correlations coefficient of .164 for client satisfaction with a significance of $p<0.00$. However, the correlation is weak since the coefficient tending more towards zero than 1. For state anxiety, results show a negative correlation coefficient of -.531 with a significance level of $p<0.001$. The correlation is moderately strong since the coefficient is a little above -0.5. The negative coefficient implies an inverse relationship between the level of anxiety and birth companionship. Birth companionship appears to reduce levels of state anxiety.

Findings also show a positive correlation coefficient of .406** for self-esteem with a level of significance of $p<0.001$. The positive correlation indicates a linear relationship between birth companionship and self-esteem. Birth companionship increases self-esteem. However, the correlation is also weak since the coefficient is less than 0.5 and therefore tends more towards zero than +1.

Correlations		
		Birth Companion Intervention
Satisfaction with the delivery support	Pearson Correlation	.164**
	Sig. (2-tailed)	.000
	N	2367
State-anxiety scores	Pearson Correlation	-.531**
	Sig. (2-tailed)	.000
	N	2367
Self-esteem scores	Pearson Correlation	.406**
	Sig. (2-tailed)	.000
	N	2367
**. Correlation is significant at the 0.01 level (2-tailed).		

Table 4: Correlation of Outcome Measures with Birth Companionship

3.5. Comparison of Means of Outcome Measures

The independent sample *t*-test was used to provide a statistic for evaluating whether the difference between two means of two independent groups is statistically significant. The independent groups here were the intervention and control groups. Intervention group respondents had birth companionship provided by former TBAs whereas the control group had no birth companions.

Table 5 below shows the statistics for evaluating differences between means. The *Levene's Test for Equality of Variances* tests the hypothesis that the variances of the two groups are equal. A small value (<.05) in the column labeled *Sig.* indicates that this hypothesis is false and that the groups do indeed have unequal variances. In the table, the value <.05 in that column indicates that the variance of the independent groups is unequal. In this case the t-test statistics in the row labelled *Equal variances not assumed* was used for analysis. The hypothesis is that the means do not differ significantly.

For client satisfaction: The t statistic under equal variances not assumed is -8.066 with degrees of freedom of 2335.532 and a significant level of .000. The significance level tells us that the probability that there is no difference in means between the client satisfaction scores among respondents that had birth companion and those who had not is very

small: specifically, less than one time in a thousand would we obtain a mean difference of -.528 or larger between these groups if there were really no differences in their means.

- *For state anxiety:* The t statistic under equal variances not assumed is 30.401 with degrees of freedom of 2111.426 and level of significance of .000. The level of significance tells us that the probability that there is no difference between the state anxiety mean stores among respondents that had birth companions and those that had not is very small. Specifically, less than one time in a thousand would we obtain a mean difference of 1.944 or larger between the groups if there were really no differences in their means.
- *For client self-esteem:* The t statistic under equal variances not assumed was 21.530 with degrees of freedom of 1571.996 and a level of significance of .000. This level of significance tells us that the probability that there is no difference in the mean scores of self-esteems between respondents that had birth companions and those that had not is very small. Specifically, less than one-time in a thousand would we obtain a mean difference of -3.995 or larger between the groups if there were really no differences in their means - table 8 below. These findings imply that the birth companion intervention by traditional birth attendants resulted in significant differences in the mean scores for client satisfaction, anxiety and self-esteem.

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Client Satisfaction	Equal variances not assumed	38.14	0.000	-8.066	2335.5	0.000	-0.528	0.066	-0.657	-0.4
State anxiety scores	Equal variances not assumed	712.94	0.000	30.4	2111.4	0.000	1.944	0.064	1.818	2.069
Self esteem scores	Equal variances not assumed	2652.5	0.000	-21.53	1571.9	0.000	-3.995	0.186	-4.359	-3.631

Table 5: Comparison of Means of Outcome Measures between Intervention and Control Sites

4. Discussion

Whereas birth holds the highest risk of death, disability and loss of development potential leading to major societal effects, current obstetric practices still subject women to disrespectful and inhumane services, and lack of emotional support.

The study established strong association of the new birth companion role of traditional birth attendants with client satisfaction, anxiety and self-esteem during labour and childbirth. Supported women appeared to have improved birthing experiences over those that were not supported. Birth companionship was the most consistent predictor of improved psychosocial birthing experiences. At endline, respondents in the experimental group reported higher proportions of positive birthing experiences and lower proportions of negative than those in the control group. These findings agree with previous studies in which clients viewed lack of a birth companion as a form of suffering, stress and fear that made their birth experience more challenging (Fathi, 2017; McLeish and Redshaw., 2017; Alexander, 2014).The birth companion role was associated with reduction of anxiety and increased client satisfaction and self-esteem during labour and childbirth a finding that resonates with previous studies (McLeish L, Redshaw M. 2017, Bohren, 2019). Client satisfaction with provision of services has gained recognition as an outcome of quality care (Chirdan et al., 2013). Client satisfaction is correlated with both utilization of services and adherence with treatment (Chirdan et al., 2013; Karkee, Lee &Pokharel., 2014).

Increased self-esteem helped women to feel that they played a more active and participatory role in their birth processes. This was as a result of birth companions acknowledging and reinforcing women's efforts, providing encouragement and directions to maintain control. It was also observed that women in the experimental group were more aware of the progress of labour. This also collaborates with findings of (Sapkota, 2012).

Anxiety during labour is associated with increased production of epinephrine in the blood that results in abnormal foetal heart rate, reduced uterine contractions, prolonged labour and higher chances of developing birth asphyxia. Emotional support reduces anxiety and fear thereby reducing its adverse effects during labour. Continuous labour support also relieves pain (Anim-Somuah, 2011; Haines et al., 2012; Bohren, 2017).

5. Conclusion

Birth companionship by traditional birth attendants significantly improved birthing experiences of parturient women. It is an intervention to improve quality of care in the first stage of labour.

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