



# **Impact of Cultural Competence Intervention on Satisfaction with Maternity Services among Women of Reproductive Age in Rural Kenya**

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## **Authors' contributions**

*The authors have contributed significantly for this manuscript. Author SKC conceptualized the idea, processed the write up, collected the data and analyzed the data while authors KKR, ANK and PK contributed in the design, data collection and provided technical and critical revision of the paper throughout the entire conceptual, data collection, analysis and reporting. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Introduction:** Quality of care is acknowledged as a critical facet of the unfinished maternal and newborn health agenda. Yet modalities of reorienting maternity services to respectful services are rare. This study investigated the effect of training health workers in cultural competence towards satisfaction with maternity service.

**Materials and Methods:** This was a Cluster Randomized Controlled Trial undertaken in public hospitals. The intervention was provision of culturally sensitive maternity services by health workers after cultural competence training. Three hundred and seventy nine women were interviewed per group using exit and mystery client surveys. The effect was measured using standard mean difference (Cohen's d) and t-test.

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**Results:** There was significant effect on satisfaction with provided information on delivery methods ( $F(1, 756) = 11.493, p < 0.001, \eta^2 = .049$ ). The mean of intervention group increased from  $3.55 \pm 1.056$  to  $3.94, \pm 0.894$  while the control changed from  $3.57 \pm 1.187$  to  $3.62 \pm 1.149$ . The mean changes tweaked the group variance from insignificant  $t(725) = 0.290, p = 0.771$  to significant  $t(713) = -4.336, p < 0.001$ .

**Conclusion:** Cultural competence training is effective in creating room for desired maternal needs and improving perceived satisfaction with maternity services. Consequently, there is a need to integrate cultural knowledge and skills into existing maternal policies and training.

*Keywords: Cultural competence; satisfaction; maternity services.*

## 1. INTRODUCTION

Improving the quality of care in health facilities is recognized as an important focus in the quest to end preventable maternal and neonatal mortality and morbidity [1] and achieve Sustainable Development Goals [2]. Poor quality maternal care increases the risk of illness and lifelong disability, cause exposure to infections and hugely increases risk of death and complications [2]. High quality maternal care is providing minimum level of care to all pregnant women and their new born babies with the best possible medical outcome and satisfaction [3]. Globally, delivery of quality maternal care is uneven, and often fails to respect the rights and dignity of women and their communities [2]. Consequently, understanding what satisfaction is and its trade off with people's cultural values, expectations and available resource is vital to improving maternity services. Satisfaction is a key element in Quality of Care (QoC) management framework underpinned by the core values of quality, equity and dignity [2]. Satisfaction is a dynamic and subjective concept defined as an experience that results from an evaluation of what women expect to happen in terms of maternal healthcare and what actually happened upon utilization of the services [4].

Understanding the undercurrents of maternal satisfaction supports in developing interventions cognizant of recipient health seeking behaviors [5]. It is also an efficient tool to bridge provider-client relationship [6]. Second, it generates epidemiologic data on how satisfaction contributes to improved patient centered maternal and child healthcare service, quality and equity [4,7]. Additionally, enhanced satisfaction is linked with increased adherence to and better continuity of care that benefits women in the planning of maternity care and adjusting to outlet dynamics [8]. Third, data on interpersonal communication provides opportunities for shared decision making during labour and birth

procedures that are key to sustaining and observing the value of health care [7]. Therefore, efforts to boost equity, satisfaction and strengthen the process of care and health care delivery system need to adapt ideas to its local context [2]. Consequently, diversity in evaluating what does and does not work for each ecological niche is paramount if quality maternity services is to be achieved [6,9,10]. One valuable but unexplored option for improving satisfaction is community engagement [2].

Maternal satisfaction is multifactorial, and several factors contribute to women's satisfaction with maternity care [8]. Studies from developed and developing countries highlight several factors [8]. Midwifery studies in low and middle-income countries reveal that unless social and cultural, economic, and professional barriers are addressed, high quality midwifery care will remain a mirage [2]. For example, women not given adequate privacy during examination are not likely to return in the future or recommend the institution [7]. Similarly, incidences of unfriendly healthcare workers have been demonstrated to be a barrier in maternal healthcare seeking behavior [11]. Additionally, satisfaction with healthcare services in Kenya is reported to affect the proportion of women utilizing free maternal healthcare services [12]. Whereas these are findings valuable, they are deduced from cross sectional studies, therefore insufficient to draw generalizable conclusions. On the other hand, the available empirical studies are inconclusive. Jones et al. [13] in a systematic review recommended that substantive investment is essential to improve health providers' abilities to interact with vulnerable women and advance the responsiveness of services [13]. A Cochrane review titled "cultural competence education for health professionals" reported positive effects albeit of low quality evidence by five studies assessing the effects of cultural competence education for health professionals on patient-related outcomes [14]. The review concludes that

due to the heterogeneity of the interventions in terms of their scope, design, duration, implementation and outcomes selected it is insufficient to draw generalizable conclusions [14]. With the limited and inconclusive data from empirical research, the current study contributes to documentation and development of satisfaction parameters that incorporate communities' perceived maternity needs.

## 2. MATERIALS AND METHODS

This was a cluster randomized controlled trial study (CRTS). The use of CRT design to evaluate non-drug research, such as policy and service delivery interventions is well documented [15]. The study was steered by guidance on the ethical design and conduct of CRTS in health research [16]. The study was conducted in Marakwet East, Kenya, an area domiciled by Almoo, Sengwer, Endoow, Sombirir and Markweta territorials. Marakwet East population was 97041 as at 2019. Females constitute 50.7% of the population [17]. Various cultural themes are important in various pedigrees across various territorials and clans [18]. The cultural themes include Marriage, Pregnancy, Delivery, Weddings, Initiation, Abortion, Murder, Death, Oath, Suicide, Ageing, Diseases, and Hunger in the society. Three wards Endo, Sambirir and Embobut Wards were picked due to their valuable traditions on marriage, pregnancy and childbirth. There are twenty health facilities, fourteen of which provide maternity services.

### 2.1 Sampling

The study was cluster randomized control trial, with general practice maternal health clinic as the unit of randomization. Cluster randomization was primed to minimise the occurrence of contamination [19] and make the trial logistically simpler and ensure that health workers remained either in the intervention or control arm for the duration of the study [20]. Most of the deliveries (56%) take place at home while 44% are in fourteen health facilities offering maternity services [21].

### 2.2 Sample Size

At the time of designing the study, delivery in health facilities was 14% less than the national rate of 58.3% [21]. To have a power level in the region of 80% at the 5% significance level and have minimum detectable differences, the study postulated to increase the rate by over 10% to

close the gap with national rate assuming the lower estimated ICC (0.005) [20]. Using the sample sizes for hypothesis tests by Cohen's  $d$  and Power [22,23] it was deduced that the study needed 379 participants per study arm with an attrition rate of 10% to detect difference between the means of the target values between the experimental group and the control group. It was found that there are 14 available clusters, so the number of clusters was fixed but cluster size and population served varied. This therefore meant adequate number of respondents were recruited in each cluster to make the clusters per arm sufficient for this design. The fourteen outlets were randomly assigned to either participate in the competence care intervention or serve as a control. It is advanced that cluster trials should have five or more cluster per arm and if cluster variability is anticipated, sample size should be increased [24]. Five clusters, Kaparon, Chechan, Kabetwa, Chemworor and Kamogo were the intervention sites while St cMichael, Mogil, Chesetan, Pirirwork, Chesoi, Endo, Tot, Maron and Chesongoch maternal service centre served as control. The sample size was proportionally distributed.

### 2.3 Intervention

The intervention was integration of cultural competence care into maternity services by trained health workers to improve the rate of satisfaction and uptake of facility childbirth services among women of reproductive age. The service was in addition to the usual maternity care provided by facilities. Explorative qualitative study focused on indigenous cultural needs, which inform maternity health seeking behaviour amongst the Marakwet community was undertaken prior [25]. The research revealed continuous pregnancy and labor support and care, companionship, elective delivery methods, placenta interpretation, placenta disposal, newborn celebration, privacy and mother-child welfare services as key homogenous cultural maternal health care desired needs [25]. These key themes were then developed into a cultural competence maternal service protocol.

The lead researchers initiated the process of developing the materials for training using literature and qualitative data in consultation with experts in the field. Policy makers, medics, sub-county health management, anthropologist and renowned Marakwet cultural experts from the core sub clans and Marakwet open source team

reviewed and validated the cultural competence guidelines in an immersion session before use. This process is in tandem with the WHO task sharing recommendations [26]. This was a deliberate attempt to standardize and customize the contents. An all-inclusive consensus building process ensured that the team produced training materials that corresponds to the maternity needs of women in the community. The approved guideline was first administered to 10 Marakwet Medical students to ascertain whether content could easily be understood.

The training materials were designed purposely to meet maternal healthcare needs as per the qualitative findings. The training materials were then used as a tool for conducting a competence-based training, which focused on the transfer of cultural knowledge and practical skills to health workers. A three days' cultural competence training workshop to train health workers in the intervention arm was undertaken. The duration of cultural competence training is not critical if core components ranging from knowledge, skills to awareness are taught in a number of contexts, by a number of methods, in a variety of durations then active elements are beneficial [27]. For example, providers who attended three days' workshop were successful in a similar way to a semester of training [27]. The health workers training adapted the existing training approach for on-the-job training of health workers. Mixed methods approach of negotiation, role-play and activity was applied to avoid the Knowles' theory of andragogy. Local cultural experts facilitated the role-play session.

## 2.4 Outcome Assessment

A Facility based catchment survey in form of client exit was undertaken using consecutive sampling, before and after intervention. The target population consisted of women of reproductive age (15-49 years) exiting a maternal health care services outlet. Women outside the age bracket, refusal, emergencies and those who had come for other services were excluded. The post intervention survey was undertaken after six months period. On fieldwork days, any women exiting a services area were invited to participate in the study by trained research assistant. A screener helped to filter respondents with bias to maternal health care services only. The research assistants consisted of nurses and clinical officers with broad research experience. The research assistants were trained on the research protocol, study objectives, sampling

process and questionnaire administration techniques. Conformity to the concept and practice of cultural competence care according to the study awareness package was validated through mystery clients.

Mystery client has been shown to be an effective method for assessing behaviour of health care providers, notably their adherence to standard agreed algorithm [28]. Provider behaviour can be monitored using observational studies; however, results are likely to be biased due to the observer effect (the Hawthorne effect). Bias is a particular concern when providers are exhibiting a behaviour they know is undesirable, such as selling anti-malaria to a febrile patient-testing negative for malaria. Mystery client surveys do not require a robust sample size calculation and therefore 40 pregnant women/companions from the 758-study population were recruited and trained. The study recruited and trained pregnant women or childbirth companions to visit facilities and then report back on their visit by completing an interview about their experiences. The clients communicated with a research assistant after maternity visit, for an appointment to complete structured questionnaire. The trade-off between precision, confidence and the feasibility of finding an adequate number of participants willing to participate informed the distribution. The questionnaire was similar to client exit with focus on cultural competence of the healthcare provider. The data was combined with client exit data and analyzed.

Satisfaction as a concept is measured in different ways since it's grounded in diverse behavioral theories. Often, it is measured as an overall evaluation score and at times for specific aspects of care [29]. In this study, satisfaction was measured for specific aspect of cultured people centered maternity needs. The intervention outcome was obtained using Lei & Jolibert, SERVPERF questionnaire [30]. This instrument was adopted and modified in tandem with derived maternity constructs and administered in an exit and mystery client surveys before and after an intervention. The questionnaire was translated into Marakwet language and back to English to ensure content validity. The questionnaire was pre-tested among 40 women in Arror Health Centre, an area with similar characteristic to the study area. A sample of 5% was adequate for the pre-test [31]. Internal reliability for each scale was evaluated by Cronbach's alpha. The coefficients of significance were 0.730, 0.867 and 0.888. The

overall Cronbach's alpha coefficient was 0.831. Content and concurrent validity were undertaken.

The study adopted Delphi technique in conjunction with equivalence approach in a chronological and complimentary manner to build consensus that study instrument would give reliable results. Delphi technique is a systematic forecasting method that involves structured interaction among a group of experts on a subject to elicit and refine judgments [32]. The method aimed at facilitating structured group communication in order to gather consensus in the face of complex problems, expensive endeavours, and uncertain outcomes. A nominal group made of public health experts, culturist, midwives, traditional birth attendants and linguists participated in the Delphi process. The process included numerical iterations, consensus, confirmed dissensus, and stability of results.

## 2.5 Data Analysis

The data was analyzed using statistical Package for Social Sciences (SPSS, Inc., Apache Software Foundation, Chicago, IL, USA) version 25.0. The study examined the potential impact of cultural competence intervention on satisfaction of maternity services among women of reproductive age in rural Kenya. The effect of support and companionship, placenta management, shared information, delivery options, staff friendliness and interaction, waiting and service time, privacy and room cleanliness were examined. The perceived satisfaction statements were elicited using a five-point (1-5) Likert Scale statements. One meant (strongly disagree) while five (strongly agree). Higher mean value closer to five, meant greater influence while close to one meant less. Effect of the interventions (magnitude of the differences between two groups) was measured using standard mean difference (Cohen's d). The use of average based statistics such as Cohen's d to evaluate change in intervention studies is well documented [33]. Analysis of variance (ANOVA) and t-test at alpha cut of 0.05 tested the hypothesis. Independent sample t test was employed to determine whether the outcome difference between the means of experimental and control groups was statistically significant. Whereas paired t-test was used to check statistically difference between before and after scores for each group. Partial eta squared, ( $\eta^2$ ) was used to measure effect size.

## 3. RESULTS

### 3.1 Characteristics of the Respondents

Seven hundred and fifty eight (758) women participated in the study. The general mean age of the respondent was  $25.9 \pm 8.7$  years. The mean age for the baseline and endline survey was  $25.6 \pm 7.4$  and  $26.3 \pm 5.3$  years respectively. No significant difference in marital status, religion and level of education were identified before and after intervention period among the two groups. Majority of the study subjects were married (89%) and Christians (99.1%) respectively. While secondary education was the predominant level of education at 325 (42.8%) and 333 (43.9%) for baseline and end line correspondingly.

### 3.2 Service Expectation

The study found significant difference between the two groups on the mean scores of service expectation. The independent t-test was  $t(741) = 2.573$ ,  $p < 0.001$  prior to intervening as indicated in Table 1. The mean of intervention arm thereafter increased by 7.5%. This denotes enhanced satisfaction with service expectation among the partakers in the intervention site. Improved satisfaction with service tweaked the difference between the two groups to insignificant. The average scores of the waiting time between the two groups was statistically significant before  $t(753) = 3.759$ ,  $p < 0.001$  and after  $t(753) = -13.488$ ,  $p < 0.001$  intervening. The mean of both arms changed. The mean of the intervention increased by 76% compared to controls 2.8%. Similarly, difference between the groups in the mean scores of perceived time spent with health provider was significant pre  $t(756) = 6.896$ ,  $p < 0.001$  and post  $t(755) = 4.707$ ,  $p < 0.001$  intervention.

The mean of the intervention increased by 6%. However, the study found statistically significant difference between pre and post means of each arm. The intervention paired t-test was significant  $t(378) = -6.190$ ,  $p < 0.001$  but control was not. The results of the Two-Way Mixed ANOVA showed that there was significant effect ( $F(1, 756) = 11.493$ ,  $p < 0.001$ ,  $\eta^2 = .049$ ) on satisfaction with provided information on delivery methods.

The mean of intervention group increased by 11% while the mean of control changed somewhat by 2%. The mean changes tweaked the group variance from insignificant to

significant. Dissimilarity in the mean scores of satisfaction with provided information on procedure or treatment between the two groups was highly significant before intervening  $t(737) = 4.841$ ,  $p < 0.001$  but insignificant 4 after. The mean of intervention establishment increased. This indicated that the mean of intervening site increased after training. Similarly, the mean scores for labour room's cleanliness improved after intervention.

Patients' satisfaction on outlet cleanliness was above neutral before intervening but tweaked to satisfied [4], inferring that women have agreed that the hygiene was appealing. This spurred change of group variance between the two groups that was statistically significant prior  $t(719) = 6.574$ ,  $p < 0.001$  to insignificant after as in Table 1. Variance between the control and intervention group in the means score of satisfaction with respect was significant before  $t(7342) = 3.277$ ,  $p = 0.001$  and after  $t(746) = -8.046$ ,  $p < 0.001$ . The mean of the intervention improved by 59%. Additionally, the study found significant difference in the mean of staff

attention pre  $t(678) = 7.347$ ,  $p < 0.001$  and post  $t(756) = 3.878$ ,  $p < 0.001$ .

The mean of intervention increased by 7% but that of control did not change. The paired t-test for the mean scores of intervention arm for staff attention was significant  $t(378) = -8.058$ ,  $p < 0.001$  as shown Table 2. While that of control was insignificant as in Table 3. The average score of satisfaction with apparent management of woman's companion differed significantly between the two groups before intervening  $t(746) = 5.891$ ,  $p < 0.001$  but agreed after as summarized in Table 4. The mean of the intervention arm increased by 13.5%. Likewise, difference between the two groups in the means of involvement of companion in decision-making was highly significant prior to intervening  $t(752) = 5.460$ ,  $p < 0.001$  but insignificant thereafter. The mean of intervention establishment increased by 14.5% while that of control was near steady. This signified that the mean of intervening site increased to mend significances. Satisfaction results for self-involvement in decision-making between the two

**Table 1. Effect of training health care providers' in cultural competence on satisfaction with service expectation, information and timeliness among women of Elgeyo-Marakwet**

Variable and group	Pre M and SD	T (test) df Sig	Post M and SD	T (test) df Sig
<b>Service expectation</b>				
Control	4.09±1.162	2.573 (741) 0.010	4.09±1.145	-1.305(578)0.192
Intervention	3.89±1.006		4.18±0.612	
<b>Waiting time</b>				
Control	2.43±1.222	3.759 (753)0.000	2.50±1.207	-13.49(753)0.000
Intervention	2.11±1.153		3.73±1.290	
<b>Time spent with the health care provider</b>				
Control	4.33±0.862	6.896 (756) 0.000	4.36±0.834	4.707(755)0.000
Intervention	3.84±1.064		4.07±0.862	
<b>Information on delivery methods available</b>				
Control	3.57±1.187	0.290 (725) 0.771	3.62±1.149	-4.336(713)0.000
Intervention	3.55±1.056		3.94±0.894	
<b>Information about the procedure or treatment received</b>				
Control	4.01±0.921	4.841 (737) 0.000	4.20±0.891	0.394(738)0.694
Intervention	3.66±1.082		4.18±0.761	
<b>Labour and delivery room is cleanness</b>				
Control	4.13±1.024	6.574 (719) 0.000	4.16±0.950	-0.769(737)0.442
Intervention	3.57±1.291		4.22±1.119	
<b>Providers are friendly</b>				
Control	2.64±1.454	3.277 (742) 0.001	2.89±1.441	-8.046(746)0.000
Intervention	2.31±1.265		3.69±1.280	
<b>Staff attentiveness</b>				
Control	4.34±0.747	7.347 (678) 0.000	4.34±0.748	3.878 (756)0.000
Intervention	3.85±1.063		4.12±0.858	

**Table 2. Paired T-test of before and after satisfaction scores of the experimental group (n=379)**

	Paired Differences				T	Sig. (2-tailed)
	Mean Diff.	SD	95% CI of the Difference			
			Lower	Upper		
Waiting time is too much	-1.617	1.593	-1.778	-1.456	-19.763	.000
Delivery place is clean	-.649	1.196	-.770	-.528	-10.569	.000
Providers are friendly	-1.375	1.502	-1.526	-1.223	-17.817	.000
Companions well treated	-.496	2.775	-.776	-.216	-3.480	.001
Informed of available delivery options	-.396	1.006	-.497	-.294	-7.658	.000
Time spent with provider is reasonable	-.230	.722	-.302	-.157	-6.190	.000
Involved in decision making	-.245	.731	-.319	-.172	-6.532	.000
Interacted with nurse to clear doubts	-.116	.321	-.148	-.084	-7.046	.000
Informed about the procedure received	-.517	1.001	-.618	-.416	-10.059	.000
Companion was consulted on decisions	-.478	.987	-.577	-.378	-9.416	.000
Staff are attention	-.264	.637	-.328	-.199	-8.058	.000
Service expectation met	-.288	.727	-.361	-.214	-7.704	.000
Had adequate freedom in the facility	-.222	.677	-.290	-.153	-6.371	.000
Given opportunity to examine placenta	-1.536	1.448	-1.682	-1.389	-20.65	.000
Given opportunity to celebrate outcome	-.438	2.927	-.734	-.142	-2.913	.004
Allowed to witness placenta disposal	-.784	1.175	-.902	-.665	-12.979	.000
Given self-covering materials	-.090	.415	-.132	-.048	-4.213	.000
Given baby clothes	-.430	.840	-.515	-.345	-9.964	.000
Given sanitary pads	-.227	.656	-.293	-.161	-6.738	.000
Privacy during delivering	-.388	.920	-.481	-.295	-8.207	.000
Given soft drinks upon	-.686	1.150	-.802	-.570	-11.616	.000

groups were indifferent either way. Freedom in the facility was highly significant prior to intervening  $t(756) = 3.978$ ,  $p < 0.001$  but insignificant thereafter between the two groups. There was slight positive change in the mean of intervention. The mean scores for interaction with the provider to clear doubts between the control and intervention group were indifferent pre and post intervention.

Likewise, mean scores of satisfaction with provided privacy during delivery between the two groups were indifferent before and after intervention. The mean scores of privacy prior to intervention in the intervention wing increased by 11%. The paired t-test of the intervention mean before and after was significant  $t(378) = -8.207$ ,  $p < 0.001$  whereas that of control was not significant. Variance between the two groups in

the mean of satisfaction with the opportunity for companion to examine placenta was highly significant before  $t(715) = 6.649$ ,  $p < 0.001$  and after  $t(756) = 5.980$ ,  $p < 0.001$  training. Table 5 presents the results. The mean of intervention increased to  $3.93 \pm 1.071$  from  $2.39 \pm 1.161$  while that of control increased to  $3.38 \pm 1.469$  from  $3.03 \pm 1.484$ . The variance in opportunity to celebrate outcome between the groups was not significant before and after intervening.

However, mean of the intervention increased by 12.2% while that of the control increased by 2.4%. The resultant paired t-test for intervention was significant  $t(378) = -2.913$ ,  $p = 0.004$  while that of control was not significant. The independent t-test was not significant pre and post intervention. The mean score of companion witnessing disposal of the placenta was highly

significant prior to intervening  $t(716) = 5.44$ ,  $p = 0.011$  but insignificant thereafter. The increased mean in the intervention wing tweaked the statistics. Indicating that patients' satisfaction on provider privacy was gradual. The mean for provision of mother covering materials between the two groups was – not significant before and after. Provision of simple food offered had

similar insignificant results. However, satisfaction with baby clothes given upon delivery were significant before  $t(756) = 2.476$ ,  $p = 0.013$  and after  $t(739) = 2.043$ ,  $p = 0.041$ . The mean of provision of soft drink on request had varied results. It was significant prior to intervention  $t(711) = 9.385$ ,  $p = 0.000$  but indifferent thereafter  $t(710) = 1.138$ ,  $p = 0.255$ .

**Table 3. Paired T-test of before and after satisfaction scores of the control group (n = 379)**

Pairing of before and after of	Paired Differences				t	Sig.
	Mean diff	SD	95% CI of the Difference			
			Lower	Upper		
Waiting time is too much	-.069	.386	-.108	-.030	-3.463	.001
Delivery place is clean	-.034	.255	-.060	-.009	-2.620	.009
Providers are not friendly	-.253	.863	-.340	-.166	-5.712	.000
Companions were treated well	-.040	.293	-.069	-.010	-2.631	.009
Informed of available delivery options	-.047	.396	-.087	-.008	-2.337	.020
Time with provider is reasonable	-.034	.302	-.065	-.004	-2.209	.028
Involved in decision making	-.032	.270	-.059	-.004	-2.280	.023
Informed about the procedure	-.187	.642	-.252	-.123	-5.683	.000
Companion was consulted on decisions	-.042	.238	-.066	-.018	-3.460	.001
Staff are attention	.003	.304	-.028	.033	.169	.866
Given opportunity to examine placenta	-.346	1.301	-.477	-.214	-5.173	.000
Given opportunity to celebrate outcome	-.095	1.089	-.205	.015	-1.697	.090
Companion witnessed placenta disposal	-.195	.681	-.264	-.126	-5.578	.000
Given self-covering materials	-.040	.855	-.126	.047	-.901	.368
Given baby clothes upon delivery	.127	.634	.063	.191	3.889	.000
Given sanitary pads	-.169	.415	-.211	-.127	-7.916	.000
Given privacy during delivering	-.045	1.217	-.168	.078	-.717	.474
Given soft drinks upon request	.032	.250	.006	.057	2.466	.014

**Table 4. Effect of training health care providers' in cultural competence on satisfaction with companion handling and interaction process among women of Elgeyo-Marakwet**

Group	Pre intervention			Post intervention		
	M and SD	T (test)	df Sig	M and SD	T (test)	df Sig
<b>Companion's treatment</b>						
Control	4.08±0.842	5.891	(746)0.000	4.12±0.784	0.525	(756)0.599
Intervention	3.70±0.930			4.20±2.722		
<b>Involvement of companion on decisions</b>						
Control	3.71±0.994	5.460	(752)0.000	3.75±0.931	-0.391	(756)0.696
Intervention	3.30±1.066			3.78±0.924		
<b>Self-involvement in decision making</b>						
Control	3.78±1.044	1.686	(756)0.092	3.82±0.982	-1.292	(745)0.197
Intervention	3.66±1.022			3.90±0.868		
<b>Freedom in the facility</b>						
Control	4.02±1.139	3.978	(756)0.000	4.03±1.139	1.289	(708)0.198
Intervention	3.71±1.049			3.93±0.871		
<b>Interaction with providers to clear doubts</b>						
Control	3.91±1.021	1.293	(755)0.196	3.91±1.021	-0.265	(756)0.791
Intervention	3.81±1.055			3.92±0.892		
<b>Privacy during delivery</b>						
Control	4.11±0.966	6.903	(700)0.000	4.16±0.965	-3.108	(748)0.002
Intervention	3.54±1.293			3.93±1.066		



**Table 5. Effect of training health care providers' in cultural competence on satisfaction with placenta management and supply of materials among Women of Elgeyo-Marakwet**

<b>Variables and group</b>	<b>Pre M and SD</b>	<b>T (test) df Sig</b>	<b>Post M and SD</b>	<b>T (test) df Sig</b>
<b>Opportunity to examine placenta by companion</b>				
Control	3.03±1.484	6.649 (715)0.000	3.38±1.419	5.980 (756) 0.000
Intervention	2.39±1.161		3.93±1.071	
<b>Opportunity to celebrate outcome</b>				
Control	3.78±1.218	1.894 (756)0.059	3.87±1.101	1.203 (496)0.229
Intervention	3.62±1.078		4.06±2.777	
<b>Witnessing of disposal of placenta by companion</b>				
Control	2.89±1.448	5.744 (716)0.000	3.09±1.412	-0.443 (756)0.658
Intervention	2.35±1.138		3.13±1.371	
<b>Self-covering materials (bed sheet or Khanga)</b>				
Control	3.89±1.167	1.929 (741) 0.054	3.93 ±1.142	-1.357 (727)0.175
Intervention	3.74±1.010		3.83±0.935	
<b>Baby clothes given upon delivery</b>				
Control	3.27±1.290	9.414 (736)0.000	3.15±1.174	3.068 (756)0.002
Intervention	2.46±1.093		2.89±1.1685	
<b>Sanitary pads to use by the facility</b>				
Control	4.01±1.156	2.476 (756)0.013	4.17±1.029	2.043 (739)0.041
Intervention	3.80±1.070		4.03±0.884	
<b>Simple food offered (Uji)</b>				
Control	3.88±1.271	1.322 (737)0.860	3.89±1.271	-1.312 (657)0.190
Intervention	3.76±1.082		3.98±0.844	
<b>Soft drinks on request (Juice/Water)</b>				
Control	4.26±1.003	9.385 (711) <b>0.000</b>	4.23±1.042	1.138(669)0.255
Intervention	3.47±1.299		4.15±0.714	

#### 4. DISCUSSION

This cluster randomized controlled trial showed effect on satisfaction score after culturally sensitive maternity services intervention. The cultural competence training shaped positively (76%) customer services expectation. The effect shown in this trial is inconsistent with the findings of a randomized controlled trial that reported indifferent satisfaction between the groups [34]. Since many of the participants seek services from one particular facility, it possible that 'ceiling effect' and last place phenomenon may have played a significant role in the high score. Ceiling effect' is the tendencies of participants' to rate services more positively in general [35] and is attributed to 'Halo effect' [35]. Halo effect' is a positive attitude prevailing due to successfully services.

The study reported effect on satisfaction with outlet cleanliness scores. This infers that perceived cleanliness improved in the intervention arm. Findings indicate that satisfaction with the physical environment is a significant predictor of women's satisfaction and

positive experience of labour and delivery services [7]. Preceding research is in accordance with the current finding [36,37]. Result in a longitudinal intervention study in rural Burundi demonstrated that improved cleanliness in the test arm compared to the standard [36] while in a client exit interviews, private outlets reported high satisfactory scores to cleanliness than public healthcare facilities [37]. The current study did not compare satisfaction rates between the private and public health centre. Comparable result of good cleanliness of the facilities is reported [38]. Unsatisfied outcome with consultation time, cleanliness, and privacy in the ward but in descriptive cross-sectional study is adduced [12].

The study showed increased satisfaction scores on provided information on delivery methods post intervention. The finding in this trial is consistent with a pre-test/post-test design Intervention that reported increased satisfaction with received communication options post-intervention [39]. It is also consistent with a cross-sectional analytical study in Kenya that reported improved mother's satisfaction with communication by the

healthcare workers [12]. The converse was true to satisfaction with information about the delivery procedures. Similar results of increased nurse communication post-intervention are reported. Taking cues from the current finding and reviewed studies, the study concludes that the intervention tweaked the philosophy of health workers in regard to information sharing [40]. Satisfaction score with the provider friendliness was improved. Prior interventional studies agree with this finding [41,42]. The cultural competence of health professional enhances satisfaction with and outcome of care received [41]. Additionally, customers are likely to strongly agree that physicians are concerned about the welfare post intervention period [42]. This suggests that staff friendliness creates a good understanding that is important for communication and interaction.

Satisfaction with provider attention between the two groups was significant. The importance of attention in regards to emotional cues in the provider patient relationship is well explained [43]. A cochrane review states that expression of attention to what the patient desires is a salient component of mindfulness [43]. Meanwhile, satisfaction with time spend with health provider was significant. Satisfaction on self-involvement in decision-making was however indifferent. Significant result with the decision-making process and time is however reported in other interventions [44]. Perceived interaction with provider to clear doubts was indifferent between the two groups. However, satisfaction with freedom given in the facility improved after intervention. Enriched capacity to interact with patients, greater respect for patients' cultural views, and more gratitude for cultural influences on health are documented as equity equipoise [45].

Satisfaction with received privacy was statistically different pre and post intervention. Satisfaction in all facets of privacy and confidentiality, during labour and delivery is reported but from in cross sectional survey in Kenya [46]. However, average scores of privacy prior to intervention changed in both arms indicating that patients' satisfaction on provider privacy is dynamic. Perceived handling of companion was highly significant before but insignificant after intervening. On the other hand, involvement of companion on decision making was highly significant prior to intervening but insignificant thereafter. The mean of intervention establishment increased while that of control was near steady. This signified that the mean of

intervening site increased to tinker with significances. Importance of extended role of companion of family member in women health seeking behavior is recognized in interventional studies [47].

Opportunity to examine placenta by companion was highly significant. Similarly, witnessing disposal of the placenta by companion improved after intervention. There was inverse movement in the means. The mean of intervention increased while that of control reduced. However, the variance in satisfaction with opportunity to celebrate outcome was insignificant before and after intervening. Increased mean of the intervention wing triggered the change. The placenta phenomenon is described [48]. It is acknowledged that women treat their placentas as 'interesting' and fascinating' and considered the placenta to be an important organ that deserved attention [48]. The provision of merchandise such as Khanga and goodie bag was indifferent. Baby clothes given after delivery was significant however. Significant improvement in practices amongst practitioners and women following use of culturally competent food-related interventions is underscored [49]. Elsewhere, merchandise provided to women during childbirth is not statistically associated with satisfaction [7].

Patient satisfaction increased significantly with the cultural competence training of healthcare providers. Cultural competence of health care providers improved satisfaction on services expectation, placenta management, and treatment of companion and delivery support. In addition, satisfaction with companion involvement in decision-making, privacy, provider attentiveness, facilities cleanliness, information, provider friendliness and respectfulness improved. However, mother's involvement in decision-making, provision of covering materials and baby clothes and provision of simple food were indifferent. These positive results suggest that the concept of cultural competence is a valuable idea in health integration and innovation. The value of cultural competence training is documented [45,50]. Training improved readiness to provide culturally appropriate care to Aboriginal patients and increase in cultural quotient and individual practice staff improved their cultural strategic thinking [50]. Furthermore, participants in cultural workshop series gained an appreciation of cultural interpretations. Participants in another learned about several common health beliefs and recognized the impact in the returns [45].

## 5. CONCLUSION

The study supports the proposition that, women satisfaction is negatively affected when healthcare providers perform in a way not commensurate with women expectations. Provider attention, participatory decision-making, adequate interaction time, management of companion, respect, trust, privacy and opportunity for placenta management mediate women satisfaction with maternity services and health seeking behavior. The results have demonstrated that cultural competence training is an important innovation for improving quality of maternity services. Integration of social ecological pregnancy and childbirth needs into maternity services may bolster efforts to provide culturally sensitive healthcare services. Additionally, development of cultural competence curricula will ensure the cultural competence of future health professional is assured whilst providing context of understanding and addressing health inequities and disparities.

## 6. LIMITATIONS

Anxiety disorder during childbirth process and enthusiasm to bring new life to the world among women in the control and intervention arms may have affected the sensitive of the responses. Analysis options with few numbers of clusters are limited and include parametric test analysis of cluster level summary scores (means). These procedures are robust but may not provide optimal power. Mixed-effects regression analysis may have accounted for ICC.

## CONSENT

Privacy and confidentiality were maintained. Consent was obtained from facility gatekeeper and from respondents (written). Participation was voluntary. The purpose, risks, benefits and results use, were explained.

## ETHICAL APPROVAL

The study was approved by Kenyatta University Ethical Committee (KU/ERC/APPROVAL/VOL.1 (164)), National Commission of Science, Technology and Innovation (NACOSTI/P/18/41197/21776) and the Elgeyo Marakwet County government (EMC/CDMS/GC/2018(39)).

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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