

Effect of Vaginal Examination Frequency Practice during Normal Childbirth on Psychophysical Condition of Women.

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Abstract

Background: A vaginal examination (VE) is an essential part of midwifery care, and is routinely performed when assessing the progress of labor. It is a physically invasive procedure which can have psychological consequences causing disruption to the natural body rhythms as well as psychological and physical pain.

Aim of work: to investigate the effect of vaginal examination frequency practice during normal childbirth on psychophysical condition of Egyptian women.

Subjects and Methods: Eighty four women was recruited from labor ward at Ain Shams maternity hospital. Women were eligible to participate if she had uncomplicated singleton pregnancies, admitted at term ≥ 37 weeks of gestation, in active stage of spontaneous labor. Data were collected using a semi-structured questionnaire to assess woman's socio-demographic data, characteristics of routine vaginal examination practice and its frequency during childbirth, also to assess women feeling, opinion, knowledge of about vaginal examination practice. Visual Analogue Scale (VAS) used to assess the degree of pain associated the vaginal examination

Results: The present study revealed that VE was conducted too frequently with range (5-12) and increased as the labor time increased and by many providers and associated with pain and discomfort. The proportion of women who received high frequency of vaginal examination during childbirth was significantly larger in multipara as compared to primipara.

Conclusion and Recommendation: Unnecessary and frequent vaginal examination during childbirth conducted by many different providers leading to laboring women's unnecessary suffering from pain and discomfort. It is recommended that VE during childbirth should be conducted only when necessary, and if possible, by the same provider.

Keywords: Frequency of vaginal examinations - Vaginal examination- Normal childbirth- Women feelings - Visual analogue scale.

I. Introduction

Childbirth is an important life event and care practices that occur during labor and can have a lasting influence on the woman and the family [1]. Vaginal examination (VE) is a physically invasive procedure which can have psychological consequences causing disruption to the natural body rhythms as well as emotional and physical pain [2]. The use of regular, routine vaginal examinations and assessment of the cervix have, been described as the most important measure of labor progress [3]. Dixon and Foureur, (2010) [4] argue that the VE can be an important clinical assessment tool but should also be viewed as an unnecessary intervention if used in a reutilized way as part of standardized labor care. There are a number of ways of measuring progress in labor including assessing descent of the fetal head by abdominal palpation, monitoring the frequency length and strength of contractions, and by observing the appearance, vocalizations and behavior of the woman [5].

The frequency of VEs is often dependent on the individual healthcare provider and the guidelines of the institution[6]. However, different studies advocate various frequencies, ranging from every 3 hours, 4 hours, 6 hours or at the midwives' discretion. [4,7,8,9] These different recommendations reveal a lack of agreement on the ideal times to perform VEs during labor. There is limited evidence to determine the average rate of VEs during a normal labor, or indeed what the ideal rate should be. [10] The World Health Organization recommends that VEs be conducted at 4-hour intervals and by the same provider if possible; preferably there should be only one examination to establish active labor[11]. Despite these concerns there appears to be a continued over use of the VE in labor [12]. Vaginal examination can be distasteful for some women due to the intimate nature of the examination and can be very distressing for others [13]. Some women reported pain and discomfort more if the VE performed by male physicians and clearly reported a preference of midwives [14] The experience of a difficult VE could also result in the patient developing post-traumatic stress disorder (PTSD). Certain variables are highly related to the occurrence of PTSD after such procedures; these included feelings of powerlessness, a lack of information concerning the procedure and its necessity, experiencing

physical pain, a perceived unsympathetic attitude by the examiner and the lack of patient consent to the procedure [15, 16]. In many countries the rate of intervention in normal labor is causing concern and policies have been implemented in an attempt to reduce the number of vaginal examination performed on women and allow time for labor to progress. The World Health Organization (WHO) stress that the number of vaginal examination should be limited to the strictly necessary and ideally that would constitute the one examination performed to diagnose active labor [11]. In addition, the vaginal examination can increase the risk of harm for women and their babies [17]. The number of vaginal examination has been reported as an independent predictor of neonatal infection where premature rupture of membranes has occurred [18]. Imseis et al. found a significant increase in the variety of isolated organisms after digital VE in both women with ruptured and intact membranes [19]. The relationship between vaginal examination during labor and infections was documented [20]. The vaginal examination continues to carry a risk of introducing infection with chorioamnionitis occurring in between 8 and 12 women per 1000 births [21].

Significance of the study:

During normal labor, pain is part of the normal physiological process and may be influenced by psychological, spiritual and cultural factors. Hence the experience of undergoing a VE can cause further pain during what is often already an extremely vulnerable and painful time for the woman [4]. There is little other formal researches looking specifically at the woman's psychophysical reactions related to frequency of vaginal examination. Hassan et al (2012) stated that 82% of the women reported feeling pain during vaginal examination and 68% reported feeling discomfort during VEs. Vaginal examination painful procedure regardless of who is undertaking it, whether nurses or doctor [22]. So it is very important that physicians and midwives understand female feelings and experiences during vaginal examination and conduct vaginal examination only when necessary, carefully without causing pain, with minimal discomfort to women [1]. Hence, the present study was undertaken to shed evidence based light on the effect of frequency of vaginal examination on woman's psychophysical reactions, including their feelings opinions and physical complain.

Aim of the study:

To investigate the effect of vaginal examination frequency practice during normal childbirth on psychophysical condition of Egyptian women.

The study hypothesis:

Women who have high frequency of vaginal examination will suffer from psychophysical problems.

Subjects and Methods:

Study design: A descriptive design was utilized to conduct the current study.

Study setting: The study was carried out at labor ward of maternity hospital that affiliated to Ain Shams University, it was chosen to be the study site since it is one of the main hospitals in that offering maternal and newborn services in Cairo, Egypt and it was receiving referred cases from other health care centers in different districts. So the rate of admission was expected to be high.

Sampling: A purposive sample was used for a total of 84 women, who attained the above mentioned setting within a period of six months from June 2013 until November 2013. Women were **recruited** in the study according to the following criteria: Primiparous or multiparous women with gestational age (≥ 37 weeks), single-fetus pregnancy with vertex presentation, have active labor with cervical dilatation (≥ 4 cm) and had a normal cardiotocogram. Women were **excluded** if they had any complications associated during pregnancy or arise during labor.

Tools of data collection:

Data collected using a semi-structured questionnaire (developed by researcher after extensive reviewing) .The interviewing questionnaire consisted of four parts:

Part 1: The woman's socio-demographic data: used to collect data about age of the woman, level of education, occupation, residence, parity and the duration of labor.

Part II: Characteristics of vaginal examination (VEs): This part was used to collect data about the frequency of vaginal examination, number of providers doing the (VEs) and the permission statement as the following:

- **Frequency of VEs:** The investigator document on a data collection form, the time that active labor commenced (regular moderate/ strong contractions and cervix 4 cm), and time of delivery to estimate the duration of labor. Throughout labor the researcher also record the time when each VE was performed. The total number of vaginal examination for each woman was documented by the researcher and categorized according to the WHO recommendation (11) which recommend that VE should be conducted at 4 hours and by the same provider if possible .So the accepted frequency of vaginal examination during labor is 0–4 times. The frequency of more than 4 VEs during normal childbirth is considered unnecessary.
- **Number of providers doing the vaginal examination:** The number and gender of providers doing vaginal examination was documented for each woman. The accepted number of providers ranged from 1–2 providers also, more than 2 providers is considering high number according to the WHO recommendation (11).
- **The Permission statement:** The investigators recorded any statements used by providers or women before doing VE. The women were asked open-ended questions to elicit specific information on permission statement during vaginal examination such as how many times providers asked your permission for doing vaginal examination to prepare yourself? What did they tell you? The women's responses were guided to be divided into four main categories (Instruct women for physical preparation, inform about the vaginal exam, or woman complain from the vaginal exam, and if women requested the VE).

Part 111: Assessment of women feeling, pain and their opinion during vaginal examination:

- **Woman feeling:** The investigator recorded any statements used by women reflect their feeling .The women were asked open-ended questions to elicit specific data about their feeling during vaginal examination. Example of question; How did you feel during the vaginal exam during this childbirth? (Probed by: explain more) .Women's answers were guided to be divided into three main domains: **discomfort** feelings if statements used by women reflect discomfort during VE such as: very/annoying, afraid, fear, stressful, I hate it, no one likes it, easier when dilation is larger, bothering, not comforting. Or any statements used by women to reflect **embarrassment** feeling during VE such as: embarrassing, disgusting, should be canceled, hope not be done at all, shame. Or statements used by women to reflect **assurance** feelings during VE such as: assuring, important, informs about time of delivery. Physical care, emotional support and communication and provide necessary information.
- **Pain assessment:** Visual analogue Scale (VAS) was used to assess the degree of pain associated the VEs [24]. It consists of a blank line anchored at each end of the line by adjectives that describe the extremes of pain. For ease of measurement a 10 cm line usually is used. The mother is asked to place a mark on the line that best indicates the pain being experienced .For example, the degree of pain that a woman feels ranges across a continuum from none to an extreme amount of pain.[1] Measuring from the end of the line to mark made by the mother gives a numeric rating of the intensity of the pain. The anchoring adjectives commonly used are none, mild, moderate and severe pain .**Scoring:** the score zero (0) indicates no pain and the top score (10) indicates the worst possible pain. The VAS was divided into 3 mains parts: the first part graded from 1-3 cm which reflects mild pain, the second part graded from 4-7 cm for moderate pain and the third part graded from 8-10cm for severe pain.
- **Women's opinion:** The women were asked open-ended questions to assess women's opinion **about** VE from their point of view. Example of question; What is your opinion about the vaginal examination during childbirth? (Probed by: explain more). The mothers responses are recorded as : **Necessary** if any of women responses are include (important, must be done, necessary, good, reassuring, helps woman to give birth, causes dilation, increases contractions, helps me, for woman's good). **When necessary** when the women responses are: should be done but not too frequent, should be done only when needed, sometimes it is necessary, and sometimes there is no need. **Unnecessary** if women responses are: no need, not necessary don't like it, not important for me.

Part IV: Assessment of women's knowledge about vaginal examination:

- **Women's knowledge:** The women were asked open-ended questions to assess women's knowledge about the indication and importance of vaginal examination (VE). For example; what do you know about the vaginal examination in general? (Probed by: What is it? What it is used for?) .The women's responses that were considered **correct** are: to measures cervical dilation, checks progress of labor, fetal descent in the pelvis,

checks readiness for delivery, checks amniotic membranes, to rupture amniotic membranes, checks real labor. **Partially correct** if there is at least one correct information about indication of VE in the woman's response for this question. **Not correct response:** if there is no correct information about indication of VE in the woman's response for this question. The Score two was given for each correct answer, one for partially correct and zero for incorrect answer. For each area of knowledge, the scores of the items were summed up and the total score divided by the number of the items. These scores were converted into a percent score. The total women's knowledge was determined according the following scoring system:

Scoring system

- Correct answers : $\geq 75\%$ of correct answers
- Partial correct answers: 50- < 75% of correct answer
- Not correct answers: < 50% of correct answers

Tool validity:

It was established for face and content validity by a panel of three expertises' who revised the tools for clarity, relevance, applicability, comprehensiveness, understanding, and ease for implementation and according to their opinion, minor modifications were applied.

Pilot study:

Before embarking on actual study, a pilot study was done for testing the tools and the study maneuvers. It was conducted on 10 % of the sample that were not used for the final study, to ensure clarity of questions and then modification was done and to test the research feasibility, clarity and objectivity of the tools as well to estimate the time needed for data collection. Modifications were done according to the pilot results.

Ethical consideration:

An official permission was obtained from the directors of the specific hospital through official a formal letters from the dean of the faculty of nursing Helwan University .The aim of the study was explained to every eligible woman after asking her to participate in this study, and oral consent was obtained. Each woman was instructed about her rights to refuse to participate, and to withdraw from the study at any time. Strict confidentiality of any obtained information was ensured. Professional help was provided to the participants. The study maneuvers are scientifically approved, and do not entail any harmful effect on subjects.

Field of study:

- The data collection took six months, the actual field work started from first of March 2013 until September 2013 .
- The researcher started by introducing them self's and explaining the purpose of the study to the labor staff to gain their cooperation.
- The researchers were visiting the delivery ward three days /week to obtain the study sample. For convenience, the researcher collected this data on the same days each week, through the morning shift.
- The researcher introduced herself to each woman and explained the aim of the study to the women and obtaining the oral consent before their enrollment in the study. Women who agreeing to participate in the study and meeting inclusion and exclusion criteria were recruited in the study.
- Women interviewed by face-to-face interviews through two phases. Firstly during labor to follow up each woman from active phase of labor to delivery, to assess the frequency of vaginal examination, feeling and degree of pain associated with vaginal examination and total duration of labor. Secondary phase was immediately after delivery to complete the rest of data such as woman's socio-demographic data and obstetrical profile, and their opinions and knowledge about vaginal examination.

Limitations of the study:

Inadequate privacy during individual interviews and women's reluctance to openly discuss such sensitive issue may result in under- or over reporting bias.

Statistical analysis:

Descriptive statistics were conducted; frequency counts and percentages. The association between the frequency of VE and age, parity, level of education, and the time of delivery was tested by Chi-squared. Statistical significance was considered to be $P \leq 0.05$. The open-ended qualitative questions were typed in Arabic and then translated to English. To validate the texts, the PI read all responses in Arabic; cross checked all the typed answers with the original questionnaires and the English translation were cross checked with its Arabic texts. The English texts were read line-by-line for the content and coded. The assigned codes for all

responses were entered to the SPSS statistical software version 11. Triangulation was used to validate the women’s reports. I.e. Providers’ reports about VE’s, record’s review of documented VE and the time spent in the field greatly contributed to the validity of findings.

II. Results

Table (1): Demonstrates the socio-demographic characteristics of the participants. It shows that the age of studied women ranged from 17-41 years old with the mean age of 26.6 ± 5.4 years, and more than half of them (54.8%) were illiterate & read and write. As regards occupation, more than three quarter of parturient women were house wife (78.6%), and about two thirds of them were come from rural areas. Meanwhile 34.5% of women were primipara and 65.5% of women were multipara. Also nearly half of the participants (48.8 %) having from 3 to 5 hours duration of labor with total mean of labor duration (4.0 ± 2.93).

Table 2: Regarding, the characteristics of the vaginal examination practice during normal childbirth. Table 2 points to the majority of women (86.9 %) reported receiving a high’ number of VE during their childbirth ranged from 5-12 and majority of them (97.6%) reported being examined by more than one provider, majority of them (93.9%) were male provider. More than three quarter of participants (82.1%) instructed before VE for physical preparation, and 23.8% of them given feedback about the VE, and only 20.2% of women responses indicated that women requested the VE.

Table 3: clarify that majority of women (97%) reported pain feelings during VE and only (7.1) were assured during VE .More than one third 35% reported discomfort during childbirth. Regarding pain degree with vaginal examination, it was notice that less than one third (29.8%) of participants having moderate pain and 44.0% of participants reported sever pain. Also women shared their opinions regarding VE during childbirth, more than half of women (60.7%) reported that VE during childbirth is necessary, 15.5% reported that it should be done only when necessary and 23.8% reported that it is not necessary.

Figure 1: It show the distribution of women according their knowledge about vaginal examination, , it was found that more than three quarter 78.5% of women their responses were not correct answers, and 16.7% of women their responses were partially correct. Only 4.8% of women their answers were correct.

Table 4: illustrated that there was a highly significant difference between women receiving accepted frequency of vaginal examination and high frequency of vaginal examination during childbirth and their age, residence, education level, parity. All women who had potentially ‘high’ frequency of vaginal examination were examined by 3-7 providers, with high significantly difference between women receiving correct and high frequency of vaginal examination ($P = .000$), and significantly larger when the woman is a multipara than primipara women ($P = .005$).

Table (1) Distribution of the studied sample regarding demographic characteristic (n = 84)

Variables	No	%
Age :		
• < 25	38	45.2
• 25 – 30	29	34.5
• > 35	17	20.3
Mean ± SD		25.27± 4.84
Level of education :		
• Illiteracy & Read and write	46	54.8
• Primary/Average/Secondary	35	41.6
• University/ post graduate	3	3.6
Occupation :		
• Working	18	21.4
• House wife	66	78.6
Residence :		
• Urban	27	32.1
• Rural	57	67.9
Parity :		
• Primipara	29	34.5
• Multipara	55	65.5
Duration of labor :		
• 1/2 h - 2 hours	15	17.8
• 3 - 5	41	48.8
• 6 – 8	28	33.4
Mean ± SD		4.0± 2.93

Table (2) Characteristics of the vaginal examination practice during normal childbirth (n = 84)

Characteristics of vaginal examination	No	%
Frequency of vaginal examination :		
• Accepted Frequency 0- 4	11	13.1
• High frequency 5-12	73	86.9
Number of providers conducted vaginal examination :		
• Accepted number 1- 2	2	2.4
• High number 3 – 7	82	97.6
Gender of providers conducted vaginal examination :		
• Male	78	93.9
• Female	6	7.1
Permission statement* :		
• Women received instructions	69	82.1
• Women received information	20	23.8
• Women complaint	66	78.6
• Women requested VE	17	20.2

*Not mutually exclusive

Table (3): Distribution of women according their feelings, pain degree and opinions about vaginal examination.

Variables	No	%
Feeling*		
• Pain	82	97.6
• Discomfort	30	35.7
• Embarrassment	9	10.7
• Assuring	6	7.1
Pain degree with vaginal examination (VAS) :n= 82		
• No pain = 0	2	2.4
• Mild pain = 1- 3	20	23.8
• Moderately pain = 4- 7	25	29.8
• Sever pain = 8-10	37	44
Opinions * :		
• Necessary	51	60.7
• When necessary	13	15.5
• Not necessary	20	23.8

*Not mutually exclusive

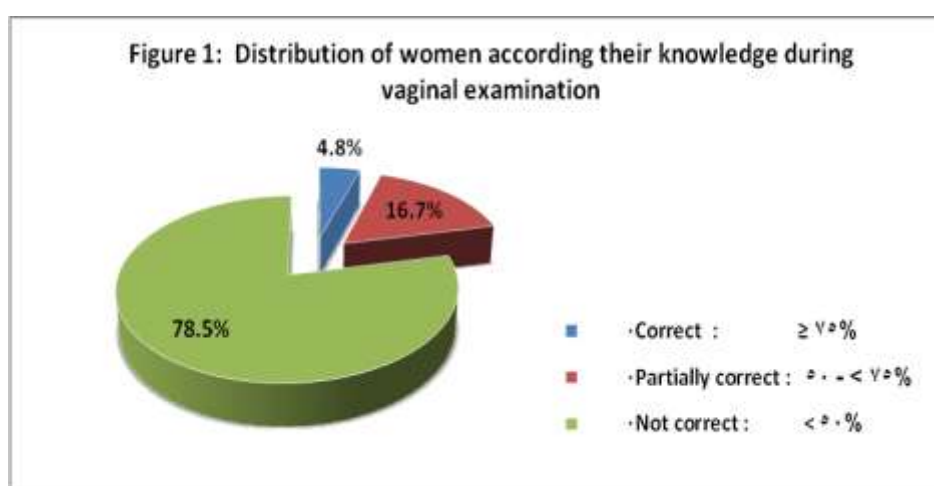


Table (4):The correlation between accepted and high frequency of vaginal examination during childbirth with some selected variable.

Variables	Accepted frequency VE(0-4 times) N=11		High frequency VE (5-12 times) N=73		X ²	P-value
	No	%	No	%		
Age :						
• < 25	4	36	34	46.5	45.500	.001
• 25 – 30	6	55	29	39.8		
• > 35	1	9	10	13.7		
Level of education :						
• Illiteracy & Read and write	7	64	40	54.8	26.00	.000
• Primary/Average/Secondary	3	27	31	42.5		
• University/ post graduate	1	9	2	2.7		
Place of residence :						
• Urban	0	0.00	46	63	10.71	.001
• Rural	11	100	27	37		
Parity :						
• Primipara	3	27	25	34.3	8.04	.005
• Multipara	8	73	48	65.7		
No providers conducted VE :						
• Accepted number 1-2	2	18	0	0.00	100.50	.000
• High number 3-7	9	82	73	100		

*: Statistically significant at $p \leq 0.05$

III. Discussion

A vaginal examination (VE) during normal labor can be considered both an intervention and an essential clinical assessment tool. Assessing cervical dilatation can help physician and midwives determine whether there is a normal presentation, position and rhythm to the labor [23]. The World Health Organization (WHO) recommends that vaginal examination are offered to women at regular intervals of not less than 4 hours and only performed when justifiably necessary[11]. In addition, it is a physically invasive procedure which can have psychological consequences causing disruption to the natural body rhythms as well as emotional and physical pain [24]. Hence, the present study was undertaken to shed evidence based light on the effect of frequency of vaginal examination in relation to woman’s psychophysical condition, including their feelings, opinions and physical complain. The main finding of the present study is revealed that more than half of women reported receiving a high’ number of vaginal examination (VE) ranged (25–12) during their childbirth and increased as the labor time increased by many different providers. This finding is higher than the recommendation of World Health Organization which recommended that vaginal examination should be conducted at 4-hour intervals and by the same provider if possible [11]. This result goes in line with several studies revealed that women seem to have more VEs than expected during labor, despite the presence of institutional policy guidelines on performing VEs at certain institutions[4,22,26]. Also this finding is supported with the study done by Shepherd et al. (2013) who reported that almost 70% of women had more vaginal examination than expected when the procedure of 4-hourly vaginal examination was applied [26]. As well this finding was corresponding to other study [27] which reported that vaginal examination was conducted too frequently, and by too many different providers. On the contrary, other study stated that clinicians undertook a vaginal examination ‘periodically’, when maternal behavior or clinical signs suggested a need for one [6].Also many studies, reported that the frequency of vaginal examination is often dependent on the individual health care provider and the guidelines of the institution. There is limited evidence to determine the average rate of VEs during a normal labor, or indeed what the ideal rate should be [4,27-28] .However, different studies advocate various frequencies, ranging from every 3 hours, 4 hours, 6 hours or at the midwives’ discretion.[4,7,8,9]. Most authorities agree that vaginal examination should be performed only if the information obtained will alter the management of labor [5] .

Similarly, Borders et al. (2012) agree that experienced healthcare providers can sometimes limit the number of vaginal examination to one if the labor is progressing well [28]. From the researcher point of view the frequency of VE is due to medical and nursing students need to do vaginal examination frequently to be skillfully. Also the study results revealed that multipara woman seems to be examined more frequently and unnecessarily than primipara. Conversely with the study done by Hassan et al. (2012) who stated that the proportion of women who received a ‘too high ‘frequency of vaginal examination during childbirth was significantly larger in primipara as compared to multipara women [22]. The nurses can play a role in advocating for restrictive VE use in obstetric practice, and use alternative ways to measure labor progress. This has been reinforced by research undertaken by Cheyne et al (2006) which suggests that midwives used information cues from the women to help them diagnose labor including the physical signs such as strength, frequency and

regularity of contractions along with how the woman was adaptation and what supports she had around her [29]. Also other study reported that the stage of labor must be determined by observable events and the patient's experiences, and not be based on cervical dilatation alone because the process of labor is unique to each individual woman and therefore cannot be defined by physiological measurements, time restrictions or other medical criteria alone [30]. In the current study, the results revealed that majority of women reported pain feelings during VE especially when examined by male providers and, more than one third reported discomfort during VE of childbirth. This result goes in line with [31] who stated that some women reported pain and discomfort ,if the VE performed by (males) and clearly reported a preference of nurses (females) .Also it was consistent with other studies which showed an association of pain and provider and VE should be conducted by the same provider during labor to reduce inter-observer variability and inaccuracy [32,33] .Also other study reported that vaginal examination can be distasteful for some women due to the intimate nature of the examination and can be very distressing for others [13]. On the contrary, other study documented no relation between pain or discomfort and provider gender [33]. There is evidence that women from western cultures also prefer female provider [34]. During labor, pain is part of the normal physiological process and may be influenced by psychological, spiritual and cultural factors. [35]. Hence the experience of undergoing a VE can cause further pain during what is often already an extremely vulnerable and painful time for the woman [4]. From the researcher view of point, pain feelings could be related to inadequate hand skills of the examiner. Medical and nursing students should be guided throughout their education to acquire the proper competencies to perform this exam with minimal discomfort for women. The results of present study found that majority of women not received any information about the vaginal examination, which the providers did not talk with them at all before, during or after the VE. This finding indicated insufficient communication skills of the providers and raises many questions regarding the basics of ethics of medical practice, the reproductive rights of women. This finding on the same line of previous studies, which found that many women dislike vaginal examination because they are often painful, and can be performed with little accompanying information in a sometimes ritualistic or intimidating manner [22, 36]. This finding supported by Muliira et al (2013) which recommended that healthcare professionals and students need to be taught specific communication skills to enable them to discuss VEs more openly with women [5]. A provide information about the results of VE to the woman , such as the fetal presentation ,position and descent of the presenting part of the fetus as well as cervical dilatation [4,22],can help to reassure the woman [28] . Also utilizing honest and effective communication skills before, during and after the VE will enable women to become more comfortable during the procedure.

IV. Conclusions and recommendations

Based on the study findings, it is concluded that more than half of women reported receiving a high' number of VE by many different providers and increased as the labor time increased .Multipara woman seems to be examined more frequently unnecessarily than primipara. Also the study findings suggested a significant association between the high frequency of VE during childbirth and the high number of providers who conduct the vaginal exam .High frequency of vaginal examination is associated with pain, discomfort and embarrassment to the women. This implies that vaginal examination during childbirth should be conducted only when necessary, and by the same provider to decrease the laboring women's unnecessary suffering from pain and discomfort. Also it is important that nurses and physicians understand women's feelings and experiences during vaginal examination in order to improve their own practices and conduct VE only when necessary. The nurses can play a role in advocating for restrictive VE use in obstetric practice, and use alternative ways to measure labor progress.

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