ORIGINAL ARTICLE   ∂ OPEN ACCESS

A Simple Awareness For Women About (SAWA) stages of labor on women's childbirth experience using the childbirth roadmap tool: a quasi-experimental study

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Responsible Editor: Retnayu Pradanie

ABSTRACT

Introduction: Lack of knowledge about the childbirth process may lead to stress during labor. However, research confirmed that women's knowledge regarding childbirth progress can increase their comfort and satisfaction during labor. This study aimed to assess the effectiveness of the Simple Awareness for Women About (SAWA) labor stages program on their childbirth experience using the childbirth roadmap tool.

Methods: A pretest and posttest technique was employed and conducted at the Labor Department, Woman Health Hospital, affiliated with Assiut University, Egypt. Based on the eligibility criteria, a convenience sampling method was used to recruit all parturient women admitted between December 2019 and February 2020. The sample consisted of 172 participants and the data were analyzed with chi-square and t-test using SPSS version 25.

Results: A statistically significant difference was observed in the baseline information regarding the stages of childbirth after the SAWA program implementation at P< 0.001. There was a significant relationship between the mode of delivery and the participant's satisfaction with the study tool at P<0.001.

Conclusions: This study highlighted the benefits of using a simple, attractively illustrated instrument, the childbirth roadmap, for achieving the meaning of support and women's satisfaction through the SAWA program during labor stages.

Keywords: childbirth roadmap experience, effectiveness, simple awareness, stages of labor, women

Introduction

Women and families consider pregnancy and childbirth as unique events. Therefore, they hold different expectations during childbearing based on their knowledge, experiences, beliefs, cultures, and social and family backgrounds. In light of these differences, care should be modified and systematized to meet their needs by understanding and respecting their attitudes (Iravani et al., 2015). Women's knowledge regarding the process of childbirth can increase their comfort and satisfaction during labor. Various methods including reading, watching videos, attending childbirth classes, and discussing with caregivers, doulas, family, and friends may provide women with comfort. This information enables women to experience a safe and satisfying journey of childbirth

(Churchill, 2012). This, in turn, has a long-term impact on women as well as their families (Maimburg et al., 2016).

On the other hand, extra medical involvements and with low knowledge of childbirth positions among women (Zileni et al., 2017) and recumbent positions have been adopted by many obstetricians (Solnes Miltenburg et al., 2018) through the childbirth process (Mselle & Eustace, 2020). However, previous research confirmed that free positioning and being in an upright position can also increase women's comfort (Gizzo et al., 2014) during the first stage of labor and enhances speed of normal childbirth, reduce medical mediations, and meets the mother's physiological and mental demands. Moreover, research evidence has proven that free positioning during childbirth can distract concentration and increase a woman's sense of control and sequency, lower consuming of epidural analgesia (Hodnett et al., 2013) and alleviate labor pain and anxiety (Gau et al., 2011).

Therefore, the childbirth roadmap highlights the effect of a variety of methods such as birth-ball massage and breathing management during uterine contraction. The birth ball helps the relaxing of pelvic muscles, especially the levator ani muscles and pelvic ligaments (Gallo et al., 2014) and helps women to actively participate in the childbirth process (Gau et al., 2011). Hence, concerning the association between high-quality maternity care and infant health, the women freely changing uncomfortable positions and holding stability and coordination increases her self-confidence and consequently enriches high-quality maternity care and infant health.

Moreover, previous studies have confirmed a strong relationship between positive experiences during childbearing and a sense of safety and satisfaction. In addition to other vital factors, "a safe environment and emotional strength" lead to improved childbirth satisfaction (Aune et al., 2015; Karlström et al., 2015). Furthermore, labor contentment has been linked with caregivers' support, healthcare providers' communication skills, and the staff's understanding of women's needs (Ahmad et al., 2012). However, both mothers' and midwives' perceptions regarding the content of childbearing information are important in the development of an effective childbirth education program for pregnant women (Malata & Chirwa, 2011).

Therefore, the proper preparation, in terms of support with information related to each stage of childbirth, may be reflective of the whole fear-inducing lack of understanding and familiarity with women with the birthing process. Hence, educating women about the labor procedure as well as offering them information about each stage and the progress of delivery would enrich their childbirth satisfaction. In addition, providing a simple birth illustration, such as a story, may be an excellent choice to enhance women's labor contentment (Howarth et al., 2019).

Some years ago, Penny Simkin developed a visual model to guide women through the labor progress using an illustrated image of a roadmap. The model shows the key childbirth landmarks, appropriate actions, and comfort measures during its progression (see Figure 1). The roadmap represents three pathways. The main brick road denotes normal labor and demonstrates supportive actions, positions, and comfort techniques for its progress. The turns and spirals in the brick road indicate that normal labor does not progress in a straight line. The care provider can utilize it as a tool to conduct organized discussions of normal labor progress, providing a clear and effective way to impart knowledge related to normal labor (Churchill, 2012).

Women's active participation in the childbirth process include such as decision-making, accessibility of information, awareness of the care provided, and support during childbirth and delivery (Fair & Morrison, 2012). Recently, a comparative multi-country study conducted in three Arab countries, including Egypt, confirmed that women's experiences and satisfaction with labor were linked to women's feelings of control regarding the facility's routine work, rather than awareness and knowledge related to childbirth stages (Kabakian-Khasholian et al., 2017).

The World Health Organization has suggested intrapartum care as affecting the childbirth experience positively (WHO, 2016). In addition, women who receive continuous support from hospital professionals during labor, such as nurses, tend to have better birth outcomes such as lower rates of emergency cesarean section and instrument deliveries, and higher satisfaction with the childbirth experience (Hodnett et al., 2013; Stark et al., 2016; Wang et al., 2021). Our study considered a pioneer study in Egypt to use the childbirth roadmap as a simple tool for guiding women during the progress of childbirth accompanied by the healthcare provider throughout, in the form of the Arabic acronym Simple Awareness for Women About ("SAWA") which refers to being together. This study aimed to assess the effectiveness of the SAWA program of the stages of birth using a childbirth roadmap. The study aimed to assess women's knowledge about the stages of labor after the implementation of SAWA and to determine the effect of

Figure 1. Roadmap of labor (Simkin, 2014)

using a childbirth roadmap on women's satisfaction and labor outcomes.

Materials and Methods

Study design

A quasi-experimental pretest-posttest method was employed to examine parturient women's knowledge about the first stage of labor to the fourth before and after using the childbirth roadmap as a guiding awareness tool, and their satisfaction, respectively. This study was conducted at the labor department of the Woman Health Hospital, affiliated with Assiut University, Egypt.

Study sample

This study employed convenience sampling to recruit all the parturient women admitted to the hospital between December 2019 and February 2020. The sampling technique was based on the eligibility criteria and the convenience of the participants. Then the recruitment used a simple randomization method by using an envelope containing two folded papers with two letters A for participation and B for no participation.

The sample consisted of 172 participants selected according to the eligibility criteria. The sample size was calculated using the G power program using the following data: effect size 0.3, α error prop 0.05, one tail, power (1-β err prop) 97% using the difference between two independent means (matched paired). The sample size was supposed to be 166 but increased to 172 participants to increase the power.

Participant criteria

The study enrolled all pregnant women when they were in the first stage of labor (early latent phase), in which the cervix is 0-3 cm dilated, contractions occurred every 10-20 min, lasting for 15-30 seconds, and mild intensity pain and healthy pregnancy without medical diseases. Those in the first stage (active phase: cervix, 4-7 cm) experienced contractions every 2-3 min continuing for 50-60 sec, and moderate and high-risk pregnancies related to chronic diseases were excluded from the research.

Instruments

The current study used two questionnaires, the first questionnaire was developed based on the available literature (Begley et al., 2014; Carquillat et al., 2017). The questionnaire consisted of six sections: the first section included seven questions: age, residence, education, occupation, husband's occupation, and

education. The second section comprised of four questions about obstetric history. Third section comprised six items on childbirth physiology information. The fourth section included 22 questions regarding normal labor and women's actions during each stage of labor. The fifth section comprised six items related to women's perception and the satisfaction with childbirth roadmap as a childbirth facilitation tool. The sixth and final section included four questions regarding labor outcomes.

The second questionnaire is the childbirth roadmap is a visual tool created by Churchill, (2012) to guide women during their childbirth journey. The roadmap includes three pathways, namely, the normal labor path, the detour for back pain, and the epidural highway. In our study, only the normal childbirth pathway was employed because of the inclusion criteria. The demonstration shows childbearing as a journey that begins with early labor and ends with delivery. The childbirth roadmap includes three tracks: a winding yellow brick road with twists, turns, and devoid of fixed timelines; a diversion for back pain, which is a longer, irregular road that eventually rejoins the yellow brick road; and the epidural highway, which represents the choice to have an epidural for pain relief. Each pathway ends joyfully with the infant's birth. This demonstration includes illustrations of a variety of comfort measures that can be used as labor progresses. The roadmap employs the road symbol to define each stage of labor (Figure 1).

Validity and reliability

The questionnaire validity was tested through face, content, and experts performed convergent validity of the questionnaire in the disciplines of obstetrics and gynecology nursing and medical fields. In addition, its reliability was assessed using Cronbach's alpha which was found to be 0.80, indicating the scale's high level of internal consistency for our study's sample. The questionnaire was tested on 17 parturients using Arabic language to conduct data collections. The translated questionnaire was reviewed by five experts in obstetrics and gynecology from nursing and medical school. The jury confirmed the applicability of the translated version. The researcher conducted a pilot study to examine its feasibility, applicability, acceptability, and consistency. The author omitted the last open-ended question because the participants didn't answer.

Intervention

Intervention was conducted by the researcher, who holds a PhD in obstetric and gynecologic nursing. The

first part was initiated by explaining the study's objective to obtain informed consent from the participants. A patient questionnaire was used to collect data regarding demographic characteristics and knowledge level of procedures performed during labor and determined the needs related to each stage through the pretest. The second part, which is the posttest, used the interactive tool, "the childbirth roadmap," which was an amusing way to educate expectant mothers about what to anticipate during labor. During the use of the childbirth roadmap, the researcher applied the steps involved guided by the map while making certain modifications according to the hospital's facilities.

Step 1: If the cervical dilation was 1-2 cm and the contractions were every 5 min, the researcher encouraged walking, eating, drinking, resting, and relaxing by lying down. Furthermore, the researcher taught breathing techniques, if needed, and, if membranes were intact, women were encouraged to

Table 1. Demographic characteristics of the participants

Demographic characteristics	n (%)	Mean (SD)
Age (in years):		23.60 (5.93)
18-24	120 (69.8)	
25-30	38 (22.1)	
31-36	0.0 (0.00)	
37-42	14 (8.1)	
Education level:		
Illiterate	2 (1.2)	
Read and write (without finishing formal school)	53 (30.8)	
Primary school	13 (7.6)	
Prep school	22 (12.8)	
Secondary school	33 (19.2)	
University	49 (28.4)	
Residence:		
Rural	86 (50.0)	
Urban	41 (23.8)	
Semi-urban	45 (26.2)	
Occupation:		
Housewife	147 (85.5)	
Employee	25 (14.5)	
Obstetric profile		
Gravidity:		1.41 (0.82)
Primigravida	130 (75.5)	
Gravida 2-4	40 (23.2)	
Gravida >5	2 (1.3)	
Parity:		0.34 (0.71)
Para 1-2	39 (22.7)	
Para 3-4	3 (2.3)	
Abortion		0.05 (0.23)
None	162 (94.2)	
1 abortion	10 (5.8)	
Living children:		
None	130 (76.6)	
1 child	28 (16.3)	
2 children	12 (7.0)	
3 children	2 (1.2)	
Neonatal deaths:		
No	160 (93.0)	
Yes	12 (7.0)	

Table 2. Previous information of participants regarding childbirth circumstances for the total sample (N=172)

Childbirth circumstances	Yes		No		Mean (SD)
	n	(%)	n	(%)	
Previous information regarding childbirth	133	77.3	39	22.7	1.22 (0.41)
Source information:					
Mother	51	38.3			
Relative	30	22.5			
Doctor	23	17.2			0.71 (1.30)
Books and magazine	13	1.7			
Internet	16	12.3			
The adequacy of information to release anxiety	23	13.4	149	86.6	1.86 (0.34)
The desire to know more about the childbirth process	168	97.7	4	2.3	1.02 (0.15)
Reasons for receiving childbirth information:					
None	7	4.1			
Need information urgently	6	3.5			
To differentiate between normal and abnormal	21	12.3			
To decrease anxiety	41	23.8			
For reassurance	83	48.5			5.14 (7.60)
This is my right	2	1.2			
(2 & 4 choices)	9*	2.8			
(3 & 4 choices)	7*	4.1			
(3 & 6 choices)	3*	1.7			
The appropriate time to get childbirth information:					
First trimester	2	1.2			
Second trimester	1	0.6			
Last trimester	66	38.4			
During labor	103	59.9			

Note: * The participants responded with multiple answers, thus, the total percentage is 119 rather than 100.

participate in the care. In case of women feeling thirsty, the researcher offered fluids or ice chips and withholding of food and fluids to prevent aspiration in the event of an unexpected cesarean section.

Step 2: At 3-5 cm, with contractions 4 min apart, lasting for 1 minute, the researcher used non-pharmacologic techniques of pain control measures, education was provided between uterine contractions, and the woman was encouraged to use the comfort measures, e.g., use

of the focal point, visual imagery, breathing, and application of relaxing massage). In addition, the 3Rs were followed to maintain reinforcement of relaxation, with a regular rhythm, using relax.

Step 3: At 5-8 cm, with contractions occurring consistently 3-4 minutes apart, the pain tends to increase by 7 cm. The researcher allowed the patient to make informed decisions regarding pain control. In the case of NORMAL LABOR, the woman was staying

Table 3. Participants' information regarding the current childbirth process for the total sample before and after using the childbirth roadmap (N=172)

Current childbirth	Before using the roadmap		After using the roadmap		
	Yes n (%)	No n (%)	Yes n (%)	No n (%)	P-Value
General information regarding normal labor					
Childbirth start time	34 (19.8)	138 (80.2)	136 (78.1)	36 (21.9)	<0.001
Warning signs of labor	34 (19.8)	138 (80.2)	134 (77.9)	38 (22.1)	0.001
Differentiate between true and false labor	6 (3.5)	166 (96.5)	114 (66.3)	58 (33.7)	0.001
Stages of labor	35 (10.8)	137 (79.7)	135 (78.5)	37 (21.5)	<0.001
Action of medications taken during labor	40 (23.3)	132 (76.7)	160 (93.0)	12 (7.0)	<0.001
1st stage					
Criteria of the first stage of labor	10 (5.9)	162 (94.2)	123 (76.7)	49 (23.3)	0.001
Labor starts	7 (4.1)	165 (95.9)	160 (93.0)	12 (0.7)	<0.001
Normal duration of the 2nd stage of labor	90 (52.3)	82 (47.7)	151 (87.8)	21 (12.2)	0.001
Physiology and location of the pain	107 (62.2)	65 (37.8)	130 (75.6)	42 (24.4)	0.001
Cervix and its dilatation	46 (26.7)	126 (73.3)	144 (83.7)	28 (16.3)	0.001
How should one move in this stage	110 (64.0)	62 (36.0)	124 (72.1)	48 (27.9)	0.001
How should one breathe	139 (80.8)	33 (19.2)	150 (87.2)	22 (12.8)	0.001
2nd stage					
Criteria of the 2nd stage of labor	48 (27.9)	124 (72.1)	142 (27.9)	124 (72.1)	0.272
Duration of the 2nd stage	63 (36.6)	109 (63.4)	151 (78.8)	21 (12.2)	0.001
Cervical changes in the 2nd stage	81 (47.1)	91 (52.9)	128 (74.4)	44 (25.6)	<0.001
Physiology and location of pain in this stage	24 (14.0)	148 (86.0)	104 (60.5)	68 (39.5)	0.002
Reaction in this stage toward bearing down	32 (18.6)	140 (81.4)	110 (64.0)	62 (36.0)	0.002
Right position that should be taken	34 (19.8)	138 (80.2)	166 (96.5)	6 (3.5)	<0.001
3rd stage					
Criteria of this stage of labor	45 (26.2)	127 (73.8)	135 (78.5)	37 (21.5)	0.001
Physiological changes of this stage	71 (41.3)	101 (58.7)	172 (100)	0 (0)	<0.001
The normal duration of the 3rd stage	46 (26.7)	126 (73.3)	109 (63.4)	63 (36.6)	0.021
reaction during the 3rd stage	132 (76.7)	40 (23.3)	172 (100)	0 (0)	<0.001
Right position during the 3rd stage	46 (26.7)	126 (73.3)	165 (96.0)	7 (4.0)	<0.001
Information on the 4th stage of labor	110 (64.0)	62 (36.0)	124 (72.1)	48 (27.9)	0.001

Table 4. The relationship between the participants' satisfaction regarding their childbirth information before and after using the childbirth roadmap

Current childbirth information	Strongly satisfied	Satisfied	Neutral	Dissatisfied	Strongly dissatisfied
Normal labor					
Before n (%)	6 (3.5)	58 (33.7)	64 (37.2)	44 (25.6)	0 (0)
After n (%)	77 (44.8)	82 (47.7)	12 (7.0)	1 (0.5)	
P-value	0.001	0.002	0.010	<0.001	
1st stage of labor					
Before n (%)	12 (0.7)	23 (13.4)	52 (30.2)	80 (46.5)	5 (2.9)
After n (%)	50 (29.1)	69 (40.1)	22 (13.0)	30 (17.4)	1 (0.5)
P-value	0.012	0.001	0.013	0.024	0.010
2nd stage of labor					
Before n (%)	18 (10.5)	24 (14.0)	122 (70.9)	5 (2.9)	3 (1.7)
After n (%)	53 (30.8)	61 (35.5)	49 (28.5)	3 (1.7)	2 (1.2)
P-value	0.002	0.002	0.010	0.032	0.41
3rd stage of labor					
Before n (%)	17	28	101 (91.3)	16 (8.7)	10
After n (%)	60 (34.9)	112 (65.1)	0 (0)	0 (0)	0 (0)
P-value	0.004	0.001	<0.001	<0.001	<0.001
4th stage of labor					
Before n (%)	7 (4.1)	18 (10.5)	109 (63.4)	30 (17.4)	8 (4.6)
After n (%)	26 (15.1)	86 (50.0)	49 (28.5)	10 (5.8)	1 (0.5)
P-value	0.002	0.001	0.053	0.050	0.002

hydrated, resting, and leaning forward. If there was a DETOUR - "BACK" LABOR, the woman leant on the birth ball or on the bed. The ball was replaced with a pillow and moved from side to side with bending the knees while counter pressure was applied using the double hip squeeze method, thus reaching the TAKE THE TOLL ROAD - GET THE PAIN RELIEF. During this stage, the researcher   observed the labor team during the administration of intravenous fluids and urinary catheter as well as frequent recordings of blood pressure, in addition to Pitocin which was administered frequently according to physician order.

Step 4: At 8-10 cm, with contractions 2-3 minutes apart. The researcher guided the woman to explain how she is feeling such as cold or hot, and instructed the woman to get sleep and waits if she can.

Step 5: At 10 cm also called the "second wind," the researcher advised the woman to push with the urge, while using upright positions such as squatting, hands, and knees. The PhD researcher continued in providing positive reinforcement and reassurance to both the women and their support persons to implement these techniques. Finally, the patient satisfaction part of the questionnaire was completed. Post-labor, mothers were requested to express their satisfaction on a 5-point Likert scale (strongly satisfied, satisfied, neutral, dissatisfied, and strongly dissatisfied) after they were provided with moment by moment information regarding their condition during the childbirth process. The whole time that researcher spent with the woman during labor   ranged between 2-5 hours based on the progress of labor.

Ethical considerations

Informed consent was obtained from all participants before data collection and all the participants could read and write except two   were illiterate and the author got the agreement from their husbands after an explanation of the study's purpose for them too. The ethical committee of the faculty of medicine and nursing faculty at Assiut University approved the research proposal (No. 245/ 2019). The informed consent included written consent and verbal consent from 172 participants who had limited literacy.

Statistical analysis

The data were managed and analyzed using the Statistical Package for the Social Sciences version 20. The findings were expressed using frequencies and percentages. Inferential statistics, such as a chi-square test, were conducted to find the association between nominal (categorical) variables. In addition, the Pearson correlation coefficients were used to evaluate the direction of the relationship (positive or negative) between two or more quantitative or numerical variables. P-values were statistically significant at 0.05.

Results

The socio-demographic characteristics of the participants in Table 1 show that over 69.8% of the participants belonged to the 18–24-year age group, with a mean of 23.60 (SD=+5.93). For education level, 4% had received a university level of education and around 30.8% could read and write without finishing   formal school. In all, 50% of the participants lived in rural areas, and the majority of women were housewives, 85.5%.

Table 5a. The association between the participant's satisfaction with the childbirth roadmap and the mode of delivery

	Delivery mode		P-value
	Normal	Assisted	
How would you evaluate this labor map			0.04*
Strongly satisfied	17	4	
Satisfied	39	3	
Neutral	74	30	
Unsatisfied	4	1	
Strongly unsatisfied	0	0	
Total	134	38	

Note: *p-value <0.05

Regarding the participants' obstetric profiles, 75.5% were primigravida, and 22% had parity at least once. Only 5.8 % had a history of abortion. The majority of them had no history of neonatal deaths.

Table 2 indicates that more than 77.3% of the participants had previous information regarding childbirth, and nearly 38.3% and 22.5% received it from their mothers and relatives, respectively. A minority of the participants, 13.4%, reported that their previous information was adequate to release anxiety. Although the most significant proportion of participants, 97.7%, desired more information about childbirth for many reasons, the most common ones included decreasing anxiety (48.5%), followed by the ability to differentiate between normal and abnormal labor progress. Moreover, nearly 59.9% believed that the appropriate time to receive childbirth information was during labor, while 38.4% thought it was necessary in the last trimester of pregnancy.

The participants' childbirth information regarding the 1st, 2nd, 3rd, and 4th stages gained through the childbirth roadmap (Table 3) indicated that the majority's baseline information was significantly increased (P<0.001), excluding one item regarding the 2nd stage ("criteria of 2nd stage of labor"). Although using the roadmap increased their knowledge, the differences reported were not statistically significant (P=0.272).

Table 4 displays a statistically significant relationship between women's satisfaction regarding labor information before and after using the childbirth roadmap (P<0.001). Almost all the participants (92.5%) were either strongly satisfied or satisfied with their information regarding the 1st, 2nd, 3rd, and 4th stages of labor (66.3%, 69.2%, 100%, and 65.1%, respectively). It was found to increase after the implementation of the childbirth roadmap.

Table 5a shows a significant relationship between the mode of delivery and the participants' satisfaction with the childbirth roadmap tool, whereby the majority of them (134; 77.0%) who delivered normally were

Table 5c. Association between the neonatal outcomes assessed using the Apgar score and the participants' satisfaction with the childbirth roadmap

	What is the Apgar score?			P-value
	Severely depressed (0-3)	Moderate depressed (4-6)	Good /Normal (7-10)	
How would you evaluate this labor roadmap				
Strongly satisfied	1	1	19	0.03*
Satisfied	1	0	41	
Neutral	1	8	95	
Unsatisfied	1	1	3	
Strongly unsatisfied	0	0	0	
Total of 172	4	10	158	100%

Note: *p-value <0.05

either satisfied or strongly satisfied with the tool (P=0.04). Table 5b reveals no statistically significant relationship between the duration of the second stage of labor and the participants' satisfaction with the childbirth roadmap (P=0.63). However, most satisfied and strongly satisfied participants reported the least contentment with the second stage of labor. Table 5c displays a statistically significant relationship (P=0.03) between the neonatal conditions reported using the Apgar score, at 1 and 5 minutes immediately after the delivery, and the participants' satisfaction with the tool. The majority of them (90.1%) who were satisfied with the roadmap for their neonatal outcomes reported good conditions by the Apgar scores.

Table 6 shows a statistically significant relationship between the participants' satisfaction and their recommendation of using the childbirth roadmap as a guidance tool (P<0.001). The vast majority of the participants were satisfied either strongly (97.0%) or to some extent (96.5%) and recommended using a childbirth roadmap as a guidance tool.

Discussions

This study aimed to assess the improvements in women's knowledge, satisfaction, and experience of childbirth using a simple awareness program about stages of birth (SAWA) by employing a childbirth roadmap tool. Our study found that the women's knowledge about the labor stages improved dramatically, and both satisfaction with the childbearing outcomes and the roadmap increased significantly. These findings may indicate the way of providing the information integrated with an attractive illustration, the "childbirth roadmap," and its simple delivery by the healthcare providers, and the study's researchers.

Table 6. The association between the participants' satisfaction and the recommendation of using the childbirth roadmap as a guidance tool

Recommendation of childbirth roadmap as a guidance tool	Satisfaction with the childbirth roadmap				P-value
	Strongly satisfied	Satisfied	Neutral	Unsatisfied	
Strongly recommend	13	12	45	3	0.001*
Recommend	6	28	48	1	
Somewhat recommend	1	2	11	0	
Not recommend	1	0	0	1	
Total	21	42	104	5	172

Note: *p-value <0.001

The improvement of knowledge and satisfaction due to the use of a newly illustrated tool in the form of brief stories related to each labor stage provided women with an excellent example of self-guidance. Similarly, the studies conducted by Howarth et al. (2019), and Howarth and Swain (2019) regarding the low-cost, and self-paced educational programs and relation to birth satisfaction in new mothers as these studies reflected that skill-based childbirth preparation increases childbirth self-efficacy for first-time mothers, in which the user of an educational program imparted knowledge through birth stories and was a form of a role model for the participants, thus having a direct influence on their childbirth satisfaction. Consequently, women's knowledge improvement may have long-standing well-being for both themselves and their families (Maimburg et al., 2016).

The integration of information with the continuous support of healthcare providers (study researchers) was crucial. Similarly, previous studies (Hodnett et al., 2013; Iravani et al., 2015; Stark et al., 2016) reported that the presence of healthcare providers in the labor room was an essential element in parturient women's requirements during childbirth because it decreased their anxiety levels.

The World Health Organization recommends that laboring women be accompanied by trusted care providers, such as doulas, midwives, or family members (WHO, 2016). The participants in this study expressed a need for receiving information regarding the labor stages which was evidenced by the significant difference between their knowledge before and after using the SAWA program. Likewise, Malata and Chirwa (2011) and Iravani et al. (2015) reported that participants required information and were interested in the information received from healthcare providers during childbirth. Our findings reported a significant relationship between the mode of delivery and the participant satisfaction with the childbirth roadmap tool; the majority of those who underwent normal delivery were strongly satisfied with it. An unpredicted surgical intervention or instrumental delivery was experienced negatively by women (Martin et al., 2017). Therefore, previous studies reported lower satisfaction with induced labor and cesarean section (Howarth & Swain, 2019; Martin et al., 2017).

Normal childbirth without complications is the most expected by women; however, when the childbirth outcomes end with an unpredicted sequence, lower satisfaction may be experienced due to other factors associated with the cesarean method (Carquillat et al., 2017; Hutton and Hall, 2014). Regarding the duration of labor, our findings revealed that the majority of the participants who were either satisfied or strongly satisfied with the childbirth roadmap tool reported the second stage as having the least duration, with no statistically significant association between its duration and satisfaction with the childbirth roadmap.

There is a partially, convenience with studies by Khresheh (2010); Wang et al. (2021), who reported a significantly shorter duration among primiparous women with the support of both a family member and hospital professional staff. The partial congruence in our study referred that the majority of women's satisfaction with the least duration of the second stage of labor.

However, the inconsistency may be because our study did not measure the complete duration of labor. Nevertheless, in our study, the researcher guided the parturient step-by-step during the first stage and the outcomes of the second stage were based on what the women followed during the initial stage-besides, a comparison between primiparous and multiparous participants was not performed as most of them in the present study were primiparous.

Table 5b. The association between the duration of the second stage of labor and the participants' satisfaction with the childbirth roadmap

How would you evaluate this labor roadmap	Duration of the second stage of labor						P-value
	Strongly satisfied	Satisfied	Neutral	Unsatisfied	Strongly unsatisfied		
	.10 min	.15 min	.20 min	.25-30 min	>30 min		
	119	69.2	22	12.8	22	12.8	9	5.2	0		0.63
Total			172		100%		

Note: *p-value <0.05

Moreover, previous study by Kashanian et al. ([2010](#)) demonstrated a shorter duration of the first and second stages of labor; however, the third stage among women did not receive continuous support. This study calculated the duration of all the stages, while ours focused only on the second stage. The study's strengths and limitations: This is a pioneering study to test the childbirth roadmap tool in Egypt. The sample size is representative of the total cohort over the period of time. However, the application of road mapping needs further training for the childbirth team to be implemented in the future.

Conclusion

This study highlighted the benefits of using a simple, attractively illustrated tool, the "childbirth roadmap," to achieve the meaning of support through the SAWA program during the stages of labor. The findings revealed a statistically significant difference between the pre/post knowledge of women regarding each stage. In addition, a statistically significant association was found between the application of the SAWA program and women's satisfaction with the tool.

This study applied a new program, SAWA, using newly illustrated guidance material that can be employed in the labor wards of hospitals and other private facilities to guide the parturient woman through her journey of childbirth. Furthermore, our research encourages using the childbirth roadmap in the initial phase of the last trimester during antenatal visits or classes, to familiarize pregnant women with it. Moreover, it could be used by nursing students during their clinical training in the antenatal and labor wards to increase mothers' awareness regarding their labor process and progress. This study recommends to use the childbirth roadmap to facilitate the birth journey for women during labor and increase the active support role by the midwife and maternity nurse to apply holistic care during childbirth.

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