

## Evaluating the effectiveness of an educative workshop for pregnant women using pre and post intervention surveys

Avaliação da efetividade de uma oficina educativa para gestantes com o uso de inquéritos pré- e pós-intervenção

Evaluando la efectividad de un taller educativo para mujeres embarazadas utilizando pre y post encuestas de intervención

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### Abstract

*This paper will report the findings of an education intervention performed by a workshop aimed to provide pregnant women with knowledge about pregnancy, delivery, breastfeeding and newborn care. A cross-sectional study, using a pre and post-intervention research design, was performed with 105 pregnant women from an obstetric service for a two-year period. Time points (pre and post) were compared using either Student t test and ANOVA. Significance was set at  $p \leq 0.05$ . After the intervention all items increased their level from the three stations: antenatal care (20.4%), labor and delivery (36.8%) and postnatal and breastfeeding (32.1%). The total score of the surveys also increased 31.7% when comparing the pre and post applications ( $p < 0.001$ ). It was evidenced the importance of strategies to improve knowledge about pregnancy and its surroundings to pregnant women. The workshop proposal presented increases in its knowledge and can most likely bring better results in short and long-term outcomes.*

*Pregnant Women; Health Education; Pregnancy Complications; Breast Feeding*

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## Introduction

Many adverse outcomes in pregnancy are related to the lack of knowledge regarding pregnancy itself, labor, delivery and lactation period <sup>1</sup>, such as inadequate development, low birth weight and increased risk of developing chronic diseases later in life <sup>2</sup>.

According to the World Health Organization, consultation length is an indicator of quality of the provided health care <sup>3</sup>. Assuming that much of the knowledge a pregnant woman needs may not be provided. But, since the information cannot be offered during regular appointments, it is necessary to carry out complementary activities <sup>4</sup>.

It is the responsibility of health professionals to participate in activities promoting community mobilization and participation in continuing education activities. These activities potentiate maternal and perinatal outcomes, regardless of the medical specialty performing prenatal care <sup>5</sup>. Otherwise, in daily practice health care providers rarely mention anything beyond technical information during antenatal visits <sup>6</sup>.

This study aimed to report the findings of a workshop to provide knowledge about pregnancy, delivery, breastfeeding and newborn care to pregnant women, comparing the level of knowledge among pregnant women using pre and post educational intervention surveys.

## Methods

This workshop is part of a continuing educational program of antenatal care for pregnant women attending the service at the University of Southern Santa Catarina in the city of Palhoça, Santa Catarina State, Brazil. These women are regularly being followed at their prenatal outpatient clinic, sent by the Municipal Primary Care Units.

A cross-sectional study, using a pre and post-intervention research design was used to observe the level of knowledge about the characteristics of the pregnancy-puerperal period. Self-reported surveys were used to collect data before and after the workshop in a convenience sample obtained with all pregnant women attending the antenatal service (n = 105). The workshop participation was part of this institution's prenatal care program and all women were recruited, happening every five weeks.

Women were asked to answer the pre-workshop survey in a 5-point Likert scale, ranging from "strongly disagree" to "completely agree". It was composed by 26 items regarding antenatal care (8-item); labor and delivery (9-item) and breastfeeding and newborn care (9-item). There was no right answer because they were used to compare both surveys (Box 1).

The main workshop theme was the perinatal care, involving antenatal care, labor and delivery and post-natal and breastfeeding. It was developed by a group of experts in obstetrics, such as medical doctors, midwiferies, professors from the maternal-infant system, medical students and primary care professionals. The workshop content was based on the recommendations from the Ministry of Health addressed during prenatal care, to ensure the development of pregnancy, allowing the delivery of a healthy newborn, without impact on maternal health, which include addressing psychosocial aspects and educational and preventive activities <sup>5</sup>. Issues were elaborated by the team that coordinates and executes educational and care actions, from the experience perceived by the years at this public clinic reinforced by the guidelines from the Brazilian Ministry of Health, regarding the good practices on the ante-natal care.

The workshop was divided into three one-hour meetings in three simultaneous rooms. The first part of each meeting was conducted by an obstetrician, professor from the maternal-infant system. The first 10 minutes of each meeting were dedicated to present an introduction of each theme. Four medical students from the 4th year conducted the second part of each meeting and acted as stimulators of the discussion. Each group was formed by 10 pregnant women and their partners or relatives. At this time, students presented their pre-prepared audio-visual material, working as conductors of the focal group of discussion. Women and conductors were accommodated in big circles, in each room, in order to facilitate interrelation. Any subject and doubt raised by the participants were included simultaneously.

**Box 1**

Evaluation survey to estimate knowledge improvement with the workshop.

<p><b>Antenatal care</b></p> <p>I know what emotional changes I have or will have in pregnancy.</p> <p>I understand and know how to deal with problems in my relationship with pregnancy.</p> <p>My prenatal follow-up is within what I expected.</p> <p>I understand the changes that my body experiences or will pass through in pregnancy</p> <p>I know how to perform physical exercise and relaxation techniques for pregnancy.</p> <p>I know the methods of preparing breasts for breastfeeding.</p> <p>I am aware of how to feed myself during pregnancy.</p> <p>I know the risks of cigarettes and alcoholic drinks for me and my son.</p>
<p><b>Labor and delivery</b></p> <p>I know the symptoms I must have to seek maternity.</p> <p>I know what I will feel and how I should act during labor.</p> <p>I understand how the induction of labor will be if it does not start spontaneously.</p> <p>I know the types of childbirth.</p> <p>I know the types of anesthesia for delivery and cesarean delivery.</p> <p>I understand that a cesarean section should only be performed if there is risk for me or my child.</p> <p>I know how to perform physical exercise and relaxation techniques for labor.</p> <p>I know how I should feed myself during labor.</p> <p>I know the function of the companion in the maternity hospital for labor.</p>
<p><b>Post-natal and breastfeeding</b></p> <p>I know what will be done with my child at birth.</p> <p>I know the advantages of breastfeeding.</p> <p>I know the care I must take during breastfeeding.</p> <p>I know how to do my child's hygiene care at home.</p> <p>I know how to interpret the baby's crying.</p> <p>I can perform the navel bandage.</p> <p>I know the importance of avoiding pacifiers and bottles.</p> <p>I know the care I must take with the baby's teeth.</p> <p>I know the legal rights I have during pregnancy.</p>

The meeting involving antenatal care addressed emotional and physical changings, relationships, expectations, dietary, behavior aspects and breast preparation. The meeting regarding labor and delivery addressed types of birth, induction of labor, symptoms and feelings during this phase. The post-natal and breastfeeding meeting raised the issues of childcare, breastfeeding, the use of pacifiers and bottles, as well as legal rights during pregnancy. At the end of the third meeting, women were asked to respond a post-workshop survey, using the same instrument applied before.

Data analysis were performed in SPSS 18.0 (<https://www.ibm.com/>). Time points (pre and post) were compared using either student t test and ANOVA. To test the homogeneity between surveys the Levene test was performed with  $p \leq 0.05$ . To determinate the percentage values gained, the mean results of the post-workshop survey were compared to the pre-workshop survey.

This research was approved by the Human Research Ethics Committee under CAA 69959716.6.0000.5369.

## Results

For two years, 12 workshops were performed involving 105 women. The majority of the participants were less than 25 years old (51.4%) and were at their first pregnancy (51.4%). Most of them had never had a vaginal birth (74.3%) or a cesarean (7.1%) but four women reported at least one previous miscarriage (11.4%). The majority of participants were at the first trimester (82.9%) and they were all Caucasians. The level of education of the followed patients varied from 6 to 14 years, with mean of  $8 \pm 1.3$  years of study.

### Knowledge of antenatal care

The lower scored items were about physical exercise and relaxation techniques for pregnancy and methods for preparing the breasts for breastfeeding. The higher score items were about risks caused by cigarettes and alcoholic drinks (Table 1). After the workshop, the level of knowledge increased in all items, almost at the same level. This session's overall score increased 20.4% ( $p < 0.001$ ) (Table 2).

### Knowledge of labor and delivery

The lower scored item was also about physical exercise and relaxation techniques for labor. The highest score was about the knowledge of cesarean indication. All items presented higher scores after the workshop (Table 1). The knowledge level in this session increased 36.8% ( $p < 0.001$ ) (Table 2).

### Knowledge of post-natal care and breastfeeding

The lower scored items regarded the information about what would be done with the newborn at the delivery room and how to understand his/her crying. The highest score was related to the importance of breastfeeding (Table 1). All items had increased scores after the workshop. The knowledge level in this session increased 32.1% ( $p < 0.001$ ) (Table 2).

The overall score also increased (31.7%) when comparing pre and post applications ( $p < 0.001$ ) (Table 2). The homogeneity between the two surveys using the total scores from each session and the application in general was also demonstrated ( $p < 0.001$ ).

**Table 1**

Score for knowledge by the three sub-groups of information.

Stages of the workshop	Numbers and percentages with score at study times				
	Score 1/5 n (%)	Score 2/5 n (%)	Score 3/5 n (%)	Score 4/5 n (%)	Score 5/5 n (%)
Antenatal care (8-item)					
Pre-workshop	87 (10.4)	51 (6.1)	66 (7.9)	225 (26.8)	411 (48.9)
Post-workshop	9 (1.1)	12 (1.4)	18 (2.1)	66 (7.9)	801 (87.5)
Labor and delivery (9-item)					
Pre-workshop	198 (21.0)	108 (11.4)	111 (11.8)	201 (21.3)	327 (34.6)
Post-workshop	3 (0.3)	9 (1.0)	9 (1.0)	105 (11.1)	819 (86.7)
Post-natal and breastfeeding (9-item)					
Pre-workshop	135 (14.3)	120 (12.7)	105 (11.1)	183 (19.4)	402 (42.5)
Post-workshop	12 (1.3)	9 (1.0)	6 (0.6)	99 (10.5)	819 (86.7)

**Table 2**

Total scores for knowledge included in the workshop and the comparative analysis from the pre and post-workshop surveys.

	Mean ± SD	95%CI	p-value
Antenatal care (8-item)			< 0.001
Pre-workshop	31.8 ± 5.8	29.8-33.8	
Post-workshop	38.3 ± 4.1	37.0-39.7	
Labor and delivery (9-item)			< 0.001
Pre-workshop	31.8 ± 5.8	29.8-33.8	
Post-workshop	43.5 ± 3.3	42.3-44.6	
Post-natal and breastfeeding (9-item)			< 0.001
Pre-workshop	32.7 ± 10.1	29.1-36.2	
Post-workshop	43.2 ± 4.9	41.5-44.9	
Total (26-item)			< 0.001
Pre-workshop	94.9 ± 22.9	87.0-102.7	
Post-workshop	125.0 ± 23.7	120.9-129.1	

95%CI: 95% confidence interval; SD: standard deviation.

## Discussion

This study provided evidence that educational intervention can increase knowledge about pregnancy, delivery, breastfeeding and newborn care to pregnant women. This is very important since during the nine months of prenatal care, in the limited time of each medical appointment, it is impossible to provide patients and their families with all necessary information.

The possibility of exchanging experiences and knowledge is considered the best way to promote understanding about the pregnancy process <sup>7,8</sup>. Popular health education is the most democratic way to construct a broad concept of health, to promote self-care and to improve public health <sup>9</sup>. Sociological approaches that favor the analysis of the processes of medicalization and humanization in a connected way have been little explored and could address extra dimensions in the understanding of the themes and problems specific to pregnancy <sup>9</sup>.

Establishing a link between pregnant women and health care providers is important however no scientific articles were found indicating structured protocols for educational activities such as this workshop <sup>7,8,9</sup>.

A recent meta-analysis identified several variables associated with an increase in health facility delivery, including the parents' educational status as the main predictor <sup>10</sup>. The development of educational strategies has been recommended for even more specific purposes, such as increasing breastfeeding rates or implementing oral health care in pregnant women <sup>10</sup>.

Prenatal breastfeeding education increases breastfeeding initiation, exclusivity, and duration, Women successfully learn breastfeeding content via computer and tablets in the northeast United States <sup>11</sup>.

In Latin America, the acceptability of an interactive computer kiosk that provided environmental health education to low-income prenatal patients brought an innovative modality <sup>12</sup>. In Brazil, similar experiences demonstrate the increase of perinatal outcomes using new technologies to educate pregnant women <sup>13</sup>. Great and modern devices are not necessary. Orientation and preparation of pregnant women about good practices in assisting the delivery process can be achieved with simple technologies <sup>10,11</sup>.

Group meetings of pregnant women with partner participation help to clarify doubts, reassure fears and guide the knowledge of the physiological changes during pregnancy.

For future studies, mixed qualitative and quantitative studies, it might be interesting to hear from the women's own voice what they have discovered in this learning process. The quantitative data do not allow to portray the complexity of the problem addressed.

## Conclusion

Workshops may increase pregnancy knowledge regarding antenatal care, labor, delivery, post-natal care and breastfeeding. However, the post-test responses were given immediately after the exposure to the information, without the guarantee of the maintenance of that effect. For this reason, these patients are intended to be followed up in a cohort to investigate the effect of this knowledge in the long term.

## Contributors

R. D. Nunes contributed in the preparation and execution of workshops, data collection, calculations, paper writing. A. G. Puel participated in the workshop execution and in the preparation of the paper. N. Gomes participated in the workshop and contributed writing the paper. J. Traebert contributed writing this article, mainly the results and the discussion.

## Additional informations

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## Resumo

O artigo relata os achados de uma intervenção educativa através de uma oficina para fornecer informações às mulheres sobre a gravidez, parto, aleitamento e cuidados do recém-nascido. Foi realizado um estudo transversal com um desenho de pesquisa de intervenção, com 105 gestantes usuárias de um serviço obstétrico, ao longo de dois anos. Os dois momentos (pré- e pós-intervenção) foram comparados com o uso do teste t de Student ou ANOVA, com nível de significância de  $p \leq 0,05$ . Após a intervenção, todos os itens aumentaram de nível nas três dimensões: atendimento pré-natal (20,4%), trabalho de parto e nascimento (36,8%) e pós-parto e aleitamento (32,1%). A pontuação total dos inquéritos também aumentou em 31,7% na comparação das aplicações pré e pós-intervenção ( $p < 0,001$ ). Ficou evidenciada a importância de estratégias para melhorar o conhecimento das gestantes sobre a gravidez e seu entorno. A proposta da oficina resultou em aumento nesse conhecimento e deverá trazer melhores resultados no curto e longo prazo.

Gestantes; Educação em Saúde; Complicações na Gravidez; Aleitamento Materno

## Resumen

Este trabajo informa sobre los resultados de una intervención educativa, llevada a cabo a través de un taller impartido para proporcionar a mujeres embarazadas conocimientos sobre el embarazo, parto, lactancia materna y cuidados de un recién nacido. Se realizó un estudio transversal, usando un diseño de investigación de pre- y pos-intervención, realizado con 105 mujeres embarazadas procedentes de un servicio obstétrico durante un periodo de dos años. Los puntos temporales (pre y post) se compararon usando bien el Student t test o bien ANOVA. La significancia se estableció en  $p \leq 0,05$ . Tras la intervención todos los ítems incrementaron su nivel en los tres estadios: cuidado prenatal (20.4%), trabajo de parto y parto (36.8%), así como cuidados postnatales y lactancia materna (32.1%). La puntuación total de los estudios también se incrementó un 31,7%, si comparamos las pre- y post- aplicaciones ( $p < 0.001$ ). Se evidenció la importancia de las estrategias para mejorar el conocimiento sobre el embarazo y todo lo que rodea a una mujer embarazada. La propuesta del taller presentó un aumento del conocimiento sobre estos temas y, probablemente, puede brindar mejores resultados en los resultados a corto y largo plazo sobre estas cuestiones.

Mujeres Embarazadas; Educación en Salud; Complicaciones del Embarazo; Lactancia Materna

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