The effect of educational technology use to guide parturient women’s companions: a randomized controlled study

Efeito da aplicação de tecnologia educativa para orientação de acompanhantes de parturientes: estudo randomizado controlado

Efecto de la aplicación de la tecnología educacional en la orientación de acompañantes de parturientas: estudio aleatorio controlado

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ABSTRACT

Objective: To evaluate the companion’s role during the labor and delivery processes, comparing the influence of the use of an educational technology. Method: A single-blind randomized controlled study, in which 73 participants were divided into two groups, 35 in the intervention group and 38 in the comparison group. To analyze the groups the chi-square and the Fisher's exact tests were used in categorical variables and the Student’s t-test or the Mann-Whitney test in continuous variables. Results: When comparing the experience and the support provided, it was found that there was no difference between the groups in relation to the level of support (p=0.48) and satisfaction with the experience of monitoring the delivery process (p=0.19). However, there was a difference regarding insecurity in monitoring (p=0.00) and concern regarding the parturient health status (p=0.00). Conclusion: The companions who received the intervention with educational technology were more likely to use physical, emotional and intermediation support actions. Registry of Brazilian Clinical Trials UTN: U1111-1231-8695.

DESCRIPTORS
Labor, Obstetric; Humanizing Delivery; Patient Rights; Obstetric Nursing.
INTRODUCTION

Childbirth is a physiological process that includes biological, psychological and sociocultural aspects. Therefore, it represents a unique experience of emotional impact for women[1]. In this sense, to attend the parturient woman in all her dimensions, the moment of delivery requires not only physical, but also psychological and behavioral resources, emphasizing, equally, the importance of continuous support, through the presence of a companion[2].

The support offered during labor and delivery can be divided into four categories: emotional (characterized by the continuous presence and caring attitude, through verbal, positive and tranquilizing expressions, and non-verbal expressions, by the use of distractions); physical (characterized by the use of environmental control measures, by encouraging mobilization, by performing massage, applying compresses, promoting urinary elimination and offering fluids); informational (by providing instructions on breathing, routines, procedures and labor progress) and intermediation (by the parturient assistance in making choices, and communicating the woman’s needs to the health team)[3].

The companion’s presence brings security and comfort to the woman, making her more empowered, calm and strengthened to give birth, which causes a shorter time interval between delivery and the beginning of breastfeeding, less risk of evolving to cesarean section, reduced labor time, and greater satisfaction with labor and delivery. In addition to being responsible for the reduction of interventionist procedures and allowing greater coverage of the care provided, as it increases the observation and communication of the parturient needs[2-4].

In Brazil, as of April 2005, Law No. 11.108 came into effect, which guarantees the parturient the right to the presence of a companion during labor, delivery and immediate postpartum, within the scope of the Unified Health System (SUS – Sistema Único de Saúde)[5-6]. In June 2011, the Ministry of Health (MS) launched Ordinance 1.459, which establishes, within the scope of SUS, the Rede Gegenha (Stork Network), which, in its Delivery and Birth component, proposes the practice of health care based on scientific evidence and the guarantee of a companion during the parturient welcoming, labor, delivery and immediate postpartum[7].

However, “in the institutionalized context of care, the companion's range of activity is still restricted, among other factors, due to the hierarchical relationships between health professional and user, to the technical and instrumental model of care, to the companion's lack of knowledge to play an active role in supporting women during labor.”[8]. Thus, it is necessary to provide conditions for the companion's performance of support activities, including the use of educational strategies that provide greater autonomy to this target audience[9].

Given the above, there is a need to propose educational technologies that contribute to the instrumentalization of those who aspire to participate in childbirth as a companion, since the companion's low empowerment has been highlighted as one of the reasons for them to act as an onlooker at that moment and for health institutions to prevent or minimize their participation. It is assumed that companions with access to educational technologies will be better prepared to provide support to the parturient woman, so that this reflects positively on the companion and parturient satisfaction with the delivery process.

From there, the following question arose: Will the use of an educational technology, aimed at guiding companions of women in labor, provide a difference in the companion’s performance during the delivery process? Thus, this study aimed to: evaluate the role of the companion in the parturition process, comparing the influence of the use of an educational technology directed at companions in the delivery room with the standard intervention performed at the service.

METHOD

TYPE OF STUDY

Randomized Controlled Trial (RCT) with two arms, performed with 73 participants.

POPULATION

The study was carried out at a reference maternity hospital in the state of Ceará. The study participants were companions of women, in labor or inducing labor, admitted to the institution's obstetric clinic.

In order for the participants to have the same opportunity to receive, or not, the proposed intervention, it was possible to evaluate the impact on the occurrence of the outcome in one group over the other, thus, for this, the Consolidated Standards of Reporting Trials (CONSORT) was used as methodological framework[10] for parallel groups.

SELECTION CRITERIA

The inclusion criteria were: healthy volunteers, of both genders, over 18 years old, chosen by the pregnant women to participate in the delivery as companions. The exclusion criteria were: volunteers with cognitive limitations that prevented them from understanding the guidelines addressed; companions of pregnant women with diagnosis of fetal death; companions of women who presented obstetric complications that contraindicated the use of Non-Pharmacological Pain Relief Methods (MNFAD). As criteria for loss of follow-up, the following were defined: being a companion of a pregnant woman who evolved with a complication that contraindicates the use of MNFAD in an unrestricted way; giving up participating in the study; giving up or being unable to monitor the labor and delivery; and having the pregnant woman change companions.

SAMPLE DEFINITION

Intentional sampling was used, as the sample corresponded to all eligible companions, who met the inclusion criteria and completed the follow-up. Participants were recruited by the researcher, randomized and allocated to the Intervention Group (IG) or Control Group (CG), based on a sequence of random numbers generated on the website www.randomizer.org. At the end, 73 companions were obtained, 35 in the IG and 38 in the CG. It is noteworthy that, for the participants, the study was blind. Figure 1 shows the flow of participants at each stage of the study.
The intervention group was composed of the companions who received educational activity through the handbook “Preparing to accompany childbirth: what is important to know?”(11), which was built and validated to promote the instruction of companions who intend to support the parturient woman and witness the delivery. The instrument was previously used in a randomized controlled trial at the primary care level(9). However, there is scarcity of experimental studies that assess the impact of educational interventions on tertiary care. Thus, the present study observed the effect of using this technology on the following outcome: companion’s performance during the parturition process. The comparison group was composed of eligible subjects, who received the institution’s standard guidelines, these were carried out verbally and individually, addressing norms and routines, without detailing the actions at the time of delivery.

**Data collection**

Data collection occurred four times a week, at night, between July and October 2017, two instruments were used. The first instrument contained 17 questions, 10 for the companions’ characterization and seven about previous knowledge about support techniques during childbirth. This instrument was applied at the obstetric clinic, moments before the pregnant woman and her companion were sent to the delivery room. The second instrument consisted of 08 (eight) questions about experiences and support provided by the companion, being applied during the mediante puerperium period in the rooming-in sector. These two instruments were developed based on previous studies(9,12) and evaluated by two obstetrics researchers.

Data collection took place in three stages:

Stage I: All participants eligible for the study were interviewed using the first instrument, to identify the sociodemographic profile and previous knowledge about support techniques for the parturient.

Stage II: The educational handbook for the IG was presented and read, with the possibility of interruption in case of doubts or in the event that the companions made any comments. Each intervention lasted, on average, fifteen minutes and took place at the bedside of the parturient, individually with each companion.

The educational handbook used was validated(11), in appearance and content, with consultation with specialists in the area of interest, consultation with the target audience and evaluation of the Flesch-Kincaid Index (ILF). The material was obtained in full by contact and authorization by the author responsible for its construction and validation. The topics covered in the intervention were: A few days before
delivery; Knowing the woman’s body; Signs and symptoms of labor; Professionals who can work in the delivery room; Labor pain relief techniques; How normal childbirth happens; The woman and companion’s rights and duties; and Notions of Citizenship.

Stage III: Upon contact in the institution’s rooming-in accommodation, it was verified whether the participants contemplated the follow-up. If so, the researcher applied the second instrument (described previously).

**DATA MANAGEMENT AND ANALYSIS**

The information was stored in a data base and analyzed using the Statistical Package for the Social Sciences (SPSS), version 20.0. To compare the groups the chi-square and the Fisher’s exact tests (categorical variables) and the Student’s t-test or the Mann-Whitney test (continuous variables) were used. The 95% confidence interval and the critical alpha of 0.05 were used to determine the level of significance.

**ETHICAL ASPECTS**

The study was approved by the Research Ethics Committee under protocol 2.144.969 of 2017 and registered in the Brazilian Clinical Trials Registry database (primary identifier: RBR-3vwnq). The study participants signed an Informed Consent Form (ICF), in two copies, ensuring the anonymity of the participants, according to the rules of Resolution No. 466/12, of the National Health Council[13].

**RESULTS**

A total of 73 companions participated in the study, 35 in the IG and 38 in the CG. In the participants’ characterization, sociodemographic aspects and the companions’ previous knowledge about actions to support the parturient woman and their access to educational activities during the prenatal care (PN) were investigated.

The data in Table 1 show the comparison between the groups and it is observed that most were women, with an average age of 33.9 years and low level of education. In both groups, companions from Fortaleza (CG = 57.9% / IG = 51.4%), and in stable marital status (CG: 73.7% / IG: 71.4%) prevailed.

Regarding the degree of kinship, when the general picture is observed, the presence of a companion (n=26 / 35.6%) is generally of mothers (n=19/26.0%). It is also evident the presence of other family members, such as aunts and sisters, in addition to the presence of friends and neighbors, classified as others in Table 1. The divergence between the groups regarding level of education stands out as a limiting factor in the study (p=0.03), degree of kinship (p=0.03) and gender (p=0.04).

There was a limited number of companions who participated in educational activities to prepare for childbirth, despite approximately half the population of the CG (n=21/55.3%) and the IG (n=19/54.3%) having participated in medical appointments during prenatal care, as shown in Table 2, emphasizing the importance of this information being passed on, also, in the maternity ward.

### Table 1 – Characterization of the sample regarding the sociodemographic characteristics of the companions present from July to October 2017 – Fortaleza, CE, Brazil, 2017.

<table>
<thead>
<tr>
<th>Variable</th>
<th>CG (n = 38)</th>
<th>IG (n = 38)</th>
<th>Total (n = 76)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>Mean (± SD)</td>
<td>Mean (± SD)</td>
<td>Mean (± SD)</td>
<td></td>
</tr>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>28 (73.7%)</td>
<td>18 (51.4%)</td>
<td>46 (63.0%)</td>
<td>0.04</td>
</tr>
<tr>
<td>Male</td>
<td>10 (26.3%)</td>
<td>17 (48.6%)</td>
<td>27 (37.0%)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>28 (73.7%)</td>
<td>25 (71.4%)</td>
<td>53 (72.6%)</td>
<td>0.82</td>
</tr>
<tr>
<td>Without a partner</td>
<td>10 (26.3%)</td>
<td>10 (28.6%)</td>
<td>20 (27.4%)</td>
<td></td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fortaleza</td>
<td>24 (63.2%)</td>
<td>13 (55.7%)</td>
<td>47 (64.4%)</td>
<td>0.62</td>
</tr>
<tr>
<td>Countryside of Ceará</td>
<td>13 (34.2%)</td>
<td>12 (34.3%)</td>
<td>25 (34.2%)</td>
<td></td>
</tr>
<tr>
<td>Other states</td>
<td>01 (2.6%)</td>
<td>00 (0.0%)</td>
<td>01 (1.4%)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>09 (23.7%)</td>
<td>17 (48.6%)</td>
<td>26 (35.6%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Mother</td>
<td>15 (39.5%)</td>
<td>04 (11.4%)</td>
<td>19 (26.0%)</td>
<td></td>
</tr>
<tr>
<td>Other family members</td>
<td>06 (15.8%)</td>
<td>07 (20.0%)</td>
<td>13 (17.8%)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>08 (21.1%)</td>
<td>07 (20.0%)</td>
<td>15 (20.5%)</td>
<td></td>
</tr>
</tbody>
</table>

a: Student’s t test b: Chi-square test of Pearson c: Fisher’s Test.

With regard to knowledge about the right to accompany the pregnant woman during labor, more than half of the companions in the CG (n = 24 / 63.2%) and the IG (n = 19 / 54.3%) had already heard about it. However, when asked about the moment they received the information, the majority informed that it was during the institution’s emergency care and that they were unaware that it was a specific law.

The comparison between the CG and IG (Figure 2) shows that there was no statistically significant difference in relation to the level of support offered to the parturient (p = 0.48) and satisfaction with childbirth (p = 0.19). However, it is evident that there was a statistically significant difference in the evaluation of the companions regarding the insecurity in accompanying the pregnant woman during labor, more than half of the companions in the CG and IG, respectively.

It is observed, through Table 3, that several companions used some support technique for the parturient, being more present the physical and emotional support techniques. In the comparison between the groups, it became evident that IG companions performed more physical, emotional and intermediation actions.
Table 2 – Sample’s characterization according to the assessment of the companion’s prior knowledge about the types of support for the parturient woman – Fortaleza, CE, Brazil, 2017.

<table>
<thead>
<tr>
<th>Questions related to prior knowledge</th>
<th>GC (n = 38)</th>
<th>IG (n = 35)</th>
<th>Total (n = 73)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participated in appointments at PN</td>
<td>21 (55.3%)</td>
<td>19 (54.3%)</td>
<td>40 (54.8%)</td>
<td>0.93</td>
</tr>
<tr>
<td>Participated in at least one educational activity to prepare for childbirth</td>
<td>08 (21.1%)</td>
<td>04 (11.4%)</td>
<td>12 (16.4%)</td>
<td>0.26</td>
</tr>
<tr>
<td>Already knew about the right to accompany</td>
<td>24 (63.2%)</td>
<td>19 (54.3%)</td>
<td>43 (58.9%)</td>
<td>0.44</td>
</tr>
<tr>
<td>Had already heard of techniques to support women during labor and delivery</td>
<td>14 (36.8%)</td>
<td>16 (45.7%)</td>
<td>30 (41.1%)</td>
<td>0.44</td>
</tr>
</tbody>
</table>

b: Pearson’s chi-square test.

Figure 2 – Sample distribution according to variables associated with the companion’s level of support, satisfaction, worry and insecurity – Fortaleza, CE, Brazil, 2017.

Table 3 – Sample distribution according to the parturient support techniques used by the companion – Fortaleza, CE, Brazil, 2017.

<table>
<thead>
<tr>
<th>Variables</th>
<th>CG (n = 38)</th>
<th>IG (n = 35)</th>
<th>Total (n = 73)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscious breathing</td>
<td>02 (5.3%)</td>
<td>05 (14.3%)</td>
<td>07 (9.6%)</td>
<td>0.24</td>
</tr>
<tr>
<td>Walking</td>
<td>11 (28.9%)</td>
<td>20 (57.1%)</td>
<td>31 (42.5%)</td>
<td>0.01</td>
</tr>
<tr>
<td>Cavalinho</td>
<td>08 (21.1%)</td>
<td>11 (31.4%)</td>
<td>19 (26.0%)</td>
<td>0.31</td>
</tr>
<tr>
<td>Swiss ball</td>
<td>11 (28.9%)</td>
<td>11 (31.4%)</td>
<td>22 (30.1%)</td>
<td>0.81</td>
</tr>
<tr>
<td>Swinging the hips</td>
<td>01 (2.6%)</td>
<td>05 (14.3%)</td>
<td>06 (8.2%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Massage</td>
<td>06 (15.8%)</td>
<td>20 (57.1%)</td>
<td>26 (35.6%)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

continue...
The results of this study show that the educational intervention through the handbook proved to be effective to instruct the companion to carry out actions to support the parturient, above all, physical support actions, and that it positively interfered in the companions’ assurance with the experience of accompanying and experiencing the delivery.

The companions who participated in the study have similar characteristics to other studies, with regard to age and years of study\(^9,12,14\). In addition, the general picture of the degree of kinship variable is compatible with that found in Be Born in Brazil Survey (\textit{Pesquisa Nascer no Brasil})\(^4,15\), which demonstrates the proximity of the studied sample to the Brazilian reality.

The sample reveals that most of the companions were the parturient’s own partners, a data similar to that of other analyzes carried out in Brazil\(^14\). However, there is a great expressiveness of women, a fact explained by the presence of mothers and other family members such as aunts and sisters, in addition to the presence of people of trust, such as friends and neighbors. It is evident that, “more and more, the free choice of women for a companion is being respected and the insertion of the father figure has been frequent. This fact contributes to the strengthening of bonds between father and child and, often, between the couple themselves, forming the mother-father-child triad”\(^14\).

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As a limiting factor in the study, the divergence between the groups in relation to level of education stands out, which may have interfered in the understanding during the educational intervention. However, the choice of an easy-to-understand instrument and the use of an accessible language are emphasized, to minimize limitations of understanding. In a previous study\(^16\), it was shown that there was no association between age, education, bond with the woman and previous experiences as a companion and satisfaction with the care provided to the woman.

Regarding the right to accompany the pregnant woman, although the Law of the Companion has existed for more than a decade, most of the interviewees reported not having received guidance on the subject, as observed in other studies\(^12,14,16-17\). This may be related to a prenatal care directed to the clinical, not emphasizing the tenth step for prenatal quality care – to guide the woman on her rights guaranteed by law. Not having clarification about the law is something of concern, however, it does not seem to hinder the companion’s participation in the studied maternity hospital\(^14\).

In this research, most companions attended the prenatal appointments. This adherence to prenatal care is different from most studies that highlight low or no participation in appointments\(^18\). With regard to participation in educational activities for guidance on childbirth, there was a limited number of companions who performed, emphasizing the importance of this information being passed on in the maternity ward, as the lack of knowledge is still one of the main barriers to the use of non-pharmacological methods for pain relief among companions\(^9,14,18\).

Instrumentalization training for labor and delivery brings greater empowerment to the companion, who will know how to act and will be able to use MNFAD. In addition, they bring positive points to the woman, as she will receive support based on scientific evidence, as well as for...
The findings presented herein reveal that there was no statistically significant difference in relation to the level of support offered to the parturient (p=0.48) and satisfaction with childbirth (p=0.19). It is worth mentioning that “inserting the companion in the prenatal or providing his/her participation in some type of training or prior awareness are not prerequisites for him/her to assume his/her role, since these aspects were not associated with the companion’s satisfaction in any of the domains analyzed”.

However, it is noteworthy that there was a statistically significant difference in the evaluation of the companions regarding the insecurity in accompanying (p=0.00) and the concern regarding the parturient health status (p=0.00). This fact may be related to the lack of knowledge about the labor and delivery process, to the difficulty in dealing with the woman’s pain during the expulsion period, in addition to the uncertainty about the outcome of the delivery.

It is emphasized that the companion’s empowerment can interfere with his/her posture. Companions who participated in the childbirth preparation program had a lower risk of experiencing the birth event in a frightening way and of feeling unprepared for birth. During the intervention, it was observed that the companions had high expectations and curiosity related to their role during labor. The findings presented herein reveal that almost all companions used some support technique for the parturient, with physical and emotional support techniques being more frequent. In the comparison of the groups, it was observed that IG companions performed a greater variety of support actions for the parturient, having a higher probability of performing physical support techniques.

The educational intervention through the handbook enabled a greater range of support actions, thus, the companion could feel more prepared to provide the support perceived as useful in each moment of the labor. It is noteworthy that the educational handbook subsidizes the companion’s knowledge regarding the various support actions available, however, these actions must be performed according to the needs of the parturient.

This denotes the importance of educational activities for the companion’s empowerment and, consequently, for their role in providing support to the parturient woman, providing a good relationship with the team, and reducing the anxiety caused by hospitalization. This fact is corroborated by previous research that carried out a pilot study of a randomized controlled trial, in order to identify the effectiveness of an educational handbook for birth companions.

The main limitations of the study are the small sample size and the potential courtesy bias, since the interviews were conducted in a playful moment. At the time, responses may be biased, due to the simple fact that they were allowed to participate in the delivery, as well as the possible fear that expressing negative opinions could cause damage in the care provided to the parturient. Also, there was divergence between the groups in relation to education, which may have affected the result of the study.

CONCLUSION
The findings indicate that the educational intervention through the handbook was effective in instructing the companion to carry out actions to support women, with the companions of the IG performing a greater number and a greater variety of actions and demonstrating less insecurity in the delivery room.

The study exposes the companion’s performance in the care context, as well as his/her actions as a support provider for the woman. Most research on this practice is focused only on women and professionals. The relevance of carrying out educational activities to guide childbirth is emphasized at all levels of care, including tertiary care.

More specific future studies are needed. It is suggested to carry out studies that evaluate the effectiveness of educational interventions, with the companion, on maternal and neonatal outcomes.
Conclusión:
Los acompañantes que recibieron la intervención con la tecnología educacional estaban más inclinados a valerse de acciones de apoyo físico, emocional y de intermediación. Registro de Ensayos Clínicos Brasileños UTN:U1111-1231-8695.

DESCRIPTORES
Trabajo de Parto; Parto Humanizado; Derechos del Paciente; Enfermería Obstétrica.

REFERENCES