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## REVISIONES

### Guided Imagery Technique on managing maternal anxiety during pregnancy: integrative review

A Técnica de Imaginação Guiada na gestão da ansiedade materna durante a gravidez: revisão integrativa

Técnica de Imáginacion Guiada en el manejo de la ansiedad materna durante el embarazo: revisión integradora

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#### ABSTRACT:

**Summary:** This article describes the importance of the Guided Imagery Technique for the management of maternity associated anxiety during pregnancy.

**Goal:** To understand the scientific evidence regarding the Guided Imagery Technique for the management of maternity associated anxiety during pregnancy.

**Method:** Integrative revision of the literature from the Cochrane Library database, using the platform EBSCO Host. From a total of 30 articles on the subject, 10 were included on this article

**Results/Discussion:** The scientific evidence analysis translates on the following topics: anxiety, stress management and physiological impact; relaxation and well-being; adherence to the Guided Imagery Technique; positive perception of the pregnancy; difficulties to its use.

**Conclusion:** The Guided Imagery Technique seems to promote the relaxation and well being of the women and also, aids with the reduction of anxiety levels and perceived discomfort during pregnancy

**Key-words:** Anxiety, stress, pregnancy, images.

#### RESUMO:

Este artigo descreve a importância da Técnica de Imaginação Guiada na gestão da ansiedade materna durante a gravidez.

**Objetivo:** Conhecer a evidência científica sobre a influência da Técnica de Imaginação Guiada na gestão da ansiedade materna durante a gravidez.

**Método:** Revisão integrativa da literatura realizada na base de dados The Cochrane Library e através da plataforma EBSCO Host. De um total de 30 artigos obtidos, foram incluídos no estudo 10 artigos.

**Resultados/Discussão:** Da análise da evidência científica resultaram as seguintes temáticas: ansiedade, gestão do *stress* e impacto fisiológico; relaxamento e bem-estar; adesão à Técnica de Imaginação Guiada; percepção positiva da gravidez; dificuldades na sua utilização.

**Conclusão:** A Técnica de Imaginação Guiada parece promover o relaxamento e bem-estar da mulher, assim como diminuir os níveis de ansiedade e desconfortos percebidos durante a gravidez.

**Palavras-chave:** Ansiedade; *Stress*; Gravidez; Imagens.

## RESUMEN:

Este artículo describe la importancia de la Técnica de Imagenación Guiada en el manejo de la ansiedad materna durante el embarazo.

**Objetivos:** Conocer la evidencia científica sobre la influencia de la Técnica de Imagenación Guiada en el manejo de la ansiedad materna durante el embarazo.

**Metodología:** Revisión integradora de la literatura realizada en la base de *datos* The Cochrane Library y en la plataforma EBSCO Host. Se obtuvieron 30 artículos, de los cuales se incluyeron 10 artículos en el estudio.

**Resultados/Discusión:** Del análisis de la evidencia científica resultaron los siguientes temas: ansiedad; manejo del estrés y su impacto fisiológico; relajación y bienestar; adhesión a la Técnica de Imagenación Guiada; percepción positiva del embarazo; dificultades en el uso de la Técnica de Imagenación Guiada.

**Conclusión:** La Técnica de Imagenación Guiada parece promover la relajación y el bienestar de las mujeres, así como los niveles más bajos de ansiedad y de malestar percibidos durante el embarazo.

**Palabras clave:** Ansiedad; Estrés; Embarazo; Imágenes.

## INTRODUCTION

Pregnancy and maternity imply a series of changes in the life of the woman and the couple, requiring specific learning and skills that allow the development of a transition to healthy parenting <sup>(1)</sup>. This sensitive period in the couples lives, and particularly women, can lead to increased levels of anxiety related to concerns regarding herself and with fetal well-being, physiological discomforts and disturbances in their social relationship or even the development of mental health pathologies <sup>(1,2)</sup>.

Anxiety can manifest in different ways and can lead to experiencing constant worry, fatigue, difficulty concentrating, irritability or discouragement. Increased heart rate (HR), sweating, muscle pain and tension, tremors, increased respiratory rate, dizziness, indigestion or even increased urinary frequency are some of the physical manifestations that the person with anxiety can experience. Although anxiety is a natural response to stress and situations considered new or threatening, it can become a problem when perceived constantly or for no apparent reason, leading to changes in the person's quality of life. Pregnancy, by itself, may be a trigger for this type of manifestation, and the presence of other risk factors should be evaluated. The experience of previous abortions and the perceived scarcity of available resources or high job responsibilities may increase the risk of developing anxiety during pregnancy <sup>(3)</sup>. Prolonged hospital stays may also contribute to increased levels of anxiety <sup>(4)</sup>.

A rise in anxiety levels during the antenatal period still seems to influence the maternal-fetal outcome, with scientific evidence pointing to the negative impact of anxiety on maternal-fetal health and well-being. High levels of anxiety can affect child development, and there are studies that demonstrate a relationship between stress and maternal anxiety with increased blood pressure (BP), as well as decreased uterine irrigation <sup>(5)</sup>. Miquelutti et al. also points out to a relationship between the diagnosis of

anxiety during pregnancy and adverse maternal-fetal outcomes, such as: the occurrence of preterm birth, fetal distress and the birth of newborns with low birth weight <sup>(6)</sup>. This type of situation means that, nowadays, the mental illness during the perinatal period is a public health problem <sup>(2)</sup>.

Knowing the risks associated with increasing levels of anxiety during pregnancy, there is a need for health professionals to be prepared to intervene effectively, reducing the risk of their incidence and promoting recovery through non-pharmacological methods. There are several non-pharmacological techniques that promote the reduction and / or prevention of levels of stress and anxiety during pregnancy, such as: breathing exercises; the massage; the Guided Imagery Technique (GIT); reflexology, and yoga<sup>(7)</sup>. This type of intervention has brought the attention of midwives, since most of them are methods that can reduce the need for drugs, do not have side effects, are very easy to implement, and also generally associated very low costs.

Since the midwives are responsible for providing care to women in order to promote their health and their adaptation to parenting, it is essential that they are aware of the most effective methods in the prevention or treatment of anxiety. <sup>(8)</sup>. One of the techniques that have been used studied in this context is the GIT which, as its name indicates, uses the imagination, that is, the innate capacity that all human beings seem to possess in order to evoke and use the senses. Thus, this is a cognitive technique, used with a clinical purpose, seeking to encourage the person to deal with pain or stress situations through the imagination of a place or pleasant experience <sup>(9)</sup>. The attention of the person who uses this technique is, thus diverted to something that induces relaxation, increasing the sensation of calm that, by triggering a psychophysiological reaction, promotes a decrease in HR and BP. Its application has also been studied in reducing the risk of preterm deliveries, increased milk production, decreased postpartum depression and increased self-esteem. Thus, the objective of this study is to know the scientific evidence on the influence of GIT in the management of maternal anxiety during pregnancy. To answer this objective the following question was asked: Does GIT promote control of anxiety levels in pregnancy?

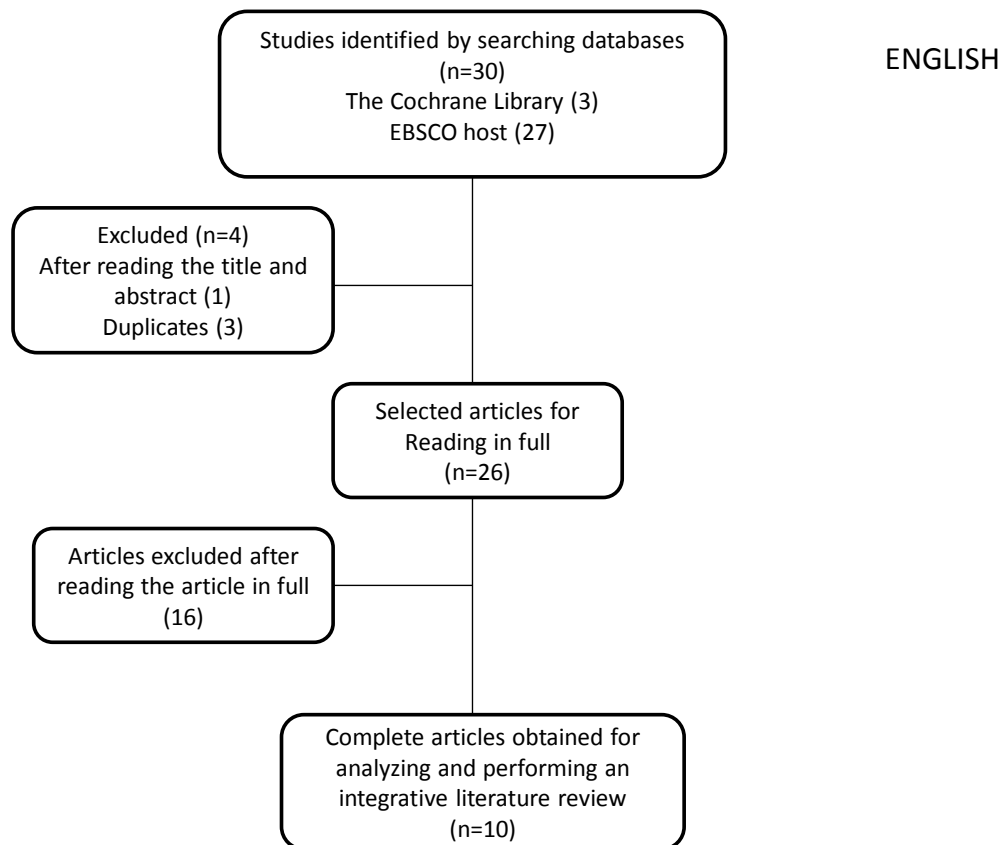
## METHOD

This article is based on the methodology of an integrative review of the literature, and is therefore an evidence-based practice tool <sup>(10)</sup>.

Going back to the main question of this study, the following descriptors were defined: anxiety; stress; pregnancy; imagery, which were used in the databases available in the EBSCO host (Academic Search Complete, CINAHL Plus with Full Text, MEDLINE with Full Text, Psychology and Behavioral Sciences Collection, ERIC, MedicLatina and SPORTDiscus with Full text) and in the database The Cochrane Library between October 2014 and March 2017, through the sentence bolleana: (anxiety OR stress) AND pregnancy AND imagery. As inclusion criteria for the selection of articles, it was stipulated that only articles published between 2009 and 2017, with access to the full text and whose language of publication were in English, Portuguese or Spanish, would be taken into consideration. It was also defined that articles that constituted systematic reviews, and within those, those that were meta-analyzes, would be privileged, due to the high level of evidence and accuracy of these studies. Articles that did not address GIT and anxiety management in their title or abstract would be excluded. If necessary, the study should be read in full, in order to see if it meets the stipulated criteria.

The research conducted originated a total of 30 articles, of which three were obtained from the research in The Cochrane Library and 27 through the EBSCO host platform. Of the three articles found in The Cochrane Library, one was excluded by its title and the abstract did not meet the subject. Of the 27 articles found through the EBSCOhost survey, three were automatically excluded because they were duplicate articles; 16 were excluded after reading the title / abstract because they did not fall within the scope of the subject. In total, ten articles were selected after applying the stipulated criteria, with their respective level of evidence (NE) according to Haynes's 5 S 'Pyramid. This is a useful method of addressing the search for evidence, which ranked the sources that we use to find the best evidence based on its relevance. This proposal, known as the Haynes pyramid or approach of the 5 'S' establishes a hierarchy of five levels, which are different ways of presenting such clinical information. At the base of the pyramid are the original studies (observational studies), ascending in relation to the quality of the evidence that they point out, by the other four echelons remaining: syntheses (systematic reviews); synopses (structured summaries of review articles); summaries (books, abstracts of various studies on a topic and clinical practice guides); and systems (intelligent, computerized programs to support clinical decision-making). For a better understanding of the selection process of the included articles, a flow diagram was elaborated that is presented next.

**Image 1: Flow diagram for selection of included articles**



## RESULTS AND DISCUSSION

In order to facilitate the understanding of the analyzed articles, a table (Table 1- Discussion of the selected articles) was elaborated which shows the obtained results. After its analysis, five themes are highlighted and discussed below.

**Table 1** - Description of the selected articles

<b>Article 1</b>		
Authors/study year	Source: Elsevier	Level of evidence organization: Original Studies
JALLO, N.;SALYERA, J.; RUIZ, R.J.; FRENCH, E. (2015)	Study design: Phenomenological study.	Goals: To gain a deep understanding of perceptions about GIT as a practice for stress management in a group of pregnant African-American women.
Main findings of the study: GIT is economical as well as easy to implement and has potential as a coping strategy to deal with stress.		
<b>Artigo 2</b>		
Authors/study year	Source: Hindawi Publishing Corporation- Evidence-Based Complementary and Alternative Medicine	Level of evidence organization: Original Studies
JALLO, N.; RUIZ, R.J.; JR. ELSWICK, K.; FRENCH, E.. (2014)	Study Design: Randomized Study	Goals: To assess the efficacy of GIT in reducing stress in African-American women early in the second trimester of pregnancy.
Main findings of the study: The results demonstrate a significant effect of GIT in the intervention groups, namely in the perception of stress; anxiety and fatigue. The experimental group reported a significant decrease in stress levels, less anxiety and fatigue traits compared to the other groups at the eighth week of intervention.		
<b>Article 3</b>		
Author/Study year	Source: Clínica y Salud.	Level of organization of evidence: Original studies
BJORN, M.; JESUS, S.; MORALES, M. (2013)	Study Design: Randomized controlled trial	Goals: To evaluate the effects of regular practice of relaxation techniques in pregnant women on variables such as: stress, anxiety, depression, heart rate and blood pressure.
Main findings of the study: The data obtained indicates that performing this type of relaxation during pregnancy leads to a decrease in levels of anxiety, stress and depression, as well as a decrease in HR and BP.		
<b>Article 4</b>		
Author/Study year	Source: Wiley; The Cochrane Collaboration.	Level of organization of evidence: Summaries



KHIANMAN, B.; PATTANITTUM, P.; THINKHAMRO P, J.; LUMBIGANON, P.(2012)	Study design: Systematic review of the literature	Goals: To understand the efficacy of relaxation therapies in the prevention of preterm birth.
Main conclusions of the study:	Performing relaxation exercises does not seem to have a direct effect on reducing the number of preterm births, although the authors consider that the results obtained may not translate into reality due to the limited quality of some of the included studies. However, the implementation of this type of technique seems to decrease the levels of stress and anxiety during pregnancy.	
Article 5		
Author/Study year	Souce: Journal of Obstetric, Gynecologic, & Neonatal Nursing	Level of organization of evidence: Original studies
JALLO, N.; COZENS, R. (2011)	Study design: Pilot study	Goals: To examine the effects of GIT on stress perception, as well as on physiological stress parameters in pregnant women hospitalized for preterm labor.
Main findings of the study: The results support the use of GIT in the reduction of stress levels perceived daily and in the decrease of systolic BP values in pregnant women hospitalized for preterm labor. The perception of the benefits associated with GIT, as well as the ease of execution of the GIT and the reduced costs of the GIT, make GIT a method of choice for stress reduction and systolic BP in pregnant women hospitalized for preterm labor ..		
Article 6		
Author/study year	Source: Wiley; The Cochrane Collaboration.	Level of organization of evidence: Summaries
MARC, I.; TOURECHE, N.; HODNETT, E.D.; BLANCHET, C.; DODIN, S.; NJOYA (2011).	Study design: Systematic review of the literature	Goals: To evaluate the benefits of implementing relaxation techniques during pregnancy in the prevention or treatment of maternal anxiety, as well as its influence on perinatal outcomes.
Main findings of the study: The results obtained indicate that GIT has a positive impact on the decrease and control of anxiety levels during labor and in postpartum depression and anxiety. No contraindications were reported regarding the use of non- pharmacological relaxation techniques analyzed ..		
Article 7		
Author/study year	Source: Elsevier Complementary Therapies in Clinical	Level of organization of evidence: Original studies

	Practice.	
GEDDE-DAHL, M.; FORS, E. (2011)	Study design: Controlled experimental study	Goals: To determine if the practice of relaxation therapies such as GIT influence birth.
MAIN FINDINGS OF THE STUDY: The authors conclude that more studies would be needed to understand the impact of the intervention. Since participants could choose the <b>CD</b> range provided with the GIT technique instruction, it is not possible to see which ones are most effective, but the authors point out the advantages of GIT conjugation with other relaxation techniques. The fact that the interventions implemented imply effort and the dedication of the participants, the satisfaction of them with their performance during the study may have influenced the results. Thus, the realization of GIT may have a positive effect on the perception of self-efficacy and promote the empowerment of pregnant women who perform this type of technique		
<b>Article 8</b>		
Author/study year	Source: Elsevier Complementary Therapies in Clinical Practice.	Level of organization of evidence: Original studies
ALDER, J.; URECH, C.; FINK, N.; BITZER, J.; HOESLI, I. (2011)	Study Design: Randomized controlled trial	Goals: To examine the psychoendocrine differences after a standard relaxation period in pregnant women with high levels of anxiety.
Main findings of the study: The authors conclude that more studies would be needed to understand the impact of the intervention. They also highlight the hypothesis that women that are more anxious do not respond in the same way to relaxation induction techniques, something that should be taken into consideration by health professionals.		
<b>Article 9</b>		
Author/study year	Source: Birth issues in perinatal care.	Level of organization of evidence: Original studies
MOFFATT, F.; HODNETT, E.; ESPLIN, M.; WATT-WATSON, J. (2010)	Study Design: Randomized controlled trial	Goals: Provide scientific evidence on the effects of GIT use on the reduction of BP in pregnant women with a diagnosis of hypertension.
Main findings of the study: Although the BP values of participants who used GIT did not decrease significantly, their increase throughout pregnancy was lower than the values obtained through the control group. Although not statistically significant, the authors point to signs of decreased BP values analyzed in the experimental group. There are also indications of positive effects of the use of GIT in the presence of major anxiety events.		
<b>Article 10</b>		
Author/Study year	Source: Elsevier	Level of organization of evidence: Original studies
URECH, C.;	Study Design:	



FINK, S.N.; HOESLI, I.; WILHELM, F.H.; BITZER, J.; ALDER, J.	Randomized Study	Goals: To compare immediate effects in two ways: an active and a passive relaxation technique of 10 minutes in the psychological and physiological indicators of relaxation.
Main findings of the study: Data indicate that different types of relaxation have different effects on various psychological and physiological stress systems. GIT was especially effective in inducing self-perception of relaxation in pregnant women and, at the same time, in reducing cardiovascular activity.		

### **Anxiety, stress management and physiological impact**

Regarding the efficacy of GIT against other non-pharmacological methods, the review by Marc et al. verified that this is more effective than other methods, both during pregnancy and during the beginning of labor (12).

The results also suggest that GIT, having a favorable effect on the reduction of anxiety and stress levels in women's daily life during pregnancy, promotes improved health(13-17).

In the Jallo, Salyer, Ruiz and French (2015); Jallo, Ruiz, Elswick and French (2014) and Jallo and Cozens (2011) studies, there were significant differences in the decrease of stress levels during pregnancy in participants who used GIT <sup>(13,14,18)</sup>. However, in the Jallo et al. study, these differences were only statistically significant in the first eight weeks of the study, and no significant differences were found in the 12th week of study <sup>(14)</sup>. However, the weekly average of the pre- and post-intervention in the GIT group showed statistical differences compared to the control group. Jallo et al., also pointed out to the fact that anxiety and stress assessment tools specific for the pregnancy period were not used, so the assessment tools used may not be sensitive to variations in anxiety levels during this period <sup>(14)</sup>. GIT was also considered by the participants as a coping strategy to be used in the management of events and stress situation, both in pregnancy and in relation to other daily situations (13-15). Some authors point out that regular use of GIT in the care provided during pregnancy seems to have a positive impact not only on levels of stress and anxiety but also on the incidence of depression <sup>(7,15,16)</sup>.

Jallo and Cozens report that the values of systolic BP monitored after GIT were significantly lower than those monitored before the intervention. Also, more than half of the participants had lower diastolic BP values than those obtained before the intervention <sup>(18)</sup>. The results obtained in the study developed by Bjorn et al. are in agreement with this analysis, reporting a decrease in HR and BP in the group that used GIT <sup>(15)</sup>. In the study by Urech et al. the results obtained at the level of BP do not show significant differences, although the HR decreases considerably in participants submitted to relaxation techniques, GIT and progressive muscle relaxation, but there are no significant differences between them <sup>(17)</sup>. Marc et al. al. report that although the BP values of the participants that used GIT did not decrease significantly, their increase during pregnancy was lower than the values obtained through the control group <sup>(12)</sup>. Although not statistically significant, the authors point to signs of decreased BP values analyzed in the experimental group. However, no association was found between the number of GIT replicates and the decrease in BP 12 values.

In the Urech et al. study, there was no significant impact on anxiety levels, however, levels of adrenocorticotrophic hormones (ACTH), noradrenaline and cortisol decreased throughout the intervention <sup>(17)</sup>. Although in the study by Jallo et al., no significant differences were found in corticotrophin-releasing hormone values, the authors associate this fact with the physiological increase of this hormone throughout pregnancy and the fact that the sample is not significant enough for the results to be conclusive <sup>(14)</sup>. Alder et al. also point out that the endocrine evaluation carried out seems to indicate that women with lower levels of anxiety enter a state of relaxation more easily than the more anxious women <sup>(5)</sup>.

### **Relaxation and well-being**

The majority of the groups submitted to GIT considered the technique to be very relaxing, helping to keep calm in stressful situations and promoting feelings of well-being, peace and greater energy <sup>(12,13)</sup>. Some studies even consider GIT as a technique capable of promoting maternal-fetal health and well-being <sup>(15,19)</sup>. Gedde-Dahl et al. emphasize the promotion of feelings of maternal self-efficacy and the empowerment of pregnant women who have used this technique as some of the positive aspects of their use <sup>(19)</sup>. According to Marc et al. and Urech et al., GIT is a more effective technique than progressive muscle relaxation in inducing relaxation <sup>(12,17)</sup>. In the study developed by Jallo et al., the participants reported a greater perception of the rhythm of their breathing, which promoted feeling of relaxation and calmness, as well as their use in the management of stressful situations <sup>(13)</sup>.

### **Adherence to git**

There was a great adherence of the pregnant women submitted to the GIT, and in all the studies where this parameter was evaluated, the participants were able to emphasize at least one benefit inherent to its practice <sup>(13,14, 16-18)</sup>. Thus, this can be explained by the fact that it is considered an effective intervention that contributes to the participants' self-esteem, its simple and non-invasive, and has the advantage of being accepted by pregnant women and doesn't negatively affects the fetus <sup>(16)</sup>.

### **Positive pregnancy perception**

GIT was referred to as a facilitator and promoter of maternal-fetal attachment, due to the perception of fetal movements during GIT and the sensation of it exerting a calming effect on the fetus. It was also reported the perception of greater fetal connection and more proximity, as well as better management of anxiety regarding fetal well-being <sup>(13,14)</sup>.

In the review by Marc et al. the groups that used the GIT presented greater knowledge about labor and delivery <sup>(12)</sup>. Bjorn et al. and Gedde-Dahl et al., suggest an improvement in the labor experience <sup>(15,19)</sup>. Marc et al. also verified a positive effect of GIT in the management of pain at the beginning of labor <sup>(12)</sup>.

GIT was still considered a sleep promoter, helping not only to fall asleep but to maintain good sleep quality <sup>(13,14)</sup>. The participants also reported relief from the symptoms of fatigue, muscle tension, back pain and headache <sup>(13,16)</sup>.

## Difficulties in the use of GIT

The most frequently difficulties mentioned by pregnant women who experienced GIT were not specifically related to the technique itself, but to difficulties inherent to the equipment used in its execution (CD, CD player battery), interruptions, difficulty in maintaining concentration, environmental disturbances and pre-existing symptoms (history of migraines, abdominal pain, among others) <sup>(13,14)</sup>. As limitations to this study it is underlined that some of the articles found do not clarify the procedure followed in the implementation of GIT; they do not show how often it was performed by women or when it is the best time to initiate instruction and implementation, which may render results unfeasible. Others refer to the use of a CD for GIT, but do not present data justifying this practice to the detriment of another type of procedure. Although some studies reported that the groups that used the GIT presented greater knowledge of pregnancy and labor/delivery process, none of them explained how this knowledge could be enhanced.

## CONCLUSION

In all the analyzed articles, the use of non-pharmacological methods to induce relaxation or decrease of levels of anxiety and depression during pregnancy is considered pertinent, since there is a notable maternal-fetal morbidity associated with these factors <sup>(7,12,13,15,16,19)</sup>.

The implementation of GIT is thus an intervention capable of promoting maternal and fetal health and well-being, but should not be considered as a replacement for general and regular care, but rather as an addition to it <sup>(7,12,15,16,-19)</sup>.

Jallo et al. and Jallo et al. reflect on the fact that pregnancy-specific anxiety and stress assessment tools have not been used and therefore the results may have been influenced <sup>(13,14)</sup>. The possible lack of sensitivity of the assessment tools used in their studies may have limited the perception of the real impact of GIT in the management of stress and anxiety levels.

Pregnancy is perceived as a period of physical, psychological and emotional preparation for childbirth and motherhood, and it is also an ideal time for learning. In this sense, the inclusion of interventions that promote the empowerment of each pregnant women/ couple, providing them with the skills to face stress situations and allowing a satisfactory experience of pregnancy, labor and maternity should be taken into account by the midwives. The perception of the importance of the inclusion of this type of techniques is reflected in the guidelines Regional Health Administration of the North, which encourages the sharing of non-pharmacological methods for the reduction of perceived discomforts during pregnancy and delivery. However, during the research, the lack of studies on the impact of these techniques on the couple, and not only on the woman and the fetus, is highlighted, even though many address the impact that the rise in anxiety and stress levels may have in both elements of the couple.

One peculiarity that emerged when analyzing the articles was the fact that few studies mention the implementation of these exercises by the midwives. More studies would be needed to understand the context and practice of care in Portugal, in order to understand if these relaxation techniques are actually implemented by the midwives

during the appointments of the pregnant woman and the couple and, if they are, if they are perceived as useful or effective, either by the midwives, or by pregnant couples who benefit from this intervention. Knowing that the contact with health professionals has an impact on the adherence and motivation of women / couples, it would be relevant to understand how many and what types of contacts are established during GIT education and instruction. The anxiety levels sensed vary throughout the pregnancy, so it would be relevant to understand how these values are monitored and evaluated in our practical context and how the midwives respond to the needs of the pregnant couple. If GIT is not being used by the midwives, it would be relevant to indicate what data support this decision and what alternatives are developed to address the issue of maternal anxiety management.

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