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Psychoprophylaxis revisited in the 21st century: Effects on labor and postpartum period

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Abstract

Introduction: Psychoeducation for childbirth preparation has been associated with favorable labor outcomes. However, due to the scanty amount of research and the methodological deficits, the success of the method remains controversial.

Purpose: This mini narrative review refers to the effect of the psychoprophylaxis (Lamaze method) during pregnancy on the labor and the post- partum period (puerperium).

Methods: A descriptive review of the international literature on the subject was carried out. Only quantitative studies published in English language journals were included.

Results: Few studies have explored the effect of Lamaze method on labor/puerperium in the 21st century. Psychoprophylaxis was associated with lower cesarean section rate, lower rate of maternity blues and successful breastfeeding. Sampling and confounding factors were the main limitations in the studies included in this review.

Conclusions: Psychoprophylaxis may have beneficial effects on labor and postpartum outcomes. Multicenter randomized control trials with well-defined and comparable protocols, focusing especially on Lamaze method, are necessary.

Keywords: Psychoprophylaxis; Lamaze Method; Labor; Postpartum; Effect

1. Introduction

Pregnancy is an intense psychological experience, as women not only face a completely new situation, but also enter a period that is crucial for their subsequent role as mothers. Pregnancy is a complex bio -psychosocial phenomenon, in which physical changes are accompanied by psychological changes in the context of interactions with the social environment [1,2]. Maternal anxiety during pregnancy has been related to an increased risk of pre-term birth and low birth weight infants. Healthcare providers should pay close attention to anxiety in pregnant women and provide appropriate mental health support in order to improve outcomes for both mothers and infants [3,4].

Nowadays, the antenatal care according to WHO recommendations includes a wide range of spectrum of services, including nutritional and psychological support, education on childbirth issues and advanced medical monitoring [5]. As far as concerns the psychological support, it has been found that the collaborative interventions show better efficacy than a single intervention, with psychological therapy being more effective in reducing anxiety rather than standard antenatal care [6]. The importance of reducing anxiety and increasing self-control during the birth process was

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recognized very early by obstetricians, who, in an environment of poor technical facilities, had developed methods of pain relief and reducing anxiety during childbirth. These are behavioral and alternative approaches, many of which have been shown to be effective in clinical practice. Indeed, despite the advanced standard antenatal care available nowadays, the so-called "psychoprophylaxis" remains a popular method for childbirth preparation with possible effects on favorable labor outcome [7-9].

Psychoprophylaxis is an "umbrella" term comprising alternative methods of "natural" childbirth. They focus on reducing pain and offering a positive labor experience. The major approaches could be summarized in four methods: a) Lamaze Method**:** this method emphasizes muscle relaxation and breathing techniques during contractions, having a focal point (usually a picture to look at) during contraction (distraction and conditioning)[10,11], b) the Dick-Read method claims that the fear of childbirth increases tension and makes the process of childbearing more painful, a situation that could be alleviated by proper relaxation and education [8], c) Leboyer method which involves giving birth in a quiet, dimly lit room and allowing the newborn to lie on the mother's stomach with the umbilical cord intact for several minutes while being given a warm bath[12], d) the Bradley Method focuses on preparing the mother for a natural childbirth coached by her partner [13]. They learn techniques to reduce the perception of pain and stay relaxed. Research provide evidence that Lamaze and Dick Read methods do have positive and these methods have gradually prevailed worldwide. Indeed, most research refers to Lamaze method, even in those case that the method is not clearly defined. The description of the sessions and the emphasis on breathing technique indicates that it is about Lamaze method, a brief history of which and its concept could be summarized as follows:

In the late 1940s, Soviet scientists invented a new non-pharmacological method called the "psychoprophylactic method of painless childbirth," which later became widely known in the West as the Lamaze method, after the French obstetrician Lamaze had visited Soviet Union for a first-hand view. He modified the method and returned home with a psychoprophylactic approach he called "accouchement sans douleur" or "childbirth without pain," known today as the Lamaze Method of Preparation for Childbirth. . Since the process of childbirth is controlled by the cerebral cortex, which is involved in the perception of pain, the theory of the method was based on the assumption that it was possible to eliminate the sensation of physical pain during childbirth by training a pregnant woman's mind before giving birth. Pain, according to this claim, is not an essential part of childbirth, as in fact, it is a product of conditioned reflexes, which according to Pavlov 's theory of conditioned reflexes, are acquired and temporary. The purpose of the method is to "re-program" these conditioned reflexes and create new and positive reflexes that prevent the perception of pain during childbirth. Education is based on a range of methods, including prenatal education, breathing techniques, cueing, and massage [10,11,14].

Psychoprophylaxis is thought to influence the experience of pain during labor in three ways: physiologically, by improving oxygenation and reducing muscle tension; cognitively, by focusing on breathing and relaxation rather than pain: and psychologically, by reducing fear and improving the sense of personal control. Deep breathing has been suggested for the first stage of labor, with faster breathing during the stronger contractions of the second stage and breath holding and panting during the relaxation stage [14].

However, the efficacy of the method is still controversial. Sound scientific evidence is missing and research finding vary, from enthusiastic reports to disappointing ones. Methodological deficits and a mixed methods approach and assessment in clinical practice do not allow a clear conclusion on psychoprophylaxis efficacy. The purpose of the present review was to evaluate the effect of psychoprophylaxis on labor and postpartum outcomes in the beginning of the 21st century.

2. Methods

A descriptive review of the international literature on the subject was carried out. The key words and phrases used in the search in various combinations were: Psychoprophylaxis, Lamaze method, pregnancy, outcome, post-partum, antenatal, perinatal, anxiety, depression, relaxation, breathing technique. Psychoprophylaxis method applied had to be clearly mentioned in the text or in the reference section. Only quantitative studies published in English language journals were included.

Table 1 Summary of the main review findings

First Author, Year of publication, Country	Type of Research	Participants	Main conclusions
15.Bergström et al., (2009), Sweden	Randomized control trial	857 nulliparous women with a planned vaginal delivery. (two groups:486 psychoprophylaxis, 371 standard care)	"Natural childbirth preparation including training in "breathing and relaxation *did not* decrease the use of epidural analgesia during labour, nor did it improve the birth experience or affect parental stress in early parenthood in nulliparous women and men, compared with a standard form of antenatal education".
16.Bergström et al., (2010), Sweden	*Randomized control trial*	*See previous ref.: adjusted for socio-economic variables*	*reduced rate of emergency caesarean section*
17.Ntella et al.(2017)	Cross-sectional	Psychoprophylaxis group (100 women) vs standard care group	Psychoprophylaxis was related to breastfeeding attendance program, Less medication during pregnancy and fewer caesarean sections
18.Natsiou et al.(2023)	Nonrandomized clinical trial	414 pregnant women, two groups: psychoprophylaxis (207) and standard care (207)	"the likelihood of postpartum depression and ''maternity blues'' was significantly reduced in the intervention group"

3. Results

Four publications meeting inclusion criteria were identified. Two of them [15,16], referred to the same cohort, meaning that three actual studies were traced. Their findings are presented below and they are summarized in table 1. Bergstrom et al. [15], in their multicenter RCT studied nulliparous women from all over Sweden, who attended two groups: a psychoprophylaxis group and a standard care one:486 psychoprophylaxis, 371 standard care) with a planned vaginal delivery. They observed no difference in emergency cesarean sections, in labor analgesia or experience of birth. Later on, they re-examined their data after adjustment for sociodemographic factors. They found that women who had attended psychoprophylaxis group, had a lower risk of emergency cesarean section [16].

The cross-sectional study of Ntella[17] comprised a representative sample of 200 mothers equally allocated to two groups (psychoprophylaxis and standard care). Most women in the psychoprophylaxis group (60%) had vaginal delivery versus 48%, a statistically significant difference. Also, a statistically significant association between attendance of psychoprophylaxis sessions and the following outcomes was observed: breastfeeding program attendance, breastfeeding and information on human milk banks.

In their non-randomized clinical trial Natsiou et al.[18], comprised 414 pregnant women equally classifeid into psychoprophylaxis or standard care group. They found that the probability of postpartum depression and "maternity blues" was significantly reduced in the intervention group. Despite the effect of psychosocial factors on depressive symptoms, psychoprophylaxis was emerged as the most important prognostic factor of "maternity blues".

4. Discussion

Psychoprophylaxis is considered beneficial for both the expectant mother and the newborn: Lower cesarean section rate, shorter dilation period, lower analgesics and lower anxiety, earlier breastfeeding onset and a negative association with maternity blues, all the above have been reported over the last decades [19-25]. However, research reports vary from enthusiastic [21] to skeptical [26]. In the meta-analysis of Wu et al. [20] Lamaze breathing training *combined* with nursing intervention increased the rate of natural delivery, shortened the length of labor and reduced postpartum bleeding. Moreover, there is evidence that psychoeducation may have a beneficial effect over psychological well-being in the postpartum period [27,28]. Nevertheless, not all "psychoprophylaxis" methods are clearly defined nor is the net

contribution of the method to labor outcomes evaluated. Indeed, there are few studies about the Lamaze method effect on labor outcomes in the 21st century. Only the four studies included in the present review tried to assess the efficacy of Lamaze method on labor and postpartum outcomes. Of note, in the two publications of Bergstrom et al. (same RCT pool data/study), the method applied, although not clearly stated in the text, is concluded from the references. Indeed, these two publications call for the necessary caution when interpreting the results. In the first publication (2009), no difference in emergency cesarean sections, in labor analgesia or experience of birth was observed. Later on (2010) and after adjustment for sociodemographic variables, psychoprophylaxis group had a lower risk of emergency cesarean section compared with the standard care group. The two other studies come from the same city/country (Greece). They clearly stated Lamaze method as psychoprophylaxis method and ended up with favorable outcomes: lower cesarean section rate earlier breastfeeding and lower maternity blues rate. Beyond the behavioristic approach, an underlying physiological mechanism has been proposed, mainly through stress hormones (cortisol) reduction [23,29].

Except from data paucity, randomization and bias are main problems regarding evaluation psychoprophylaxis efficacy: regarding randomization, it is considered unethical to exclude women who would like to attend the psychoprophylaxis sessions. DongYing et al.[23] in their psychoprophylaxis study stated, commenting on bias: "(…) it was still possible that they were aware of the group assignment because of the increasing popularity of preoperative education on natural birthing or/and Cesarean delivery and gravidas' avid involvement into antenatal educating classes". Additionally, most women participating in the psychoprophylaxis sessions tend to well-educated and of high income, a fact further confounding the results. Even when the method is defined, the study protocols differ significantly in terms of content and number of sessions, or are poorly defined, as it was the case in the papers reviewed here (four 2-hour sessions during pregnancy and one follow-up session within 10 weeks after delivery in Bergstrom et al.; six antenatal sessions in Natsiou et al. study[18], four 2-hour sessions during pregnancy and one follow-up session within 10 weeks after delivery, not defined in the cross sectional study of Ntella [17]. An important limitation of this review was the inclusion of studies published only in English language journals. As Lamaze method and its variants is popular in Eastern Europe and Asia, it is possible that some publications might have been escaped this review.

5. Conclusion

In conclusion, Lamaze method still holds value and seems to have a favorable effect on labor and postpartum outcomes. However, due to the scanty amount of research carried out on the Lamaze method and the methodological deficits, the success of the method and the criteria upon which such success can be assessed needs further evaluation. Further, well designed, prospective multicenter studies based upon standardized protocols are necessary.

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