Biopsychosocial approach of maternal labour stress highlighting the aspects of privacy, intimacy and midwifery support

Doctoral theses

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1. INTRODUCTION

During the past decades, we have witnessed a tendency of continuous medicalization of childbirth: the increasing use of medical interventions like the caesarean section, artificial induction and augmentation of labour, and epidural analgesia are frequently applied even at births of mothers who belong to low-risk groups. Since these entail an intervention to the mothers' hormonal system, their application may lead to numerous incalculable short- and long-term consequences. The period of pregnancy and childbirth is often regarded as a 'normative crisis'. Appropriate adaptation i.e. the solution of the crisis contributes to personality development, the formation and integration of the maternal role while an inappropriate outcome or failure makes the crisis continue and may lead to somatic or psychological symptoms. All of these may exert impacts on the development of the new-born child as well. Therefore, the amount of stress experienced by mothers in the course of labour and delivery bears high importance.

It is evident that stress is inherent in the very act of childbirth. According to Wijma and his colleagues, stress arises due to pain and fear. In addition to these, a mother giving birth may be exposed to stress due to external sources as well such as the built environment, the furnishings and equipment in the labour

room, various medical interventions, the application of routine techniques, the social environment, or any change in the aforesaid may all cause stress. Excessive stress and anxiety i.e. when these are above the adaptive level hinder physiological labour and may also lead to fetal distress. In such situations, the automatic stress response of 'fight or flight' leads to an increased release of stress hormones which in the course of labour causes a decrease in the level of endogenous oxytocin. As a consequence, the strength of uterine contractions falls, which then may call for interventions. Natural oxytocin, in addition to its known peripheral effects, exerts a central effect in the brain as well which at the physiological level contributes to normal birth without interventions, and at the emotional, cognitive and behavioural level facilitates the adaptation of the maternal psyche to the birth situation and, later, to the maternal role. It should also be pointed out that it tames anxiety and stress and helps to feel less pain.

According to Uvnäs-Moberg, if the 'fight or flight' stress response can be avoided and birth manages to remain within the system of 'calm and connection', then the security felt in the birth environment, and the assistance provided by both lay and professional supporters facilitate a natural, intervention-free childbirth by helping the release of natural oxytocin.

Despite the primary rank of labour pain among the

experienced kinds of pain, it is very special as it is limited in its duration, situation-specific and does not indicate a hidden illness in contrast to various other sources of pain, but is part of a normal physiological process. Based on all these, the beliefs of the woman concerned and those of the persons assisting her regarding pain will have a significant impact on the chosen method of pain relief, i.e. whether pharmacological or non-pharmacological techniques will be preferred.

Due to the extraordinary inherent burden, a woman in the course of labour and delivery may feel explicitly exposed and vulnerable. Therefore, as the work of Gaskin, Odent, Fahy and Parratt emphasizes, it is a fundamental requirement to respect the woman's privacy and her demand for intimacy shall be fulfilled. A social attitude which supports patience, is free of any condemnation, encourages free movement and vocalisation along with a secure birth environment, all are of fundamental importance.

According to the buffering hypothesis of social support, as first described by Cassel and Cobb, psychosocial support may mitigate the level of stress and the disadvantageous effects of the risk factors. In the cognitive-phenomenological model of Lazarus and Folkman, the three kinds of socially supportive behaviours i.e. emotional, tangible and informational, reduce

stress whereby, if applied during labour and delivery, assist the woman to find her adequate coping strategies.

Like in health maintenance and the genesis of diseases, control experienced in the course of childbirth plays an important role in the post-natal physical and psychological well-being. Its role is likewise fundamental in stress management because with the help of control, more efficient coping strategies may be found and applied.

2. OBJECTIVES

I wish to reveal which factors may cause levels of below average and above average stress i.e. which behaviours or procedures should be preferred or rather be avoided with the aim of achieving below average stress during labour and delivery.

I formed the hypotheses set out below:

1. I presumed that the women would highly appreciate the supporting behaviour of midwives and especially those kinds which fall into the category of emotional support (H1).

2. I presumed that childbirth stress would be lower where a higher level of privacy and intimacy and more supportive behaviours exerted by the midwife were experienced (H2).

3. I anticipated that the application of certain interventions

aimed at facilitating birth (e.g. artificial oxytocin) and other routine techniques would lead to a higher level of perceived labour and delivery stress (H3).

4. I anticipated that those who attended childbirth preparation classes, pre-visited a labour room and/or have a birth plan prepared in advance would experience lower stress while giving birth than those who did not care to exploit any of the aforesaid opportunities (H4).

5. My further hypothesis was that those who felt more at their liberty to try various moves and/or positions and/or to issue sounds without inhibition during labour and delivery would experience lower stress (H5).

6. I assumed that a higher level of awareness and the perception of being in control during labour and delivery would contribute to a lower level of stress (H6).

7. I presumed that perceived satisfaction of the women who experience higher stress would be lower (H7).

8. I anticipated that the level of perceived labour and delivery stress of those who gave account on higher physical and/or social security would be lower (H8).

9. I anticipated that stress would grow in proportion to the level of pain and that those who received epidural administration experience a higher level of stress. In contrast,

where alternative pain relieving techniques (e.g. water, massage, special breathing, relaxation, etc.) were applied the labouring woman would experience a lower level of stress (H9).

10. I assumed that the women who got epidural analgesia would perceive less pain but their satisfaction would not be higher (H10).

11. I anticipated, a higher degree of pain and the application of interventions increased the risk of above optimum stress. Notwithstanding, in my assumption, the perception of a higher degree of privacy and intimacy and a high level of midwifery supporting behaviours, the use of alternative pain-relieving techniques, and the perception of being in control would reduce the risk of intense labour stress. (H11).

12. My ultimate hypothesis was that the same factors which mitigate the risk of high stress would increase the probability of satisfaction (H12).

3. METHODS

While preparing for the research, I had formed the Childbirth Intimacy and Privacy Scale (CIPS) based on the relevant literature on the topic which I also tested in a pilot study. Then our team of experts translated the Bryanton Adaptation of Nursing Support in Labour Questionnaire (BANSILQ) to

Hungarian and adapted it to the Hungarian circumstances and the usual institutional protocol. Thereafter, the required ethical approvals from the Committee of Scientific and Research Ethics of the Medical Research Council (ETT-TUKEB) and from the directors of the chosen hospitals were obtained.

The research took place in 2016 in 5 hospitals in Budapest, Hungary conducted within 72 hours of delivery with the use of questionnaires. The criteria of participation were: full age (i.e. above 18), vaginal birth of a single child between the 37th and 42nd weeks of a trouble-free pregnancy where the fetus took a head-first intrauterine position, i.e. the research embraced mothers who belonged to the low-risk category.

I surveyed the socio-demographic backgrounds of the mothers, their perceived stress during labour and delivery with the modified version of the Perceived Stress Scale (PSS-L), intimacy and privacy with the aid of the new CIPS scale, the supportive behaviours of the midwives with the BANSILQ scale. After these, I asked questions focusing on interventions, routine techniques, ways of preparation for birth, the liberty of moving, the positions allowed to be taken during labour and delivery, awareness, experience of control, satisfaction and the sense of security during childbirth. I examined the intensity of pain with the aid of the 11-point Numeric Rating Scale (NRS). The female respondents' (N=342) mean age was 31.01 years

(SD=±5.15, range 18-46). Concerning the marital status of the sample, besides married females (69.9%), cohabiting partnerships achieved high rates (27.8%). More than half of the subjects had received their degrees from higher education institutes, namely, 23.4% graduated from college and 28.6% obtained a university degree. In terms of economic status, the majority of the sample – 59.6% – rated themselves as coming from an average income household and one third (37.2%) as holding a high income household.

4. RESULTS

The reliability index of all three measurement tools i.e. PSS-L, CIPS and BANSILQ proved to be satisfactory on the current sample with respective Cronbach's alpha values of 0.79, 0.75, and 0.94, therefore they can be considered as reliable. All three scales showed a normal distribution according to the Kolmogorov-Smirnov test ($p<0.05$).

Mean values achieved a score of 5.83 (SD=±3.3) on PSS-L scale, 61.5 (SD=±10.3) on CIPS scale and 98.0 (SD=±23.5) on the BANSILQ scale. In the context of intimacy and privacy participants most highly agreed that professional birth attendants (i.e. midwife and obstetrician) were patient with them, the next thereafter was the opportunity to stay in the same room and the security provided by the birth attendants.

Among the negative experiences, the mothers mostly referred to the lack of a private bathroom, disturbance by people entering the room without knocking on the door and the absence of freedom to choose their own position at delivery. During the analyses, exploratory and confirmatory factor analyses were employed to test the current factor structure and the previous pilot study's component matrix. The analysis confirmed four factors: 1. Social privacy, 2. Freedom/Letting go (free movement and choice of position), 3. Physical privacy, and 4. Being observed.

Of the supportive midwifery behaviours, the item of making the woman feel cared about as an individual was identified as most helpful, followed by appearing calm and confident, the truthful and comprehensible answers given to questions the mothers asked, treating the woman with respect, giving praise and the acknowledgement of pain as real. The least experienced midwifery behaviours listed were: midwives touching the woman physically, dealing with the physical needs of the partners, or staying in the room even when no particular task was to be fulfilled. Therefore, the first hypothesis (H1) on the role of emotional support as the crucial dimension of supportive midwifery behaviour was confirmed. In the next steps, comparative analyses were run to test mean values of PSS-L scale between CIPS and BANSILQ groups.

For subsequent analyses, groups were recoded and divided by mean value cut-off points. T-test showed significantly lower stress levels among the female group experiencing high privacy and intimacy, and high midwifery support – therefore, the second hypothesis (H2) was also confirmed.

Despite the fact that the research targeted women who belonged to the low-risk category, a high rate of various interventions was reported. More than half of the respondents (59.5%) indicated artificial rupture of membranes, episiotomy (51.5%), and 50.9% was given synthetic oxytocin. Based on the results of the independent samples t-test, the group of women given oxytocin experienced a significantly higher level of perceived stress compared to the group of women who were not given oxytocin (M1=6.3 SD1=±3.3 vs. M2=5.4 SD2=±3.1). Similar results were found in case of the intervention of applying fundal pressure on the maternal abdomen (M1=6.3 SD1=±3.0 vs. M2=5.6 SD2=±3.4) and episiotomy (M1=6.2 SD1=±3.2 vs. M2=5.4 SD2=±3.3). Since these techniques are used frequently, this finding may be worth being taken into account as the application of such techniques may cause higher stress levels perceived by women during childbirth. The third hypothesis (H3) regarding the interventions was confirmed, except for routine interventions, which did not result in higher levels of maternal stress.

Regarding childbirth education and preparation, those mothers experienced elevated stress levels who had not attended childbirth classes in advance (M1=6.1 SD1=±3.4 vs. M2=5.3 SD2=±3.0), or whose labour did not match their previous plans (M1=7.7 SD1=±3.4 vs. M2=4.5 SD2=±2.7; H4).

If we consider freedom of behaviours during labour and delivery, it can be observed that those who had been allowed to move more freely (M1=6.2 SD1=±3.3 vs. M2=5.5 SD2=±3.2) or to sigh and vocalize more freely (M1=6.5 SD1=±3.4 vs. M2=5.4 SD2=±3.2), reported significantly lower levels of perceived stress ($p<0.05$; H5). The outstanding roles of awareness and sense of control were underlined by the present research, similarly to previous studies. We can state that those mothers perceived significantly higher levels of stress who reported lower levels of awareness (M1=8.0 SD1=±3.0 vs. M2=4.6 SD2=±2.8) and lacked control (M1=7.5 SD1=±3.0 vs. M2=4.0 SD2=±2.5; H6).

Investigating satisfaction of childbirth can be highlighted as one of the most important factors of evaluating labour experience and hospital care provision. Results underlined the significance of satisfaction in terms of perceived stress. Mothers experiencing elevated stress were more likely to belong to the less satisfied groups (on the two items: M1=7.1 SD1=±3.0 vs. M2=4.6 SD2=±3.1; M1=7.5 SD1=±3.1 vs.

M2=4.7 SD2=±2.9; H7). In addition, higher levels of stress were reported by mothers achieving lower scores in social and physical security (M1=7.4 SD1=±3.3 vs. M2=5.1 SD2=±3.0; M1=7.4 SD1=±3.3 vs. M2=5.4 SD2=±3.1; H8).

12.9% of the sample (44 females) received epidural analgesia. Nearly ¾ of the mothers stated positive effects of the epidural when asked directly, but deeper analysis showed remarkable results. Surprisingly, there were no significant differences in perceived labour stress, satisfaction or perceived intensity of pain among the group of mothers receiving or not-receiving epidural analgesia. Therefore, hypotheses 9 and 10 were only partially confirmed. Additionally, alternative techniques of pain relief were rather rare in the sample and their utilisation is also considered rather unstandardised, thus against my assumption, the results confirmed no relation towards maternal stress levels.

In the next step of the analyses, stress level was tested by using binary logistic regression with a large set of labour-related variables. The test showed a decreased likelihood of higher perceived stress levels when experiencing elevated privacy and intimacy (OR=0.43 $p<0.001$), high rates of supportive midwifery behaviour (OR=0.60 $p<0.05$), events occurring as planned (OR=0.21 $p<0.001$), or elevated satisfaction, awareness and control (OR=0.19, OR=0.17, OR=0.16 and

OR=0.13 $p<0.001$). Based on these results, the aforementioned factors can be considered as protective factors during labour and delivery. On the other hand, perception of intense pain, interventions of oxytocin administration and applying fundal pressure proved to be risk factors which may cause high levels of stress. Intense pain doubled (OR=1.98 $p<0.05$), while administering oxytocin and applying pressure on the maternal abdomen increased stress with the odds ratio of 1.5 (OR=1.52 and OR=1.57 $p\leq0.05$; H11).

Logistic regression analysis was also run to investigate satisfaction as dependent variable, and labour-related variable set. Satisfaction was more likely to show increased levels, when high levels of privacy and intimacy, high rates of supportive midwifery behaviour, the correspondence of the birth plan to the actual childbirth, and elevated awareness and control were detected. High privacy and intimacy multiplied satisfaction 4.5 times, supportive midvifery behaviour doubled it, high correspondence of the birth plan intensified satisfaction 6 times, and awareness 3 times, while feelings of control showed a 4 times higher likelihood of satisfaction. Nevertheless, perception of high stress levels decreased satisfaction by 80%, intense pain and pressure applied on the abdomen reduced the same by 40%, and oxytocin given caused 50% decrease in the probability of satisfaction (H12).

5. CONCLUSIONS

Based on my primary hypothesis, the following can be established: if the system of 'calm and connection' is activated in the course of childbirth instead of the 'fight or flight' stress response then excessive stress can be avoided. It can be regarded as a protective factor against excessive stress in this process if the woman feels safe in her birth environment thanks to high levels of privacy through the continuous support of the same birth attendant alongside protection against disturbance and if she can experience a personally tailored, friendly, calm and respectful professional caregiver support. Despite the continuous medicalisation in childbirth, on the basis of my own research, the emotional type of support seems to be the most supportive type which overrides in importance the informational or the tangible (physical) type of support. High levels of awareness and control also reduce stress and its detrimental effects. If woman-centred care is the goal in the institutions, it is inevitable to regard women as partners when decisions are made about their childbirth and the ways of their treatment.

In my research, only 19% of the participating mothers had the chance to try any of the alternative means of pain relief which can be considered very low. I believe that the opportunities lying in these techniques have not yet been fully recognised in

our country and their increasing use could contribute to the establishment of more effective coping strategies for many more women. I further believe that there are no uniform policies in the particular institutions which would define the exact length of the time period of slower labour which should be deemed as dystocia. The birthing team should consider that the missing component for an effective labour may be a psychological one. The continuous presence of midwives and the provision of calm circumstances should be given priority when childbirth care services are planned. In the professional education of obstetricians and midwives, in addition to professional skills, more emphasis should be placed to the development of interpersonal skills.

Achievements is this area could lead to innumerable short- and long-term advantages such as a higher opportunity for physiological birth, more useful strategies to cope with pain, and enhanced birth experience. These then would serve as ground for the development of the bond between mother and new-born child whereby the risk of probable psychological disorders would be mitigated for both.

LIST OF THE CANDIDATE'S PUBLICATIONS

Publications closely related to the Ph.D. thesis:

Rados M, Mészáros J. (2017) The role of environmental factors in managing labour stress. [A támogató környezet szerepe a szülési stressz kezelésében.] Orv Hetil, 158(29): 1149-1156. [Hungarian]

Rados M, Mészáros J. (2017) What turns labour pain into suffering? The individual ways of coping. [Mitől válik a szülési fájdalom szenvedéssé? Az egyéni megküzdés módjai.] Lege Artis Medicinae, 27 (10-12): 439-447. [Hungarian]

Lipienné Krémer I, Rados M, Pálvölgyi M, Dió M, Mészáros J, Soósné Kiss Zs. (2016) A highly demanding profession: midwifery. Do the midwives who provide sensitive support for birthing women feel satisfied and appreciated? New Medicine, 20(1): 19-26.

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Rados M, Lipienné Krémer I, Dió M, Kovács E. Environmental and Social Privacy and Intimacy during Childbirth. In: Balogh Z (szerk.), COHEHRE Conference: Health and Social Care Perspectives for a Sustainable Future. Faculty of Health Sciences, Semmelweis University, Budapest, 2015: 118-119. (ISBN: 978-963-7152-93-1)

Other publications:

Molnár Sz, Csajbók R, Sinka M, Rozgony K, Bándli L, Tóth T, Rados M, Kemenczei Á, Nagy B. (2016) Current challenges faced by public catering: Public catering as a tool for behavioural education with a potential to form healthier dietary attitudes. New Medicine, 20(4): 130-136.