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Original Article

The relationship of the sense of coherence and distress tolerance with childbirth self-efficacy with the mediating role of body intelligence

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Abstract

Background and aims: Childbirth self-efficacy (CSE) reduces women's fear over labor and increases their tendency for vaginal delivery. The aim of this study was to evaluate the relationship of the sense of coherence (SOC) and distress tolerance (DT) with CSE with the mediating role of body intelligence (BI).

Methods: This descriptive-correlational study was conducted in 2019 on 240 women aged 20–40 years who referred to primary healthcare centers in Maragheh, Iran, to receive reproductive care services. Sampling was done through multistage random sampling and data were collected using a demographic questionnaire, the Lowe's Childbirth Self-Efficacy Inventory, the Antonovsky's Sense of Coherence scale, the Simons and Gahar's Distress Tolerance Scale, and the Anderson's Body Intelligence Scale. The SPSS and the AMOS software (v. 22.0) were used for data analysis through the Pearson's correlation analysis, the Bootstrapping method, and the Sobel's test.

Results: DT, SOC, and BI significantly predicted 16% of the variance of CSE. The direct effects of DT (0.20), SOC (0.15), and BI (0.20) in CSE prediction were significant ($P<0.05$). Moreover, the indirect effects of SOC ($t=2.72$) and DT ($t=2.46$) with the mediating role of BI were significant.

Conclusion: Women's CSE can be improved through improving their SOC, DT, and BI.

Keywords: Childbirth self-efficacy, Sense of coherence, Distress tolerance, Body intelligence

Introduction

Vaginal delivery is the best route of delivery in most cases (1). It is a divine favor for human reproduction since the creation of Adam (2). Almost 85%–90% of deliveries can be performed through the vaginal route without any significant medical interventions. Nonetheless, the prevalence of vaginal delivery is progressively decreasing (2) due to the progressively increasing prevalence of cesarean section (3). The prevalence of cesarean section in Iran was 56% in 1392 (4). A study reported that 31% of primiparous and 18% of multiparous women had undergone cesarean section, while the World Health Organization strongly emphasizes that the prevalence of cesarean section in each country should not exceed 10%–15% (5). Unessential cesarean section can be associated with negative maternal and neonatal consequences such as premature birth, pulmonary artery hypertension, and physical trauma to the neonate (6,7). Fear over childbirth, particularly in the third trimester of pregnancy, is a major factor contributing to the increasing requests for elective cesarean section (8,9). Most primiparous women have fear over vaginal delivery which can be managed through psychological interventions (10). Childbirth self-efficacy (CSE) is an influential factor on women's choice for the route of delivery. By definition, CSE refers to the pregnant woman's perceived ability to cope with labor pain and stress and perform the necessary activities during labor (11). Women with higher CSE usually experience lower labor pain and less frequently opt for cesarean section (12). Sense of coherence (SOC) has potential effects on CSE. SOC is a personal perspective on life (13), is the core of resistance, and can promote health and health-related behaviors (14). SOC has three main components, namely comprehensibility, manageability, and meaningfulness. Comprehensibility is the perception of how much structured and explicable are situations and events, manageability refers to attitude towards having the necessary abilities to deal and cope with life challenges, and meaningfulness refers to the degree to which life problems are worthy of investment and engagement (15). SOC consists of different trainable skills such as realization, consciousness improvement, social health and subjective well-being promotion, creation of integrity and coherence, and openness to new experiences (16). SOC can reduce women's fear and anxiety over pregnancy and labor pain and improve their motivation for having vaginal delivery (17). Women with higher SOC are more willing to have vaginal delivery (18,19).

Distress tolerance (DT) is another factor with potential effects on CSE. As a personality trait, DT is defined as the ability to experience and tolerate unpleasant emotional states (20) and has a behavioral and a mental component. Behavioral DT is the ability to continue goal-oriented behaviors even in case of emotional arousal, while mental DT is the ability to tolerate irritating psychological problems such as fear, anxiety, and anger (21). DT skills include relaxation, identification of the Supreme Being, relationship with the Supreme Being, fundamental acceptance, coping skills in problematic interpersonal situations, reduction of cognitive vulnerability, improvement of positive emotions, and education about self-harming coping strategies. These skills can be trained through the paper and pencil method in eight 45-minbute sessions (22). Low level of DT is associated with negative emotions, labor pain, and low CSE in women (23). A study showed that DT training can improve self-efficacy and exclusive breastfeeding continuity (24).

Body intelligence (BI) is supposed to have mediating role in the relationship of SOC and DT with CSE. BI is a mental ability to solve bodily problems (25) and encompasses the knowledge about what the body needs and does not need (26). Like spiritual intelligence, social intelligence, and emotional intelligence, BI is a trainable mental ability which can be trained in nine 60–90-minute sessions on interpersonal relationship, problem conceptualization, awareness of the characteristics and the function of the midline, whole body dynamics, craniopelvic resonance, original health, visceral intelligence, neural matrix, facial symptoms, and cellular intelligence (27). A study reported that BI training can reduce premenstrual syndrome and premenstrual dysphoric syndrome (28). Another study reported that mindfulness training can increase pregnant women's awareness of their body and improve their self-efficacy for coping with labor pain (29). However, a study reported that BI had no significant role in explaining women's attitudes towards vaginal delivery (30).

Despite the importance of CSE to women's choice for vaginal delivery, there is limited reliable information about its contributing factors. Therefore, the present study aimed at evaluating the relationship of SOC and DT with CSE with the mediating role of BI.

Methods

Design

This descriptive-correlational study was conducted in 2019.

Participants and setting

Study population consisted of all 20–40-year-old primiparous women who referred to primary healthcare centers in Maragheh, Iran, in summer 2019 to receive reproductive care services. Participants were 240 women selected through multistage random sampling. For sampling, two urban and two rural primary healthcare centers were initially selected and then, two reproductive health staff were randomly selected from each of these four centers. Finally, thirty pregnant women were selected from the clients of each of these staff.

This study had two predictor variables and a mediating variable. The $N > 50 + 8m$ formula for regression studies showed that at least 74 participants were needed. However, some studies reported that at least 200 participants are needed for regression studies (31,32). Therefore, 240 pregnant women were selected to compensate probable withdrawals.

Eligibility criteria were an age of 20–40 years, primiparity, third trimester of pregnancy, basic literacy skills, and no affliction by acute psychological disorders, chronic illnesses, or serious health problems. The only exclusion criterion was reluctance to stay in the study.

Instruments

Data collection instruments were a demographic questionnaire, the Lowe's Childbirth Self-Efficacy Inventory, the Antonovsky's Sense of Coherence scale, the Simons and Gahar's Distress Tolerance Scale, and the Anderson's Body Intelligence Scale.

The Lowe's Childbirth Self-Efficacy Inventory has 62 items in the two dimensions of outcome expectancy and self-efficacy expectancy (33). The self-efficacy expectancy dimension was used in the present study for CSE assessment. A previous study in Iran reported the acceptable face validity and reliability of this inventory with a Cronbach's alpha of 0.97 for the whole inventory, 0.94 for its outcome expectancy dimension, and 0.95 for its self-efficacy expectancy dimension (34).

The Antonovsky's Sense of Coherence scale has 29 items. A study in twenty countries reported that the Cronbach's alpha of the scale was 0.82–0.95 and its two-year test-retest correlation coefficient was 0.5, confirming its acceptable reliability (35). A study on students in Iran also found that the Cronbach's alpha of the scale was 0.75 among male students and 0.87 among female students, while the coefficient of the correlation of its scores with the scores of a 45-item resilience scale was 0.54 (36).

The Simons and Gahar's Distress Tolerance Scale has fifteen items scored on a five-point scale. Higher scores of this scale show higher DT. The Cronbach's alpha values of this scale and its dimensions were respectively 0.82 and 0.70–0.82 and its six-month test-retest correlation coefficient was 0.61 (37). Studies in Iran reported that the Cronbach's alpha of the scale was 0.86 (38) and 0.67 (39).

The Anderson's Body Intelligence Scale has seventeen five-choice questions with three dimensions, namely energy body awareness, comfort body awareness, and inner body awareness. A study reported that the Cronbach's alpha values of these three dimensions were 0.88, 0.77, and 0.82, respectively (40). A study in Iran also found that the Cronbach's alpha values, split-half coefficients, and test-retest correlation coefficients of these dimensions were 0.76, 0.73, and 0.77, 0.74, 0.71, and 0.75, and 0.74, 0.74, and 0.78, respectively (41).

Data collection

Participants completed the study instruments in two sessions in order to prevent fatigue and irritation. Moreover, some instrument items were completed through the interview method.

Data analysis

The SPSS and the AMOS software (v. 22.0) were used for data analysis. Statistical methods used for data analysis were the Pearson's correlation analysis, the Bootstrapping method, and the Sobel's test. The level of significance was set at less than 0.05.

Results

A total of 240 primiparous women with an age mean of 29 years (in the range of 20–40 years) participated in this study. The gender of participants' fetuses was male in 96 cases, female in ninety cases, and unknown in 54 cases.

The mean scores of the main study variables were 100.38 ± 34.19 for CSE, 51.2 ± 10.6 for SOC, 37.4 ± 7.45 for DT, and 63.24 ± 9.71 for BI (Table 1). All these variables had a skewness coefficient of less than 3 and a kurtosis coefficient of less than 10, confirming their normality (Table 1). The Pearson's correlation analysis revealed that CSE had significant positive correlation with SOC (r = 0.308), DT (r = 0.317, and BI (r = 0.287) ($P < 0.001$). In other words, higher levels of SOC, DT, and BI were associated with higher levels of CSE.

Figure 1 shows the study model with the direct and indirect effects of the study variables on each other. The Bootstrapping method and the Sobel's test revealed that DT, SOC, and BI significantly predicted 16% of the variance of CSE. The direct effects of DT (0.20), SOC (0.15), and BI (0.20) in CSE prediction were significant ($P < 0.05$). Moreover, the indirect effects of SOC ($t = 2.72$) and DT ($t = 2.46$) with the mediating role of BI in CSE prediction were significant.

Goodness of fit index (GFI), adjusted goodness of fit index (AGFI), incremental fit index (IFI), and comparative fit index (CFI) were more than 0.90, denoting that DT, SOC, and BI had significant role in explaining CSE. Moreover, chi-square value divided by degrees of freedom (χ^2/DF) was in the 1–3 range and root mean score error of approximation (RMSEA) was 0.04 (acceptable value is less than 0.09). These indices also confirm the goodness of fit of the CSE prediction model (Table 2).

Table 1. The mean scores and normality testing parameters of the study variables

Variables	Mean ± SD	Skewness	SD	Kurtosis	SD
Childbirth self-efficacy	100.38 ± 34.19	0.067	0.307	0.094	0.154
Sense of coherence	51.2 ± 10.6	0.224	0.307	0.299	0.154
Distress tolerance	37.4 ± 7.45	0.521	0.307	0.098	0.154
Body intelligence	63.24 ± 9.71	0.548	0.307	1.085	0.154

Discussion

Study findings showed that with the mediating role of BI, SOC and DT significantly explained 16% of the total variance of CSE. We found no similar study for the purpose of comparison and hence, compared our findings with relatively similar studies. For example, a study showed that BI improvement helps empower women to cope with premenstrual syndrome and premenstrual dysphoric syndrome (28). Another study showed that mindfulness training can be used to improve women's awareness of their body and improve their self-efficacy for coping with labor pain (29). BI is a deep internal and external sensory awareness of the body, includes the knowledge about useful and harmful things for the body, and is a skill consisted of awareness and action (27). In other words, BI improves awareness of bodily characteristics and hence, turns negative perceptions of the body into positive perceptions and enhances satisfaction with the body (42). Consequently, it can improve CSE which in turn helps women use their personality traits (such as psychological resilience and DT) to manage labor pain and emotions. Contrary to our findings, a study showed that BI had no significant relationship with women's attitudes towards vaginal delivery (29).

The results of bootstrapping in the present study showed that the direct effect of SOC in explaining CSE was significant. This finding is in agreement with the findings of a study which reported that SOC improvement can reduce women's fear over pregnancy and labor pain (17). Another study also showed the significant positive correlation of SOC with interest in vaginal delivery (19). SOC makes pregnancy and delivery comprehensible, manageable, and meaningful for women. The comprehensibility component of SOC increases women's awareness and knowledge about pregnancy and delivery, its manageability component empowers women to manage their labor concern and pain, and its meaningfulness component makes women aware of the reasons for their fear and worry over vaginal delivery. Altogether, these components improve women's CSE.

Study findings also indicated the significant contribution of DT in explaining the variance of CSE. This is in line with the findings of a study which showed that negative emotions, self-efficacy, labor pain, and interpersonal interactions determined the quality of coping with labor-related stress and distress (23). Another study found that DT training significantly improved exclusive breastfeeding self-efficacy and continuity. DT is a meta-

Table 2. Model fit indices

Model fit indices	χ2	DF	χ2/df	GFI	AGFI	IFI	CFI	RMSEA
Final model	17.19	8	2.125	0.918	0.975	0.945	0.935	0.04

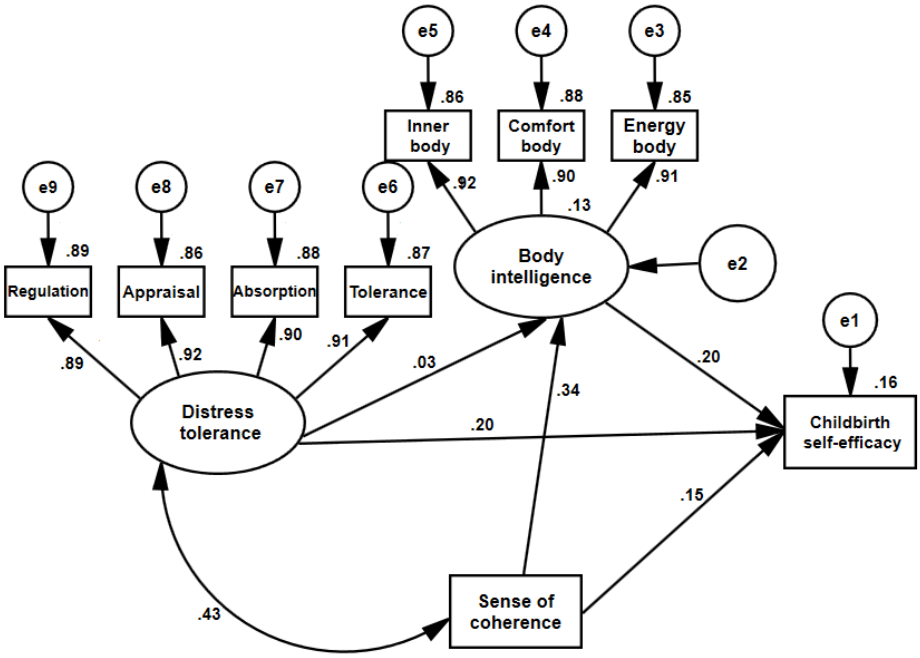

Figure 1. The model for predicting childbirth self-efficacy based on the sense of coherence and distress tolerance with the mediating role of body intelligence.

emotional construct consisted of individuals' evaluation of experiencing negative emotional states respecting aversiveness, acceptability, and tendency to attract attention (37). Therefore, women with low DT consider labor pain and emotions intolerable, cannot control their labor-related distress, do not accept labor emotions, feel embarrassment about those emotions, and attempt to instantly prevent negative emotions because they underestimate their skills for coping with labor emotions. Inability to manage negative emotions preoccupies women, negatively affects their cognitive coherence (39), and thereby, significantly reduces their CSE.

Limitations

One of the limitations of the present study was data collection through the self-report method which might have led to some biases. Moreover, the effects of the dimensions of CSE and SOC were not assessed in the final mode in order to improve model fitting. Future studies are recommended to evaluate the effects of these dimensions.

Conclusion

This study shows the direct significant effects of SOC, DT, and BI and the significant mediating effects of BI on CSE among primiparous women. Therefore, SOC, DT, and BI trainings are recommended to improve CSE among pregnant women.

What does this paper contribute to the wider global clinical community?

- SOC, distress tolerance, and BI have significant positive effects on CSE.
- Nurses and midwives can improve pregnant women's CSE through training them about SOC, distress tolerance, and BI.
- Improvement of CSE can increase pregnant women's motivation for having a vaginal delivery and thereby, can improve maternal and neonatal health.

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Conflict of Interests

None is declared.

Ethical Approval

The Ethics Committee of Urmia Islamic Azad University, Urmia, Iran, approved this study (code: IR.IAU.URMIA.REC.1399.037). Participants were informed about the study aim and methods and were ensured of data confidentiality. Informed consent was also obtained from all participants.

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