Development and psychometric testing of an instrument to assess existential aspects of mother's initial breastfeeding difficulties (ExBreastS)

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A R T I C L E I N F O

A B S T R A C T

Objective: Mothers who have negative breastfeeding experiences due to initial breastfeeding difficulties are in demanding existential situations. Therefore, it is important for healthcare professionals to identify and address such breastfeeding problems. The aim of this study was to develop an instrument designed to assess existential aspects of mothers' initial breastfeeding difficulties and evaluate its psychometric properties.
Methods: This study reports on the development of a new instrument and was carried out in three steps: (1) a questionnaire about various existential aspects of initial breastfeeding difficulties, based on 66 items derived from two phenomenological studies, was developed; (2) information was collected using the questionnaire; (3) and the resulting data were statistically analysed. Spearman's correlation coefficient was used to assess comparative validity; exploratory factor analysis with principal axis factoring and varimax rotation were used to assess construct validity; and Cronbach's alfa was used to assess internal consistency and reliability. Three hundred and nine Swedish-speaking mothers aged 20–46 participated in the study.
Results: Correlation and factor analysis of the 66 items revealed that 16 of the items were of psychometric value and valid. Factor analysis generated three factors that accounted for 62.9% of the total variance: *Mother-Child Interdependency*, *Exposure and Vulnerability* and *Security and Trust*. The instrument shows adequate sensitivity to identify existential aspects of mothers' initial breastfeeding difficulties.
Conclusion: The instrument satisfactorily assesses existential aspects of initial breastfeeding difficulties and can be used as a sensitive tool by healthcare professionals to screen for and identify mothers who have negative breastfeeding experiences.

Introduction

According to the World Health Organization (WHO), breastfeeding is essential to the promotion of public health [1]. In Sweden, almost all new mothers initiate breastfeeding, but many cease within the first two months. The prevalence of exclusive breastfeeding among Swedish mothers is 76% after the first week and 63% at two months [2].

This initial phase of breastfeeding seems to be challenging for many mothers, and breastfeeding difficulties are commonly reported [3–8]. Research conducted in Iran, Sweden and Canada notes that 27–87% of mothers in early postpartum period report breastfeeding difficulties [7]. In Sweden, 30–40% of mothers experience some kind of initial difficulties [6,8], which is, in turn, a major reason for breastfeeding cessation [6,9,10].

Recent research presented in a meta-synthesis describes the whole breastfeeding period as a challenging personal journey that can be pleasurable and joyful or distressing, unpleasant, painful and uncomfortable [11]. Initiating breastfeeding has been described as an existential phenomenon, which means that breastfeeding, as a lived experience, has an impact on women's lives [12]. The term existence, or existential, should be understood as being grounded in the philosophy of existence and the theory of the lifeworld [13]. Thus, viewing breastfeeding as an existential phenomenon implies that women's lived experiences of breastfeeding are the focus. As such, the research deals with what it means to be a breastfeeding mother. A basic ontological idea in existential philosophy is the assumption that human beings are not determined objects; rather the existence is a prerequisite for essence. Human beings are constantly shaping their existences, which are influenced by their past, present and future, all of which affect their being and doing. According to existential philosophy, human beings are experiential subjects for whom biological and psychological aspects are intertwined, continually interacting within the lived body. A human being cannot be conceptually divided into body and psyche, as if they were two separate entities that function independently. The essence of

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each human's existence is unique and is formed as the individual experiences situations and interacts with surroundings, with varying degrees of freedom [14]. From this viewpoint, research findings indicate that initiating breastfeeding constitutes an existential challenge in motherhood [15]. Breastfeeding difficulties can impart an existential sense of 'lostness' as a mother, forcing the mother into a constant struggle with herself, the infant and others, as she attempts to find her way into motherhood [3].

From an existential perspective, research shows that early breastfeeding problems induce emotions of guilt in mothers who feel that they have not lived up to their own and others' expectations [16]. Experiencing breastfeeding difficulties increases a mother's sense of existential vulnerability, creating additional pressure on her to continue breastfeeding in the hope of confirming her ability to be a good mother [5]. A similar course of events has been described [17], indicating that women commonly feel pressured to initiate breastfeeding and fulfil the expectations of society and healthcare professionals. This pressure has been described [4] as a feeling of being overtaken and violated by a combination of needs and demands of the infant, extensive pain and body changes, and personal and societal expectations to succeed at breastfeeding. A mother's breastfeeding decision is a complex process influenced by various individual and societal characteristics including physical and psychological health, socioeconomic status and psychosocial situation, and physical and psychological factors [18] in addition to existential dimensions such as vulnerability and insecurity in the breastfeeding relationship and her role as a mother [4,5]. In such a complex and difficult breastfeeding situation, support and care from professionals and lay persons is of great importance [19]. In a recent study [6], the authors conclude that breastfeeding problems are preventable with support and care, but timing and the maternal perspective are important in overcoming these problems. According to studies [3–5,12,15] about the initial phase of breastfeeding as an existential phenomenon, it is clear that the experiences of initial breastfeeding difficulties are intertwined with the experiences of becoming a mother, motherhood and the mother's experiences of herself as a mother, which is important to further acknowledge when caring for new mothers with breastfeeding difficulties.

As tools for identifying women with breastfeeding problems and/or those at risk for early cessation, various breastfeeding inventories and psychometric instruments have been developed. To our knowledge, three different types of tools are used to capture various aspects of breastfeeding. The first type of tool, which includes the LATCH scoring system [20], is focused on assessing the infant's or the mothers' breastfeeding behaviours, such as the infant's latching behaviour and the positioning of the infant and mother. The second type that we have identified includes the Breastfeeding Self-Efficacy Scale [21] and assesses mothers' attitudes, knowledge and self-efficacy. The third type includes tools that assess mothers' satisfaction with breastfeeding; for example, the Maternal Breastfeeding Evaluation Scale [22] measures mothers' breastfeeding satisfaction throughout the breastfeeding period. There is, however, a lack of tools that capture existential aspects of initial breastfeeding difficulties in terms of mothers' initial experiences of breastfeeding difficulties, and there are no published reports on tools that capture lived experiences of initial breastfeeding difficulties. Such an instrument would differ from existing ones [20–22] in that the ontological and epistemological standpoints for the development of the items would be theoretically grounded in phenomenological research [3,15] based on the lifeworld theory and philosophy of existence [13,14]. As the existential approach appears to more accurately reflect mothers' lived experiences of breastfeeding than do tools such as LATCH and Self-efficacy, which focus primarily on psychology, physiology or biology [20–22], the development of an existential-based instrument would be an important addition to existing breastfeeding inventories.

This study reports on the development and psychometric properties of a new instrument to assess existential aspects of mothers' initial breastfeeding difficulties. Following the principles described by Creswell [23] and Steiner and Norman [24], we developed the instrument in three steps: (1) using results from phenomenological studies on mothers' lived experiences of initial breastfeeding difficulties, we developed a list of items to potentially be included in the instrument; (2) based on quantitative data collected from breastfeeding mothers, we excluded items that were not associated with mothers' overall breastfeeding experiences; and (3) guided by evaluations of factor structure and reliability, we eliminated redundant items to ensure the final version exhibited acceptable psychometric properties. By following this procedure, we intended to develop an instrument that is theoretically well-grounded in phenomenological studies, based on lifeworld and existential theories and well suited for assessing existential aspects of breastfeeding difficulties.

Methods

Study sample and setting

During the periods of January to May 2013 and November 2016 to June 2017, mothers were recruited to participate in the study either at one hospital's postpartum ward or any of three child health centres. In total, two nurses at three child health centres and two midwives at one maternity ward in Sweden recruited mothers for the study. These nurses and midwives received both oral and written information about the study and inclusion criteria and were instructed how to inform mothers about the study's preconditions of voluntary and confidential participation. A consecutive sampling strategy was applied, which means the five recruiting nurses and midwives were instructed to ask all breastfeeding women they met in both rural and urban areas who fulfilled the inclusion criteria.

As inclusion criteria for this study, mothers were required to speak and understand the Swedish language and have experienced breastfeeding initiation with a healthy, full-term infant. For the purposes of the study, the initial phase of breastfeeding was defined as the eight weeks following the birth of the infant. In order to assess the existential aspects of initial breastfeeding experiences, an additional inclusion criterion required that the infants should not be more than two-months-old at the time of recruitment. The mothers were asked to complete the questionnaire and return it to the midwives or nurses in an enclosed envelope.

In total, 350 mothers were invited to participate in the study, of which 309 returned the questionnaire, for a response rate of 88%. As we did not have any information about mothers who did not participate, it was not possible to perform an attrition analysis. Internal attrition was minimal.

Participants included 309 mothers aged 20–46 yrs ($M = 30$, $SD = 4.79$), which is consistent with the Swedish national average of mothers giving birth [25]. One hundred and thirty-three (33%) first-time mothers and 176 (67%) multiparous mothers participated, and their infants were up to 8 weeks old ($Md = 2.00$, $M = 2.89$, $SD = 1.70$). Of the participating mothers, 269 (87%) were born in Sweden, and 39 (13%) were first-generation immigrants. Further, 301 (97%) of the mothers were married or had partners; 294 (44%) had high school education, while 157 (51%) had university educations; and 7 (2%) smoked tobacco. Most of the mothers, 261 (84%), had vaginal births, while 37 (12%) gave birth by caesarean section.

At the point of initial participation in the study, which occurred from one week to up to 8 weeks after birth with a mean time for the start of participation at three weeks after birth, 257 (83%) mothers breastfeed exclusively, 35 (11%) breastfeed partially, 8 (3%) had stopped breastfeeding, 8 (3%) were using a breast pump and 84 (27.2%) mothers had given infant formula.

Item construction

The procedures used for gathering and analysing the qualitative data that was the basis for the item construction in this study are describe in detail elsewhere [3,12,15]. Items were constructed as constituents of knowledge from phenomenological studies of mothers' lived experiences of initial breastfeeding difficulties [3,15]. A constituent is a variation of the essential meaning of a phenomenon and is, therefore, considered to be suitable for item generation. Items included both positive and negative aspects [26] of the phenomena related to initial breastfeeding difficulties. Formulating items as derived from the results of qualitative studies has been suggested as a useful approach for conceptualizing and operationalizing concepts for instrument development [23,24]. In the first stage of item construction, 66 statements were formulated.

Example of statements are *"I feel worry over breastfeeding"*, and *"I feel stressed over breastfeeding"*.

A five-point Likert scale (1 = strongly disagree, 2 = mostly disagree, 3 = neither disagree nor agree, 4 = mostly agree, 5 = strongly agree) was used for all items. A five-point Likert scale is recommended as a possible way to optimize reliability as this ensures the possibility for participants to be neutral in their responses [24,26]. Items that described positive aspects of initial breastfeeding difficulties were reversed coded. A separate, single-item was included to assess overall breastfeeding experience on a ten-point scale (1 = very negative experience, 10 = very positive experience).

After constructing the initial 66 items of the instrument, an evaluation of face validity and content validity was conducted [24]. Five mothers who met the inclusion criteria and three midwives were asked to fill in the instrument individually. They were asked to evaluate both the comprehensibility and meaningfulness of the items. They were also encouraged to suggest alternative formulations of the items. Finally, they were asked if they had experiences that were not captured by any of the items. This resulted in minor adjustments in wording and phrasing, but all 66 items were judged as suitable, comprehensive and meaningful for assessing existential aspects of mothers' initial breastfeeding difficulties.

Statistical analyses

All statistical analyses were conducted using the Statistical Package for Social Science, SPSS Version 23 (SPSS, Inc., Chicago, USA). For the first set of analyses, we used bi-variate correlations to select items that, taken together, constitute a valid measure of an overall positive/negative experience of breastfeeding. Each item from the initial version of the instrument ($n = 66$) was correlated with the single-item that captured mothers' overall breastfeeding experience. Using Spearman's correlation coefficient, we sought to reduce the number of items by evaluating the magnitude of the coefficients for each item. Coefficients lower than 0.30 were considered weak, and items with coefficients below this value were removed from the instrument [24].

In the second set of statistical analyses, our aim was to attain a clear factor structure for the instrument, in which each subscale had acceptable reliability. For this purpose, we used exploratory factor analysis [27] to guide our selection of items. More specifically, the method of principal axis factoring with varimax rotation was chosen as it has been recommended for data that are not normally distributed [27]. The lower limit for eigenvalues was set to 1.00 in determining the number of dimensions to be extracted. To evaluate the reliability of each factor, estimates of internal consistency were calculated using Cronbach's alpha [24].

For the third set of analyses, we calculated item-total correlations to evaluate the contribution of individual items to the variance of the total score of each subscale. The item-total correlation is the correlation between a particular item on one side and the scale total, when that particular item has been omitted, on the other side. An item that does not correlate with the total score of the scale does not contribute to the total variance of the scale and is therefore superfluous [28]. Coefficients lower than 0.20 for item-total correlations indicate that items don't contribute enough to the scale total, whereas coefficients between 0.20 and 0.39 indicate a strong correlation, and coefficients higher than 0.40 indicate a very strong correlation [28].

The fourth set of analyses involved using inter-item correlations to examine to what extent one item was associated with each of all other items on the scale. These correlations provided an assessment of item redundancy. Inter-item correlations should preferably be between 0.20 and 0.40. Lower coefficients indicate that items may not be representative of the phenomenon, suggesting that items that are not closely related to each other and might not be suitable for measuring a single construct. Coefficients higher than 0.40 indicate that items may only capture a small part the phenomenon, suggesting that items are very similar to each other and are redundant [28].

In the next set of analyses, we examined deviations from the normal distribution for the total score of each subscale. For this purpose, we used the skewness and kurtosis statistics obtained from the descriptive functions of SPSS. The ratio between the skewness statistics and the standard error for the skewness statistics can be used as a measure of deviation from the normal distribution [29]. A similar calculation was used on the kurtosis statistics as a measure of deviation from the normal distribution [29]. As a rule of thumb, ratios above 2.00 indicate deviations from the normal distribution [29].

Finally, the validity was evaluated using Spearman's correlation coefficient to determine the relationship between the factors obtained in the factor analysis and the single item assessing the overall breastfeeding experience.

Ethical approval

Ethical approval and permission to undertake the study were obtained from the Ethics Committee of the Medical Faculty at the University of Gothenburg, recorded Dnr 373–12. All participants received written and verbal information about the study and their right to participate voluntarily and anonymously. A completed and returned questionnaire was considered informed consent to participate.

Results

Associations with an overall measure of breastfeeding experiences

In the first set of analyses, we examined the associations between the single item that captured mothers' overall breastfeeding experience and each of the 66 items that had been generated to capture mothers' perceptions of general breastfeeding difficulties. These analyses revealed that correlation coefficients were greater than $r_s = 0.30$ for 40 of the 66 items, indicating that these items were strongly associated with mothers' perceptions of general breastfeeding problems. The 26 items that were only weakly associated (i.e., $r_s < 0.30$) with the general question about mothers' overall breastfeeding experience were removed—two examples of these items are *"I feel irritation towards the infant when breastfeeding"* and *"Breastfeeding causes me to doubt my ability to take care of my infant"*

Factor structure and reliability

In the second set of analyses, the remaining 40 items were subjected to a series of factor analyses. The initial analysis resulted in six factors. Items with factor loadings < 0.30 and items that were causing cross loadings were removed. Examples of items that were omitted due to low factor loadings were *"I feel alone with breastfeeding"* and *"Breastfeeding makes me feel annoyed at myself."* The remaining 17 items were, again, subjected to a factor analysis, this time resulting in four factors. At this point, the following item was involved in cross loadings with two other

Table 1
Factor loadings (and Cronbach's alphas for separate factors) (N = 309).

Item	Mother-child interdependency α = 0.89	Exposure and vulnerability α = 0.86	Security and trust α = 0.73
Breastfeeding makes me feel like a failure mother	**0.850**	0.177	0.204
I feel worthless when breastfeeding	**0.767**	0.131	0.216
Breastfeeding makes me feel worse than other mothers	**0.740**	0.121	0.317
Breastfeeding makes me struggle to feel joy about my child	**0.724**	0.239	0.183
Breastfeeding makes me feel useless to my child	**0.719**	0.198	0.159
Breastfeeding has made the first time with my child hard to manage	**0.712**	0.235	0.239
I am unsure how to respond to the child's signals during breastfeeding	**0.408**	0.268	0.065
I feel trapped by breastfeeding	0.212	**0.767**	0.245
Being constantly prepared to breastfeed is frustrating	0.206	**0.757**	0.200
I feel like a machine when I'm breastfeeding	0.119	**0.747**	0.153
I do not always look forward to breastfeeding	0.209	**0.641**	0.106
It feels like my sole task right now is to produce milk for the child	0.187	**0.634**	0.139
I am fascinated about breastfeeding	0.113	0.168	**0.716**
I feel privileged to breastfeed	0.255	0.116	**0.693**
I feel confident when I'm breastfeeding	0.230	0.232	**0.609**
I trust that my body can produce enough milk for my child	0.189	0.135	**0.345**

Notes. Principal axis factoring with varimax rotation (eigenvalues > 1). Bold factor loadings within a column indicate items belonging to the same subscale.

items and was, therefore, removed: "*I'm unsure if my body can produce enough milk*"

A factor analysis of the remaining 16 items resulted in three factors with each item loading > 0.40, except for one item ("*I trust that my body can produce enough milk for my child*") that was retained both because of its clinical importance and its theoretical significance given the essential nature of the concept of trust and mistrust in the phenomenological framework. The final factor analysis (see Table 1) of the 16 remaining items resulted in the three factors shown in Table 1 below, which together explained 62.9% of the total variance, with each separate factor explaining 41.3%, 12.6% and 9.0%, respectively. The factor structure of the three factors was clear with no cross loadings. Furthermore, Cronbach's alphas for items within each dimension ranged from 0.73 to 0.89, which indicate acceptable reliability. Taken together, the results from these analyses indicate that items within each separate dimension can be used in an instrument to capture existential aspects in mothers' breastfeeding difficulties with good psychometric properties.

Item-total correlations

In the third set of analyses we examined the contribution of separate items to each of the subscales. The corrected item-total correlations for factor 1 ranged from 0.454 to 0.823 (for individual coefficients, see Table 2). Except for one item, the magnitude of correlations was markedly high, with relatively little variation. The lowest correlation was also relatively high, indicating that all items had the ability to differentiate mothers who experienced breastfeeding difficulties from mothers who did not.

The corrected item-total correlations for factor 2 ranged from 0.617 to 0.754 (for individual coefficients, see Table 3). For this factor, the magnitude of correlations was consistently high, thereby indicating that all items had a substantial ability to differentiate mothers with a low

Table 3
Item-total statistics for factor 2 (N = 303).

Item	Corrected item-total correlation
Being constantly prepared to breastfeed is frustrating	0.73
I feel like a machine when I'm breastfeeding	0.70
I do not always look forward to breastfeeding	0.62
I feel trapped by breastfeeding	0.75
It feels like my sole task right now is to produce milk for the child	0.63

Table 4
Item-total statistics factor 3 (N = 305).

Item	Corrected item-total correlation
I am fascinated with breastfeeding	0.56
I trust that my body can produce enough milk for my child	0.37
I feel confident when I'm breastfeeding	0.60
I feel privileged to breastfeed	0.58

degree of breastfeeding difficulties from those with a high degree of difficulties.

The corrected item-total correlation for factor 3 ranged from 0.366 to 0.584 (for individual coefficients, see Table 4), which indicated that all items had an acceptable ability to differentiate mothers with more positive breastfeeding experiences from those with more negative experiences. Although the item that was retained for theoretical reasons

Table 2
Item-total statistics for factor 1 (N = 307).

Item	Corrected item-total correlation
Breastfeeding makes me feel useless to my child	0.70
I am unsure how to respond to the child's signals during breastfeeding	0.45
Breastfeeding makes me feel like a failure mother	0.82
Breastfeeding has made the first time with my child hard to manage	0.74
Breastfeeding makes me struggle to feel joy about my child	0.76
I feel worthless at breastfeeding	0.75
Breastfeeding makes me feel worse than other mothers	0.75

Table 5
Statistical properties.

	Factor 1	Factor 2	Factor 3
N valid	307	303	305
Missing	2	6	4
Mean (*SD*)	4.64 (0.61)	3.77 (0.98)	3.90 (0.82)
Skewness (Std. Error)	−2.49 (0.14)	−0.71 (0.14)	−0.77 (0.14)
Ratio: Skewness/Std. Error	−17.79	5.07	−4.53
Kurtosis (Std. Error)	6.28 (0.28)	−0.31 (0.28)	0.34 (0.28)
Ratio: Kurtosis/Std. Error	22.43	−1.11	1.21

("*I trust that my body can produce enough milk for my child*") had the lowest item-total correlation, it was still within the acceptable range. Taken together, the results of all item-total correlation analyses showed that, for each separate subscale, all of the items involved different aspects of the same attribute, indicating that each item was valuable to the subscale to which it belonged.

Inter-item correlations

In the fourth set of analyses, inter-item correlations within each factor were examined. Inter-item correlations for factor 1 ranged from 0.34 to 0.76 (*M* = 0.57), for factor 2 inter-item correlations ranged from 0.45 to 0.67 (*M* = 0.56), and for factor 3 they ranged from 0.24 to 0.54 (*M* = 0.41). Correlations towards the upper end of the range indicated that some items did not differ enough for each of them to contribute uniquely to the total variance of each subscale. However, the inter-item correlations for each of the three factors displayed acceptable correlations, although with a tendency for redundancy (i.e., items at risk of being too similar to each other).

Internal attrition and distribution

Results involving the distributions of the total scores of each subscale and missing responses are presented in Table 5. The examination of distributions revealed skewness for all three subscales, indicating that their distributions deviated from a normal distribution. In addition to issues with kurtosis, factor 1 in particular displayed a skewed distribution. Mean values for separate dimensions ranged from 4.64 to 3.90 (*SD* = 0.61–0.98). The mean and standard deviation for factor 1 were notably quite high. However, the standard deviation showed that there was opportunity for sufficient variance. The number of missing responses was low, ranging from 2 to 6 for separate dimensions, which indicated that the items were understandable and answerable for almost all participating mothers. Statistical properties for the three different factors are presented in Table 5.

Criterion validity with general breastfeeding experiences

As the final set of statistical analyses, we examined the associations between each of the three subscales and the single item assessing overall breastfeeding experience. We used Spearman's rank-order correlations because data for the three factors were skewed. The correlation coefficient for the three factors was 0.50, 0.44 and 0.49, respectively (*ps* < 0.01). These correlations indicated that the scale may have acceptable criterion validity in terms of its general concept [24,26,28].

Conceptual interpretation

After statistical evaluations of the instrument, a conceptual interpretation of each of the three subscales was performed based on all items within each separate factor. The interpretation of each of the three subscales resulted in the following labels: (1) *Mother-Child Interdependency*, in which the existential aspects of breastfeeding difficulties as they relate to the interdependent relationship between those

difficulties and the woman's central understanding of herself as a mother are captured; (2) *Exposure and Vulnerability*, in which the existential aspects of breastfeeding difficulties are expressed as a sense of exposure and vulnerability stemming from feelings of being trapped in a problematic situation with the infant feeling like a machine, in existence solely to produce milk; and (3) *Security and Trust*, in which the existential aspects of breastfeeding difficulties are captured as a sense of security or insecurity, as well as trust and mistrust, about the capacity of one's own body to adequately perform in the breastfeeding situation.

Discussion

This study reports on the development of an instrument designed to assess existential aspects of mothers' initial breastfeeding difficulties. The final version of this inventory, which we call the Existential Breastfeeding Difficulty Scale (ExBreastS), has good psychometric properties and acceptable reliability and validity. The three subscales, (1) *Mother-Child Interdependency*, (2) *Exposure and Vulnerability*, and (3) *Security and Trust*, deal with different existential aspects of experiencing difficulty with initiating breastfeeding. The clinical relevance can be described in terms of its implications for how healthcare professionals approach their patients. ExBreastS fills a gap in the existing breastfeeding inventory through its specific focus on existential aspects of initial breastfeeding difficulties from the perspective of mothers and its ability to capture mothers' breastfeeding experiences. From a caring science perspective, the aim of providing care is to ease suffering and strengthen health and wellbeing. A patient can, from the perspective of this study, be understood as a woman and a breastfeeding mother. To provide optimal care, the focus should be on the individual mother's breastfeeding experiences and her experiences of caring activities in order to strengthen health processes and ease suffering [12,30]. If this focus is overlooked, healthcare professionals may deal with breastfeeding solely as a practical, biological or physiological phenomenon [3–5,12,15]. Such care has been described as detrimental because the individual mother receives care for only problems related to her biological body, such as milk production, mastitis or latching difficulties, without the consideration of the wholeness of the situation to which the existential aspects contribute [4,12].

From a research perspective, the inventory may be used to evaluate interventions to develop healthcare practices for new mothers. One such intervention that needs to be researched more thoroughly is the development of methods of care with the breastfeeding story in terms of mothers' breastfeeding experiences as a foundation for caring [15]. Healthcare based on such ground has been shown to be successful in promoting health and wellbeing as well as easing suffering from the perspective of the mothers [15]. Similar caring interventions need to be developed for strengthening mothers' wellbeing during their initial attempts to breastfeed. The initial phase of breastfeeding is important to the continuation of breastfeeding because many mothers reduce or cease breastfeeding within a few weeks of birth [2] due to breastfeeding difficulties and negative breastfeeding experiences [6,9,10] The new inventory ExBreastS can be used by researchers and healthcare professionals in developing and evaluating interventions intended to improve breastfeeding experiences.

As negative breastfeeding experiences put new mothers in existentially demanding situations, it is important to develop a breastfeeding inventory that can be used by healthcare professionals to screen and identify existential issues. A reliable tool that accurately assesses existential aspects of mothers' negative breastfeeding experiences and could be used in day to day care practice would assist healthcare professionals in identifying mothers experiencing the initial phase of breastfeeding as difficult and problematic. Implementing procedures for such screening would allow healthcare professionals to provide individually adopted care. The intent of this study was to develop an instrument that captures the degree of mothers' breastfeeding difficulties not a tool to identify mothers at risk for ceasing breastfeeding early.

However, previous research [4–6,9,10] emphasize that mothers with initial breastfeeding difficulties are at risk for early cessation. According to such knowledge, it is worth identifying these mothers for the purpose of preventing breastfeeding cessation. While ExBreastS was not developed specifically for this purpose, the fact that it can identify women experiencing breastfeeding difficulties may make it a suitable tool to also identify those at risk for early cessation. The procedure employed during the development of the ExBreastS adds significantly to its strengths. This procedure involved deriving items from two previously published qualitative studies [23] with mothers who had personal experiences with difficulty initiating breastfeeding. The qualitative studies on which the item generation was based [3,15] have a profound ontological and epistemological foundations in phenomenology and the philosophy of existence as well as phenomenological orientations towards the phenomenon, *initial breastfeeding difficulties,* which was unique when development of the instrument began. The use of items generated from personal experiences of the mothers themselves also imparts greater potential for the inventory to capture breastfeeding experiences with good construct validity. However, an instrument like the ExBreastS cannot fully capture the wholeness of a breastfeeding experience because such experiences involve so many different and multifaceted aspects. ExBreastS thus has the potential to point out existential aspects that need to be addressed more thoroughly and represents a useful complement to existing caring activities such as caring conversation [15,30].

During development, the inventory's content validity was evaluated through feedback from a group of new mothers and a group of midwives who completed the questionnaire and compared the items with their personal experiences [24]. They confirmed the relevance of the instrument verbally to the researchers. Moreover, the three dimensions of the instrument, which were statistically generated, corresponded well with results from previous qualitative studies that were expressed as essential meanings and constituents and which inspired the instrument's items [3,15].

An additional strength of the ExBreastS development procedure was the evaluation of the concurrent criterion validity of each separate item against mothers' general breastfeeding experiences. This evaluation implied that all three dimensions of the inventory were relevant to general breastfeeding experiences from the mothers' own perspectives, although they were slightly different in their meanings and values.

One limitation of this study involves external validity. The use of consecutive sampling instead of random sampling may have decreased the representativity of the sample to a national population of breastfeeding mothers. To let midwives and nurses, rather than the researchers, ask all the mothers they cared for to participate was a choice intended to maximize the number of participants, but the consequence of that choice is that we do not know exactly how many mothers declined participation or the characteristics of those mothers or whether the midwives/nurses actually asked all mothers who met the inclusion criteria. Analysis of external attrition is therefore impossible. However, a comparison with national average statistics regarding birth and breastfeeding among women in Sweden [2,25] was conducted to determine whether the study sample was representative to the national population of mothers in Sweden. The demographic characteristics of the participating mothers did not differ from the national statistics regarding age and smoking status but differed slightly regarding their immigrant and educational backgrounds [25]. Compared to the average woman based on national statistics, mothers included in this study were slightly more likely to have been born in Sweden and had a slightly higher level of education. Mothers' participating in the present study also seems to exclusively breastfeed to a slightly higher extent than the national average of mothers giving birth in Sweden. However, as these differences do not represent significant variations from national averages, the sample is adequately representative for the national population of mothers giving birth in Sweden, which supports the transferability of the scale to clinical setting in Sweden. But in order to

further develop the scale, more mothers born outside Sweden and those with more varied socioeconomic statuses should be included.

Further, the inter-item correlations for each of the three factors were acceptable but indicated a tendency for redundancy. In addition, the mean and standard deviation for factor 1 were notably high, and these traits together indicate that the scale needs further testing. One possible solution is to reduce the number of items included in factor 1, a possibility which could be evaluated in future research [24,26,28] by collecting a new sample to confirm the appropriateness of the scale, possibly using a confirmatory factor analysis [24].

Conclusion

The instrument ExBreastS adequately assesses existential aspects of initial breastfeeding difficulties and may serve as a sensitive tool for healthcare professionals to identify mothers with a negative breastfeeding experience who are in existentially demanding situations. These mothers need sensitive caring to promote their wellbeing due to their experiences with breastfeeding difficulties. The three dimensions of mothers' overall breastfeeding experiences captured by the ExBreastS conform to the results of the phenomenological studies that the instrument was developed from, which indicate clinical relevance. However, to further evaluate the instrument's validity and reliability, more studies in other socioeconomic and sociocultural contexts are needed.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.srhc.2019.01.005.

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