

The Factors Affecting Successful Breast-feeding (SBF)

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ABSTRACT

Background: No comprehensive definition of SBF leads to failure in identification of ineffective breast-feeding and clinical problems, which will end up in early hospitalization of the infants. The study tried to describe the factors affecting SBF by Walker and Avant approach.

The quantitative, qualitative, and mixed papers using different approaches in nursing, midwifery, nutrition and medical literature from 1995 to 2017 were reviewed by the researchers using keywords "successful breast-feeding," "infant," and "SBF concept analysis," in databases of Cinahel, PubMed, Scopus, Medline and Google Scholar.

Methods: We used Walker and Avant approach in the analysis of the factors affecting successful breast-feeding. Searching for "successful breast-feeding" and "infant" triggered the initial study. Ultimately, 84 sources were selected as the sample of the study. Later, data was classified according to characteristics, effective factors, incidences, consequences, and empirical referents connected with successful breast-feeding.

Results: As an interactive process, four main characteristics of SBF were holding the infant while breast-feeding, the method of placing the breast in the infant's mouth, sucking, and milk transmission from mother to the infant. Furthermore, some incidents related to SBF were "posture of the infant while breast-feeding," "breast physiology and anatomy," and "infant's mouth physiology and anatomy." The aftermaths included "infant's behavior when being full," "letting go of the breast," "not responding to sucking reflex," "apparently calm infants," and "lack of pain and discomfort in the breast."

Conclusion: The results showed that determining the characteristics, events, and aftermaths of SBF is absolutely essential and important for both clinical and nursing intentions. Indeed, accurate estimation of the concept of SBF ends in identification of the related problems and proposing strategies for solving them.

Keywords: Analysis, Breast-feeding, Effective factors, Successful

Introduction

A vital period in human life in growth and development is infancy. Moreover, nutrition is very importance in this period. In the first few months of life, breast milk is the best food for infants (1). Breast-feeding brings about the best nutrition for infant's growth and development with specific biological and emotional effects on mother and child's health (2). Breast milk has large amounts of high-quality substances easily absorbable providing energy, nutritional balance, ease of digestion, and growth with health (3). Actually, no substance can replace breast milk. With more than 400 beneficial materials in breast

milk, like white blood cells and antibodies, there is no possibility of producing a replica of it in laboratory. These substances keep the diseases away from infants (4) decreasing mortality, diabetes, diarrhea, abdominal colic, intestinal hemorrhage, acute respiratory infections, asthma, atopic diseases and jaundice, and obesity (5). They are also essential for neurons and brain development (6).

Nowadays, infants' health is greatly dependent on breast-feeding (7). In Iran, breast-feeding has been very important since long time ago (8). Documented history of breast-feeding in Iran

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dates back to the ninth century; in his book "Ghanoon," Avicenna stressed the importance of breast-feeding (9).

As a natural nutrition, breast-feeding has been suggested for the first 6 months of life (10). A cross-sectional study conducted in Canada indicated that about 90.3% of the mothers in Canada breastfeed their children, but less than 28% did not breastfeed their babies exclusively for the first 6 months (11). In Iran, 86% of mothers breastfeed the babies until they are four months and 25% up to 6 months, which is lower than World Health Organization's (WHO) suggested rate. Another study reported the rate of exclusive breast feeding up to 6 months as 44% in Iran (10). Overall, exclusive breast-feeding has a significant share in infant's health. Breast-feeding lowers the risk of acute respiratory infection by eight times with the risk of mortality up to 4 times (5). WHO has stated that the rate of breast-feeding should be 68% by 2018 for a healthy society (12). Moreover, WHO and UNICEF have suggested that breast-feeding needs to start from delivery room in all child-friendly hospitals (13). Unluckily, people in developing countries do not pay attention to these recommendations as they should (14). Various studies have stated various disrupting factors in breast-feeding, such as insufficient breast milk, age, job, socioeconomic factors, mother's education level, mother's desire for breast-feeding, sick child, singleton pregnancy, and the type of delivery (15). Studies have proven that breast-feeding induced nutritional problems start from the very hospital. Scubar et al. showed that the mother have to breastfeed their infants successfully and non-stop for stopping illness and re-hospitalization (16). Likewise, Taylor and Hong stated that the side effects that cause the infant's re-hospitalization might basically be connected with not-enough breast-feeding. Thus, hospitalization can be done away with proper breast-feeding and follow-up (17). A study of hospitalized infants revealed that one of the primary causes of hospitalization was connected with mothers' insufficient knowledge of suitable breast-feeding (18).

Several studies have reviewed the concept of SBF so far (19). Nonetheless, there is no comprehensive definition of the factors affecting the comparability and generalizability of breast-feeding studies which is a limitation per se (20).

Methods

The elements associated with effective breast-

feeding were inspected by Walker and Avant (1995) method. Analyzing an idea goes for illuminating the significance of that idea in nursing literature. Concept examination is a procedure in which attributes of an idea are recognized and characterized. Likewise, an exact viable definition is given to enhance idea connections (7, 21). Walker and Avant proposed that idea investigation could give new clinical understandings, look into devices, and assessment of the accessible instruments. In addition, the current instruments can be surveyed in view of the aftereffects of idea examination to decide whether they measure the idea accurately. By utilizing the practical meaning of an idea, it might be utilized as a variable for research purposes (7). Thus, our examination intended to investigate the factors affecting SBF utilizing Walker and Avant approach as follows:

Step 1: Choosing "successful breast feeding" as a concept

Step 2: Determining the aim of analysis and clarifying successful breast-feeding

Step 3: Identification these of it in previous scientific literature

Step 4: Determining the essential features of the concept

Step 5: Suggestion of a model case (in this model, characteristics of the concept are similar to the model, but the model does not contain all the characteristics of the concept).

Step 6: Identifying the borderline, related, contrary, invented, and illegitimate instances.

Step 7: Identifying antecedents and consequences of the concept

Step 8: Definition and determination of empirical referents and measuring the concept using the results.

Results

The analysis of the factors in SBF will go on according to these steps:

1. Choosing the Concept and Purpose of Analysis

This examination went for deciding on the idea of the factors affecting successful breast-feeding, especially in nursing literature in recent 20 years. A literature review was directed via seeking CINAHL, PubMed, Scopus, and Google Scholar databases and furthermore nursing, birthing assistance, nourishment and therapeutic writing from 1990 to 2017 utilizing the keywords: "successful breast-feeding," "infant," and "SBF concept analysis,". At last, 84 assets were chosen as the example.

Table 1. Concept analysis sample references (total n = 84)

Year of publication	No	Present
1990-2000	11	13
2001-2010	34	40
2011-2015	39	47
Country of origin		
Iran	23	27
United States of America	20	24
Canada	21	25
United Kingdom	10	12
Australia/New Zealand	7	9
Other	3	3
Reference type		
Best practice implementation article/abstract	45	54
Research report/abstract	10	12
News brief	6	7
Commentary/letter to editor/editorial	18	21
Book/book review	5	6
Domain		
Clinical	51	61
Educational	28	33
Theoretical/conceptual	5	6

Notwithstanding, restricted access to a few references prompted their rejection from the examination. At that point, the information was delegated attributes, affecting components or episodes, outcomes, and exact referents identified with successful breast-feeding. Additionally, the past papers on the idea of effective breast sustaining were utilized for better comprehension of the discoveries, examination of the information, and elucidating the significance. All the papers selected were quantitative, subjective, and review type and the majority of them did not have a conceptual framework. In any case, the scientists made no judgment about the nature of the papers.

A review of the factors effective in breast-feeding was gathered for examination of conceptual framework in view of publication year, country, type, and area has been displayed in Table 1. In view of the discoveries displayed in Table 1, it was discovered that utilizing the idea of effective breast bolstering has expanded in the previous two decades. What is more, the vast majority of the assets were from Iran, U.S., Canada, and U.K. Moreover, most of the resources were logical papers (full content - conceptual) and about portion of them were clinical examinations.

2. Determination of the purpose of analysis and clarification of the factors effective in the concept of successful breast-feeding

The purpose of the investigation was to create an operational meaning of the variables associated with fruitful breast sustaining ready to be utilized

as a part of research.

In addition, loose meaning of SBF brings about failure to distinguish ineffectual practices identified with this idea, thus prompting babies' clinical issues and hospitalization (22, 23). Presently the inquiry emerges "what is successful breast-feeding". To maintain a strategic distance from uncertainty and to clear up the idea of Successful Breast-Feeding, idea examination ought to be finished. Along these lines, the present examination plans to investigate the idea of the factors engaged with SBF, build up a reasonable applied comprehension, and gives a solid meaning of the idea through Walker and Avant way to deal with be utilized as a part of nursing research and clinical settings.

3. Use of the concept of SBF

Dictionary definition of breast-feeding : To feed (a baby) mother's milk from the breast(24)Used in other discipline?? In Nursing and Pediatric

Breast-feeding, also called nursing, is the process of feeding human breast milk to an infant, either directly from the breast or by expressing (pumping out) the milk from the breast and bottle-feeding it to the infant. Breast-feeding and breast milk provide an infant with the required calories and nutrients (25).

American Academy of Pediatrics (AAP) stated that Policy Statement on Breast-feeding, women who don't have health problems should exclusively breastfeed their infants for at least the first 6 months of life (26).

Effective breast-feeding a nursing diagnosis accepted by the North American Nursing Diagnosis Association, is defined as the state in which a mother-infant dyad/family exhibits adequate proficiency and satisfaction with the breast-feeding process (27).

In various papers, the concept of "breast-feeding" was defined as "interactive process" (28), "the product of systematic process" (29), "a series of steps" (30), and "sequential steps process" (31). Moreover, evidence-based clinical studies guidelines and the Association of Women's Health have defined breast-feeding as the "process whereby the infant receives milk" (32). Breast-feeding is defined as "a technical process that breast milk is transferred to the infant", "a dynamic interaction", and "symbolic communication" as well (16). Furthermore, Johnson et al. have defined breast-feeding as a time when infant has oral contact with the breasts of mother (33). Livingston also called

breast-feeding as a process in which breast milk is taken to the infant's mouth (17). Moreover, Ingram, Johnson, and Greenwood (2002) argued that SBF is "feeding without pain for both mother and the child" (34). Some other studies have defined breast-feeding as a "complicated interactive process with mutual consent which stems from providing the needs of mother and child" (35, 36). In some studies, SBF was connected with the number of individual sessions of breast-feeding (35, 37). Generally, the review of the literature stated breast-feeding as an interactive harmless process between mother and infant where breast milk is directly taken to child's mouth and the needs of both mother and child are met.

In short it can be stated that the concept of SBF described and explained as the themes "Productive Process", "Interactive process", "Systematic process", "Technical process", "Safe feeding", "Feeding quantity", "a dynamic interaction", "symbolic communication", "interactive process with mutual consent", "A feeding process", "Dyadic relationship".

4. Essential features of SBF

Walker and Avant (2005) characterized the fundamental attributes of the idea, which separate the idea from comparative and related ideas (38). It appears the significant element lies in this interactive process and SBF is related to the intuitive procedure during breast-feeding. In all the investigated papers, "adequate transfer of breast milk to infants to meet the needs of mother and child" was apparent. Likewise, four fundamental attributes of the interactive procedure of SBF that has been specified in most of the assets included how to hold the newborn child during breast-feeding, the way breast is placed in baby's mouth, how to suck, and milk transmission from mother to baby.

4.1. Breast-feeding position

Mulford et al. expressed that breast-feeding position alludes to physical position of mother and baby during breast-feeding (31). Shargo et al. utilized the expression "alignment" instead of position (30). (30). Then again, Henderson et al. utilized the expression "hold" (39). Generally, scientists proposed that the way the newborn child is kept during breast-feeding is vital (39, 40). In such manner, skin-to-skin contact ought to be there amongst mother and newborn child during breast-feeding (39). At the point when newborn child gets a handle on the breast properly, the

entire areola would be in the mouth therefore decreasing breast stretching (30). This would likewise keep away from nutritious issues, for example, areola gap, breast swelling and irritation, and reduced milk production, and unsuccessful nutrition (34, 39, 41). Subsequently, mothers require help to fit in the correct position during breast-feeding (30). McArthur recommended that the mothers who utilized football position during breast-feeding encouraging gave more milk to their babies, while mothers who experienced C area and anesthesia or utilized medications required nursing support in essential positions for breast-feeding (41).

4.2. Breast's position in infant's mouth

Breast's position in baby's mouth has been frequently expected as a pointer of fruitful breast-feeding. Getting a handle on areola (30, 34), reliance (30, 39), and latch (31) have been specified, too. In general, breast ought to be placed in newborn child's mouth in a way that baby's mouth, tongue, and gums encompass areola and its nose and button is in close contact with the breast, which prompts less pressure (30, 34, 42). If baby's mouth does not encompass the areola appropriately and simply the gums are included, the newborn child will not get sufficient milk and breast fissures will happen (30). In this manner, rectify position of breast in newborn child's mouth is vital for legitimate sucking and SBF (30, 34).

4.3. Sucking

Organized and quantifiable sucking conduct (16, 43) is a pre-imperative for SBF (44, 45). Sucking has been characterized as lifting the baby's jaw to cover the lower gum. However, a more exact definition is squeezing the areola (30). Sucking is separated into nutritive and non-nutritive classes rely upon the speed of sucking and milk flow (31). Variables, for example, surgery and injury to the breast tissue, handicap, neuromuscular clutters, rashness, conflicting sucking, and sleepiness during breast-feeding, might diminish milk flow (43, 45).

4.4. Milk transmission

Transmission of milk from mother's breast to newborn child's mouth is the last fundamental factor in SBF (20, 30, 45). Milk transmission has been characterized as the time "when milk from mother's breast is transferred, swallowed, and digested by infant which is audible" (30). Milk transmission relies upon milk generation reflux,

glandular tissue, and mother's fitting hormonal capacity (2, 30). Milk transmission is a combined procedure of position, locking on, and sucking (16, 30).

5. Providing an SBF model

Walker and Avant argue that giving a model to the idea is a suitable strategy to analyze the idea in light of the fact that an impeccable and clear model elucidates the idea (37). Hence, in view of the attributes of SBF the accompanying model was proposed: there is a mother with three months infant kid who is just breast-fed, the newborn child is full-term with a birth weight of 2700 g. As of now, he weighs 4500 grams. Mother was observed during breast feeding and following was recorded:

The mother holds infant in cradle style (infant's head and neck in the crook of mother's elbow and bottom of baby on the palm so that the infant's Chest and abdomen is in contact with mother's breast). Mother closes her nipples to infant, infant opens his/her mouth and puts the whole nipple and alveolar in the mouth. Thus nipples meet infant's hard palate, infants lower lip flange outward and infant's chin would be close to breast. This process creates sucking. Sucking and swallowing are simultaneous. During sucking process mother and infant make eye contact and mother holds infant's other hand in a gentle caress.

6. Identification of the borderline, related, contrary, invented, and illegitimate cases Providing related model

Walker and Avant argue that most ideas are not considered independently, and any idea is reliant and related with comparative ones in a similar setting (46). In this study, the idea of "successful feeding with a bottle" is like the idea of SBF, because in sustaining with a bottle likewise newborn child ought to be in an appropriate position, grasp the tip of the bottle and show sucking conduct to get the milk. In any case, gasping and sucking technique and the wellspring of milk is not quite the same as breast-feeding. Subsequently the idea of effective nourishing with container and SBF are two related ideas.

6.1. Borderline case

3-day-old infant was admitted in the neonatal emergency unit. The nurse called the mother in the ward for nourishing her child. At that point, the mother with the assistance

nurture utilizing hand milking has three sections, cover the breast (the areola and areola breast secured cone Cup), Hand pump (empty chambers that breast milk takes out), Milk compartment (a holder under the cover breast, which is separable and the milk is put away in it) milking your breast milk. The nurse puts the NGT for newborn children and takes the breast milk into the syringe 5 cc. The mother holds infant in cradle style (newborn child's head and neck in the crook of mother's elbow and base of infant on the palm so the baby's chest and midriff is in contact with mother's breast). Then nurture as indicated by the standards of security, gavigated gradually milk into the syringe through NGT for infant. This procedure makes sucking. Sucking and gulping are synchronous. Amid sucking process mother and newborn child look and mother holds baby's other hand in a delicate stroke.

6.2. Contrary case

Thirty-year-old mother, recently given birth, has inappropriate physical and mental status. Her breasts have inflamed, swollen and painful, also her infant is hungry and cried all the time. The Mother holds their child in lying on the side position, and as his hand is under the infant's neck, lifts baby's head and neck and squeezes her nipples in the baby's mouth. Thus, infant sucking is very short and fast, his cheeks are sunken and mulch voices are heard. In addition, the infant is restless and occasionally left breast and cries and again his mouth closes to the breast, and sometimes refuses to take the breast. The mother is restless, and breast-feeding is painful for her.

7. Antecedents and consequences of successful breast-feeding

Antecedents and consequences are occasions which happen preceding or after occurrence of the concept but do not decide the attributes of the idea (46). Various attributes known in the literature might be identified with forerunners of SBF as an intuitive procedure including: baby's position amid breast feeding, sucking reflex, mother's learning of breast nourishing, mother's casual and agreeable position while breast feeding, physiology and practical life structures of breast, physiology and useful life structures of newborn child's mouth

Newborn child's position assumes a critical part in SBF (28, 30, 31). Baby's position typically portrayed as a continuum of awareness, from a

profound rest to cry. In this manner, drowsy newborn child might be eager yet not alert to get enough feed, and should be excited delicately though a quickly crying baby should first be comforted before feeding (28). Thus, the perfect state is the one in which newborn child is relaxed and responsive (30).

Karl recommends that "Quiet alertness" is the perfect state for breast-feeding in spite of the fact that babies occasionally accomplish this state (28). Hence, recognizing the connection amongst baby and SBF in the initial couple of days after birth is vital, in light of the fact that in the initial couple of days after birth, the newborn child is exceptionally drowsy and may even be important to wake him up to meet his nutritious needs (46).

Establishing reflex is a conduct evaluated in babies after birth, mother stimulates newborn child's lip and mouth with finger or areolas, and Infant turns his head to the source of stimulation, opens his mouth and is ready to take the breast in the mouth. So rooting reflex stimulates sucking reflex (47). This reflex additionally influences newborn child's status and it demonstrates that baby is hungry. Thus, establishing reflex is viewed as a critical predecessor for SBF because it makes the newborn child to get a handle on the alveolar firmly (30, 34). If this reflex is weakened due to prematurity, central nervous system and neuromuscular injuries caused by using drugs by mothers, SBF would be difficult to achieve (47).

Mother's information about breast-feeding is one of precursors of SBF (20, 48). Moms likewise ought to perform essential strides of breast-feeding if nonappearance of craving manifestations amid arousing time is seen (28). In request to accomplish SBF, mothers ought to get training on themes, for example, proper breast-feeding position, correct alveolar grasp, sucking and rooting reflex and transmission of milk to infant's mouth, before discharge from hospital (32, 34).

Mother and newborn child's circumstance influence SBF. If mother experiences the adverse psychological (anxiety) and physical (sore nipples, fatigue and anemia) conditions, secretion and transmission of milk reflex would be impaired and consequently SBF would be impossible to achieve (20).

Life structures and physiology of mother and newborn child additionally are considered as predecessors of SBF (31). Anatomical abnormalities from the norm identified with

newborn child's mouth make sucking process troublesome and furthermore prompt areola injuries and the entire procedure of breast-feeding and baby's measure pick up would be irritated (49). In addition, both breast growth and breast diminishment surgery, expulsion of breast tissue, diminished milk channels, pituitary and endocrine organs issue, caused by baby blues discharge weaken lactation process (16).

Walker and Avant portray the outcomes of an idea as occasions that happen because of the idea (7). In light of the writing audit results of SBF, incorporate the accompanying: being full-related conduct, not lock on to breast, not reacting to establishing reflex, nonappearance of agony and uneasiness in the breast and seemingly quiet baby (31, 48).

According to International Breast-feeding Consultation Guide, full term and healthy infants just breast-fed lose more than seven percent of their weight in the first few days of birth, and fourteen days after birth gains their initial weight. Moreover, it suggests that adequate breast feeding criteria include six wet diapers and at least three bowel movements per twenty-four hours in four days and gaining weight as four to eight ounces per week (50).

In some other studies the indicators of SBF are introduced as 1) Infant grasp breasts firmly in the mouth and began to suck and swallow milk at least eight times in twenty-four hours, 2) In every nursing session, only one breast should completely milk and the breast should be milked in the next session. 3) Infant should be happy and satisfied one or two hours after breast-feeding, 4) Normal infant stool, and 5) Infant should enjoy sleep and wakefulness cycle more than seven times in twenty-four hours (51, 52). Mothers with healthy and full-term infants are supposed to identify their infant's reaction and behavior during breast-feeding to respond properly. Moreover, there should not be any painful breast or nipple sore while breast-feeding (53). The recommended relationship between factors and events, essential characteristics and consequences of SBF is presented in Figure 1.

8. Definition and determination of the empirical referents to measure the concept

Empirical referents are used to evaluate a concept that have been stated as "a way of measuring or determining its existence in the real world" (7). As most of the defined characteristics of breast-feeding are abstract, empirical referents are effective in understanding the concept (31).

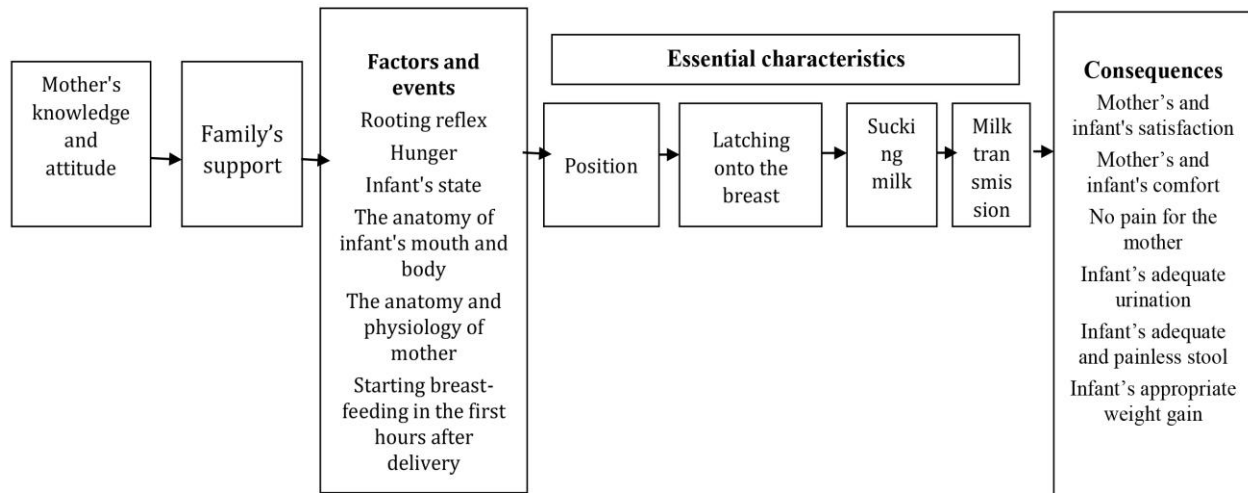


Figure 1. The recommended relationship between factors and events, essential characteristics and consequences of SBF is presented

Empirical referents related to the concept of successful breast-feeding, referred to in the literature, were mother's and infant's position, mother's breast in infant's mouth, sucking, and transmission of milk (20, 48).

Taking into account the empirical referents for mother's and infant's position, infant's head should be aligned with its trunk and its mouth should face mother's breast, infant's head and neck should be relaxed with no muscular rigidity to stop excessive traction on mother's nipple and to ease milk transmission (30), and mother should be relax (47).

Considering the empirical referents related to infant's mouth position, mother should feel relax with no pain or sore nipples (20), infant's tongue should be on the nipple and cover the lower alveolar ridge, and its lips have to be flanged outward (20, 54).

The empirical referents for sucking were mother's report of hard sucking by the infant and non-rhythmic nonnutritive sucking coupled with nutritive sucking (20). Finally, the empirical referents for milk transmission consisted of infant's visible and audible sucking, visible milk in infant's mouth during breast-feeding, milk secretion from mother's breast, and change in sucking form from fast and non-rhythmic to slow, rhythmic, and strong sucking (52). Here, mother has to report reduction of uterine cramps, vaginal discharge, tingling in nipples, fatigue, drowsiness, and thirst as well (52, 54).

Discussion

The results of present study describe

features, factors involved, antecedents and aftermaths of SBF connected with nursing discipline. Concept's importance relies on its ability in innovation and problem solving (55-57). Thus, precise definition of SBF ends in identification and solving related problems. Most of the scientific studies portrayed the concept in similar terms with the main difference in classification, determination and emphasis on SBF process (22, 26, 44, 56, 58, 59).

Moran et al. examined the features, prone and cons of six breast feeding evaluating instruments including infant and mother's behavior, infant and mother's health, breast's health, position, dependence and successful feeding. They showed little correlation in determination of a method to evaluate successful breast-feeding. Moreover, they stated that based on undeveloped evidence-based studies the present instruments are varied in quality, also just three instruments measure the eight items related to concept (19).

Riden and Cohen found that three breast-feeding connected instrument are available: 1) SBF in first hours after birth instrument, 2) Mother and infant measurement instrument, 3) Charted system for putting breast in infant's mouth, are not reliable for clinical settings (60).

More examined some dimensions in breast-feeding instrument like infant's preparation for awakening, rooting reflex, position and sucking pattern, also parent's experience of breast feeding instrument and skin to skin contact between mother and infant while breast-feeding instrument (SCC) are valid and reliable

(1, 61-63).

Radzimirski used breast-feeding behavior evaluation-tool in 2003 to assess the capacity of anxiousness and adaptation behavior of infant (64). In previous literature, position, nipple grasp and sucking of milk and milk transfer were mentioned frequently as characteristics of interactive process of SBF (1, 61, 65-67). Nonetheless, all these terms need to be defined and developed more specifically. Clinical investigators have to define important characteristic of SBF and mother and infant health improvement practically. The limitations of present study were omission of some research papers given no convenience, or being non-English or Persian language. According to the results of present study, development of the breast-feeding concept is seen as an important aspect in clinical nursing care. Therefore, development of this concept and evaluation of its consequences appear to be essential.

Conclusion

The results showed that determining the characteristics, events, and aftermaths of SBF is absolutely essential and important for both clinical and nursing intentions. Indeed, accurate estimation of the concept of SBF ends in identification of the related problems and proposing strategies for solving them.

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Conflicts of interests

There are no known conflicts of interest for any of the authors of this manuscript which would interfere with the integrity of this research.

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