

Concept analysis of maternal-infant attachment during the weaning process

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Abstract

Background: At the time that the mother and baby transit from breastfeeding to weaning, maternal-fetal attachment becomes a crucial basis for maintaining their emotional relationship. Conceptualization is needed to better understand the phenomenon of maternal-infant attachment during the weaning process.

Objective: The purpose of this paper is to explore and identify the essence of the term maternal-infant attachment during weaning and to arrive at an operational definition of the concept.

Method: Concept analysis following Walker and Avant.

Results: The attributes of maternal-infant attachment during the weaning process include (1) consistent and properly timed, (2) dynamic transactional interaction, and (3) secured adjustment. Maternal-infant attachment during the weaning process is brought by maternal sensitivity, closeness and proximity seeking, gentle and positive weaning, and breastfeeding experiences, which later turn into favorable emotion regulation, maturity, self-efficacy, secured bond, less intrusive interaction, resilience, and child's behavioral and development.

Conclusion: This concept analysis provides new insight into maternal-infant attachment during the weaning process that guides the nursing practice. Also, the findings can help develop or improve the models, theories, and instruments collected for maintaining maternal-fetal attachment during the weaning process.

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Keywords

maternal-infant attachment; weaning process; maternal sensitivity; closeness; proximity seeking; concept analysis

Background

Maternal-infant attachment is an emotional tie (Kinsey & Hupcey, 2013) between the mother and her child (de Cock et al., 2016). In establishing a mother's relationship with her child, maternal-infant attachment is very crucial in order to develop the bond and later will affect the role identity of the mother (Kordi et al., 2017) and is related to child developmental outcomes (Alhusen et al., 2013; Mason et al., 2011).

Strong maternal bonds have positive effects on children's relationships with their mothers throughout their lives. "The parent-infant bond provides a foundation for future adaptation, relationships, and mental health for children and adults" (Spratt et al., 2016). Having a hard time bonding could cause issues harmful to the mother, child, society, and the healthcare system (Winston & Chicot, 2016). Breastfeeding has been linked to enhanced mother-infant connection, which lowers the chance of a child internalizing behavioral issues during middle childhood. Early feeding interactions between mother and child may lead to more satisfying feeding experiences as well as increased maternal awareness and responsiveness to newborn demands (Liu et al., 2013). Breastfed children have higher chances of being warm, cuddly, and cooperative and least to be demanding and fussy. Children who are

predominantly breastfed for six or more months develop attachment security (Gibbs et al., 2018).

Many women pressure themselves as new mothers (Meeussen & Van Laar, 2018). Societal expectations for breastfeeding mothers may play an important role in understanding mothers' feelings of guilt and failure related to early weaning, identifying breastfeeding as the "gold standard" of nutrition, and a picture of optimal mothering (Kestler-Peleg et al., 2015). Evidently, maternal bonding disorder can lead to impaired maternal-newborn attachment (Ohoka et al., 2014). The impaired bond could significantly affect a child's developmental milestone, hindering their basic needs and attention.

Some literature defined maternal-infant attachment as congruent to maternal closeness as physical and emotional interaction developed while on exclusive breastfeeding, maternal-infant relationship during pregnancy, mother as the main person feeding the child, and competitive feelings (Villar et al., 2020), emotional exchange, breastfeeding confidence, depression, and postpartum adaptation (Kim, 2019). Other studies focus on the concept of attachment created during pregnancy, coined maternal-fetal-attachment (Suryaningsih et al., 2020). Concept analysis on maternal-infant attachment has been published, concentrating on maternal-infant bonding

in general (Hill & Flanagan, 2020; Kinsey & Hupcey, 2013), maternal-infant bonding for the opioid exposed dyad (Sanders et al., 2022), parent-child attachment security (Ali et al., 2021), and maternal role of a teenage mother (Erika, 2019). However, the operational and conceptual definition of maternal-infant attachment during the weaning process has not yet been established. The purpose of this concept analysis is to explore and identify the essence of the term maternal-infant attachment during weaning and to arrive at an operational definition of the concept. Conceptualization is needed to better understand the phenomenon of maternal-infant attachment during the weaning process.

Methods

This paper follows the 8-step procedure of the concept analysis model of Walker and Avant (2019). This model provides structural guidelines for understanding the concept of phenomena. Walker and Avant (2019) define concept analysis as the “process of defining a concept carefully by understanding and examining its basic elements and underlying attributes.”

Selecting a Concept

The concept analysis process starts with selecting a concept to be analyzed (Walker & Avant, 2019), in this case, maternal-infant attachment during weaning. Analyzing this concept is essential to establishing a contemporary framework and defining elements of maintaining maternal-infant attachment during the weaning process.

Defining the Aim of the Analysis

The purpose of this concept analysis is to discover and establish the meaning of the term maternal-infant attachment during the weaning process to clarify the meaning and arrive at an operational definition of this concept. In addition, conceptualization is needed to understand the phenomenon of maternal-infant attachment better.

Identifying All Uses of the Concept

To identify the use of the concept, dictionaries, thesauruses, colleagues, and available literature were used. At this initial stage, there is no limitation to only one aspect of the concept. The authors consider all uses of the concept and term: maternal-infant attachment during the weaning process. Further, the authors searched thesaurus and dictionaries and extended the search beyond nursing or medical literature to explore further understanding, meaning, and nature of the concept.

Literature identified and relevant to maternal-infant attachment during the weaning process was searched in accordance with the search protocol for systematic reviews by the Joanna Briggs Institute (JBI manual for evidence synthesis, 2020). An initial online search on databases was initiated in January 2022. Papers electronically published in English from January 2013 to January 2022 were considered for inclusion and considered relevant in the current situation. The databases searched include CINAHL, MEDLINE, Scopus, and ProQuest. Keywords in MEDLINE search to: (“mother”[All Fields] AND “child”[All Fields]) OR “mother-child”[All Fields] AND (“infant”[MeSH Terms] OR “infant”[All Fields]) AND

(“weaning”[MeSH Terms] OR “weaning”[All Fields]) AND (“attachment”[MeSH Terms] OR “bonding”[All Fields]). In Scopus, CINAHL, and ProQuest, the following terms were searched: (maternal-infant attachment OR maternal-infant bonding) OR (maternal bonding OR infant bonding) OR (mother AND child) OR (mother and infant) AND (weaning process). After identification of citations through described strategy, the citations were collated and transferred to the Rayyan for Systematic Reviews (Ouzzani et al., 2016), in which automated removal of duplicates was conducted. Since there are limited citations related to the research topic, editorial, statements based on expert opinion and consensus, and review articles were included. However, literature in a foreign language was excluded. Full-text retrieval was conducted in a library request for the papers without abstracts. Abstracts were reviewed and evaluated for potential studies to be included in the review. The authors assessed the full article in detail and evaluated its suitability for the studied concept. The search results were presented in a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram (Page et al., 2021). All search methods, strategies, and sources were described or named in the final report and will be replicable. Moreover, the included articles met the following criteria: (1) containing a definition of maternal-infant attachment during the weaning process, (2) discussing the history of the concept, (3) identifying the relationship between maintaining maternal-infant attachment during the weaning process and associated outcomes, and (4) providing the outcomes of all research pertaining to the idea or similar concepts to maternal-infant attachment during the weaning process.

The extracted data included definitions of maintaining maternal-infant attachment during the weaning process, its key domains, the country setting and target population and sample described in the paper, and data needed for the 8-step concept analysis, such as attributes, antecedents, and consequences. Both analysis and synthesis of collected data were carried out utilizing a descriptive approach in the articles, allowing the researcher to observe, count, describe, and categorize the data in order to gain information on the idea.

Determining the Defining Attributes of the Concept

Following the identification of the many applications of the concept under inquiry, the uses will be read through to determine the qualities that regularly emerge to describe the investigated concept’s core traits (in this case, maternal-infant attachment during the weaning process). This process generated a cluster of attributes that are associated with the concept.

Constructing a Model Case

This stage entails creating one or more model cases to illustrate a real-life example of the concept’s application that incorporates all of the concept’s important features (Walker & Avant, 2019).

Constructing Additional Cases

Additional instances relevant to the idea under inquiry will be discovered after identifying at least one model case. This is required because the concept analysis cannot be completed if there are overlaps between the detected features or conflicts

between the defining attributes and the model case (Walker & Avant, 2019).

Identifying Antecedents and Consequences of the Concept

In the previous stage, antecedents and outcomes were identified. Walker and Avant (2019) described antecedents and consequences as occurrences or situations that occur before or as a result of the concept's existence.

Defining Empirical Referents

The important qualities will be integrated with real-world empirical referents in the last phase of the idea analysis.

According to Walker and Avant (2019), empirical referents are quantifiable techniques for demonstrating the concept's occurrence.

Results

Searches identified 656 possible citations after the removal of ineligible and duplicated records by automation tools. After the initial screening of the titles and abstracts, 22 full studies were assessed for possible inclusion in the review, and 9 met the inclusion criteria (Figure 1).

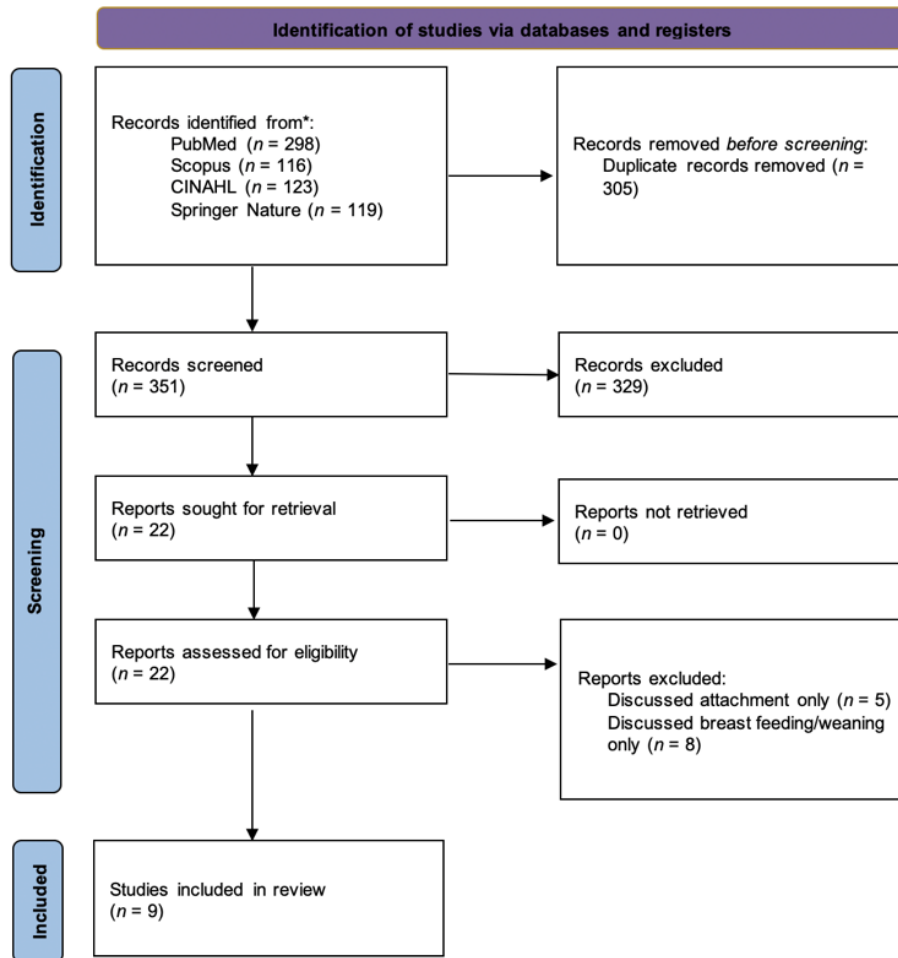


Figure 1 PRISMA diagram

Use of the Concept

The term "weaning" comes from the Anglo-Saxon word "wenian," meaning "to become accustomed to something different." Weaning from the breast is a normal and unavoidable period in a child's development. However, it is a complex and holistic adjustment in a child's physical, mental and social development (Grueger et al., 2013; "Weaning from the breast," 2004). Anthropological studies have described final weaning at the following points: when the newborn's weight has doubled that of its birth weight; when the infant is six months old; or when the first molar erupts (Dettwyler, 2004).

Merriam-Webster Online Dictionary (Merriam-Webster, 2022) defined bonding as "the formation of a close relationship (as between a mother and child or between a person and an

animal), especially through frequent or constant association." Attachment is "a strong emotional bond that an infant form with a caregiver (such as a mother), especially when viewed as a basis for normal emotional and social development."

Bowlby (1982) defined attachment as "a deep and enduring emotional bond between two people in which each seeks closeness and feels more secure when in the presence of the attachment figure." Attachment is an emotional connection with another person. Bowlby the bond formed by children earlier developed with their caregiver, it may be the parent or other have a great impact to the child development and will continue in all throughout the child's life. Attachment is characterized by particular child behaviors such as proximity seeking to an attachment figure when distressed or threatened. It is suggested that attachment maintains the

mother-infant closeness, which improves a child's chances of survival in the future. According to Ainsworth (1969), attachment is beyond observable behavior, but the emotion created is intrinsic, "being built into the nervous system, in the course and as a result of the infant's experience of his transactions with the mother."

Attributes

Consistent and properly timed

To maintain the maternal-infant bonding during weaning, timing is considered to be a crucial factor (Tomlinson et al., 2020; Villar et al., 2020) to have stability (Takács et al., 2020). Weaning is the process of discontinuing breastfeeding. Ideally, the first step toward a slow and gradual weaning process starts in the sixth month when complementary foods are being introduced alongside breastfeeding and will continue until other foods and drinks completely replace the breastmilk. Over the months, breastfeeding will probably become shorter and less frequent, or the baby is simply losing interest one day.

Dynamic transactional interaction

During weaning, the maternal-infant attachment remains a dynamic transactional interaction influenced by interplaying processes between the mother and the infant context over time (Barbosa et al., 2021; Farrow & Blissett, 2014; Guo et al., 2022; Takács et al., 2020). The mother and the baby develop a regulatory skill and promote the formation of dyadic regulatory patterns on the efficient dyadic compensation of dynamic interactions that occur in regular interactions (Barbosa et al., 2021). Further, the amount and type of mother-child interaction concerning this bond differ at every infancy stage (Takács et al., 2020). With this, the infant's inherent proclivity to socially connect with their mother's conduct and her emotional availability determine the quality of mother-infant interactions during the early years of life.

Secured adjustment

Before weaning, the mother and the infant form mental, emotional, and social adjustments (Guo et al., 2022; Odeniyi et al., 2020). The majority of techniques for some mothers involve adjusting feeding methods, milk production, and nursing schedules (Guo et al., 2022). Physiologic and metabolic changes influence the mother-baby relationship and the baby's socio-emotional adjustment and balance. In addition, their attachment adjustment affects the child's cognitive and socio-emotional development. Later in life, the child may adjust its social relationships positively or adversely because of this influence.

Model Case

Jade is a 28 years old mother of a 9-month-old baby boy, Juan. Jade returned to her part-time work while continuing to nurse Juan on-demand. Jade typically breastfeeds Juan in the morning before work, immediately upon returning home, before bed, and intermittently throughout the night. Jade always finds ways to interact with Juan by smiling, face-to-face interaction, and playing during bath. Hide and seen is the favorite play for Jade and Juan. Jade hides behind a pillow and tells Juan, "Where's mommy?" When Juan finds her, she giggles and kisses Juan. She listens and responds to her infant's outward behaviors of crying and fussiness and responds in an appropriate time and manner. Jade is able to balance competing for demands while tuning into her infant's

behavioral cues: being present for Juan, tending to the demanding needs of Juan, and completing coursework.

Contrary Case

Anne, a 17 years old single adolescent mother, has a 6-month-old daughter named Joy. After birth, Anne immediately returned to school so she could catch up with her missed courses. Anne is struggling in caring for her daughter as Joy still needs attention. She abruptly weaned Joy in her four months. She rarely plays and interacts with Joy as she focuses on her studies and is not able to identify Joy's needs when being fussy. Looking back, Anne is also frustrated that she allowed those negative experiences to make fear showing who she was.

Borderline Case

Lea, a 23 years old mother, has a 6-month-old son named Rye. Lea has been living with her parents since her husband left for a seafarer's work. As a first-time mother, Lea wasn't expecting a full-time mom as she has her corporate work. Lea didn't know what she was thinking, but this huge, living, breathing, beautiful creature was lying on her. Rye had chubby cheeks, hugs lips, and my nose, which made Lea happy. Lea is very happy as she didn't have to do it alone; her mom taught her everything from feeding him to changing his diaper. For Lea, it's a sweet story of a mother and child who had a healthy and mutually joyful nursing experience until they both understood that all good things must come to an end and amicably parted ways. However, Lea still has a struggle in nursing Rye. Weaning Rye has been one of the most challenging and emotional experiences she's ever had. To some extent, the events surrounding the choice to wean hurt since it is one for which she is solely accountable.

Antecedents

Maternal sensitivity

According to the analysis of the available literature, maternal-infant attachment is a precedent of maternal sensitivity (Farrow & Blissett, 2014; Guo et al., 2022; Mesman et al., 2018; Tomlinson et al., 2020; Villar et al., 2020) during the weaning process. Maternal sensitivity is the quality of timely and appropriate response of mothers to infant cues. Sensitive mothers react promptly to cues, establishing a strong link between their infants' cues and their reactions (Takács et al., 2020; Tomlinson et al., 2020). In addition, it is enhanced when the mother develops deepened understanding of their roles, emotional reactivity, mind-mindedness, and regulation (Farrow & Blissett, 2014; Guo et al., 2022; Mesman et al., 2018; Takács et al., 2020; Tomlinson et al., 2020). The underlying assumption is that mothers who respond sensitively to one type of infant cue and sensitivity in general, rather than its specific aspects, are linked to crucial child outcomes.

Closeness and proximity seeking

The maternal-infant attachment during weaning is demonstrated by the manifestation of proximity seeking, or behaviors that aim to restore or maintain closeness, when the infant is separated from the mother (Barbosa et al., 2021; Mesman et al., 2018; Villar et al., 2020) even in a short period. Infants are biologically driven to seek closeness and proximity to an adult to secure protection. The purpose of the drive is to

feel secure, safe, and protected, which leads to closeness encouraging attachment behaviors such as calling/smiling or alternative attachment behaviors seeking calm such as soothing when crying (Barbosa et al., 2021; Mesman et al., 2018). The proximity is ensured in the activities that both mother and infant are enjoying to perform together, such as play interaction (Farrow & Blissett, 2014; Mesman et al., 2018; Tomlinson et al., 2020), feeding (Farrow & Blissett, 2014; Grueger et al., 2013; Odeniyi et al., 2020; Villar et al., 2020). The interaction and proximity are thoroughly enhanced in cuddling and holding the baby while doing routine infant care (Grueger et al., 2013) and positive vocalization while feeding (Farrow & Blissett, 2014). The attachment will be stronger if the proximity and interaction are constantly reinforced (Villar et al., 2020). When the mother is attuned to their infant's physical and emotional needs, both mother and infant experience emotional attachment and express emotions of bond (Tomlinson et al., 2020).

Gentle and positive weaning

Breastfeeding is one way to create attachment and bonding, which requires intentions and reactions from both mother and baby. Weaning gradually and gently becomes a series of beneficial starting points in the development of the child and the mother-child bond (Guo et al., 2022; Villar et al., 2020). Sometimes, mothers are ready to end that type of relationship, eager to discover new methods to satisfy their child's physical and emotional requirements. In that case, it is the responsibility of the mother to find ways to convince their dedicated nursery to give up the breast without traumatizing

them. A gentle transition is a vital emotional and physiological component in order to create good attachment.

Breastfeeding experiences

Breastfeeding experiences of both mother and infant is the most important key to the development of attachment before weaning (Grueger et al., 2013; Guo et al., 2022; Odeniyi et al., 2020; Villar et al., 2020). In addition, breastfeeding mothers have increased sensitivity throughout early infancy, which may encourage safe connection. Facilitators of breastfeeding experiences include social roles, beliefs (Guo et al., 2022), traditions (Odeniyi et al., 2020), and social support (Odeniyi et al., 2020; Villar et al., 2020).

Consequences

Consequences are occurrences or situations that occur as a result of the concept's existence or the concept's outcomes (Walker & Avant, 2019). The timely weaning creates a long-lasting positive developmental outcome, including emotion regulation, language acquisition, maturity, and self-efficacy (Takács et al., 2020; Tomlinson et al., 2020). The attachment of the mother and their infant creates a secure bond where when they are separated, it is less psychologically traumatic for both mother and child (Barbosa et al., 2021; Grueger et al., 2013; Mesman et al., 2018) but still less intrusive in their interactions (Tomlinson et al., 2020). This attachment builds resilience qualities to the stability of bonding (Guo et al., 2022; Takács et al., 2020) which later affects the child's behavioral outcome and developmental milestone (Farrow & Blissett, 2014; Odeniyi et al., 2020) (Figure 2).

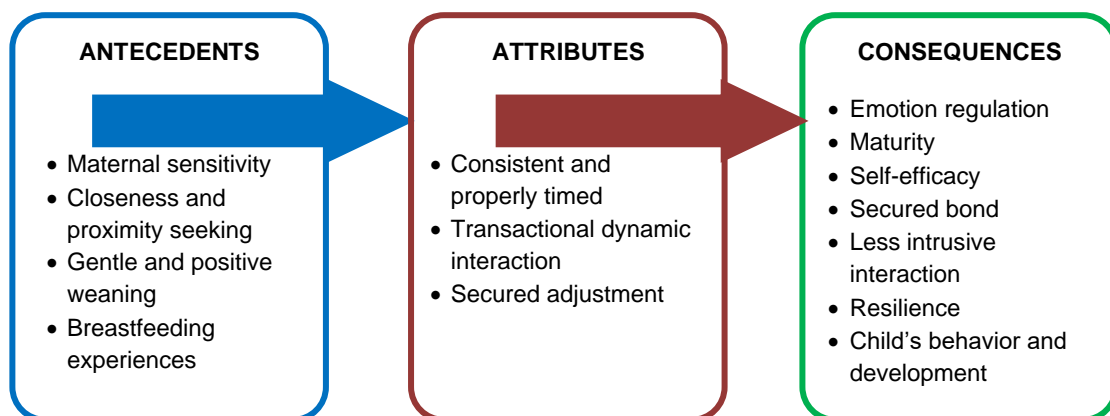


Figure 2 Antecedents, attributes, and consequences of maternal-infant attachment during the weaning process

Discussion

The concept of maternal-infant bonding during the weaning process plays a role in the present and future nursing research. A precise definition of the concept and the analysis clarify the concept of maternal-infant attachment during the weaning process by introducing its antecedents, defining attributes, and consequences. In this concept analysis, maternal-infant attachment is a consistent and properly timed, dynamic transactional interaction, and secured adjustment of both mother and infant during the weaning process, resulted from maternal sensitivity, closeness and proximity seeking, gentle and positive weaning, and breastfeeding experiences which later turns into favorable emotion regulation, maturity, self-efficacy, secured bond, less intrusive interaction, resilience, and child's behavioral and development.

In this concept analysis, maternal-infant attachment during the weaning process is a dynamic transactional interaction brought by closeness and proximity seeking. However, it has been argued that while attachment includes care seeking, bonding is more related to caregiving. However, a critical review of the literature suggests that this relationship is not an attachment relationship at all but rather a multi-faceted construct guided by the caregiving system, the reciprocal partner to the attachment system, which evolved to provide care and protection (Walsh, 2010). Still, competence in the parenting capacity moderated the association between adult attachment avoidance and bonding, a mother's attachment style is related to her bonding with her infant (Nordahl et al., 2020). When upset, children with a narrower attentional area surrounding their mother waited longer to seek her presence (Bosmans et al., 2015).

As an antecedent, maternal sensitivity plays an important part in maternal-infant attachment during the weaning process. When integrated with sensitivity to infant's non-distressing situations and negative emotionality, maternal sensitivity to distress had a significant impact on predicting attachment outcomes (Leerkes & Zhou, 2018). This is why infants who predominantly encounter this pattern of selective sensitive response while in a good or neutral condition may teach children that they cannot rely on their moms to aid them when upset. On the other hand, maternal actions alone cannot be a sole factor in maternal sensitivity. Attachment outcomes in the weaning process can also be affected by social and relational networks, including breastfeeding information and support, communication, gender roles, and maternal roles (Maviso et al., 2022).

This concept analysis shows that gentle and positive weaning is an antecedent to maternal-infant attachment, which would later affect the child's behavior and development. Children weaned at six months onward after exclusive breastfeeding had higher emotional reactivity. In addition, maternal closeness created during exclusive breastfeeding predicts the gross motor ability of a child, mainly in running and climbing.

Late weaning and maternal proximity are also related to accelerated motor and visual maturity, which independently impact independent behaviors in healthy children (Villar et al., 2020).

Further, this concept analysis explicitly highlights the breastfeeding experiences as one of the antecedents to maternal-infant attachment during the weaning process. Mothers' decision-making in breastfeeding is affected by their cultural beliefs and practices, which will, later on, affects their decision in weaning. Other studies recommend considering information sharing, role modeling, and environment to address associated practices hindering breastfeeding and weaning practices (Nandagire et al., 2019). This concept analysis also provides a basis to establish patterns of the weaning process not just by food preferences and restrictions (Oloko & Ekpo, 2018), but it can be the basis of exploring the weaning process considering maternal-infant attachment or emotional readiness of the mother and the baby.

This concept analysis has implications for nurses and midwives in the hospital and community practice, where part of their autonomy is to provide follow-up care during the sensitive period. Breastfeeding strengthens mother bonding and fosters a strong and lasting bond with the infant. Nurses and midwives have an essential role in establishing and maintaining breastfeeding in the early postpartum period as well as assisting mothers with elegant weaning when the infant shows signs of independence and the mother wishes to wean (Cetisli et al., 2018). Health care providers need to acknowledge these factors when dealing with the health and social well-being of mothers and their infants.

The limitation of this concept analysis is that no empirical (qualitative or quantitative) studies were conducted to clarify the meaning of maternal-infant attachment during the weaning process. The lack of actual research to clarify concepts leads to some limitations in concept analysis techniques. This concept analysis cannot assist with the creation of new operational definitions with construct validity that appropriately represent a theoretical foundation. However, this study sought

to develop a descriptive definition of "maternal-infant attachment during the weaning process" with all the critical attributes incorporated.

Conclusion

The present analysis identified attributes, antecedents, and consequences for maternal-infant attachment during the weaning process. The findings of this study clarified the characteristics of the concept of maternal-infant attachment during the weaning process, which is properly timed, dynamic transactional interaction, and secured adjustment of both mother and infant during the weaning process. Understanding the elements that influence maternal-infant attachment might be the first step in establishing and improving care for moms and their infants. Furthermore, the findings may aid in the development or revision of the models, theories, and tools gathered for this goal.

Declaration of Conflicting Interest

All authors declared no potential conflict of interest.

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Authors' Contributions

AMG conceptualized, designed, analyzed, literature searched, and drafted the study. LMT contributed to conceptualization and analysis, reviewed, and supported concepts with intellectual content. All authors substantially contributed with equal efforts until approval of the final article and acknowledged that all those entitled to authorship are listed as authors until publication.

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Data Availability

Not Applicable.

Ethical Consideration

Not applicable.

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