Breastfeeding Goal Attainment and Likelihood of Future Breastfeeding:
A Test of Self-affirmation Theory

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Abstract

Breastfeeding is an important health behavior for pediatric and maternal wellbeing. However, many mothers in the United States do not meet breastfeeding duration guidelines, nor do they meet their own goals for breastfeeding. Non-attainment of breastfeeding goals has implications for the health and wellbeing of future children born into those families. Using publicly available national data, we tested a self-affirmation theory (SAT) hypothesis to explore the complex relationship between breastfeeding goal attainment and intention to breastfeed a future child. We found goal attainment predicted stronger future intention, and that this association was moderated by how highly the mother valued breastfeeding. In line with SAT, we found that failing to meet a breastfeeding goal was more detrimental to future intention for mothers who highly valued breastfeeding than for mothers who did not value breastfeeding as highly. This has implications for theory refinement, intervention development, and intervention targeting.

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Introduction

Breastfeeding promotion is an important lever for protecting child and maternal health (Victora et al., 2016). Despite steady improvements over time, breastfeeding rates in the United States still fall short of WHO (World Health Organization) and CDC (Centers for Disease Control and Prevention) targets, which is estimated to cost ~3300 premature deaths, and $3 billion in excess healthcare costs, every year (Bartick et al., 2017). Breastfeeding interventions are often unsuccessful in high income countries (Haroon et al., 2013) and rarely utilize psychological theory (Skouteris et al., 2014). Applying a psychological perspective to breastfeeding decision-making allows for probing underexamined relationships and potentially developing more effective breastfeeding interventions.

Breastfeeding behaviors are generally conceptualized as influencing the health of the breastfeeding child only. However, breastfeeding can also be conceptualized in a life course theory framework in which the behaviors of the breastfeeding dyad also impact other family members (Whipps et al., 2018). One such understudied topic within this framework is how a breastfeeding relationship between one parent-child dyad influences later breastfeeding behaviors with subsequent parent-child dyads in the same family (Huang et al., 2019; Whipps & Demirci, 2021). Self-affirmation theory (SAT; Sherman & Cohen, 2006) is a social-psychological theory that can inform this topic. Researchers have found that previously engaging in child-health-promoting behavior is associated with increased intention to behave the same way in the future (Hamilton et al., 2020). However, SAT would hypothesize that *failing* to breastfeed for as long as one intended could plausibly constitute a threat to a valued identity (e.g., an identity as a 'good breastfeeding mother'; Faircloth, 2009). This threat may result in distancing oneself from that valued identity – and in turn, the valued behavior – to preserve a global sense of self-worth (Sherman &

Cohen, 2006). Further, this effect should be stronger if the identity is highly valued (and therefore, the failure more threatening). In other words, failing to meet a breastfeeding goal for one child should theoretically reduce the likelihood that a parent will attempt to breastfeed subsequent children, and this relationship should be strongest for parents who initially place the highest value on breastfeeding. Goal achievement has been theorized as an important determinant of future breastfeeding (Brown, 2018), but the extant literature is far from conclusive (Huang et al., 2019). This study aims to contribute to this line of inquiry.

Research Question

Is the association between goal attainment and intention to breastfeed future children moderated by how highly the breastfeeding parent values breastfeeding?

Methods

Participants

This study is a secondary analysis of publicly available data from the Infant Feeding Practices Study II (IFPS-II; Fein et al., 2008), a survey of pregnant women in the United States conducted from 2005 to 2007. Inclusion criteria at recruitment include age ≥ 18 and currently pregnant. Exclusion criteria were: infant born < 35 weeks gestation, diagnosis with a condition that affects feeding, infant weight < 5 pounds at birth, and extended NICU stay. Surveys were mailed to enrolled mothers prenatally and then approximately monthly until the child turned one (11 waves of data in total); 3,033 mothers returned the demographic, prenatal, and at least one postnatal survey. The analytic sample for this study consisted of mothers with complete data for prenatal waves through the wave at which the mother

reported completely ceasing breastfeeding ($n = 1435$). The sample was primarily white (81.1%), with an average age of 28.6 years and an average annual household income of $35,000-$39,999.

Measures

Breastfeeding goal attainment. There are two general strategies to measure goal attainment: *prospectively* (reporting a goal prenatally, then measuring whether breastfeeding behaviors met these goals); or *retrospectively* (reporting after weaning whether the mother met her goals for breastfeeding). This study examined both operationalizations. Prenatally, mothers reported how old their child would be when they planned to completely stop breastfeeding, rounded to the nearest month. Results ranged from 1 to 24 months, with a sample average of 8.3 months (i.e., ~36 weeks). The age of the child (in weeks) on the wave at which the mother reported ceasing all breastfeeding was then used to calculate the *prospective* measure of goal attainment (i.e., whether the mother met or did not meet her prenatal goal for breastfeeding duration, dichotomously measured). On average, mothers ceased breastfeeding completely at 20 weeks. Upon weaning, mothers reported *retrospective* goal attainment by reporting *Yes* or *No* to the question: "Did you breastfeed as long as you wanted to?"

Breastfeeding attitudes. Six individual items index how highly a mother values breastfeeding in the IFPS-II. Mothers were asked to report how strongly they agreed with six statements about breastfeeding (e.g., "Babies should be exclusively breastfed for the first six months") on a Likert-type scale (1-5) from 1 (*Strongly Disagree*) to (*Strongly Agree*). These items were used in the creation of a *Positive Breastfeeding Attitudes (PBA)* scale. See the appendix for PBA items.

Intent to breastfeed future children. Upon weaning, mothers reported future intention ("How likely is it that you would breastfeed again if you had another child?") using a Likert-type scale (1-5) from *Very Unlikely* to *Very Likely*; 79% of mothers responded *Very Likely*.

Data Analysis

Preliminary analyses. First, the two goal attainment measures are described, as well as their correlation to each other and univariate associations with intent to breastfeed in the future using ordinary least squares (OLS) regression. Next, a *Positive Breastfeeding Attitudes* scale (PBA) was developed using the six items that index positive breastfeeding valuations: correlations between individual items are described, an initial measurement model is developed using exploratory factor analysis (EFA), and changes are made to the scale as indicated by those initial results.

Main analyses. The SAT moderation hypothesis is tested using a structural equation modeling (SEM) approach in Mplus using the XWITH and LOOP commands (Muthén, 2013; Sardeshmukh & Vandenberg, 2013), wherein future intent to breastfeed is regressed on a path model consisting of PBA scale, goal attainment measures, and moderation effects. A limited number of high-impact confounding covariates were added to the model as controls, including household income (continuous), region of the country (dichotomous), maternal age (continuous), and maternal education attainment (continuous). See Figure 1 for SEM schematic.
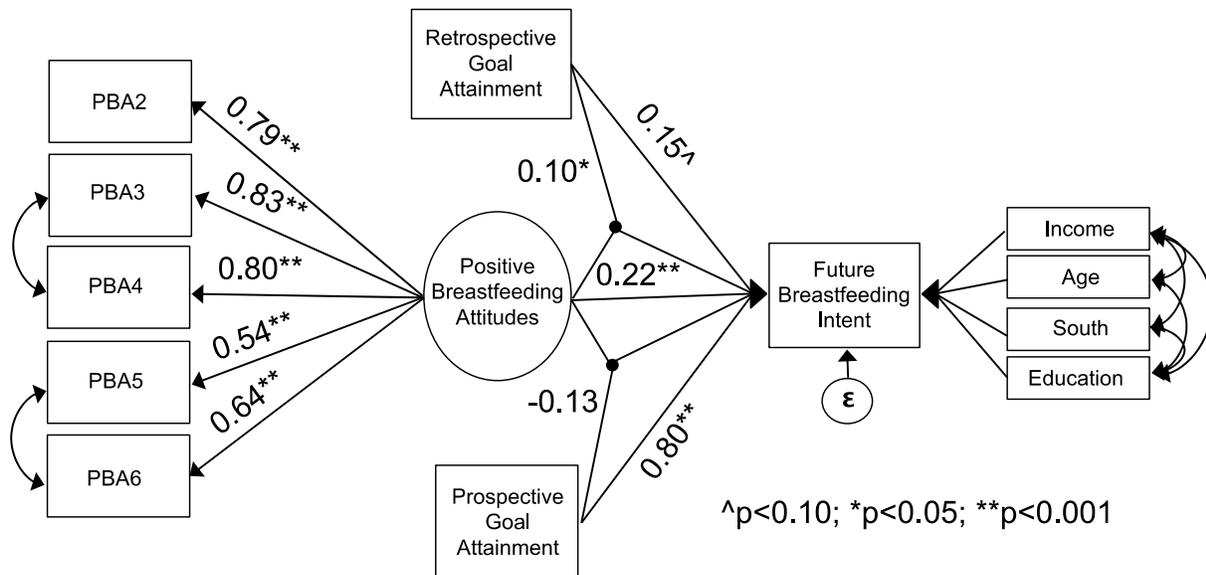

Figure 1. Structural equation model of tested associations.

Results

Preliminary Analyses

Retrospective reporting of breastfeeding duration goal attainment was only weakly-to-moderately positively related to the prospective measure of breastfeeding goal attainment ($r_s = 0.29$, $p < 0.001$). Measured prospectively, 191 mothers (13%) reported breastfeeding durations that matched or exceeded the durations intended prenatally. Measured retrospectively, 576 mothers (40%) reported that they breastfed as long as desired. In univariate models, both operationalizations of goal attainment were strongly related to intention to breastfeed future children ($\beta_{retrospective} = 0.11$, $p = 0.037$; $\beta_{prospective} = 0.39$, $p < 0.001$).

All PBA items were significantly correlated (between $r = 0.22$ and $r = 0.85$). An initial EFA model found an unacceptable model fit for PBA (RMSEA = 0.14, 90% CI 0.12 – 0.15; CFI = 0.91). After removal of item 1 and allowing items 2 & 3 and items 5 & 6 to correlate, the latent PBA variable showed a very good fit for the data (RMSEA = 0.027, 90% CI 0.00 – 0.058; CFI = 0.99). Therefore, this altered five-item measure was retained for the full SEM model. Preliminary analyses also indicated that the constructed PBA scale is a good proxy for a prenatal maternal valuation of breastfeeding and is significantly positively related to: likelihood of prenatally reporting that breastfeeding is the best way to feed a baby ($r = 0.50$, $p < 0.001$); having taken a class with breastfeeding instruction prenatally ($r = 0.13$, $p < 0.001$); duration of intended breastfeeding ($r = 0.40$, $p < 0.001$); duration of intended exclusive breastfeeding ($r = 0.31$, $p < 0.001$); and intention to continue breastfeeding after returning to work ($r = 0.06$, $p = 0.005$).

Main Analyses

See Figure 1 for measurement and path analysis results. The five retained PBA items load well onto a single factor, with standardized factor loadings between 0.54 and 0.83. Controlling for covariates, higher prenatal breastfeeding valuation predicted higher self-reported likelihood of future breastfeeding ($\beta = 0.22$, $p < 0.001$). Likewise, meeting or exceeding the breastfeeding goal that one set prenatally (prospective goal attainment) was associated with a higher likelihood of future breastfeeding ($\beta = 0.80$, $p < 0.001$), and was not moderated by breastfeeding valuation ($\beta = -0.13$, not significant). The relationship between and likelihood of future breastfeeding retrospectively measured goal attainment was moderated by whether the participants met their breastfeeding goal ($\beta = 0.10$, $p = 0.016$); mothers who highly valued breastfeeding were *more negatively* influenced by failure to achieve their breastfeeding goals than mothers who did not value breastfeeding as highly. As Figure 2 indicates, for participants who highly value breastfeeding ($\geq$ 75th percentile in PBA), meeting one's breastfeeding goal was associated with a higher likelihood of breastfeeding future children. The same was not true for mothers with lower valuations.

Another measurement of breastfeeding valuation is whether the mother endorses the notion that exclusive breastfeeding is 'best' for babies. It is a construct highly related to the constructed PBA scale. The same moderation model was conducted with this measure as a robustness check; the results were identical.
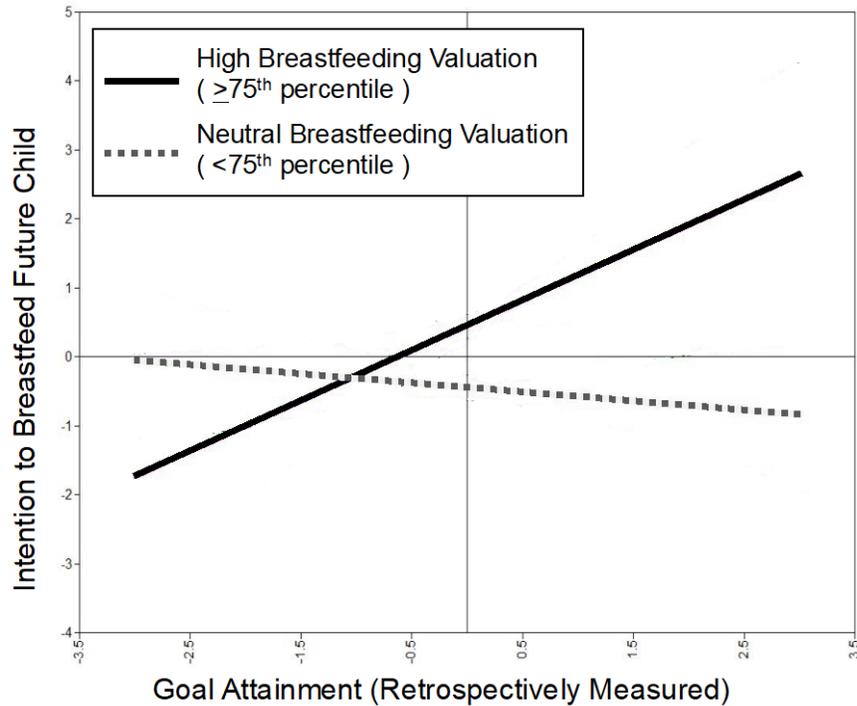
Figure 2. Association of goal attainment and intent to breastfeed a future child, moderated by breastfeeding attitudes.

Discussion

Measuring breastfeeding goal attainment prospectively is different than measuring post-breastfeeding perceptions of having met one's goals. Those two constructs are weakly correlated to each other, but both in-dependently and positively predict the strength of future breastfeeding intentions. Setting and reaching prenatal goals for breastfeeding duration appears to be uniformly beneficial for future intent. Positive valuation of breastfeeding amplifies the positive relationship between retro-spectively measured goal attainment and future intention. For women who breastfed for as long as they wanted to, those with more positive initial attitudes were more likely to intend to breastfeed in the future than women who had neutral or negative attitudes. However, for women who did not breastfeed

as long as they wanted to, the opposite was true: those who more highly valued breastfeeding were *less likely* to intend to breastfeed a future child.

There are research implications that can be drawn from these findings. Retrospective perceptions of having met one's breast-feeding duration goal appears to be a distinct construct from prospective measures of prenatal breastfeeding goal attainment. It is plausible that the breastfeeding goal – or more likely, *goals* – may be shifting over time, or in response to differing cir-cumstances (Whipps et al., 2022). Both conceptualizations might be useful for understanding the phenomenon in question, and this issue of measurement should continue to be critically examined. Understanding shifting motivations and intentions of breastfeeding parents during the childbearing year is an important line of

inquiry that should continue (Whipps et al., 2018). These findings also have implications for intervention development – how to help women set and reach realistic goals for breastfeeding prenatally – and intervention targeting – identifying those at highest risk for not initiating breastfeeding with a subsequent child.

Limitations. This study has some important limitations. The IFPS-II data are more than a decade old. Though there are no other publicly available, national studies that examine these constructs over the reproductive life course, and there does not appear to be a plausible reason that the relationships tested in this study should change substantially, this remains a significantly limitation. Additionally, a significant proportion of the sample indicated the strongest intention response (*Very Likely*) when reporting likelihood of future breastfeeding; this skewness likely resulted in a lack of statistical efficiency, and thus may have diminished the magnitude of any effects found. Furthermore, this response pattern may also be driven by social desirability bias – though given that ~85% of participants report breastfeeding the index child, this may be less of a concern for this sample. White women, married women, highly educated women, and breastfeeding women, in general, are overrepresented in this sample (Fein et al., 2008). Replicating results in newer samples, with a higher proportion of marginalized individuals and a proportion of individuals who are breastfeeding that is representative of the United States, is thus a high priority.

Implications for Health Behavior Theory and Action

Failure to attain a personal goal for breastfeeding duration appears to be a threat to global sense-of-self and a risk factor for non-initiation of future breastfeeding.

Mothers who highly valued breastfeeding and did not meet their breastfeeding goals reported the weakest future breastfeeding intentions – in other words, they were at the highest risk. Because the findings support a self-affirmation theory hypothesis, health practitioners can potentially look to self-affirmation strategies to interrupt this threat process. One such strategy is to neutralize the threat by covertly dispensing affirmations in another unrelated – but still highly valued – domain (McQueen & Klein, 2006). This may boost global self-worth without sacrificing the valued identity as a 'good breastfeeding mother'. If future studies indicate that those theory-based strategies are effective, those who support breastfeeding parents may wish to consider using this type of 'nudge' to boost breastfeeding rates for at-risk parent-child dyads.

However, these tactics need to be carefully considered. Research has found that when the self-affirmation is *within* domain, it can increase the perceived threat and distancing behavior rather than decrease it (McQueen & Klein, 2006). Researchers have also found that when the process of self-affirmation is explained, the impact is negated (Silverman et al., 2013). Therefore, before intervention strategies are implemented, more research must be done to determine how to deliver self-affirming interventions effectively and ethically to this population.

Discussion Question

Individual-level breastfeeding promotion strategies are often unsuccessful, and largely atheoretical. How could a lactation consultant or other healthcare professional use self-affirmation theory or life course theory to develop strategies to protect, promote, and support breastfeeding?

Acknowledgments

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Appendix

Infant Feeding Practices Study II Items Indexing Prenatal Positive Breastfeeding Attitudes (PBA)

How strongly do you agree or disagree with the following statements?
   1 – Strongly Disagree
   2 – Somewhat Disagree
   3 – Neither Agree nor Disagree
   4 – Somewhat Agree
   5 – Strongly Agree

PBA1: Infant formula is as good as breast milk.

PBA2: If a baby is breastfed, he or she will be less likely to get ear infections.

PBA3: If a baby is breastfed, he or she will be less likely to get a respiratory illness.

PBA4: If a baby is breastfed, he or she will be less likely to get diarrhea.

PBA5: Babies should be exclusively breastfed (fed only breast milk) for the first 6 months.

PBA6: If a child was breastfed, he or she will be less likely to become obese.