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## **Predicting Intentions to Continue Exclusive Breastfeeding for 6 Months: a Comparison Among Racial/Ethnic Groups**

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# Predicting Intentions to Continue Exclusive Breastfeeding for 6 Months: a Comparison Among Racial/Ethnic Groups

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**Abstract** The purpose of this study was to explore how mothers of different races/ethnicities make decisions to continue exclusive breastfeeding (EBF) for 6 months under the Theory of Planned Behavior. Participants were recruited from hospitals and WIC clinics in Central Indiana and Southern New Jersey from 2008 to 2009. Mothers (N = 236: 93 non-Hispanic African American, 72 non-Hispanic white, 71 Hispanic/Latina) completed a self-administered questionnaire that measured theoretical constructs and beliefs related to their intention to practice EBF for 6 months. Intentions to continue EBF for 6 months were similar ( $P = 0.15$ ) across racial/ethnic groups. Significant proportions of the intention ( $P < 0.001$ ) were explained by the three theoretical constructs (attitude, subjective norm, and perceived behavioral control). The relative importance of each construct in predicting the intention varied by group. The most influential predictors ( $P < 0.001$ ) were attitude for white mothers, subjective norm for African American mothers, and perceived behavioral control for Latina mothers. Latent beliefs strongly associated with attitude in white mothers were ‘bonding with the baby’ and ‘easy feeding.’ Beliefs held by family members and the general public contributed to the

subjective norm of African American mothers. Perceived behavioral control in Latina mothers was highly correlated with ‘pumping breast milk’. Development of policy and intervention programs that focus on shaping strong predictors and beliefs within racial/ethnic groups could reduce disparities in EBF rates and establish EBF for 6 months as a cultural norm.

**Keywords** Exclusive breastfeeding · Racial/ethnic disparity · Beliefs · Theory of planned behavior

## Introduction

Human milk fulfills all nutritional requirements for the growth and development of an infant, provides protection from acute illness during childhood, and may provide protection from chronic diseases [1]. Oxytocin released by the suckling stimulus prompts ejection of milk and promotes warmth and relaxation, allowing emotional bonding that is more pronounced with repeated exposures [2]. Depressive symptoms have been found to be inversely associated with exclusive breastfeeding (EBF), thus providing additional emotional benefits [3]. EBF also can improve the mother’s health by reducing the risk of certain cancers and Type 2 diabetes, and may improve bone health [4–6].

The U.S. Department of Agriculture projects a minimum of \$3.6 billion in annual savings in health-care costs if the proportion of children breastfed in the early postpartum period were increased to the *Health People 2010* goal of 75% [7]. Though EBF provides many benefits, the recommended duration of EBF for 6 months is not a cultural norm in the United States.

Since the launch of *Blue Print for Action on Breastfeeding* nearly 10 years ago by the U.S. Department of

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Health and Human Services, improvements have been made in national breastfeeding rates [8], though the degree of improvement has differed by race/ethnicity. The largest rate increase was for ‘ever breastfed’ among African American mothers, though it still lags behind that of other races overall. The smallest increases were among white or Latina mothers, who traditionally have been more likely to breastfeed. Studies have shown that Latina mothers were more likely to breastfeed even after controlling for socioeconomic background and birth characteristics [9, 10].

According to 2004–2008 National Immunization Survey data, racial/ethnic differences in breastfeeding prevalence were substantial. A 16 percentage-point gap in the prevalence of breastfeeding for 6 months between African Americans and whites has been consistent since 1990 [11]. Regional differences are also apparent, as another study showed that Latina mothers in Eastern states had higher initiation rates than white mothers, and posited that this difference was due to degree of acculturation; that is, the longer Latinas lived in the U.S., the more likely they were to perceive formula feeding as acceptable [12].

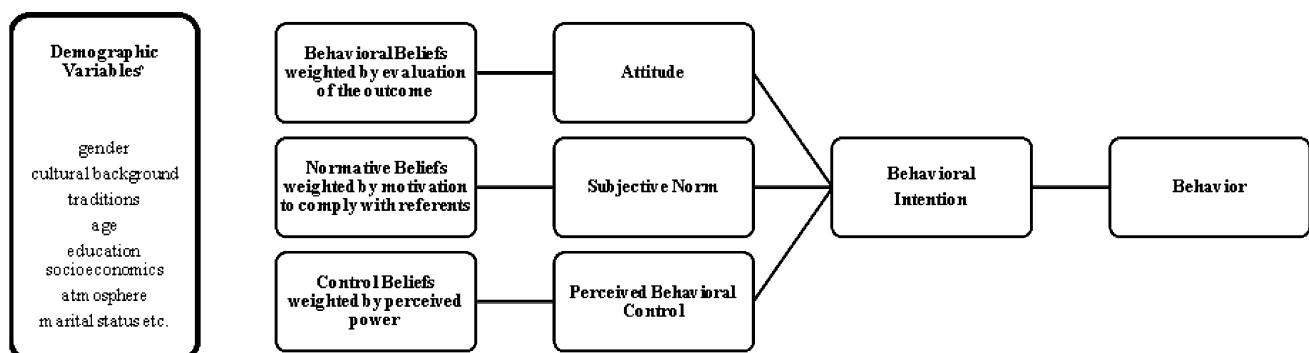
Several other studies have noted racial/ethnic disparities in breastfeeding behavior and explored possible contributing factors including income [13–16]. But data on psychosocial variables and the latent cultural and personal beliefs shared by racial/ethnic groups toward breastfeeding, especially EBF, are limited. In consideration of the growing diversity in the U.S., it is important to understand the complex effects of culture and personal beliefs on EBF. The purpose of this study was (a) to explore how mothers of different races/ethnicities form their intention to sustain EBF for 6 months, and (b) to determine important predictors of the intention and their underlying beliefs using the framework of the Theory of Planned Behavior.

## Methods

### Theory of Planned Behavior

Breastfeeding is a function of a mother–infant dyad, where psychosocial and circumstantial factors affecting both parties alter breastfeeding intention, initiation, and continuation. As such, breastfeeding is considered to be a less volitionally-controlled behavior [17], and can be explained by using the TPB. The central premise of the TPB is that the immediate antecedent of a behavior is the person’s intention to perform the behavior. Intention is a function of three theoretical constructs: attitude, subjective norm, and perceived behavioral control. These three constructs are influenced by underlying beliefs. Attitude is determined by behavioral beliefs that performing the behavior will lead to certain outcomes and is weighted by the evaluation of those outcomes. A more favorable attitude results from beliefs that performing the behavior will lead to positive outcomes. Subjective norm is determined by normative beliefs of what valued social referents think about performing the behavior, and is weighted by the general motivation to comply with those referents. Perceived behavioral control (PBC) is determined by specific situational factors and the degree to which those factors make it easy or difficult to perform the behavior [17–19]. The theory purports that variables such as cultural and individual characteristics contribute to latent beliefs that ultimately dictate attitude, subjective norm, and PBC (Fig. 1). Examination of these constructs and their underlying beliefs rather than broad demographic variables is expected to lead to a better understanding of the dynamics of the behavior.

Understanding ‘why people behave the way they do’ using behavioral theories can be essential to the development of successful breastfeeding promotion strategies because education on the benefits of breastfeeding alone



**Fig. 1** Theory of Planned Behavior, modified from Ajzen [17]. Attitude, subjective norm, and perceived behavioral control are direct predictors of the intention to perform the behavior. Underlying beliefs (i.e. behavioral, normative, and control beliefs) influence direct predictors, subsequently impact the intention. The beliefs are weighed

positively or negatively by evaluation, motivation, and perceived power. <sup>a</sup> According to the theory, more broad demographic variables influence the intention indirectly through attitude, subjective norm, or perceived behavioral control

may not be sufficient to prompt action from mothers [20–22]. The Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA) have been utilized to study the factors underlying the decision to perform the breastfeeding behavior and provided evidence that intention leads to breastfeeding behavior [20–26].

### Study Design and Sampling

A cross-sectional survey design was used to examine the intention to perform the target behavior: continuation of EBF for 6 months. Participants were recruited from two hospitals and two Women, Infants, and Children (WIC) clinics in Central Indiana and Southern New Jersey between 2008 and 2009. Using a purposive sampling method, mothers with infants from birth through 4 weeks old, who were practicing EBF, speaking either English or Spanish, and 18 years or older in age were invited to participate in the study. Once mothers consented to participate in the study, they were asked to complete the questionnaire during either their postpartum stay at hospitals or during initial newborn certification visits at WIC clinics. Sample size was determined according to two guidelines for use of multiple regression, i.e., that the ratio of observations to independent variables ( $m = 3$  in this study) should not fall below 5, and that there should be 10 observations for each independent variable [27, 28]. These guidelines indicated that a range of 15–30 subjects were needed for the study. The study was approved by Institutional Review Boards of participating hospitals, WIC clinics, Indiana University, and Montclair State University.

### Instrument

The self-administered questionnaire, available in English and Spanish, contained measures of theoretical components and demographic variables. The variables in the questionnaire were developed through a theory-guided elicitation study [29, 30]. The questionnaire was translated to a Spanish version and reviewed and validated by Spanish-speaking content specialists. The most frequently mentioned items from the elicitation study were assigned to the corresponding constructs of the TPB. The term ‘EBF for 6 months’ was defined on the questionnaire as using only breast milk, fully breastfeeding, no solids, no water, and no other liquids for the full 6 months from birth. Participants were actively breastfeeding exclusively at the time of survey; therefore, the measures of the instrument assess the intention to continue EBF, rather than the intention to initiate EBF.

Items on the questionnaire assessed intention, theoretical constructs (attitude, subjective norm, and PBC), and their respective underlying beliefs, using a 7-point Likert

scale. Intention was measured by two items that used a scale to rate the likelihood of EBF for 6 months (where, 1 = extremely unlikely; 4 = neither; 7 = extremely likely). Attitude was measured by asking mothers to rate their feelings toward ‘EBF for 6 months’ on 8 pairs: good/bad, relaxing/exhausting, natural/unnatural, pleasant/gross, convenient/inconvenient, time-saving/time-consuming, rewarding/embarrassing, and easy/difficult. These pairs were based in part on descriptors and adjectives that participants used frequently in a prior elicitation study. [30] Subjective norm was measured using a scale to indicate perception of whether or not ‘most people who are important to me’ and ‘most mothers like me’ agree to ‘EBF for 6 months’, (1 = extremely disagree; 4 = neither; 7 = extremely agree). Perceived behavioral control was investigated over two aspects: control over the circumstance—whether performing EBF was under their control (1 = not at all up to me/under my control; 4 = somewhat up to me/under my control; 7 = completely up to me/under my control)—and confidence—how sure or confident they are that they will perform EBF for 6 months (1 = not at all sure/confident; 4 = somewhat sure/confident; 7 = completely sure/confident). Respective underlying beliefs were measured by 23 items that were extracted verbatim from the prior elicitation study.

### Data Analysis

Multiple regression analyses were conducted using the forward method for racial/ethnic groups to determine the relative importance of attitude, subjective norm, and PBC in predicting the intention. Responses to the 7-point Likert scales were averaged before entry into the regression model: intention (mean score of 2 items), attitude (mean score of 8 items), subjective norm (mean score of 2 items), and PBC (mean score of 2 items). The reliability of the instrument in previous study was 0.99, 0.84, 0.60, and 0.90 for intention, attitude, subjective norm, and PBC. [26] The reliability of the instrument was tested again in this study. Factor analysis was performed to establish the validity of the instrument.

Absence of multicollinearity was tested by examining the correlation matrix of predictors (Table 1) to ensure the legitimate use of regression analysis. [27] The regression model provided the proportion of the variance of intention accounted for by the predictors. Standardized multiple regression coefficients ( $\beta$ ) were compared to determine the best predictors of intention within racial/ethnic groups. Behavioral, normative, and control beliefs were multiplied by their corresponding weights as the theory indicates (Fig. 1), then correlated with attitude, subjective norm, and PBC using Pearson product-moment correlations ( $r$ ) in order to identify specific beliefs strongly associated with

**Table 1** Correlation matrix of theoretical variables (N = 236)

	Intention	Attitude	Subjective norm	PBC
Intention	–	0.60**	0.58**	0.33**
Attitude	0.60**	–	0.54**	0.26**
Subjective norm	0.58**	0.54**	–	0.20**
PBC <sup>a</sup>	0.33**	0.26**	0.20**	–

\*\*  $P < 0.01$ <sup>a</sup> PBC: Perceived Behavioral Control

their constructs. Potential confounding variables such as demographic characteristics were compared between racial/ethnic groups. The characteristics that were significantly different were incorporated into a logistic regression model to determine whether they had a role independent of the theoretical constructs in predicting the intention. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 16.0 (SPSS, Inc. Chicago, IL, USA) with a Type I error rate of 0.05.

## Results

Participants (N = 236) identified themselves as non-Hispanic African American (n = 93), non-Hispanic white

(n = 72), or Hispanic/Latina (n = 71), and represented an 88% overall response rate. One hundred mothers were recruited during their initial hospital stay after the baby's birth, while the rest were recruited up to 4 weeks postpartum in WIC clinics. The mean infant age, representing recruitment time, was similar ( $P > 0.05$ ) in each racial/ethnic group; thereby establishing group equivalence. The demography of groups differed significantly ( $P < 0.001$ ) for marital status, WIC participation, education, and maternal age (Table 2). Geographic location was different only for non-Hispanic white mothers. Therefore, the logistic regression model included marital status (married vs. non-married), socioeconomic status (WIC, non-WIC), and geographic location (Indiana vs. New Jersey) as dichotomous variables, and education/maternal age as continuous variables.

### Instrument Reliability and Validity

Reliability coefficients (Cronbach's  $\alpha$ ) for intention, attitude, subjective norm, and PBC in the current study were calculated as 0.94, 0.90, 0.65, and 0.84, respectively. Although the coefficient of subjective norm was less than ideal, it was found to be an improvement over the first reported internal consistency estimate of 0.60 [26]. Moreover, variables measuring subjective norm showed significant correlation with the predicted value ( $r = 0.58$ ,

**Table 2** Demographic characteristics of non-Hispanic African American (AA), non-Hispanic white, and Hispanic/Latina mothers in the study

Characteristics	Overall (N = 236)	Non-Hispanic AA (n = 93)	Non-Hispanic white (n = 72)	Hispanic/Latina (n = 71)	P
<i>Marital status (%)</i>					
Married	44.3	31.6	71.0	28.4	<0.001
Unmarried	55.3	67.1	29.0	71.6	
<i>WIC participation (%)</i>					
WIC	73.5	91.1	36.2	95.5	<0.001
Non-WIC	26.5	8.9	60.9	3.0	
<i>Education level (%)</i>					
Less than high school	15.1	21.8	14.5	9.0	<0.001
High school graduate	37.6	33.3	23.2	59.7	
Some college	18.6	20.5	23.2	11.9	
College graduate	21.2	17.9	23.2	14.9	
Post-graduate	8.7	6.4	15.9	4.5	
<i>Employment (%)</i>					
No-work	43.8	50.6	30.4	50.7	0.07
Full time	42.5	40.5	55.1	31.3	
Part time	12.3	6.3	13.0	17.9	
Maternal age <sup>a</sup> (mean $\pm$ SD <sup>b</sup> ) (years)	28.6 $\pm$ 6.2	28.1 $\pm$ 6.6	30.2 $\pm$ 6.4	27.5 $\pm$ 5.3	0.02
Baby's birth weight (mean $\pm$ SD) (kg)	3.3 $\pm$ 0.6	3.1 $\pm$ 0.6	3.4 $\pm$ 0.5	3.4 $\pm$ 0.4	0.02
Baby's age <sup>a</sup> (mean $\pm$ SD) (weeks)	1.5 $\pm$ 0.7	1.4 $\pm$ 0.8	1.3 $\pm$ 0.7	1.5 $\pm$ 0.7	0.38

<sup>a</sup> Both maternal and baby's ages are at the time when mothers completed the questionnaire

<sup>b</sup> SD is standard deviation

$P < 0.001$ ), suggesting its relevance in prediction. Rephrasing question items addressing subjective norm to capture descriptive norms may raise reliability to a more desirable level [31]. The validity of the instrument was confirmed by factor analysis. Three distinctive factors, reflecting the three theoretical constructs, were extracted from the scale using principle axis factoring and varimax rotation. The factor loadings of items ranged from 0.77 to 0.92 for each factor. Three constructs accounted for 77% of the total variance of the scale, while the variance due to the attitude construct accounted for the most variance (45%).

**Intention and Predictors of Intention to Continue Exclusive Breastfeeding for 6 months**

The average scores ( $\pm$ standard deviation) for intention to continue EBF for 6 months were  $5.4 \pm 1.8$ ,  $5.3 \pm 1.8$ ,  $5.2 \pm 1.9$ , and  $5.7 \pm 1.4$ , for overall, non-Hispanic African Americans, non-Hispanic whites, and Hispanic/Latinas, respectively (where the scale ranged from 1 = extremely unlikely to 7 = extremely likely). These intention scores were similar ( $P = 0.15$ ) among racial/ethnic groups. Mean scores of 2 predictors (attitude and subjective norm) of the intention were significantly different ( $P < 0.01$ ) among groups, which suggested a race-dependent difference in predictors for intention.

The model explained a significant proportion of the variance of the ‘intention to continue EBF for 6 months’ for each racial/ethnic group ( $P < 0.01$ , Table 3), thus verifying that the theory was sufficient in explaining the decision-making process. Constructs of the theory were found to be significant predictors of intention, though the relative importance of predictors varied by participant ethnicity. Adequacy of the theory was further supported by the logistic regression model, in which only theoretical constructs were significant predictors of the intention, independent of marital status, age, education level, WIC

participation, and geographic location: attitude (odds ratio = 2.56, 95% confidence interval, 1.50–4.38,  $P = 0.001$ ), subjective norm (odds ratio = 2.20, 95% confidence interval, 1.39–3.50,  $P = 0.001$ ), and perceived behavioral control (odds ratio = 1.38, 95% confidence interval, 1.01–1.92,  $P = 0.05$ ). Thus, external variables like demographic characteristics influenced the intention indirectly through the theoretical constructs. Although the recruitment time could have contributed to variable differences in predicting maternal intention for EBF for 6 months, its role was not detected in this study sample.

The relative importance of the predictors of intention was different for each racial/ethnic group. Attitude and subjective norm were powerful predictors of intention for non-Hispanic African American and white mothers, but PBC was the sole strong predictor for Latina mothers. For non-Hispanic African American mothers, subjective norm was a stronger predictor of intention than attitude, whereas attitude was the stronger predictor for non-Hispanic white mothers (Table 3). An additional regression analysis conducted on data from non-Hispanic white mothers, after controlling for their geographic location, revealed a result similar to that of white mothers. Attitude and subjective norm were significant in forming the intention to continue EBF for 6 months among mothers in New Jersey; whereas, attitude was the only significant contributor among mothers in Indiana (Table 4). The importance of the attitude was consistent in both locations.

**Underlying Beliefs of Predictors**

Correlation analyses revealed specific underlying beliefs that contributed to the different predictors among groups. For Latinas, the control belief relating to ‘pumping breast milk’ was significantly correlated with perceived behavioral control, thus emerging as a belief in need for modification to improve perceived behavioral control.

**Table 3** Comparisons of the relative importance of predictors of the intention to continue exclusive breastfeeding for 6 months by race/ethnicity

Predictors of the intention	Overall Mean <sup>a</sup>	Non-Hispanic African American (n = 93)			Non-Hispanic white (n = 72)			Hispanic/Latina (n = 71)		
		Mean <sup>a</sup>	$\beta$ weights	$P^b$	Mean <sup>a</sup>	$\beta$ weights	$P^b$	Mean <sup>a</sup>	$\beta$ weights	$P^b$
Attitude	5.6 $\pm$ 1.0	5.7 $\pm$ 0.9	0.23	0.02	5.3 $\pm$ 1.1	0.53	0.001	6.0 $\pm$ 0.7	0.14	0.15
Subjective norm	5.2 $\pm$ 1.5	5.4 $\pm$ 1.3	0.52	0.001	4.6 $\pm$ 1.6	0.26	0.01	5.5 $\pm$ 1.2	0.15	0.12
Perceived behavioral control	6.0 $\pm$ 1.5	6.2 $\pm$ 1.2	0.03	0.72	5.8 $\pm$ 1.5	0.07	0.42	5.8 $\pm$ 1.6	0.64	0.001
Multiple R <sup>c</sup>	0.68	0.68			0.71			0.81		
R <sup>2</sup> , $P < 0.001$ (%)	46.4	47.2			50.5			65.4		

<sup>a</sup> Mean scores are reported with standard deviation. Higher mean scores (in the scale of 1–7) suggest positive attitude, approval from social network, and strong sense of control/confidence in performing the behavior. Mean scores of attitude and subjective norm were significantly different ( $P < 0.01$ ) between race/ethnicity

<sup>b</sup>  $P$  values are for  $\beta$  weights

<sup>c</sup> A Multiple correlation coefficient that is closer to 1.0 indicates a strong correlation between the intention and the three predictors

**Table 4** Relative importance of theoretical variables when controlled for geographic location, New Jersey and Indiana

Predictors of the intention	Participants overall (N = 236)			Non-Hispanic white (New Jersey, n = 40)			Non-Hispanic white (Indiana, n = 31)		
	Mean <sup>a</sup>	$\beta$ weights	$P^b$	Mean <sup>a</sup>	$\beta$ weights	$P^b$	Mean <sup>a</sup>	$\beta$ weights	$P^b$
Attitude	5.6 ± 1.0	0.38	<0.001	5.3 ± 1.2	0.65	<0.001	5.3 ± 1.1	0.46	0.01
Subjective norm	5.2 ± 1.5	0.34	<0.001	4.4 ± 1.8	0.26	0.03	4.7 ± 1.3	0.14	0.42
Perceived behavioral control	6.0 ± 1.5	0.12	0.02	6.0 ± 1.5	0.10	0.31	5.5 ± 1.5	0.32	0.08
Multiple R <sup>c</sup>	0.68			0.82			0.71		
R <sup>2</sup> , $P < 0.001$ (%)	46.4			67.3			50.0		

Not reported are mean intentions: overall; 5.4 ± 1.8, New Jersey; 4.9 ± 2.2, Indiana; 5.5 ± 1.6

<sup>a</sup> Mean scores are reported with standard deviation. Higher mean scores (in the scale of 1–7) suggest positive attitude, approval from social network, and strong sense of control/confidence in performing the behavior. Mean scores of attitude and subjective norm were significantly different ( $P < 0.01$ ) between race/ethnicity

<sup>b</sup>  $P$  values are for  $\beta$  weights

<sup>c</sup> A Multiple correlation coefficient that is closer to 1.0 indicates a strong correlation between the intention and the three predictors

Behavioral beliefs such as ‘helping bond with my baby,’ ‘leading to easy feeding,’ and ‘building my baby’s immunity,’ were highly correlated with attitude of non-Hispanic African American and white mothers. Opinions of social referents such as the baby’s father, other family members and friends, and people in public places were valued most by non-Hispanic mothers to shape their subjective norm favorably to perform the target behavior.

## Discussion

This study confirmed that the relative importance of TPB-defined constructs of intention and their respective underlying beliefs varied by the mother’s race/ethnicity. Results showed that the strongest predictor of intention was PBC for Hispanic/Latina mothers, while attitude and subjective norm were strongest for non-Hispanic African American and white mothers. All three variables were significant predictors of intention for the overall sample population (Table 4). The theoretical constructs together explained significant proportions of the intention ( $P < 0.001$ ) for non-Hispanic African American (47.2%), non-Hispanic white (50.5%), and Hispanic/Latina (65.4%) mothers.

It is important to note that intention has been shown to be directly correlated with behavior [24–26]; therefore, determining the predictors of intention is a necessary step in designing breastfeeding promotion. Wambach tested correlation between the constructs of TPB and intention, then between the constructs and behavior and found significant direct correlations in both cases [24]. Duckett et al. showed high correlation between intention and the breastfeeding duration using the TPB-based structural model

[25]. Bai et al. also found strong positive correlations between intention and behavior [26].

It is also noteworthy that our data account for a larger proportion of variance—both overall and by race/ethnicity—than previous studies where the variance explained by the constructs ranged from 23 to 50% [24–26, 32, 33]. Other studies have used TPB in their analyses and have yielded a variety of results. Dodgson et al. identified PBC as the most dominant factor explaining the breastfeeding intention and the behavior among postpartum mothers in Hong Kong [32]. Wambach reported that both maternal attitude and PBC were significant predictors of intention to breastfeed, though attitude was the most influential. [24] Remple found that subjective norm and PBC were influential in breastfeeding continuation with older infants. [33] Bai et al. reported that attitude and subjective norm were significant predictors of the intention to maintain EBF, with subjective norm being more influential. [26] Variations in the degree of relative importance are likely attributable to the specificity of the behavior and the population in each study.

Through logistic regression modeling, this study demonstrated that demographic characteristics shared within groups exerted their effects on the intention through these TPB constructs, thereby resulting in a different pattern of relative importance of the constructs by race/ethnicity. For example, non-Hispanic white mothers in this study were relatively older in age, higher in income, more likely to be married and highly educated compared to the other two groups. These traits contributed to the differences in dynamics of constructs to influence the intention, thus should be accounted for in respective promotion programs.

Common demographic traits within a racial/ethnic group as well as its cultural traditions and heritage need to be

taken into consideration when designing successful intervention programs. Since these traits are usually not modifiable, program planners need to target underlying beliefs, which are modifiable. This study delineated the specific beliefs that should be addressed in future interventions. For example, ease of pumping breast milk was found to provide a sense of control that drove intention to continue EBF for 6 months in Latina mothers. To enable Latina mothers to maintain EBF for 6 months, health professionals need to provide a safe environment to learn and practice pumping, which may entail (a) a provision of electronic or manual breast pump kits at low/reduced prices or free of charge to low income families, (b) less restrictive eligibility criteria for rental electric or manual pumps for WIC participants, (c) preparation of written and visual education materials in Spanish (e.g. pumping/latching demonstration videos, information on proper storage and feeding of expressed milk), and (d) an increased number of Spanish-speaking peer counselors and lactation consultants.

Support from family and friends were valued highly by non-Hispanic African American mothers. Thus, including family members and an immediate social network of breastfeeding mothers in counseling and education sessions, and organizing peer-dad support groups may be effective to maintain family support throughout the duration of EBF [34]. For non-Hispanic white mothers, it appears that helping them to perceive EBF as both a convenient and optimal method of infant feeding can effectively improve their attitude. Educating these mothers on the emotional and psychological benefits of EBF as well as physical health benefits may play a role in promoting positive attitudes toward EBF [1–6].

Providing an environment favorable to breastfeeding so that mothers may breastfeed their babies in public as conveniently as they do at home may boost the positive perception of breastfeeding. Other ways to create a breastfeeding-friendly environment include: creation of policies that support breastfeeding in public and at work and implementation of awareness campaigns [35]. Participants across all racial groups valued approval of ‘people in public places’, which supports the importance of public awareness and support of EBF for 6 months. Currently, 44 states have enacted public policy that allows breastfeeding in any public or private location [36]. Twenty-four states to date have established legislation that supports breastfeeding in the workplace [36–39]. In addition, the proposal in *Healthy People 2020* includes raising the percentage of employers that provide worksite lactation programs [40]. Further expansion of such policies can help overcome the various barriers perceived by mothers of different races/ethnicities.

Studies that explore the ‘wants vs. needs’ of breastfeeding-friendly initiatives for restaurants and shopping

centers may provide direction and priorities for policy expansion. Campaigns and policies to improve awareness of restaurant and shop owners’ to adopt an environment conducive to EBF may enable both Hispanic/Latina and non-Hispanic mothers to perceive ease, support, and empowerment to continue breastfeeding [41].

The current study suggests that closing the gap in EBF rates among races requires a comprehensive approach involving families, communities, health care providers, hospital practices, and workplaces, but tailored by race/ethnicity of the mothers. Breastfeeding promotion programmers can apply findings of this study to design culturally appropriate interventions that will modify the pertinent beliefs of the critical constructs.

Generalizability outside the study population is limited due to nonrandom sampling. A future study that compares the intention in relation to the baby’s age may delineate EBF-supportive efforts that evolve as the baby develops. Finally, an ethnographic approach that deals with contextually detailed data may provide additional guidance for improving the rates of EBF.

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