**Predicting Intention and maintenance of breastfeeding up to 2-years after birth in primiparous and multiparous women**

Short title: Intention and maintenance of breastfeeding

Abstract

Objectives: Breastfeeding up to 2-years has been associated with short and long-term health benefits for both newborns and mothers. However, few women breastfeed up to 2-years after birth. This study extends previous research on the theory of planned behaviour (TPB) examining the predictors of intention and maintenance of breastfeeding up to 2-years in both primiparous and multiparous women.

Design:155 pregnant women participated in this longitudinal study.

Methods: Participants completed a questionnaire and then 2-years after the child’s birth were asked to report breastfeeding behaviour. Interactions among parity and TPB constructs were examined.

Results: Attitudes, descriptive and injunctive norms, and perceived behavioural control (PBC) explained 58% of the variance in mothers’ intention to breastfeed. Attitudes were the strongest predictor, followed by PBC, descriptive norms and parity. A significant interaction was found between parity and PBC, showing that PBC was only a significant predictor of intention to breastfeed at 2-years in multiparous women. Intentions were the only predictor of breastfeeding behaviour at 2-years.

Conclusion: Promoting intentions may be a useful way to increase breastfeeding duration to 2-years and targeting attitudes and norms may be one way to increase intentions. Further, targeting PBC may also be useful but only in multiparous women.

Keywords: Theory of Planned Behaviour; Breastfeeding; Parity; Pregnancy; Clinical and Health Psychology.

Introduction

Breastfeeding is recognized as the normative standard for ideal feeding since it provides the infant with all of the nutrients required for optimal health (World Health Organization, 2013). Exclusive breastfeeding refers to an infant receiving only breast milk for the first six months and no other solids or liquids, whereas continued or extended breastfeeding refers to continuing breastfeeding the baby beyond the first year and up to 2 years or more, with complementary food (World Health Organization, 2013).

Major benefits of breastfeeding practice during the first 6-months include reduced rates of infant infections (Bowatte et al., 2015; Heinig, 2001), reduced pneumonia rates (Lamberti et al., 2013), and lower rates of chronic diseases including diabetes (Horta et al., 2015; Owen et al., 2012), obesity (Arenz et al., 2004; Moss & Yeaton, 2014), asthma (Dogaru et al., 2014), and leukaemia (Amitay & Keinan-Boker, 2015). Moreover, breastfeeding has also been associated with short and long-term benefits for the mother (Dieterich et al., 2013), namely reduced risk of postpartum stress and anxiety (Borra et al., 2015; Ystrom, 2012), lower risk to develop type II diabetes (Aune et al., 2014) and cardiovascular diseases (Peters et al., 2017), plus lower incidence of breast and ovarian cancer (Chowdhury et al., 2015; Li et al., 2014). Relevant for the current pandemic situation, studies had also revealed antibodies of the SARS-CoV-2 in the breast milk of women who were vaccinated or who were positive to the virus, suggesting a potential protective effect of breastfeeding against COVID-19 (Dong et al., 2020; Pace et al., 2021; Polack et al., 2020).

Notably, recent studies and reviews considering the above-mentioned diseases found that the benefits for the child associated with breastfeeding depend on breastfeeding duration, with benefits in many diseases proportionally increasing as breastfeeding duration increases (Feng et al., 2014; Victora et al., 2016). Benefits of breastfeeding for 2 years or more include reduced risk of obesity in childhood and in adulthood, as well as reduced risk of type 2 diabetes in the child (Bernardo et al., 2013; Binns et al., 2016). Moreover, breastfeeding for more than 2 years reduced more than double the risk of developing breast cancer in the mothers (Victora et al., 2016) and had an 18% lower risk of coronary heart disease (Peters et al., 2017). This evidence had let the authors to conclude that both in high-income and low-income countries, some breastfeeding should continue up to 2 years of age. Accordingly, international recommendations suggest to continue breastfeeding, along with complementary foods, up to two years of age (World Health Organization, 2013)

The rates of breastfeeding up to 2-years, however, are well below the recommended levels (Victora et al., 2016). These rates were around 7.5% in an Australian cohort study (Scott et al., 2019), 5.6% in Canadian women involved in a large study (Borkhoff et al., 2018) and around 8% in a United Kingdom Diet and Nutrition Survey (Lennox et al., 2011). In Italy, 85.5% of women breastfeed, but the average duration of breastfeeding is 8.3 months, far below recommendations (ISTAT, 2017). A study conducted in the north of the country reported that only 12% of women were still breastfeeding at 24 months (Carletti et al., 2011), however, no data are currently available for the other Italian regions.

Recent reviews highlight how breastfeeding initiation and duration are complex health behaviours with duration being influenced by several factors (De Jager et al., 2014; Lau et al., 2018). Sociodemographic variables have been associated with breastfeeding. For example, mothers with higher levels of education have a higher likelihood of both breastfeeding initiation and continuation (Hackman et al., 2014; Taveras et al., 2003). Younger maternal age and lower household income were similarly associated with decreased probability of breastfeeding initiation and continuation (Ahluwalia, 2005; Brown et al., 2014; Cohen et al., 2018; Meedya et al., 2010; Pitonyak et al., 2016; Thulier & Mercer, 2009). Primiparous women, compared to multiparous, have a greater delay from delivery to first breastfeeding attempt and report more breastfeeding problems (Emmanuel, 2015; Hackman et al., 2014). Moreover, primiparous mothers aged 35 years or older are less likely to initiate exclusive breastfeeding (Kitano et al., 2016). Multiparous mothers with prior breastfeeding experience were more likely to breastfeed through the first 6 months and had a longer breastfeeding duration compared with primiparous mothers (Cohen et al., 2018; Hackman et al., 2014). Such differences may relate to prior experience with breastfeeding in multiparous women and higher perceived control over breastfeeding.

One of the most widely recognized applied theoretical framework to predict behaviour is the Theory of Planned Behaviour (TPB), which has been also extensively applied to breastfeeding prediction (Guo et al., 2016; Ismail et al., 2016; Lau et al., 2018). According to the TPB, intention to perform a behaviour is the most proximal determinant of performing that behaviour (Ajzen, 2011; Ajzen & Madden, 1986). Intentions, in turn, are predicted by attitudes, subjective norms, and perceived behavioural control (Ajzen, 2011; Ajzen & Madden, 1986). Several studies found that maternal attitudes, subjective norms and perceived behavioural control are significant predictors of breastfeeding intentions and overall, they explain between 20% and 72% of breastfeeding intention (Bai et al., 2010; Bartle & Harvey, 2017; Ismail et al., 2016; Lau et al., 2018; Lawton et al., 2012; McMillan et al., 2008, 2009; Saffari et al., 2016). Furthermore, mothers who antenatally intend to breastfeed are more likely to feed their baby breast milk and less likely to give infant formula in the early postpartum period up to 6 months (Lawton et al. 2012; Manstead et al. 1983). A recent systematic review examining thirty studies within the TPB framework found that maternal intention and breastfeeding self-efficacy/perceived behavioural control were important predictors of breastfeeding duration from the first week up to 1 year (Lau et al., 2018). However, within the TPB framework, no studies were conducted to predict breastfeeding behaviour for the longer period of 24-months.

Few studies have considered both primiparous and multiparous women using the TPB model (Guo et al., 2016). For example, one study suggested that subjective norms were more important for primiparous than multiparous mothers, but neither subjective norms nor previous breastfeeding experience contributed significantly to predict behaviour at 6 weeks postpartum (Manstead et al., 1983). Swanson and colleagues (2005), instead, found no significant differences between primiparous and multiparous mothers in terms of beliefs or subjective norms at baseline, or at 6 weeks postpartum. In another study, Kloeblen-Tarver and colleagues (2002) found that attitudes were more predictive of breastfeeding intention than subjective norms. However, when included in the regression model, prior breastfeeding experience contributed independently to predict breastfeeding intention in multiparous women, and the effect of subjective norms became non-significant (Kloeben-Tarver et al., 2002). Furthermore, Bartle and Harvey (2017) found a strong relation between intentions and breastfeeding at 6 weeks, however this relation was stronger for women who had breastfeeding experience than for first-time mothers.

As illustrated above, several studies have been conducted to examine breastfeeding intentions and behaviour in the first six months after birth. Based on the health benefits of prolonged breastfeeding, the present study aimed to extending previous research on the predictors of intention and maintenance of breastfeeding up to 2-years after birth in both primiparous and multiparous women, examining the interactions among parity and TPB constructs (i.e., attitudes, subjective norms, PBC and intentions).

Method

Participants and Procedure

Expectant mothers were opportunistically recruited through a variety of means including study flyers and poster advertisements affixed in maternity centres, schools, family associations, and diagnostic centres in Italy. Participation in the study was anonymous and voluntary, and no incentives or payments were offered. Each participant received information explaining the general aims of the study and signed an informed consent form. In the first assessment, participants were asked to complete self-reported paper questionnaires. The participants’ anonymity was guaranteed through the use of an alphanumeric code that each participant generated. Each expectant mother was required to provide an e-mail address and a phone number for further contact. After 2 years, participants were contacted by a telephone call and invited to answer a second online questionnaire. To be able to fill in this second questionnaire, a telephone message with a code was sent to each participant. Participants also received an email with the web link to access the online questionnaire. The study was approved by the Ethical Committee of the Department of Psychology at the university of the first author (Prot. 001067).

Measures

*Demographic variables*

Demographic data included age, educational level (coded into 1= Primary school; 2=Middle school; 3=Higher school; 4= University degree), marital status (coded into 1=Not married; 2=Married; 3=Divorced), working status (coded into 0=unemployed and 1= employed), region of the country (coded as 1=North, 2=Centre and 3=South), parity (coded as 0=Primiparous; 1=Multiparous), and pregnancy trimester (coded into 1= First trimester; 2=Second trimester; 3=Third trimester). At follow-up, women were asked whether, in the time between the first and the second assessment, they had another child (coded into 0= no other births, 1= other births).

Theory of Planned Behaviour measures

Attitudes towards breastfeeding were measured through 11 semantic differential items: “Once other foods have been added to my baby's diet, continuing breastfeeding my baby until he/she is 2 years old and more would be for me…” “useless-useful”, “unpleasant-pleasant”, “negative-positive”, “embarrassed-unembarrassed”, “unhealthy-healthy”, “tiring-relaxing”, “uncomfortable-practical”, “disadvantageous-advantageous”, “unsatisfactory-satisfactory”, “wrong-right”, and “stupid-wise”. Items were scored on a 7-point Likert scale and the average was calculated. The Cronbach’s α was 0.97.

Norms were split into injunctive (perceptions about others approval) and descriptive (perceptions of others behaviour) norms. Injunctive norms regarding exclusive breastfeeding were measured through 3-items rated on a 7-point Likert scale, ranging from completely disagree (1) to completely agree (7). Items were: “Once other foods have been added to my baby's diet… Most people who are important to me think, that I should continue to breastfeed my baby until he/she is 2 years old and more”; “…Most people who are important to me would approve…” and “…Most people who are important to me would like…”. The items scores were averaged, with higher scores representing higher perceived social approval of breastfeeding. The α coefficient was 0.94. Descriptive norms were measured using 2-items rated on a 7-point Likert scale, ranging from completely true (1) to completely false (7). Items were: “People who are important to me (friends and family members) continued to breastfeed their babies for the first 2 years” and “Other mothers I know continued to breastfeed their babies for the first 2 years”. Higher scores indicate greater descriptive norm for breastfeeding. The Cronbach’s α was 0.66.

Perceived Behavioural Control (PBC) was assessed with 3-items: “Once other foods have been added to your baby's diet, suppose you decide to continue breastfeeding your baby until he/she is 2 years old and more, how easy or difficult do you think it will be?”, “Very difficult” (1) to “ Very easy” (7); “Decide to continue breastfeeding my baby until he's 2 years old is…. “ not at all up to me” (1) to “completely up to me” (7); and “How much control do you feel over your decision to continue to breastfeed your baby until he/she is 2 years old?” “not at all under my control” (1) to “completely under my control” (7). These items were averaged, with higher scores representing greater PBC over breastfeeding. The Cronbach’s α was 0.75.

Mothers’ intention to breastfeed was measured through 3-items: “Once other foods have been added to my baby's diet, do you intend to breastfeed your baby until he/she is 2 years old?” “Definitely do not” (1) to “Definitely do’ (7). The remaining items asked participants how strongly they wanted to breastfeed, and how likely they thought it was that they would breastfeed. Higher scores indicated greater intention to breastfeed. The Cronbach’s α was 0.92.

Breastfeeding behaviour at 2-years

Continued breastfeeding was measured 2-years after the childbirth via a self-report online questionnaire and it was measured as the number of months and weeks that women breastfeed.

Data analysis

In order to examine whether participants who completed both assessments differ from those who did not complete both assessments, one-way analyses of variance (ANOVAs) and *χ*2 tests were used. Participants were compared on all sociodemographic characteristics.

Due to the presence of missing values in the dataset, two separate analyses were conducted. First, we conducted ‘complete cases’ analyses considering those participants who provided both baseline and follow-up data. Second, we run analyses using multiple imputation by chained equations to allow the inclusion of participants with missing outcomes at baseline or follow-up. The findings were similar with these two sets of analyses and therefore only the analyses based on imputed data are reported.

Descriptive statistics, including means, standard deviations and Cronbach alphas were computed for all the scales. Pearson correlation coefficients were computed to examine the relations between Age, Educational Level, Parity, Breastfeeding Attitudes, Injunctive Norms, Descriptive Norms, Perceived Behavioural Control, Breastfeeding Intention and Breastfeeding Behaviour at 2 years.

Prior to regression analyses, variables were mean-centred before computing the hypothesized interaction terms (Parity x Attitudes, Parity x Descriptive Norms, Parity x Injunctive Norms, Parity x PBC, Parity x Intention). Only mean-centred variables were employed in the regression analyses. There were two main reasons to compute mean-centred. First, mean centring tends to decrease the correlation between predictor variables and interaction terms and therefore diminishes multicollinearity problems (Aiken & West, 1991). Second, for non-centred data regression, coefficients in equations containing interactions are not invariant under linear transformations of the data (Aiken & West, 1991), and thus data mean centring removes this problem, which leads to a less problematic interpretation of the data.

Linear regression analyses examined the respective contribution of sociodemographic characteristics, TPB variables and the interactions between parity and TPB constructs in predicting intention to breastfeed. In accordance with TPB, background variables (age, educational level, and parity) were entered in Step 1, followed by first-order TPB variables (attitudes, descriptive norms, injunctive norms, and perceived behavioural control) in Step 2, and finally the interactions between parity and TPB variables in Step 3.

Logistic regression analyses were used to predict breastfeeding behaviour for 2 years or more versus breastfeeding for less than 2 years. In the first block of the regression, age, educational level, parity, and other births were entered; in the second block second order TPB variables (intentions and perceived behavioural control) that influence directly the behaviour were entered; in the third block the first order of TPB variables (attitudes, descriptive norms, and injunctive norms) that influence intentions were added. In the fourth and final block, interactions between parity and intention and between parity and PBC were entered.

For the analyses, we considered p values lower than or equal to 0.05 as significant. Data analyses were conducted using the statistical software SPSS v25.

Results

From the initial sample of 158 pregnant women who complete the first self-report assessment (T1), 3 were excluded because the mothers lost their child during pregnancy and 45 were not available to complete the second assessment 2-years later (T2). Thus, the response rate at the 2-year follow-up was 70.98%. Regarding the differences between the responders and non-responders at follow-up, no significant differences were found for age, region, marital status, work status and parity, while significant differences were found for educational level. Specifically, the proportion of those having a higher education level was higher in the responders group compared to the non-responder to follow-up (χ2=24.29, p<0.001).

The women’s mean age was 31.47 years (SD = 5.40), ranged between 18 and 44 years. Moreover, 63.2% were primiparous mothers (n=98) and 36.8% were multiparous (n=57). In the present sample, 38.9% of women breastfeed for one 1-year or more, but only 10.98% of women breastfeed up to 2 years. Participants’ demographics are presented in Table 1.

Before considering regression analyses, correlations among Breastfeeding Attitudes, Injunctive Norms, Descriptive Norms, Perceived Behavioural Control, Breastfeeding Intentions and Breastfeeding Behaviour at 2 years with Age, Educational Level and Parity were examined. The correlations are reported in Table 2.

*Regression to predict Intention*

Hierarchical multiple regression for predicting breastfeeding intention is presented in Table 3. Age, educational level, parity were entered first (Block 1), and explained 8% of the variance in intentions (Block 1, R2 change = 0.077; *F change* (3,139) = 4.175, *p* < 0.01). At block 1, parity was the only significant predictor associated with breastfeeding intention. Attitudes, injunctive norms, descriptive norms and PBC were entered in the second block and explained and additional 58% of the variance in intention (Block 2, R2 change = 0.578; *F change* (4,146) = 61.218, *p* < 0.001). Attitudes had the greatest influence on intention (β = 0.602), followed by PBC (β = 0.153), descriptive norms (β = 0.127) and parity (β = 0.117). In each case, greater intention to breastfeed was significantly associated with holding more positive attitudes, perceiving greater control to breastfeed, and perceiving the positive influence of others on the behaviour. In the final block (Block 3) interaction terms were entered, using the stepwise method.

These interactions included Parity x Attitudes, Parity x Injunctive Norms, Parity x Descriptive Norms and Parity x PBC. This final block explained an additional 2.8% of the variance for intention to breastfeed (Block 3, R2 change = 0.012; *F change* (4,142) = 1.333, *p* =0.274). The Parity x PBC interaction was the only significant interaction entered into the model and was positively associated with intention to breastfeed. The nature of the significant interaction was probed using simple slope analyses (Aiken & West, 1991). For the Parity x PBC interaction, simple slope analyses (see Figure 1) demonstrated that PBC was a strong predictor of intention in multiparous women (B = 0.774, SE = 0.153, *p* < 0.01) but was a non-significant predictor of intention in primiparous women (B = 0.137, SE =0.181, *p* =0.261).

*Logistic regression to predict breastfeeding behaviour*

Logistic regression was performed to assess the impact of sociodemographic characteristics and TPB factors on the likelihood that mothers would breastfeed their child for 2 years or more (see Table 4). Block 1 included demographic variables (age, educational level, parity, and other births) and was not significant (Step χ2 (4, N = 155) = .1.457, *p* =0.824). This model explained between 0.9% (Cox and Snell R square) and 1.9% (Nagelkerke R squared) of the variance in breastfeed behaviour. Block 2 added two additional independent variables: Breastfeed Intention and Perceived Behaviour Control (Step χ2 (2, N = 155) = 14.425 *p* < 0.001), explaining between 9.7% (Cox and Snell R square) and 19.42% (Nagelkerke R squared) of the variance in breastfeeding behaviour. As shown in Table 4, only breastfeeding intention made a unique statistically significant contribution to predicting breastfeeding at 2 years with an odds ratio of 1.796 (95% CI = 1.263 - 2.553). This indicated that controlling for all other factors in the model, mothers with higher breastfeeding intention were over nearly 2 times more likely to breastfeed their child at 2 years or more. Block 3 added attitudes, injunctive norms, and descriptive norms to the model (Step χ2 (3, N = 155) = 8.613, *p* =0.05). Adding this three TPB variables to the model, all the predictors were non-significant. In the final model (Block 4), interaction terms of Parity x Intention and Parity x PBC were tested. Neither of these interactions reached statistical significance and were added to the model (χ2 (2, N = 155) = 0.187, *p* =0.918).

Discussion

The present study applied the theoretical framework of TPB on a sample of pregnant women and explored the extent to which attitudes, subjective norms and PBC influence long-term breastfeeding intention and behaviour. Although previous studies examined the contribution of TPB variables in predicting initiating breastfeeding behaviour and despite the evidence supporting the benefits of prolonged breastfeeding (Feng et al., 2014; Victora et al., 2016), this is the first study considering breastfeeding behaviour up to 2 years of age. The study was also novel in assessing these relations considering both primiparous and multiparous women.

In the current study, the majority of mothers initiated breastfeeding, however, only a minority of them (10.98%) were still breastfeeding at 2-years. These prevalence rates were similar to the 12% reported in the only available study conducted among women in northern Italy (Carletti et al., 2011), and slightly higher than those reported in other countries (Borkhoff et al., 2018; Lennox et al., 2011; Scott et al., 2019) confirming that only a small number of mothers follow the WHO recommendations to breastfeed up to 2 years.

Considering the contribution of the TPB constructs in predicting intention to breastfeed up to 2 years, the findings of the present study evidenced the strong impact of positive attitudes, followed by PBC and descriptive norms. Together these variables explained 58% of the variance in intention to breastfeed, which is similar to values reported in previous studies (Lawton et al., 2012; McMillan et al., 2008, 2009; Saffari et al., 2016) and a recent meta-analysis (Guo et al., 2016) conducted within the TPB framework but considering lower breastfeeding periods.

Regarding the role of parity, few studies have considered both primiparous and multiparous women using the TPB model (Bartle & Harvey, 2017; Kloeben-Tarver et al., 2002; Manstead et al., 1983; Swanson & Power, 2005), and Kloeben-Tarver and colleagues (2002) reported that the amount of previous breastfeeding experience was an influential factor of infant-feeding decision among multiparous women. The present study extends previous literature allowing us to disentangle the influence of parity from the effect of perceived behavioural control over the intention. Our findings showed, in fact, an interaction between parity and PBC, indicating that multiparous women with higher perceived behavioural control have a stronger intention to breastfeed at 2-years. It seems that in relation to forming intentions, PBC is important only in multiparous women. It may be suggested that it is not only the past experience with breastfeeding which may be important in determining higher intentions but developing controllability over factors which in part are determined by external factors like the baby's response to breastfeeding, family and partner influence or external demands including work accomplishments**.**

Considering behaviour, the present study findings showed that intentions were the only significant predictor of breastfeeding behaviour at 2-years, explaining around 20% of the variance, similarly to previous studies on breastfeeding and a recent systematic review (Lau et al., 2018). Although previous studies have found that among women with breastfeeding experience, the relation between intentions and breastfeeding at 6 weeks (Bartle & Harvey, 2017) and 12 months was stronger than for first-time mothers (Hackman et al., 2014), the findings of the present study did not show a contribution of parity in predicting behaviour, and parity did not moderate intention-behaviour and PBC-behaviour relation, but findings showed only a strong contribution of intention on predicting breastfeeding behaviour at 2 years.

Some practical implications can be drawn based on the present findings. The development and the implementation of strategies that assist women in developing positive breastfeeding attitudes should be addressed, such as providing consistent evidence-based information in antenatal education settings (Hardeman et al., 2002; Oliveira et al., 2017). For example, health practitioners can consider addressing during one-on-one consultations or group educational interventions what women believe that breastfeeding will do for the health of the infant, for the bond between infant and mother and how mothers might approach social situations while breastfeeding. Based on the present study also working on enhancing perceived behavioural control may have a positive impact in increasing intentions to breastfeed. It is important to note that it is not sufficient to have previous experience with breastfeeding, but it is important that during previous experience women develop control over a behaviour which may be determined also by other contextual factors. Consistently, also other aspects of control over the behaviour as self-efficacy beliefs are crucial for continuing breastfeeding (Gau, 2004). In this regard, it may be useful that women are supported by paediatric nurses, midwives, or other health care staff, to develop strong control over the behaviour. Discussion of actual and perceived barriers with mothers, learning ways to mitigate the possible interference of work or significant others on intentions to continue breastfeeding, role-play activities in education sessions and observing other mothers breastfeeding may also be useful strategies to increase one’s perception of control over the behaviour.

Furthermore, considering that breastfeeding intentions are the strongest predictor of breastfeeding duration, interventions directed toward raising behavioural intentions seems to be essential. Educational interventions and motivational interviews to decrease ambivalence and resistance toward sustained breastfeeding behaviour may be considered to improve breastfeeding intention and duration (Haroon et al., 2013; Wilhelm et al., 2006).

The present study has some limitations that need to be acknowledged. First, the participants enrolled in the study were only expectant mothers who volunteered to be part of the study. In that, they may have different characteristics from mothers who were not available to participate and may not be representative of the entire population of Italian pregnant women. Furthermore, those who completed the study were more educated. Therefore, the generalization of these findings needs to be made with caution. Second, although the sample size was adequate to perform the analyses, a larger sample size would have enabled additional subgroup comparisons (e.g., working vs non-working mothers). Third, as with other longitudinal studies, we encountered nearly 30% of loss to follow-up, which decreased the statistical power. However, multiple imputation avoided further sample size reduction which would otherwise have resulted from exclusions due to missing data. Fourth, a different wording of the items measuring the TPB constructs may have led to different results. For example, the social norm items were constructed to target significant others or mothers that participants knew. The use of more generic items (i.e., Most people or most mothers) may have given a broader view on the women’s perceptions of societies breastfeeding. Also, breastfeeding behaviour was evaluated in general. Future studies may consider how TPB variables differently influence various breastfeeding behaviours (i.e., breastfeeding at night or expressing breastmilk after the maternity leave). Finally, the TPB model has some limitations as highlighted by previous literature (Sniehotta et al., 2014). It does not account for motivational constructs, for reflective or impulsive determinants of behavior (Sheeran et al., 2013) and for the role of emotions in determining the behaviour (Russell et al., 2021; Wang, 2011). At this regard, it is important to note that previous studies demonstrated that birth experiences (i.e. delivery type, labour complications, postpartum haemorrhage) and associated feelings may impact both breastfeeding initiation and duration (Brown et al., 2014; Nagy et al., 2001). Previous research has also evidenced that breastfeeding difficulties and negative experience were associated with overwhelming feelings of fear towards breastfeeding but also with stronger feelings of security and trust in one’s ability to breastfeed a future child (Palmér, 2019). Future studies may therefore consider how the feelings associated with previous birth and breastfeeding experiences may impact on breastfeeding intentions and behaviours and contribute to shaping one’s motivation (e.g., autonomous vs. controlled) to engage in the behavior.

Despite these limitations, the present study is the first study which considers breastfeeding up to 2 years of age of the baby, which is highly relevant as previous literature evidenced that prolonged breastfeeding is associated with higher benefits for children and mothers’ health. Further studies are needed to explore the effectiveness of interventions aimed at increasing breastfeeding duration.

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Data availability statement:

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Figure captions

Figure 1 Simple Slopes for predicting intention from perceived behavioural control in primiparous and multiparous women

Tables captions

Table 1 Participants’ demographics

Table 2 Correlations among Age, Educational Level, Parity and TPB variables

Table 3 - Hierarchical Regression to predict Intention to Breastfeed

Table 4 Logistic Regression to predict Breastfeeding