

EXPLORING THE SOCIO-COGNITIVE CORRELATES OF BREASTFEEDING IN A GROUP OF ROMANIAN MOTHERS

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Abstract

The aim of our study was to develop and test the efficiency of a short informative intervention meant to increase mothers' adherence to breastfeeding while investigating potential associations between several social-cognitive variables and breastfeeding behaviour. Enhancing the rates of breastfeeding continuation is currently considered a very important objective for health educators due to its extensively documented benefits for newborns' health (Giles *et al.*, 2014). Self-report questionnaires were administered to 74 women both two-three months before giving birth and when the child was three-six months old. Only 70 women participated to both stages of our study, 35 of which participated in our intervention, while the other 35 were assigned to the control condition. Results showed that mothers' perceived breastfeeding self-efficacy, their intention to breastfeed, their social norms and their outcome expectancies regarding breastfeeding were all associated with breastfeeding their child at three-six months after giving birth. Moreover, the mothers who participated in our short informative intervention were more likely to continue their breastfeeding behaviour at three-six months after giving birth as compared to mothers in the control group. Our results are discussed in the light of their contribution to previous research in this field and of their applicability for field practice.

Keywords: breastfeeding, informative intervention, self-efficiency, social norms, outcome expectancies, intention to breastfeed, Theory of Planned Behaviour

Résumé

Les principaux objectifs de notre étude ont été de développer et de tester l'efficacité d'une intervention à but informatif, destiné à augmenter l'adhésion des futures mères à l'allaitement de leurs bébés. Aussi nous avons analysé les liens potentiels entre plusieurs variables sociocognitives et le comportement de l'allaitement maternel. Améliorer les taux d'allaitement maternel poursuite est actuellement considéré comme un objectif très

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important pour les éducatrices de santé en raison des nombreux avantages que ce type de nourriture a sur le fonctionnement physiologique et psychologique des nouveau-nés (Giles et al., 2014). Cette recherche a comporté deux étapes, les questionnaires ont été administrés à 74 femmes à la fois de deux à trois mois avant l'accouchement et après la naissance, lorsque l'enfant était âgé de trois à six mois. Seules 70 femmes ont participé à deux étapes de notre étude, dont 35 ont participé à notre intervention (l'état expérimental), tandis que les 35 autres ont été assignés à la condition de contrôle. Les résultats ont montré que l'auto-efficacité de futures mères concernant leurs comportements de l'allaitement maternel, les normes sociales, les attentes quant à l'issue de leur comportement, et leur intention prénatale d'allaiter ont tous été associés à allaiter leur enfant jusque à trois-six mois après l'accouchement. De plus, les mères qui ont participé à notre intervention étaient plus susceptibles de poursuivre leur comportement d'allaitement à trois à six mois après l'accouchement, par rapport aux mères du groupe de contrôle. Les résultats sont discutés à la lumière de la contribution qu'ils apportent à la littérature scientifique dans ce domaine, et en fonction de leur application pratique.

Mots-clés: allaitement maternel, intervention à but informatif, auto-efficacité, normes sociales, attentes de résultats, intention d'allaiter, théorie du comportement planifié

Rezumat

Scopurile principale ale acestui studiu au fost să construim o intervenție informativă scurtă, să-i testăm eficiența în creșterea aderenței noilor mame la alăptarea nou-născuților, precum și să investigăm potențialele asociații dintre o serie de variabile socio-cognitive și comportamentul de alăptare. Prelungirea duratei în care sugarii beneficiază de această formă de alimentație este considerată la moment un obiectiv foarte important pentru persoanele care activează în domeniul sănătății datorită numeroaselor beneficii pe care le are acest tip de hrană asupra funcționării fiziologice și psihologice a nou-născuților (Giles et al., 2014). Cercetarea de față a avut două etape, în care s-au administrat chestionare la 74 de femei însărcinate cu două-trei luni înainte de a da naștere și, respectiv, după trei-șase luni de la naștere. Doar 70 dintre ele au participat în ambele etape ale acestui studiu, dintre care 35 au fost incluse în condiția experimentală, în care li s-a aplicat intervenția informativă, în vreme ce 35 au fost incluse în grupul de control. Rezultatele au arătat că auto-eficiența prenatală a mamelor în ceea ce privește comportamentul de alăptare, normele sociale și expectanțele lor cu privire la rezultatul acestui comportament, precum și intenția lor prenatală de a alăpta au corelat toate cu prelungirea duratei de alăptare la trei-șase luni după naștere. Mai mult decât atât, durata perioadei de alăptare a sugarii a fost mai mare la mamele care au participat la intervenția informativă în comparație cu cele care au fost incluse în grupul de control. Rezultatele sunt discutate în lumina contribuției pe care o aduc la literatura științifică din acest domeniu, precum și în ceea ce privește aplicabilitatea lor practică.

Cuvinte cheie: alăptare, intervenție informațională, auto-eficiență, norme sociale, expectanțe cu privire la rezultat, intenția de a alăpta, teoria comportamentului planificat

1. Introduction

Breastfeeding has a vast array of well-documented health benefits for infants, such as the short-term decrease in both morbidity and mortality caused by infectious diseases in the child's first two years of life (Victora, 2000). Moreover, when

performed under optimal conditions, it has a prophylactic value, in the sense that it helps prevent severe forms of diarrhea and lower respiratory tract infection that lead to hospitalization (Quigley, Kelly, & Sacker, 2007). When used as the sole source of nutrition in the first six months of the infant's life, breastfeeding was shown to dramatically lower the incidence of gastrointestinal and allergic afflictions with no negative impact on the child's development (Kramer & Kakuma, 2004). In addition to this, the long term effects that breastfeeding has on infants include increased performance in intelligence tests and a decreased likelihood of: becoming overweight or obese, having elevated systolic and diastolic blood pressure, having elevated levels of total blood cholesterol and developing type-2 diabetes, according to the meta-analysis performed by Horta and Victora in 2013. Breastfeeding has several positive psychological effects on the mothers as well, mainly due to the fact that it increases their release of oxytocin, which is conducive of diminished maternal anxiety, better mood and decreased physiological stress response; all these factors are essential in preparing mothers' central nervous system for the process of raising their offspring (Strathearn *et al.*, 2009). Moreover, it is argued that breastfeeding strengthens the mother-child bond by increasing both eye contact and physical contact between them and that it also enhances maternal responsiveness (Britton, Britton, & Gronwaldt, 2006). Based on such findings, the World Health Organization (WHO) strongly recommends that mothers breastfeed their children exclusively up until they are 6 months old and that this practice be continued until children are two years old (WHO, 2001).

2. Self-Efficacy across Health Behaviour Theories

While breastfeeding is a natural act, it may also be a learned behaviour, as suggested by an extensive body of research which has shown that mothers may need support in order to initiate and maintain appropriate breastfeeding practices (e.g. Hector & King, 2005; Miracle, Meier, & Bennett, 2004; Ryser, 2004). To this end, World Health Organization and the United Nations Children's Fund launched the Baby-Friendly Hospital Initiative (BFHI) in 1992, a policy that has the purpose of strengthening maternity ward practices that support breastfeeding. The BFHI contributes to improving the implementation of exclusive breastfeeding worldwide and, along with the support provided by the health system, helps mothers maintain exclusive breastfeeding. Given that breastfeeding is a health behaviour that may be learnt, it has to be studied within a theoretical framework that best describes the antecedents of its implementation. Therefore, we summarized below the Health Behaviour Theories we employed in conceptualizing breastfeeding and in conducting our research.

According to the Theory of Planned Behaviour (Ajzen, 1991), human behaviour is driven by three types of considerations: *behavioural beliefs* (personal inferences on the perceived effects that a certain behaviour is likely to produce), *normative beliefs* (personal inferences on perceived social normative expectations sur-

rounding a specific behaviour) and *control beliefs* (personal inferences on potential facilitators or inhibitors of a particular behaviour). Behavioural beliefs are responsible for the *positive / negative attitudes* the individual develops regarding the targeted behaviour, normative beliefs are conducive of feeling socially pressured to abide by *subjective norms*, while *control beliefs* result in how well the individual perceives he / she may control the respective behaviour (Fishbein & Azjen, 2010). In turn, when attitudes toward the behaviour are combined with perceived subjective norms and with perceived behavioural control, the individual develops an intention to either put in motion or refrain from performing a certain behaviour. Thus, the more positive the attitudes and the subjective norms, and the higher the perceived behavioural control, the stronger the individual's intention to engage in that particular behaviour. This intention strongly predicts the actual behaviour provided that the individual possesses the necessary abilities to control the behaviour, which may happen in both the presence and the absence of his / her perceived behavioural control. Therefore, according to the Theory of Planned Behaviour, although intention is considered the immediate antecedent of behaviour, perceived behavioural control based on the person's actual abilities may be of more practical use in predicting a behaviour, because the latter helps the person overcome the difficulties associated with performing the act by enhancing volitional control (Fishbein & Azjen, 2010). The construct of perceived behavioural control greatly overlaps with the construct of self-efficacy, the only difference between them being that self-efficacy covers more precise aspects of individuals' competence and future behavior (Luszczynska & Schwarzer, 2005).

The Transtheoretical Model (Prochaska, DiClemente, & Norcross, 1992) argues that behavioural change is a process which happens in five stages: *pre-contemplation* (the individual is not ready to change a problem behaviour), *contemplation* (the individual is aware of the necessity of changing the problem behaviour but has not yet decided to do so), *preparation* (the individual fully intends to change the problem behaviour and plans to do this soon), *action* (the individual has started to change the problem behaviour or replace it with a healthy one), *maintenance* (the change in the individual's behaviour has been maintained for a while) and *termination* (the individual does not feel any temptations to return to the problem behaviour or to renounce the newly acquired healthy one). The central social-cognitive variables that fluctuate across these five stages are *self-efficacy* and *outcome expectancies* (perceived pros and cons of the targeted behaviour). Both self-efficacy and positive outcome expectancies gradually increase as the individual advances through the stages, which means that they have to be augmented in order to facilitate change for individuals in the first stages (Luszczynska & Schwarzer, 2005). This perspective is shared by the Health Action Process Approach (Schwarzer, 1992, 2001), the research on which has found that self-efficacy positively impacts the planning, the initiating and the maintenance of change while predicting a better control over the relapses (Luszczynska & Schwarzer, 2003; Marlatt, Baer, & Quigley, 1995).

3. Social-cognitive correlates of breastfeeding

In accordance to the theoretical frameworks summarized in the previous section of this article, initiating and maintaining a health behaviour such as breastfeeding depends on several social-cognitive variables. To begin with, Dennis (1999), claims that breastfeeding self-efficacy describes a mother's perceived competence to breastfeed her baby and that it is particularly relevant in the initiation and duration of breastfeeding. Torres and his colleagues (2003), approximating the theory on self-efficacy of Bandura (1977), define breastfeeding self-efficacy as consisting of two components: *outcome expectancy* (what a person believes the effects of breastfeeding would be) and *self-efficacy expectancy* (whether a person thinks they can successfully breastfeed their child in order to achieve the perceived outcome expectancies). Thus, the distinction made by Torres *et al.* (2003) is that even if a mother perceives breastfeeding as having very good outcomes on the baby's health, she may not trust her ability to maintain her milk supply and, implicitly, to exclusively breastfeed the child. Hence, in order to successfully employ this behaviour, a mother has to both acknowledge the positive effects of breastfeeding and to trust her ability to do it. These assumptions are supported by previous research, which showed that antenatal maternal *breastfeeding self-efficacy* is highly correlated with breastfeeding interval and with other infant feeding practices. For instance, Blyth *et al.* (2002) showed that mothers with high breastfeeding self-efficacy were more likely to exclusively breastfeed their babies in the first month of their lives as compared to mothers with lower self-efficacy in this area. Thus, they suggest that health care professionals should include strategies to enhance mothers' antenatal self-efficacy in order to increase their confidence in their abilities to successfully carry out breastfeeding even when faced with the inherent obstacles that occur throughout the postnatal period. Moreover, it was found that the main cause for which women renounce this feeding practice, that is their perception of having insufficient milk, may be successfully addressed by increasing their self-efficacy concerning breastfeeding (McCarter-Spaulling & Kearney, 2001). In addition to this, Baranowski *et al.* (1991) found that breastfeeding initiation and maintenance were significantly related to mothers' expectancy outcomes regarding this practice. All in all, it seems that both self-efficacy and outcome expectancies play an important part in breastfeeding initiation and maintenance.

Another social-cognitive variable considered to be essential in predicting behaviour according to the Theory of Planned Behaviour is *intention to breastfeed*. In support of Azjen's theory, maternal prenatal intention to breastfeed was found to be a stronger predictor of both breastfeeding initiation and duration than all the demographic characteristics of the participants combined (Donath & Amir, 2003). More recent studies, however, revealed a gap between mothers' intention to breastfeed and the very initiation of this behaviour, and explained this phenomenon

by the reluctance manifested by their romantic partners toward this practice (Sipsma *et al.*, 2013). As the authors point out, more studies are necessary in order to shed light on these contradictory findings.

Finally, the subjective norms a person develops based on the perceived social norms concerning a particular behaviour were theorized by Azjen (1991) to also play an important role in performing the behaviour. Thus, Swanson and Power (2005) found that mothers' subjective norms had a significant impact on both the initiation and continuation of breastfeeding, while Göksen (2002) revealed that intention is a weak predictor of breastfeeding when not supported by subjective norms. Moreover, perceived social norms discouraging breastfeeding were found to moderate the relationship between knowledge and beliefs (Swanson *et al.*, 2006).

4. Current study

The first aim of our research was to identify the correlates of breastfeeding in new mothers within the theoretical framework of the Theory of Planned Behaviour (Azjen, 1991). Thus, our goals were to investigate the relationships between mothers' breastfeeding outcome expectancies, self-efficacy, perceived social norms and intentions. Given that previous research found that intention to breastfeed strongly predicted breastfeeding and that maternal knowledge about the health benefits this practice has for babies directly relates to mothers' intention to breastfeed via their self-efficiency and outcome expectancies, we also set out to examine the efficiency of a prenatal informative intervention in increasing breastfeeding duration (Stuebe & Bonuck, 2011).

5. Method

5.1. Participants

A total of 74 women from Bacău, Romania, were surveyed, aged 20 to 41 years old, with an average of 29.8 years old. 65 were married, seven were living with a partner and two were single. Each of them was six or seven months pregnant at the time of their enrollment in the study. In the last stage of our research, four participants had withdrawn, leaving us with 70 participants who had at this time a baby aged three to six months. Participants were recruited with the help of family doctors, who asked women who were pregnant in the sixth or seventh month whether they would consent to participate in this study.

5.2. Measures

Intention to breastfeed. According to the Theory of Planned Behaviour (Azjen, 1991) and to Fishbein and Azjen's recommendations on item construction from 2010, we assessed the intensity of mothers' intention to breastfeed exclusively in

the first six months of the infant's life with three items, for which the answers were given on a six point Likert type scale ranging from 1- likely to 6- unlikely. We added two more items to the single item format recommended by Fishbein and Azjen (2010) in order for participants to properly understand the implications of exclusively breastfeeding, as mothers may perceive they are breastfeeding when in fact they may be using a mixed manner of feeding their child; thus, the distinction proposed was: breastfeeding only / breastfeeding and giving the child other types of foods or liquids / giving the child other types of foods and liquids and no breastfeeding him/her, in accordance with definitions based on the recommendations of WHO and on previous research (e.g. Stuebe & Bonuck, 2011). The items employed were “I intend to exclusively breastfeed my baby for six months after giving birth.”, “I intend to exclusively give my baby other types of liquids or foods other than breast milk during the first six months.” and, respectively, “I intend to both breastfeed my baby and give him / her other types of liquids or foods during the first six months.” The Cronbach's alpha for these three items was 0.77, which showed a good internal consistency of this measure.

Social norms regarding breastfeeding. We operationalized the mothers' social norms regarding breastfeeding according to the Theory of Planned Behaviour (Azjen, 1991) by following the procedure employed by Swanson and Power (2005) when assessing mothers' normative beliefs concerning this practice. Thus, we devised three items that assessed the extent to which our participants agreed with three social referents' baby feeding beliefs: woman's own mother, woman's partner and people in general. In accordance with the model proposed by Swanson and Power (2005), we constructed three items with a 6 point Likert type response format, ranging from 1 – Strongly agree to 6 – Strongly disagree. The items were: “My own mother thinks I should breastfeed my baby.”; “My romantic partner / husband thinks I should breastfeed my baby.”; “People in general think babies should be breastfed.”. The Cronbach's alpha for these three items was 0.70, which showed a good internal consistency of this measure.

Outcome expectancies. In describing questionnaire construction according to the Theory of Planned Behaviour, Fishbein and Azjen (2010) recommend that outcome expectancies should target behavioural outcomes and assess both the intensity of the behavioural beliefs and the intensity of the perceived outcomes of those behaviours. Thus, based on the item structure provided by them, we constructed 10 items that targeted both behavioural beliefs (e.g. “For me, breastfeeding my baby is good.”) and perceived outcomes (e.g. “I am sure that breastfeeding my baby whenever he / she demands it is very good for his / her development.”). The answers to these items were provided on Likert type scales in six points ranging from 1 – Strongly agree to 6 – Strongly disagree and the Cronbach's alpha for these ten items was 0.70, which showed a good internal consistency of this measure.

Self-efficacy regarding breastfeeding. Luszczynska and Schwarzer (2005) made a series of recommendations regarding assessing perceived self-efficacy for health behaviours. Given that breastfeeding is a health behaviour for both mothers and children (WHO, 2013), we constructed our items according to their proposed models. Thus, Luszczynska and Schwarzer (2005) suggest that for evaluating self-efficacy regarding a specific behaviour, a scale comprised of four items should be used, and that the semantic structure of the items should be: “I am certain that I can do ... even if ...”. The content of the items should refer to beliefs about one's own ability to engage in the health behaviour targeted. Therefore, we constructed four items with a 6 point Likert type response format, ranging from 1 – Strongly agree to 6 – Strongly disagree. The first part of each item was: “I am sure I will be able to breastfeed even if”, while the second parts focused on potential obstacles participants may face when trying to implement this behaviour, as recommended by the two authors: “I may sometimes experience breast pain”, “I may sometimes feel tired”, “I may have to breastfeed during the night” and, respectively, “I may sometimes be discouraged by others to do so”.

Informative intervention. Given that educational interventions that offer informative support were found to be the most efficient in increasing mothers' likelihood to initiate and continue exclusive breastfeeding upon giving birth provided that they are not offered to participants in a written form (e.g. Guise *et al.*, 2003; Palda, Guise, & Wathen, 2004), we devised an informative intervention that offered data on aspects of breastfeeding which were previously found to have a positive impact on increasing this practice. Our intervention aimed to increase mothers' intentions to breastfeed by augmenting the number of positive outcome expectancies they previously had (Shahla, Fahy, & Kable, 2010) and by enhancing their self-efficacy (Dennis, 1999, 2002, 2003; Ertem, Votto, & Leventhal, 2001). The content of our intervention falls into the broader topics of myths, problems and benefits of breastfeeding (Kistin *et al.*, 1990) and specifically dealt with practical breastfeeding skills including breastfeeding complications and management (Forster *et al.*, 2004), such as how to handle postnatal nipple pain and nipple trauma (Duffy, Percival, & Kershaw, 1997), information on infant feeding and promotion of breastfeeding via the benefits it has for both mother and child (Serwint *et al.*, 1996), and individualized breastfeeding information provided at the request of our participants (Chapman, Damio, & Perez-Escamilla, 2004; Chapman *et al.*, 2004a; Chapman *et al.*, 2004b). The intervention consisted of an 80 minute lecture given by the authors of this study, of which approximately 30 minutes were allotted to participants' questions.

Breastfeeding practices. We assessed whether our participants were still breastfeeding their babies exclusively by contacting them via telephone three to six months after the first stage of our research and asking them an open-ended question: “Are you still exclusively breastfeeding your child?”

5.3. Procedure

The initial 74 participants were met by one of the authors of the current study in their family doctor's office after they had previously given their consent to participate to our research, two or three months before giving birth. They were randomly assigned to either the experimental condition, in which they received the informative intervention, or to the control group, who received no intervention. All of them started by filling in the items which assessed intention to breastfeed, outcome expectancies concerning breastfeeding, social norms regarding breastfeeding and, respectively, their perceived self-efficacy concerning breastfeeding. The experimental group took part in the informative intervention upon filling in the questionnaires, while the control group was only thanked for participating. The second part of our research consisted in contacting our participants via telephone three to six months after giving birth and asking them whether they were still exclusively breastfeeding their babies. We were unable to find four of the initial pool of participants, which left us with 70 women who took part in both stages of the research.

6. Results

Three Pearson's r correlations were computed to assess the relationship between the intention to breastfeed of the participants and their outcome expectancies concerning breastfeeding, social norms regarding breastfeeding and, respectively, their perceived self-efficacy concerning breastfeeding. All three variables had a strong, positive relationship to mothers' intention to breastfeed statistically significant at $p < .01$, as shown in Table 1. Thus, the higher the mothers' intention to breastfeed as expressed before giving birth, the higher the mothers' outcome expectancies regarding breastfeeding, the more intense they perceived the social norms supporting breastfeeding to be, and, respectively, the higher their self-efficacy regarding breastfeeding.

Table 1: *Correlations among intention to breastfeed, outcome expectancies regarding breastfeeding, social norms concerning breastfeeding and self-efficacy regarding breastfeeding*

	Social norms	Self-efficacy	Intention
Outcome expectancies	$r(68)=0.3$	$r(68)=0.3$	$r(68)=0.5$
Social norms	-	$r(68)=0.4$	$r(68)=0.4$
Self-efficacy	-	-	$r(68)=0.5$

Moreover, we further computed other three Pearson's r correlations in order to investigate the relationships between: outcome expectancies and social norms regarding breastfeeding, outcome expectancies and self-efficacy regarding breastfeeding and, respectively, social norms and self-efficacy regarding breastfeeding. Results revealed moderate positive relationships between outcome expectancies and social norms regarding breastfeeding and, respectively, outcome expectancies and self-efficacy regarding breastfeeding and a strong positive relationship between social norms and self-efficacy regarding breastfeeding at $p < .01$, as shown in Table 1. The higher the mothers' outcome expectancies regarding breastfeeding, the more intense they perceived the social norms supporting breastfeeding to be. In addition to this, the higher the mothers' outcome expectancies regarding breastfeeding, the higher their self-efficacy concerning this practice and, respectively, the higher their self-efficacy regarding breastfeeding, the more intense they perceived the social norms supporting breastfeeding to be.

One last Pearson's r correlation examined the potential association between mothers' intention to breastfeed and how old their babies were when they stopped the breastfeeding practice. We found a moderate positive relationship between these two variables ($r(58)=0.35$) these two variables statistically significant at $p < .01$ – the higher the mothers' intention to breastfeed before giving birth, the longer they continued to breastfeed their babies.

A chi-square test of independence was performed to examine the relationship between the type of intervention participants were exposed to (informative intervention versus control group) and whether they continued to breastfeed their babies three to six months after they were born. The relationship between these variables was statistically significant at a .05 level of confidence, $\chi^2(1, N = 70) = 11.21, p < .001$, as shown in Table 2; the type of intervention to which mothers participated has a medium effect on whether they continued to breastfeed their babies three to six months after they were born, $\Phi = .4$. In conclusion, the mothers who participated to the informative intervention were more likely to continue to breastfeed their children when they were three to six months old as compared to mothers who were assigned to the control group, thus participating to no intervention at all. 2

Another chi-square test of independence was performed to examine the relationship between the mothers' intention to breastfeed as expressed before giving birth and whether they continued to breastfeed their babies three to six months after they were born. The relationship between these variables was statistically significant at a .05 level of confidence, $\chi^2(1, N = 70) = .133, p = .008$, as shown in Table 2 ; the mothers' intention to breastfeed as expressed before giving birth had an small to medium significant effect on whether they continued to breastfeed their babies three to six months after they were born, $\Phi = .31$. In conclusion, mothers with higher intentions to breastfeed during the last two or three months of their pregnancy were more likely to continue to breastfeed their children when they were

three to six months old as compared to mothers who expressed lower intentions to pursue this practice during pregnancy.

Table 2: *Effects of intention to breastfeed as expressed during pregnancy and of type of intervention on mothers' breastfeeding practices three to six months after giving birth*

Breast-feeding	Type of intervention		Intention to breastfeed	
	Informative	Control Group	High	Low
Present (<i>N</i> = 36)	25 (69.4%)	11 (30.6%)	26 (72.2%)	10 (27.8%)
Absent (<i>N</i> = 34)	10 (29.4%)	24 (70.6%)	14 (41.2%)	20 (58.8%)
	$\chi^2(1, N=70)=11.2$ $\Phi = .4$		$\chi^2(1, N=70)=6.9$ $\Phi = .31$	

7. Discussion and conclusions

A mother's choice to breastfeed or use alternative forms of infant feeding such as bottle feeding is largely influenced by a series of social-cognitive factors, the influence of which has to be addressed by targeted interventions that were previously shown to help women follow the recommendations of specialists, according to which children should be breastfed exclusively for at least six months (WHO, 2001). We found mothers' intention to breastfeed to be strongly correlated to their exclusively breastfeeding their babies, in line with some of the previous research (e.g. Donath & Amir, 2003). In turn, their intentions to breastfeed were revealed to be strongly correlated to their outcome expectancies, social norms and self-efficacy, thus contributing to the body of research with similar findings (Baranowski *et al.*, 1991; Blyth *et al.*, 2002; Swanson & Power, 2005; Swanson *et al.*, 2006).

Regarding social norms, Romanian mothers' decision to breastfeed seems to be linked to their social referents' evaluations of these practices, as well as to their perceived societal norm concern breastfeeding. Hence, normative influences were transmitted by both proximal (women's own mothers and romantic partners / husbands) and distal (people in general) social contacts. Mothers who perceive that their social referents have firmer views on breastfeeding practices experience more social pressure as a result of this, which is highly associated with a stronger personal intention to either perform or avoid this behaviour, in accordance to the aforementioned referents' beliefs. Therefore, social support of this practice may be crucial in helping new mothers adopt this feeding practice. Our research findings

suggest that this type of social support should come from both the people closest to the new mother and from society in general. This implies that raising the awareness of the general public regarding the benefits breastfeeding has for both mothers and babies may be an important step in influencing Romanian mothers to adopt this feeding practice on a larger scale.

In addition to this, outcome expectancies were also found to play an important role in mothers' decision to breastfeed. Essentially, the better and the stronger the outcome expectancies regarding performing this behaviour, the stronger mothers' intention to do so, and, in turn, the higher the likelihood they actually implement breastfeeding exclusively. Seeing that outcome expectancies refer to perceived benefits which would derive from this practice, a more rigorous promotion of the health benefits associated to breastfeeding may go a long way in making this infant feeding manner more popular.

Furthermore, the more self-efficacious mothers were regarding breastfeeding, the more likely they were to employ it exclusively when feeding their babies. Dennis (1999) argues that this relationship may be explained by the fact that maternal self-efficacy regarding breastfeeding predicts a mother's choice to engage in this practice, the amount of effort she will invest in it, the nature of her thought patterns (self-enhancing / self-defeating) and, respectively, her affective reactions when faced with difficulties related to this practice. Therefore, mothers' self-efficacy regarding breastfeeding should be enhanced in the prenatal period in order to increase the likelihood that she will adopt this feeding pattern with her baby.

We further tested the efficiency of an informative educational intervention meant to increase both the positive outcome expectancies regarding breastfeeding mothers had and their breastfeeding self-efficacy. We addressed their outcome expectancies by providing them with information on research findings that showed the numerous health benefits of this practice for both mother and child (Serwint *et al.*, 1996). We further attempted to increase their self-efficacy by providing them with information concerning practical ways of overcoming the issues associated to breastfeeding (e.g. how to handle postnatal nipple pain and nipple trauma) and by both presenting that information in the form of a lecture and by answering their questions and thus, debunking myths and preconceptions regarding this practice. Our results showed that mothers who attended this intervention were significantly more likely to continue to breastfeed their babies at three-six months after giving birth, which suggests that our approach in designing this intervention was effective. Future research should further test our findings on other types of populations, such as low-income mothers or adolescent mothers, who may have a different degree of receptiveness (Wiemann, DuBois, & Berenson, 1998). These findings are in line with previous research (e.g. Duffy, Percival, & Kershaw, 1997; Forster *et al.*, 2004; Kistin *et al.*, 1990).

Finally, our results support the line of research that found evidence for the applicability of the Theory of Planned Behaviour to the study of the mothers'

social-cognitive determinants of breastfeeding (e.g. Duckett *et al.*, 1998; Swanson & Power, 2005). Thus, we found high associations among the direct predictors of intention to breastfeed (outcome expectancies, social norms and self-efficacy) as well as high associations between each of these predictors and intention to breastfeed. Theory of Planned Behaviour seems to provide a valuable theoretical method of assessing perceived social pressure, outcome expectancies and perceived behavioural control (which we conceptualized as self-efficacy, according to Swanson and Power, 2005) in relation to breastfeeding.

One limitation of our study is that we did not employ a statistical procedure that would have allowed us to draw conclusions about causality. This was due to the insufficient number of participants, which did not permit us to employ statistical procedures such as regression. Future research should extend our findings by investigating these relationships on a larger sample of participants. Moreover, given that past research has shown that demographical variables such as age and social economic status play an important role in the decision to breastfeed, our study should have taken into account such inter-individual differences. The reason why we did not explore them in the current research is that our participants had similar demographical characteristics. Future research should focus on recruiting participants of more different social and economic backgrounds.

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