Do mindful pregnant women intend to breastfeed longer? Empirical evidence on mindfulness, well-being, and intended breastfeeding duration

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Abstract

Introduction: Breastfeeding plays an important role for mothers' and child's health. The aim of this study was to examine the association between mindfulness facets (observing, describing, acting with awareness, non-judging, and non-reactivity), psychological well-being, and breastfeeding intention during pregnancy.

Methods: Participants were 193 pregnant women aged 21–47 years (M = 33.59) took part in a cross-sectional study by completing a questionnaire. Path analysis was performed to examine the relationships among the research variables.

Results: Path analysis showed that non-judging of thoughts and feelings, describing experiences with words, and letting feelings come and go without reacting were positively related to psychological well-being; non-judging and observing internal and external experiences were positively related to breastfeeding intention. Differently from our hypothesis, psychological well-being did not mediate the relationship between mindfulness and intended breastfeed duration.

Discussion and Conclusion: This research was the first one showing that some mindfulness abilities are significantly associated with pregnant women's intention to breastfeed. Care providers should consider that support for breastfeeding might include strategies that focus on inviting women to adopt a non-judgmental style and increasing observing their internal and external experiences during pregnancy.

Take-home message: Different Mindfulness abilities were associated with pregnant women's well-being and intended breastfeeding duration. Describing and non-reacting were positively related to psychological well-being, while observing was positively related to breastfeeding intention. Non-judging was significantly associated with both variables.

INTRODUCTION

The American Academy of Pediatrics recommends exclusive breastfeeding up to the first six months of life and to continue breastfeeding along with complementary foods up to one year [1]. It is well documented that breastfeeding has many positive outcomes: it is an important factor for infant psychomotor and cognitive development, it enhances bonding between mother and infant, and it is beneficial for mothers' health. Indeed, children who have been breastfed achieve better results on intelligence tests and are less likely to develop obesity or diabetes later in life [2]. With respect to mothers, breastfeeding is related to a reduced risk of depression or anxiety in the six months after child birth [3], of ovarian and breast cancer, of developing type 2 diabetes among women with gestational diabetes [2]. Despite these positive consequences for both mothers and infants, in Western societies many women stop breastfeeding before the first 6 months [4].

As the theory of planned behaviour points out, the closest determinant of a behaviour is the intention to perform it [5]. Intention is defined as a plan formulated to achieve a goal through certain instrumental actions [5]. Most pregnant women decide how they will feed their baby before becoming pregnant or very early in the period of pregnancy [6]. Empirical findings confirm that women's intention to breastfeed is the strongest predictor of breastfeeding onset and duration [3,6,7]. In a randomized controlled trial, Foster and colleagues [3] found a significant relationship between intention to breastfeed and actual breastfeeding duration among groups of women with different socio-demographic characteristics. Given the pivotal role of breastfeeding in affecting women and children's health, and the proved link between intention and behaviour, the present study aimed to identify significant predictors of pregnant women's intended breastfeeding duration, considering the role of psychological well-being and mindfulness abilities.

Pregnancy is a period in a woman's life marked by multiple physical and psychological changes, which can have a negative impact on their overall well-being. Pregnancy can be considered a stressful life event, during which women are more vulnerable towards the development of psychological problems, such as depression and anxiety [8,9], with potential negative effects not only on birth outcomes [10] but also on mother-infant interactions [11] and therefore breastfeeding. Indeed, several studies showed that depressive symptoms and prenatal anxiety negatively impact intended breastfeed and breastfeeding duration [12,13].

We should point out that the experience of psychological well-being does not exclusively correspond to the absence of negative symptoms [14], but it is something more complex that relates to the achievement of a state of balance affected by both challenging and rewarding life events [15].

From an eudaimonic perspective, psychological well-being can be conceptualized as the realization of one's true potential [16], which can affect individual's positive functioning [17]. In this vein, psychological well-being can be conceptualized as composed of some interrelated dimensions, namely purpose in life, autonomy, personal growth, environmental mastery, positive relationships and self-acceptance. Purpose in life refers to the extent to which individuals feel their lives have meaning, purpose, and direction. Autonomy indicates whether people view themselves to be living in accord with their own personal convictions. Personal growth indicated the extent to which individuals make use of their personal talents and potential. Environmental mastery can be conceived as the extent to which they are able to manage their life situations. Positive relationships relate to the depth of connection individuals have in ties with significant others. Finally, self-acceptance is the knowledge and acceptance that people have of themselves, including awareness of personal limitations.

Unfortunately, almost all of the studies on pregnant women focused of the presence of negative symptoms, such as depressive mood and high anxiety levels, so that a comprehensive view of women's well-being during pregnancy is lacking. An exception is represented by a recent study conducted by Ilska and Przybyla-Basista [18], which, investigating eudaimonic well-being, revealed that a specific dispositional variable called ego-resiliency was associated with positive relations with others, self-acceptance, and environmental mastery, thus facilitating better psychological adaptation to pregnancy and motherhood.

Another dispositional variable strictly related to well-being [19,20] also during pregnancy [9] is mindfulness. Trait mindfulness can be defined as a mental state of non-judging, openness, curiosity, and acceptance of all internal and external stimuli emerging in the present moment [21,22]. It is a personal disposition which is characterized by the adoption of a particular orientation towards one's experiences, which refers to an attitude of curiosity, openness, and acceptance [21]. Mindfulness comprises five facets or specific abilities [23]. Of these facets, observing refers to the ability of discerning internal and external experiences (sights, smells, perceptions, sounds, cognitions, feelings, etc.); describing refers to the ability of labelling internal experiences with words; acting with awareness comprises attending to one's activities in the present moment; non-judging of inner experience refers to acceptance of one's thoughts and emotions in a non-judgmental way; non-reactivity to inner experience is the tendency to letting feelings come and go without reacting. Lower dispositional mindfulness is associated with higher depression and anxiety [9] among pregnant women.

Mindfulness-based interventions have been proved to be effective in improving pregnant women's health, since they contribute to reduce levels of depression [24-27], anxiety [24-26], negative affect [26], and prenatal stress [24,27,28]. A recent meta-analysis by Taylor, Cavanagh, and Strauss [29] suggested that participants judged mindful-based interventions positively, but did not find any positive effects of these interventions for anxiety, depression, and stress. Anyway, as Taylor, Cavanagh, and Strauss [29] stated, the studies they examined had several limitations, such as the deviancy of the analysed interventions from the traditional ones and their frequency and duration which were shorter than the recommended ones. Among studies supporting the efficacy of mindfulness-based interventions, Duncan and Bardacke [25] found that pregnant women who participated in a mindfulness-based program held once a week for 9 weeks, reported beneficial effects

on emotional well-being, positive affect, healthier stress responses, and relationship with the baby after birth. Moreover, Pan and colleagues [27] showed as participation in a mindfulness programme improved childbirth self-efficacy. Also in the Italian context mindfulness meditation was found to improve well-being by inducing relaxation and helping pregnant women to cope with stress and anxiety [30]. According to Hughes et al. [31], mindfulness-based interventions might improve early parent-infant interactions because they enhance parents' ability to take care of their children without becoming preoccupied by negative or self-critical thoughts. Such a mental state could then favour also breastfeeding, which is strictly linked to positive parent-infant interactions. Despite many studies examined the efficacy of mindfulness-based interventions for women during pregnancy, no evidence was provided about the association between trait mindfulness and breastfeeding intention during pregnancy, considering also the mediational role of eudaimonic well-being.

The present study

Although previous research has established a clear link between psychological negative symptoms during pregnancy (e.g. depression and anxiety) and breastfeeding intention [12,13], and between mindfulness and pregnant women's well-being, so far, no research has examined the association between mindfulness and breastfeeding intention in the prenatal period. Since breastfeeding plays an important role for mothers' and child's health, through this study we aimed to fill this gap, by exploring the link between mindfulness abilities and women's intended breastfeeding duration, considering the mediational role of psychological well-being.

First (Hypothesis 1), we predicted that mindfulness would be significantly and positively related to psychological well-being among pregnant women. Indeed, it was our contention that pregnant women who are more able to describe their experiences, to act with awareness in the present moment, to non-judge their feelings and thoughts, to let feelings come and go without reacting, to observe their inner and outer experiences, are more likely to feel they are realizing their true potential and to experience purpose and meaning in life [16].

Second (Hypothesis 2), we predicted that mindfulness abilities would be associated with intended breastfeeding duration. Mindfulness is characterized by an attitude of receptiveness, curiosity and acceptance, it is associated with greater self-esteem, autonomy, competence and optimism. Women who are characterized by such a mental state will probably be more positive towards themselves, will feel more self-confident and optimistic about their ability to breastfeed, and will perceive lower barriers to such a practice. This kind of orientation would thus contribute to the development of pregnant women's intention to breastfeed their baby for a longer period of time.

Finally, (Hypothesis 3), psychological well-being was supposed to be a significant predictor of intended breastfeeding duration and to partially mediate the relationship between mindfulness abilities and intention. Indeed, awareness and acceptance of one's moment-to-moment experience could be associated with a higher perception of balance between challenges and resources, which in turn might be related to women's intended breastfeeding duration.

METHODS

Study design and procedure

In a cross-sectional design, participants were recruited (from January 2019 to October 2019) at prenatal preparation courses or in some medical offices after a routine gynaecological examination. The clinical staff asked them for participation. Women completed the questionnaires at the beginning

of a session of the prenatal preparation course or after a routine gynaecological examination, at the presence of a researcher. In order to reduce desirability biases, participants completed the questionnaires anonymously after providing informed consent; participation was on a voluntary basis, and no incentives were offered to participants. The questionnaires took about 25 min to be completed.

Study participants and sampling

As we planned to analyse data through path analysis, we considered to recruit around 200 participants. We also followed Kline's suggestion [32], according to whom the ratio of the number of cases to the number of free parameters should be at least 5:1. Participants were eligible to take part if they were aged 18-years or over and to be pregnant (for at least 12 weeks).

The study population comprised 193 Italian pregnant women (weeks of gestation $M = 27.19$; $SD = 5.83$), whose ages ranged from 21 to 47 years ($M = 33.59$; $SD = 5.12$). Most of them (91.2%) were Italian, while 8.8% had a foreign nationality. In terms of their educational level, 36.7 % had a graduate degree, 21.8 % had an undergraduate degree, 30.9 % had completed high school (13th grade), 4.8 % had finished middle school (8th grade), and 5.9 % had some other qualification. Regarding participants' occupation, 70.2% had a full-time job, 12.6% had a part-time job, 3.7% had an intermittent job, 8.9% were unemployed, 3.7% were housewives, one woman was a student and one looking for a job. 77.6% of the participants reported to be primigravida; among the ones who reported to have previous children, 90.7% had one child, 7% had two children, and only one had three children. Most participants (81.9%) were attending a childbirth preparation course.

Study instruments and measures

The participants were invited to complete a battery of scales containing self-report measures for assessing mindfulness abilities, psychological well-being, and breastfeeding intention. Moreover, they provided demographics data, including weeks of gestation and number of previous children.

Mindfulness Facets

The Italian version [33] of the Five-Facets Mindfulness Questionnaire (FFMQ) (23) was used to assess mindfulness abilities. The FFMQ is composed of 39 items rated on a 5-point Likert-type scale (form 1 = Never or very rarely true to 5 = Very often or always true). It assesses five facets of mindfulness: observing (8 items; e.g, "When I'm walking, I deliberately notice the sensations of my body moving"), describing (8 items; e.g, "I can easily put my beliefs, opinions, and expectations into words"), acting with awareness (8 items; e.g, "I rush through activities without being really attentive to them"), non-judging of inner experience (8 items; e.g, "I disapprove of myself when I have irrational ideas"), and non-reacting to inner experience (7 items; e.g, "When I have distressing thoughts or images, I just notice them and let them go"), which reflect the components of mindfulness ability. High scores indicate high levels of mindfulness abilities. In this study, the Cronbach's alphas for each sub-scales were good (observing: $\alpha = .74$; describing: $\alpha = .89$; acting with awareness: $\alpha = .87$; non-judging of inner experience: $\alpha = .83$; and non-reacting to inner experience: $\alpha = .75$).

Psychological well-being

An Italian short form version [34] of the Ryff's Psychological Well-Being Scale (RPWB) (16) was used to assess psychological well-being. This Italian version is composed of 18 items (e.g. "When I look at the story of my life, I am pleased with how things have turned out") rated on a 6-point Likert-like scale ranging from 1 (= Definitively disagree) to 6 (= Definitively agree). High scores to the scale

indicate high levels of well-being. In this study, the Cronbach's alpha coefficient for this scale was .82.

Intended breastfeeding duration

Participants indicated their breastfeeding intention using a single item asking how long they were planning to breastfeed their baby (in months).

Data analysis

Statistical analyses were implemented through IBM SPSS 25 and AMOS 25. The assumption of normality and linearity was tested via some preliminary analyses. We calculated descriptive statistics for the variables. The role of age, weeks of gestation, and number of children with respect to psychological well-being and breastfeeding intention was examined through correlation analyses. A path analysis was conducted to test our hypotheses. We used several goodness of fit indices to evaluate the fit of our hypothesized model. For the Comparative Fit Index (CFI), the Goodness-of-Fit Index (GFI) and the Normed Fit Index (NFI), values within the range of .95-.97 indicated an acceptable fit and values higher than .97 a very good fit. A value between .05 and .08 for the Root Mean Square Error of Approximation (RMSEA) suggested an acceptable fit and a value below .05 indicated a very good fit. For the Standardized Root Mean Square Residual (SRMR), values ranging from .06 to .10 denoted an acceptable model fit, while values lower than .05 suggested a good fit [35].

Ethical aspects

The involvement in the study was anonymous, confidential, and voluntary. All participants gave informed consent before the participation. No incentives were provided to the participants. The study received ethical approval from the Ethical committee of the University with which some of the authors are affiliated (n.18_16.01.2018) and from the Ethical committee of the Local Health Authority (n.55_10.01.2019).

RESULTS

Preliminary analyses

The missing values in the dataset were less than 1% and they were replaced using the series average method, which is adequate with a small number of missing data for each variable. The data were normally distributed (skewness < 1.79; kurtosis < 5.65), as the skews for all variables were lower than 2 and kurtosis lower than 7 [36]. Table 1 shows the descriptive statistics (means and standard deviations).

Table 1. Descriptive statistics of all variables (n = 193).

Variable	Min	Max	Mean	SD
Observing	1.13	4.88	3.20	0.69
Describing	1.25	5.00	3.47	0.76
Acting with awareness	1.00	5.00	3.83	0.75
Non-judging	1.00	5.00	3.51	0.75
Non-reactivity	1.00	4.43	2.85	0.64
Psychological well-being	2.78	5.89	4.69	0.60
Intended breastfeeding	0.0	36.0	9.21	4.84

Correlational analyses

Table 2 displays the intercorrelations among women's age, weeks of gestation, number of previous children and our criterion variables.

Table 2. Intercorrelations between all variables (n = 193).

	1	2	3	4	5
1. Number of previous children	-				
2. Age	.13	-			
3. Weeks of gestation	-.12	.10	-		
4. Psychological well-being	.04	.13	-.10	-	
5. Intended breastfeeding	.34***	.09	-.07	.05	-

Note: * p < 0.05   ** p < 0.01 *** p < 0.001

As we can observe, no significant association emerged between women's age or weeks of gestation, and either psychological well-being or breastfeeding intention. The number of previous children, although unrelated with women's psychological well-being, was significantly and positively associated with breastfeeding intention. Consequently, this variable was controlled for in subsequent analyses.

Path analysis

Our hypotheses were tested using path analysis. The hypothesized model (Figure 1) fitted very well with the data (χ^2 = 6.58, p = 0.36; χ^2/df = 1.09; RMSEA = .02 [CI = .00; .09]; SRMR = .03; CFI = 1.00; TLI = .98; IFI = 1.00; NFI = .97; AIC = 82.57).
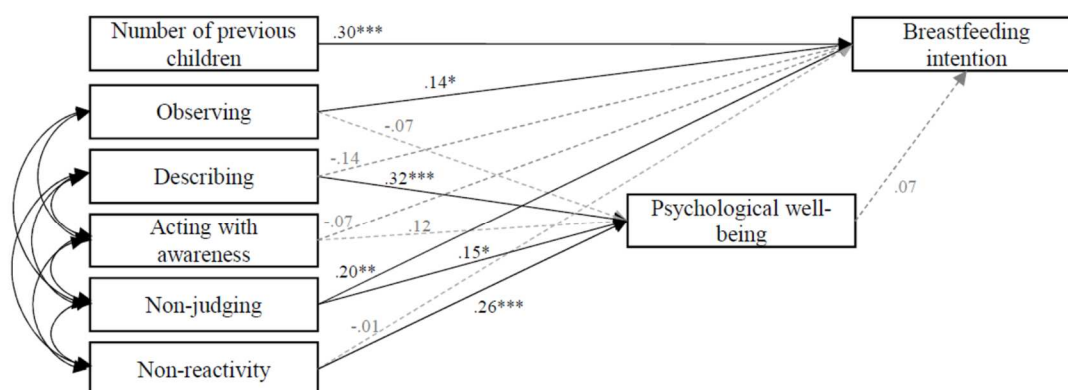

Figure 1. Predictors of psychological well-being and breastfeeding intention.

Partially in line with Hypothesis 1, some mindfulness facets were significantly related to participants' psychological well-being: non-judging of thoughts and feelings, describing experiences with words and letting feelings come and go without reacting. Nevertheless, the paths from acting with awareness (β = .12, p=0.11) and observing (β = –.07, p=0.27) to psychological well-being were not significant. Hypothesis 2 was partially confirmed as well. Non-judging and observing internal and

external experiences were positively associated with women's intended breastfeeding duration. The paths from describing experiences with words ($\beta = -.14$, p=0.10), acting with awareness ($\beta = -.07$, p= 0.36), and non-reacting ($\beta = -.01$, p=0.99) to breastfeeding intention were not significant. Contrary to Hypothesis 3, no association emerged between psychological well-being and breastfeeding intention ($\beta = .07$, p=0.36). The percentage of explained variance was 32% for psychological well-being and 15% for breastfeeding intention.

DISCUSSION

The present study extends previous research findings in many ways. Most importantly, it is the first one showing a link between some mindfulness abilities and women's intention to breastfeed their baby in the prenatal period. Given that intentions are proved to be the strongest predictor of effective behaviour [5], these findings contribute to identify factors that can support the choice of breastfeeding one's child as longer as possible. Moreover, our findings confirmed that dispositional mindfulness is significantly associated with psychological well-being among pregnant women. Finally, in line with previous studies describing mindfulness as a complex multidimensional construct [23], we showed that mindfulness facets can have a specific role in relation to both intended breastfeeding and well-being, suggesting that mindfulness trainings should not consider mindfulness as a whole.

Interestingly, we found that the ability of discerning internal and external experiences (i.e. observing) and the acceptance of feelings and thoughts without judging them (i.e. non-judging) predicted women's intended breastfeeding duration. Women who are in a potentially heightened awareness of pregnancy status (such as sights, sounds, smells, sensations, cognitions, emotions related to both themselves and their babies) might be more likely to feel a strong maternal-fetal attachment, which can contribute to breastfeeding planning. Furthermore, women's intention to breastfeed could be enhanced by their ability to visualize themselves and their baby after birth, which might be higher among women who can observe their inner and outer experiences. Women who are used to face experiences in a non-judgmental way might be also less afraid of being judged by others; we can assume that this fear could be related to discomfort with breastfeeding in public, which is among factors that can dissuade women from deciding to breastfeed [37]. Moreover, we can hypothesize that women who accept their thoughts and feelings in a non-judgmental way and discern internal and external experiences, are more likely to consider the time spent in breastfeed, together with the emotional impact of this experience, as an enrichment and to evaluate this activity as a priority, even if breastfeed demands more mother/child time than other feeding methods (e.g. bottle-feed).

Differently from our hypotheses, well-being was not a significant mediator of the relationship between mindfulness facets and breastfeeding intention. The lack of a significant association between psychological well-being and breastfeeding intention could be due to different reasons. First, participants reported high scores on these variables; such a low variability might hinder from observing a significant relationship between them. Second, we assessed eudaimonic, but not hedonic psychological well-being. While the eudaimonic approach emphasizes meaning and self-realization [16], the hedonic perspective focuses on pleasure attainment, happiness and pain avoidance [38], which are aspects that might be more salient with regard to breastfeeding planning.

Consistent with the broader literature which links mindfulness to well-being, three out of five mindfulness facets predicted participants' psychological well-being. Partially in line with our hypotheses, the more pregnant women were able to describe internal experiences with words (i.e. describing), accept their inner experience in a non-judgmental way (i.e. non-judging), and let feelings come and go without reacting (i.e. non-reactivity), the more they reported high levels of psychological well-being. These findings are consistent with the recent study by McDonald, Sherman and Kasparian [9] on dispositional mindfulness and well-being among pregnant women, which found that both mindfulness and emotion regulation play an important role in pregnant women's psychological well-being. Previous evidence has shown that higher mindfulness and greater emotion regulation can decrease pain intensity and unpleasantness [39]. Analogously, a significant relationship between dispositional mindfulness and eudemonic well-being among pregnant women emerged from our study; as predicted, being mindful could reduce the likelihood that pregnant women experience states of rumination, concern, and catastrophizing, which could interfere with their well-being. However, since there is a lack of research investigating the association between mindfulness and eudemonic well-being among pregnant women, further longitudinal research on this outcome is needed.

Despite its strengths, we have to acknowledge some limitations of the study. First, its correlational nature did not allow to make causal inferences. Future longitudinal studies could examine the causality of the relationship among mindfulness, psychological well-being, and breastfeeding. Second, we assessed breastfeeding intention through a single-item, which could be reductionistic, and we did not assess effective behaviour; even though a strong relationship exists between the two constructs, in some cases a gap between them can be found [5]. Future studies could include a follow-up to test if intended breastfeeding corresponds to effective behaviour; the association between mindfulness and actual breastfeeding duration could be examined as well. Moreover, we accounted for previous children, but not for previous infant feeding experiences; future studies could control for this variable. Finally, we should acknowledge that most participants attended prenatal preparation courses, so that these findings are far from being generalizable to the entire population of pregnant women; future studies could replicate these findings using a broader, more representative, range of participants.

CONCLUSION

Our findings showed a link between some mindfulness abilities and women's intention to breastfeed their baby in the prenatal period. Moreover, some mindfulness facets were significantly related with their psychological well-being. Notably, non-judging was significantly associated with the two variables of interest. Even though results do not fully support our hypotheses, these research findings could have relevant practical implications for health professionals that commonly work with pregnant women, such as those who are implied in the implementation of childbirth preparation courses. Given the many positive outcomes of breastfeeding, it is important that care providers are trained to develop strategies that can sustain breastfeeding in a respectful manner. Our findings underline that such a support should comprise strategies that invite women to adopt a non-judgmental style and increase their ability to observe internal and external experiences during pregnancy. Notably, trainings that enhance non-judging, describing, and not non-reacting abilities could be associated with higher psychological well-being, confirming the relevance of integrating

this non-pharmacological approach in prenatal preparation courses. Low well-being during pregnancy is a relevant clinical and public health concern; indeed, it can have adverse outcomes not only for mothers, but also for children, being associated with children's behavioural, emotional and cognitive problems [40].

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