Pregnancy-Related Anxiety and Associated Coping Styles and Strategies: A Cross-Sectional Study

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BACKGROUND: Pregnancy-related anxiety is a distinct psychological construct during pregnancy, requiring adequate coping behavior.

METHOD: A cross-sectional survey was performed among 420 pregnant Dutch-speaking women in Belgium to establish the prevalence rate of pregnancy-related anxiety and to explore its associated coping styles and strategies. Pregnancy-related anxiety was measured with the Pregnancy-Related Anxiety Questionnaire-Revised (PRAQ-R2) and coping was measured with the Brief Coping Orientation to Problems Experienced.

FINDINGS: Based on PRAQ-R2 score ≥ 90th percentile, the pregnancy-related anxiety prevalence rate was 13.3%. Women with heightened scores significantly more often had a (family) history of psychological problems ($p = .027$; $p = .013$), were significantly more often nulliparous women ($p < .000$), had a fear of birth ($p = .041$), felt ill-prepared for birth and parenthood ($p < .000$), and significantly more often reported to have received insufficient emotional ($p = .002$) and practical support ($p < .000$) during pregnancy. The coping style "avoidance" showed a significant positive association with pregnancy-related anxiety ($p < .000$), while "positive thinking" showed a significant negative association ($p = .054$). The coping strategies "self-blame," "substance use," and "self-distraction" showed a significant positive association with pregnancy-related anxiety ($p < .001$, $p = .011$, $p = .003$).

CONCLUSION: Flemish women show overall maladaptive styles and strategies in coping with pregnancy-related anxiety, of which self-blame seems to be a newfound strategy, requiring attention. Healthcare practitioners might benefit when being aware of the predisposing factors of pregnancy-related anxiety and women's (mal)adaptive coping styles and strategies to better understand and adequately support these women.

KEYWORDS: antenatal care; anxiety; coping behavior; pregnancy; stress

INTRODUCTION

Pregnancy is a major life event. Although the antenatal period is an exciting and joyful time for most pregnant women, it can be perceived and experienced as stressful for others. For some women more profound or severe than for others. Antenatal stress is often due to short- and long-term physical and psychosocial changes and functioning, the forthcoming birth, adjustments in familial, financial, occupational, and other realms (Ayers & Pickering, 2005; Biaggi et al., 2016; Guardino & Schetter, 2014; Storksen et al., 2012; Wijma & Wijma, 2017).

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Women cope with life events such as pregnancy in different ways (Guardino & Schetter, 2014). Coping is a way to manage conditions that are perceived as stressful and is known as a mechanism to reduce or prevent negative emotional, behavioral, cognitive, and psychological responses to stressors (Faramarzi et al., 2016). A distinction is made between maladaptive and adaptive coping behavior. Maladaptive coping is associated with adverse emotional well-being, such as depression, stress, and anxiety (Ertekin Pinar et al., 2018; Hanton et al., 2011). Maladaptive coping styles such as distancing, worrying, and avoidance are more likely to be associated with antenatal anxiety (Lau et al., 2015; van Bussel et al., 2009), while adaptive copings styles such as self-disclosure, acceptance, and seeking social support are associated with the reduction of antenatal anxiety and depression (Faisal-Cury et al., 2012; Fontein-Kuipers et al., 2015; Furber et al., 2009; Guardino & Schetter, 2014; Sjöström et al., 2004; Söderquist et al., 2004).

During the antenatal period, depression, and general and pregnancy-specific anxiety are the most common, often simultaneously occurring, emotional health constructs, showing significant correlations (Fontein-Kuipers et al., 2015; Fontein-Kuipers et al., 2016)—albeit that depression and general anxiety explain a small amount of the total variance of antenatal emotional health (Fontein-Kuipers et al., 2016; Huizink et al., 2004; Loomans et al., 2013). There is increasing evidence that pregnancy-specific or pregnancy-related anxiety is a unique form of anxiety—other than depression, general, or trait anxiety (Cole-Lewis et al., 2014), profoundly contributing to antenatal emotional health (Fontein-Kuipers et al., 2016; Huizink et al., 2004; Loomans et al., 2013). Pregnancy-related anxiety is, therefore, regarded as a distinct psychological construct, consisting of pregnancy-specific fears and worries with key antenatal features such as fear of giving birth, fear of being incapable of giving birth, the baby's well-being, of bearing a handicapped child, fear of becoming a parent, and concerns about own appearance (Blackmore et al., 2016; Brunton et al., 2019; Huizink et al., 2004; Klabbers et al., 2016).

Pregnancy-related anxiety is strongly associated with adverse maternal and child outcomes (Bayrampour et al., 2016; Schetter, 2011) such as antenatal maternal smoking and drinking (Arch, 2013; Goedhart et al., 2009), termination of pregnancy (Klabbers et al., 2016), a shorter gestational period (Wadhwa et al., 1993), preterm birth (Lobel et al., 2008), low birth-related self-efficacy (Lowe, 2000), cesarean section birth (Klabbers et al., 2016; Koelewijn et al., 2017), lower intentions to breastfeed (Fairlie et al., 2009), reduced memory and concentration (Kataja et al., 2017), postpartum depression and anxiety (Austin et al., 2007; Blackmore et al., 2016; Heron et al., 2004; Sieber et al., 2006; Sutter-Dallay et al., 2004), and long-term child-related health and developmental problems (Davis et al., 2004; Korja et al., 2017; Van den Bergh et al., 2020). To reduce or prevent problems, adaptive coping seems of profound importance (Faramarzi et al., 2016).

Earlier Flemish (Dutch-speaking part of Belgium) single-center studies, focusing on pregnancy-related anxiety, did include nulliparous and parous women with high-risk pregnancies. In these studies, pregnancy-related anxiety was examined with the 20-item Pregnancy-Related Anxiety Questionnaire (PRAQ), originally designed to measure pregnancy-related anxiety in nulliparous women (van Bussel et al., 2009; van den Bergh, 1989). Since then, the original 20-item PRAQ was revised twice. The latest revised version, Pregnancy-Related Anxiety Questionnaire-Revised (PRAQ-R2), consists of 10 items and was adapted for all pregnant women regardless of parity (Huizink et al., 2016). Using the PRAQ-R2 in a generic sample of Flemish pregnant women seems justified. Additionally, to our knowledge, the coping behavior of Flemish pregnant women has never been studied, while it may warrant specific clinical attention because of its potential association with pregnancy-related anxiety.

The aim of this study was, therefore, to explore the occurrence of pregnancy-related anxiety among pregnant women in Flanders ~~(a Dutch-speaking part of Belgium)~~ and to identify women's personal characteristics and their coping styles and strategies associated with pregnancy-related anxiety. To achieve this aim, we sought answers to the following questions:

- What is the prevalence rate of pregnancy-related anxiety among Flemish pregnant women?
- Which women are more likely to experience pregnancy-related anxiety?
- Which coping styles and strategies are associated with pregnancy-related anxiety?

This knowledge will help midwives and other healthcare professionals involved in antenatal care to recognize and better understand women who experience pregnancy-related anxiety, and to adjust their health promotion activities in supporting pregnant women in using adaptive coping mechanisms to prevent or reduce the levels of pregnancy-related anxiety.

METHODS

Design and Sample Procedure

A cross-sectional survey study was performed in Flanders, including women during any trimester of pregnancy. To be eligible for participation, women had to be at least 18 years of age, with a sufficient comprehension of the Dutch language. Convenience sampling and purposive sampling methods were used to recruit participants. The researchers informed healthcare professionals (midwives, obstetricians, nurses, doulas, psychologists, and health visitors) about the study and asked them to inform potential participants about the study by distributing flyers and posters (including the link and Quick Response-code to the questionnaire). Additionally, participants were recruited through social media platforms, such as Facebook©, Twitter©, and Instagram©. To collect the data, a questionnaire was distributed among pregnant women with the online survey tool LimeSurvey©. Data were collected between 9 December 2019 and 14 April 2020.

Data Collection

The self-completed questionnaires included questions about sociodemographics, personal details such as parity, physical health, preparation for labor, birth, and parenthood, and emotional and practical support from others. Physical health was measured with one item using a 10-point scale (0 = "no physical complaints"—10 = "a lot of physical complaints"). Preparation for labor, birth, and parenthood was individually measured with one item using a 10-point scale (0 = "not prepared at all"—10 = "very well prepared"). Having sufficient information about labor and birth was measured with one item using a 10-point scale (0 = "completely lacking information"—10 = "abundance of information"). Support from others was measured with one item with a 10-point scale (0 = "no support"—10 = "a lot of support"). These questions were developed for the purpose of this study and were pretested among a sample of 254 Flemish postpartum women, showing convergent validity with the emotional support, instrumental support, and active coping subscales of the Brief Coping Orientation to Problems Experienced (Brief COPE) (Carver, 1997).

Pregnancy-Related Anxiety Questionnaire-revised

Pregnancy-related anxiety was measured with the 10-item PRAQ-R2 questionnaire, widely used in research and clinical settings and suitable for nulliparous and multiparous women (Huizink et al., 2016; Winter et al., 2016; van Bussel et al., 2009). The questionnaire consists of three subscales: "fear of giving birth," "fear of bearing a physically or mentally handicapped child," and "concern about own appearance." The PRAQ-R2 showed satisfactory internal consistency for the scale as a whole (α = 0.71–0.89) as well as for the separate subscales (α = 0.82; α = 0.85; α = 0.88) (Fontein-Kuipers et al., 2016; Winter et al., 2016). The PRAQ-R2 uses a 5-point rating scale to measure fear and worries (1 = "not at all"; 5 = "very"). Total scores vary between 10 and 50. There is no standardized PRAQ-R2 cutoff value. Based on Dutch studies, we set the 90th percentile of the total score as the cutoff value to identify women scoring high on pregnancy-related anxiety (Fontein-Kuipers et al., 2016; Loomans et al., 2013).

Brief Coping Orientation to Problems Experienced

Coping was measured with the Brief COPE, a shortened version of the 60-item COPE inventory (Carver et al., 1993; Carver et al., 1989, Carver, 1997). We used the Brief COPE because, first, it is commonly used in midwifery research, which gives us the opportunity to compare our findings with other study findings (Firouzbakht et al., 2022; George et al., 2013; Gutiérrez-Zotes et al., 2015). Second, the brief COPE has shown sufficient internal consistency used in a sample of pregnant women (α = 0.74–.89) (Peters et al., 2020). Finally, the Dutch version of the Brief COPE has been validated in earlier research (Boezeman et al., 2016; Fontein-Kuipers et al., 2014; Kuipers et al., 2019).

The 28 Brief COPE items are arranged into 14 different coping strategies (two items paired per strategy): active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. The 14 strategies are categorized into four different coping styles or dimensions: positive thinking (three strategies), avoidant coping (five strategies), problem-solving (two strategies), and seeking social support (four strategies) (Baumstarck et al., 2017). The Brief COPE uses a 4-point rating scale per item to measure coping (1 = "not at all"; 4 = "very"). A higher score indicates more use of that specific coping strategy.

Selecting coping subscales does not compromise the validity of the Brief COPE (Carver, 1997).

Data Analysis

An a priori sample size calculation, with statistical significance set at $p = .05$ (95% CI), showed a minimum of 383 participants was required for this study. If more than 10% were missing values per case, the case was excluded. The normality of distribution was checked using visual interpretation of histograms and *Z*-scores. We calculated descriptive statistics for personal characteristics. Differences between the PRAQ-R2 < 90th percentile and PRAQ-R2 ≥ 90th percentile subsamples were calculated using chi-square and univariate independent *t* tests. Crude data were used for the descriptive analysis. We calculated Cronbach's alpha (α) to measure the internal consistency of the PRAQ-R2, the subscales as well as for the total Brief COPE and the four coping styles. The results were considered as low at $\alpha < .7$, acceptable at $0.8 > \alpha \geq 0.7$, good at $0.9 > \alpha \geq 0.8$, and excellent at $\alpha \geq 0.9$ (Field, 2017). Sum scores were calculated for the PRAQ-R2 and the three subscales. We set the 90th percentile as the cutoff value of the PRAQ-R2. Sum scores were calculated for the Brief COPE, for the four coping styles, and for the 14 coping strategies (paired items). A one-way ANOVA test was used to calculate differences between the three trimesters of pregnancy and the PRAQ-R2 sum scores and the Brief COPE total sum and coping style sum scores. Multiple linear regression analysis was used to examine the relationship between the dependent variable (sum score PRAQ-R2) and the multiple independent variables (coping styles Brief COPE), adjusting for cofounders. We included the total PRAQ-R2 score in the multiple linear regression analysis but not the three separate constructs. In case a significant relationship was found between pregnancy-related anxiety (PRAQ-R2) and a coping style, a second multiple linear regression was performed to examine the Brief COPE strategies (paired items) belonging to the underlying coping style. The analysis was performed using the Statistical Package for the Social Sciences© version 25.

Ethical Considerations

The Research and Ethics Committee of the X University Hospital approved the study protocol (EC X 19/42/470). Participants were assured that the collected data would only be used for the purpose of the study and that they could withdraw from the study at any ~~moment~~. By accepting these conditions, all participants gave permission via box-ticking. Only members of the research team who had signed a confidentiality clause had access to the data.

RESULTS

A total sample of 587 pregnant women completed the questionnaire, of which 167 cases were excluded for analysis, because of >10% missing data. A total of 420 pregnant women were included in the analysis.

CHARACTERISTICS OF THE RESPONDENTS

The mean age of the respondents was 30 (±3.54, range 18–41) years. The mean gestational period was 24.6 (±9.55, range 4–41) weeks. Most women were in the second or the third trimester of pregnancy (86.4%). The sample consisted of 51% nulliparous and 49% parous women. Most of the women (92.4%) were born in Belgium. The characteristics of the respondents are presented in Table 1. No significant differences were found between the PRAQ-R2 scores and the first, second, and third trimester of pregnancy ($p = .185$). This justified a multiple linear regression analysis with the sum score of PRAQ-R2, including scores of all three trimesters as the dependent variable, and the coping styles and coping strategies as the independent variables.

Pregnancy-Related Anxiety

The PRAQ-R2 scale and the subscales "fear of giving birth," "fear of bearing a physically or mentally handicapped child," and "concern about own appearance" showed acceptable to high internal consistency ($\alpha = 0.80$, $\alpha = 0.76$, $\alpha = 0.87$, and $\alpha = 0.83$). Setting the 90th percentile as the cutoff showed that a heightened score on the PRAQ-R2 was equivalent to a score of ≥33 (range 10–55). Of the women in the study, 13.3% had a score above the cutoff value, indicating pregnancy-related anxiety (Table 1). Women with a heightened PRAQ-R2 score were significantly more likely to have a personal history of psychological problems ($p = .013$) or a family history of psychological problems ($p =$

TABLE 1. Characteristics Participants

	Total group *n* = 420 (100%)	PRAQ-R2 < 90th percentile *n* = 364 (86.7%)	PRAQ-R2 ≥ 90th percentile *n* = 56 (13.3%)	*p*-value
Age (in years) mean (*SD*±) range	30.00 (±3.54) 18–41	30.05 (±3.54)	29.63 (3.59)	.398
Ethnic background[a] *n* (%)				.455
Belgium	388 (92.4)	334 (91.8)	54 (96.4)	
Other western country	30 (7.1)	28 (7.7)	2 (3.6)	
Non-western country	2 (0.5)	2 (0.5)	0 (0.0)	
Partnership status *n* (%)				.632
In relationship	405 (96.4)	350 (96.2)	55 (98.2)	
Single	15 (3.6)	14 (3.8)	1 (1.8)	
Highest level of education *n* (%)				.587
Elementary school	2 (0.5)	2 (0.5)	0 (0.0)	
Prevocational secondary school	7 (1.6)	5 (1.4)	2 (3.6)	
Secondary education preparing for higher education	52 (12.4)	44 (12.1)	8 (14.3)	
Bachelor (equivalent)	210 (50.0)	186 (51.1)	24 (42.8)	
Master/university	149 (35.5)	127 (34.9)	22 (39.3)	
Work *n* (%)				.226
No paid work	18 (4.3)	13 (3.6)	5 (8.9)	
Paid work	402 (95.7)	351 (96.4)	51 (90.1)	
Religion[b] *n* (%)				.274
Religious	96 (22.9)	80 (22.0)	16 (28.6)	
Not religious	324 (77.1)	284 (78.0)	40 (71.4)	
Gestation (in weeks) mean (*SD*±) range	24.69 (±9.55) 4–41	24.4 (±9.67)	26.42 (±8.55)	
Trimester of pregnancy *n* (%)				.185
First trimester (0–12 weeks)	54 (12.9)	50 (13.7)	4 (7.1)	
Second trimester (13–26 weeks)	174 (41.4)	153 (42.0)	21 (37.5)	
Third trimester (27–42 weeks)	192 (45.7)	161 (44.3)	31 (55.4)	
Parity *n* (%)				<.001
Nulliparous	214 (51.0)	172 (47.3)	42 (75.0)	
Parous	206 (49.0)	192 (52.7)	14 (25.0)	
History of miscarriage or termination of pregnancy *n* (%)				.276
Yes	110 (26.0)	92 (25.3)	18 (32.1)	
No	310 (73.8)	272 (74.7)	38 (67.9)	
Personal history of psychological problems *n* (%) yes	141 (33.6)	114 (31.3)	27 (48.2)	.013
no	279 (66.4)	250 (68.7)	29 (51.8)	.027
Family history of psychological problems *n* (%) yes	146 (34.8)	120 (33.0)	26 (46.4)	
no	234 (55.7)	212 (58.2)	22 (39.9)	
unknown	40 (9.5)	32 (8.8)	8 (14.30)	

(*Continued*)

TABLE 1. Characteristics Participants (*Continued*)

	Total group *n* = 420 (100%)	PRAQ-R2 < 90th percentile *n* = 364 (86.7%)	PRAQ-R2 ≥ 90th percentile *n* = 56 (13.3%)	*p*-value
Feeling prepared for labor and birth mean (*SD*±) range	6.5 (±2.03) 1–10	6.68 (±1.98) 1–10	5.34 (±2.03) 1–10	<.001
Feeling prepared for parenthood mean (*SD*±) range	7.14 (±1.72) 1–10	7.32 (±1.63) 1–10	6.0 (±1.89) 1–10	<.001
Sufficient information about parenthood mean (*SD*±) range	7.99 (±1.55) 1–10	8.1 (±1.51) 1–10	7.29 (±1.81) 1–10	.002
Emotional support from others mean (*SD*±) range	7.93 (±1.55) 1–10	8.01 (±1.5) 1–10	7.43 (±1.74) 1–10	.02
Practical support from others mean (*SD*±) range	7.6 (±1.86) 1–10	7.73 (±1.76) 1–10	6.8 (±2.24) 1–10	<.001
PRAQ-R2 total score mean (*SD*±) range	23.86 (±6.82) 10–45	22.04 (±5.23) 10–39	35.71 (±3.03) 11–46	<.001
Fear of giving birth mean (*SD*±) range	6.75 (±3.02) 3–15	6.31 (±2.65) 3–15	6.88 (±3.01) 3–15	.041
Fear of a handicapped child mean (*SD*±) range	9.8 (±3.6) 4–20	9.66 (±3.61) 4–20	9.96 (±3.4) 4–20	.058
Concern own appearance mean (*SD*±) range	7.29 (±3.07) 3–15	7.02 (±3.0) 3–15	6.81 (±2.8) 3–15	.082

[a]Ethnic background non-western: born in an African, Latin American, Asian (Indonesia and Japan excluded), or Turkey. Western: born in a European country (Turkey excluded), North America, Oceania country, Indonesia, and Japan.

[b]Religion identifying with a religion, spiritual tradition, or belief system that influences view on/way of life.

.027). Furthermore, women with a PRAQ-R2 score ≥ 90th percentile score felt less prepared for labor and birth ($p < .001$) and for parenthood ($p < .001$). They felt to have received insufficient information about parenthood ($p = .002$) and they had received little emotional ($p = .020$) and practical support from others during pregnancy ($p < .001$). Nulliparous women were more likely to have a heightened PRAQ-R2 score ($p < .001$) (Table 1).

Brief Cope

Internal consistency for the total Brief COPE was acceptable for the total scale (α = 0.78) as well as for the subscales positive thinking (α = 0.73), problem-solving (α = 0.75), and internal consistency was good for seeking social support (α = 0.84). Internal consistency for avoidant coping was marginally acceptable (α = 0.69) but did not show an inter-item correlation <.30. The coping style positive thinking showed a total mean score of 14.79, ±3.12 (range 8–29), avoidant coping 18.37, ±3.46 (range 10–32), problem-solving 11.22, ±2.27 (range 4–16), and seeking social support 18.59, ± 4.04 (range 8–29).

Multiple Linear Regression Analysis

Pregnancy-Related Anxiety and Coping Styles

First, we performed an unadjusted multiple linear regression analysis with the sum score of PRAQ-R2 as the dependent variable and the coping styles of the Brief COPE as the independent variables. The analysis showed a significant positive association between pregnancy-related anxiety and avoidant coping ($B = 0.745$, $SE = .089$, 95% CI = 0.570–0.919, $p = .027$). Positive thinking showed a significant negative association with pregnancy-related anxiety ($B = -.261$, $SE = 0.118$, 95% CI = −.492 to −.029, $p = .027$). Based on the differences between women with and without heightened scores on the PRAQ-R2 (Table 1), the following covariates were added: a personal history of psychological problems, family history of psychological problems, nulliparity, emotional support from others, practical support from others, having sufficient information about parenthood, feeling prepared for labor and birth, and feeling prepared for parenthood.

The adjusted multiple linear regression analysis showed a significant positive association between pregnancy-related anxiety and passive coping ($B = .652$, $SE = .085$, 95% CI = .486–0.819, $p < .000$) and a negative association for positive thinking ($B = -.199$,

SE = 0.103, 95% CI = −.401 to .004, p = .054). The p-value of positive thinking was marginally nonsignificant. The unadjusted analysis showed a total explained variance of 15.2%, while the adjusted analysis showed a total explained variance of 36.5%. After deliberation, we decided to keep the coping style positive thinking in the additional multiple linear regression analysis, to examine the separate coping strategies (Table 2).

Pregnancy-Related Anxiety and Coping Strategies

Second, we performed a multiple regression analysis with the PRAQ-R2 total score as the outcome variable. The following coping strategies of the coping styles avoidance and positive thinking were entered as predictors: humor, positive reframing, denial, acceptance, substance use, self-blame, withdrawal, and self-distraction. We included the same covariates as in the first regression model. Three coping strategies showed a significant positive association with pregnancy-related anxiety (in descending order of strength of association): self-blame (B = .845, *SE* = .203, 95% CI = .446–1.243, p < .001), substance use (B = .841, *SE* = .330, 95% CI = .192–1.491, p = .011), and self-distraction (B = .691, *SE* = .234, 95% CI = .232–1.151, p = .003). Avoidant coping was the underlying coping style for the significant coping strategies. No specific coping strategy belonging to positive thinking was flagged as significant. The adjusted analysis showed a total explained variance of 36.7%. The analysis of the coping strategies is shown in Table 3.

DISCUSSION

To our knowledge, this is the first study in Belgium exploring women's coping with pregnancy-related anxiety. The PRAQ-R2 includes three subscales of which "fear of birth" was more likely to be experienced by women. It is known that fear of birth is associated with women's belief that birth is a medical process (Durgun Ozan & Alp Yilmaz, 2020; Stoll & Hall, 2013). Of all the births in Belgium, 20% are cesarean sections, 10% are instrumental births, 25% of all labors are induced, 70% of all childbearing women have epidural analgesia during labor, and 40% of the women have an episiotomy (Devlieger et al., 2019). Of 13 high-income countries, Belgium is fifth in rank in terms of instrumental vaginal deliveries and cesarean sections (Seijmonsbergen-Schermers et al., 2020). It might be that the women in our sample experienced higher levels of pregnancy-related anxiety, due to the realistic anticipation of having an intervened birth. Looking at the Netherlands as a bordering country, constituting a similar population and speaking the same language but utilizing a less medical approach when it comes to childbirth, the total PRAQ-R2 scores, as well as the fear of birth scores of Flemish pregnant women, were higher compared with the scores of pregnant women in the Netherlands (Fontein-Kuipers et al., 2015; Loomans et al., 2013). The higher levels might be explained by Belgian maternity service providers utilizing a more medical approach as opposed to the Netherlands, suggesting that Flemish women view birth as a medical process (Christiaens et al., 2013). It would be of interest to examine and compare pregnancy-related anxiety in multiple countries with differences in the medicalization of childbirth to better explore on a large scale, the assumption that pregnancy-related anxiety is associated with women's apprehension of an interventionist birth.

Women's belief that birth is a medical process is also associated with the fear of bearing a handicapped child (Durgun Ozan & Alp Yilmaz, 2020). The PRAQ-R2 subscale "fear of bearing a handicapped child" showed to be marginal significant but might be of clinical relevance. The women in our sample were on average 25 weeks pregnant. These women have all been subjected to prenatal screening, as prenatal testing is routine practice in Belgium (EUROCAT, 2010). The *implicit message* within the goals of *prenatal testing* is that society believes that raising a child with a disability is such a burden that it is both morally correct and medically appropriate to take measures to ensure that these children are not born (Stapleton, 2017). We do not know if women in our sample have had (a history of) adverse test results. Nevertheless, reflecting on prenatal screening counseling in terms of pregnancy-related anxiety seems warranted given the scores of this domain of fear (Dahl et al., 2011).

Although problem-solving coping is one of the important adaptive coping strategies (Huizink et al., 2002), our findings did not indicate a significant relationship between problem-solving coping and pregnancy-related anxiety. A recent Flemish study among mothers of children between 6 weeks and 12 years old showed no significant relationship between problem-solving coping and maternal life balance

TABLE 2. Multiple Linear Regression Analysis: Pregnancy-Related Anxiety and Coping Styles

	PRAQ-R2[a]						
						95% CI for Exp(*B*)	
	B	*SE*	Beta	*t*	Significant	Lower	Upper
Positive thinking[b]	−.199	.103	−.084	−1.932	.054	−.401	.004
Avoidant coping[c]	.652	.085	.331	7.708	<.001	.486	.819
Problem-solving	.153	.145	.050	1.058	.291	−.132	.438
Seeking social support	−.018	.075	−.011	−.240	.810	−.165	.129

$p < .001$.

[b]Humor, positive reframing, and acceptance. [c]Denial, substance use, self-blame, behavioral disengagement, and self-distraction.

Covariates: emotional support, practical support, information parenthood, history of psychological problems, family history of psychological problems, nulliparity, feeling prepared for labor and birth, feeling prepared for parenthood.

[a]Adjusted R Square 0.365, $p < .001$.

TABLE 3. Multiple Linear Regression Analysis: Pregnancy-Related Anxiety and Coping Strategies

	PRAQ-R2[a]						
						95% CI for Exp(*B*)	
	B	*SE*	Beta	*t*	Significant	Lower	Upper
Humour[b]	.087	.182	.020	.479	.633	−.271	.446
Acceptance[b]	−.239	.261	−.039	.916	.360	−.752	.274
Positive reframing*[b]	−.424	.229	−.084	−1.851	.065	−.874	.026
Denial[c]	.428	.280	.064	1.531	.127	−.122	.977
Substance use[c]	.841	.330	.107	2.546	.011	.192	1.491
Self-blame[c]	.845	.203	.193	4.165	<.001	.446	1.243
Behavioral disengagement[c]	.288	.265	.049	1.085	.279	−.24	.809
Self-distraction[c]	.691	.234	.112	2.961	.003	.232	1.151

[b]Positive thinking. [c]Avoidant coping.

Covariates: emotional support, practical support, information parenthood, history of psychological problems, family history of psychological problems, nulliparity, feeling prepared for labor and birth, feeling prepared for parenthood.

[a]Adjusted R Square .367, $p < .001$.

(Kuipers et al., 2019). This suggests that problem-solving coping might be a cultural issue (Huizink et al., 2002). To better understand the inconsistency between these findings, further research on the impact of problem-solving coping on pregnancy-related anxiety is recommended. In our sample, the coping strategy of self-blame was associated with pregnancy-related anxiety. Self-blame was not found to be associated with antenatal distress in a similar Dutch study (Fontein-Kuipers et al., 2015). The association has been found in a general population (Garnefski et al., 2001; Martin & Dahlen, 2005) and among postpartum women (George et al., 2013), but not in pregnancy. There might be several triggers for antenatal self-blame. Self-blame can be a result of stigma as women often feel pressured to look forward to motherhood (Fernández & Arcia, 2016; Thompson, 2006), but we do not know if or how these thought processes occurred among our participants. Self-blame is associated with self-disgust and shame (Zahn et al., 2015). There is evidence of self-blame among mothers who experienced a miscarriage, who had children with Down syndrome or after a stillbirth (Cacciatore et al., 2013; Gold et al., 2017; Hall & Marteau, 2003; Sharifi et al., 2013). More than a third of the woman with PRAQ-R2 ≥ 90th percentile scores had a history of miscarriage or abortion,

but we do not know if the subsample included women with a termination of pregnancy due to congenital disorders or abnormalities. Nevertheless, our findings suggest that it is important that maternity care providers address self-blame although more research is needed to better understand the phenomenon of self-blame among pregnant women. Our findings also showed that substance use was positively associated with higher scores on the PRAQ-R2. Only 2.9% of the women in our sample reported substance use as a coping strategy, so interpreting these figures require some caution and cannot be generalized to the total population of pregnant women.

Positive thinking as a coping style seems to be a more generic coping style without the indication of any specific coping strategy. Thus, addressing the complete package of adaptive coping strategies, such as positive thinking, problem-solving, and seeking social support, suggests being of use to prevent and reduce pregnancy-related anxiety (Ertekin Pinar et al., 2018). Discussing the meaningfulness and comprehensibility of the demands of pregnancy, birth, and parenthood will support positive-thinking women to maintain this coping style, to keep pregnancy-related anxiety levels at a manageable level (Feldt et al., 2006; Sjöström et al., 2004). Psychological treatment is not part of the midwife's scope, but health promotion and risk selection are, including emotional well-being. Midwives might, therefore, benefit from referring women to online resources, risk identification tools, and having access to referral pathways and psychosocial healthcare maps (Fontein-Kuipers et al., 2014, 2015, 2016). Qualitative studies can provide insight to adapt antenatal perinatal mental healthcare, allowing healthcare professionals to better understand women's coping styles and strategies. Additionally, interprofessional collaborative teamwork between maternity care services and psychologists is recommended.

Women with heightened PRAQ-R2 scores felt less prepared for labor and birth and parenthood. They felt to have received insufficient information about parenthood and to have received little emotional and practical support from others during pregnancy. Trying to get advice (emotional support) or help (practical support) from others can help to reduce pregnancy-related anxiety (Azale et al., 2018). Pregnant women should be empowered to ask for emotional and (or) practical help from others when they need it and negotiate their transition to motherhood within a culture that promotes an idealized and prescriptive view of motherhood (Staneva et al., 2015).

Various factors associated with heightened levels of pregnancy-related anxiety were reported. Being aware of these factors can help midwives and other healthcare professionals who are involved with pregnant women, to identify women who are more likely to develop pregnancy-related anxiety. Education is of merit to teach (student)midwives to recognize women who are more likely to develop pregnancy-related anxiety to prevent it, ideally through screening and tailored advice regarding positive coping behavior. It is important to keep in mind that women who report pregnancy-related anxiety, benefit from addressing their concerns during antenatal care, in particular women with a (family) history of mental health issues or psychological problems. It can be recommended to add questions about pregnancy-related anxiety to existing screening procedures for depression and general anxiety (NICE, 2018; Van Damme et al., 2020). Screening for emotional well-being can help to make the subject of pregnancy-related anxiety a topic of dialogue between the woman and her midwife. A relationship of trust between the woman and her caregiver is, however, essential to discuss sensitive and personal thoughts of fear, bearing in mind that screening for pregnancy-related anxiety should not be a box-ticking exercise (Evans et al., 2017; Sandall et al., 2016).

The main strength of this study is the large sample of pregnant women and the use of validated measures (Boezeman et al., 2016; Fontein-Kuipers et al., 2014; Huizink et al., 2016; Kuipers et al., 2019). There are, however, some limitations to consider. The sample contained predominantly highly educated women, with a paid job and in a relationship. Although our sample is representative of the Flemish childbearing population, women with a migration background and single mothers were underrepresented (Devlieger et al., 2019; Statbel, 2020). Including these women is important as research shows that sociodemographic factors can be related to severe levels of pregnancy-related anxiety (Biaggi et al., 2016). It is possible that the women who participated in our study were more interested in the topic of pregnancy-related anxiety or had a more outspoken opinion and were, therefore, more willing to participate. Because using social media as a sampling technique, selection bias could have occurred. Apart from parity and gestation, we did not have obstetric information about the women in our sample to identify if a pregnancy was at low

or high risk. Experiencing a high-risk pregnancy is related to higher levels of pregnancy-related anxiety (Barber et al., 2017; Verkerk et al., 2003). Because we were unable to provide information on the number of women with low- and high-risk pregnancies in this study, generalizing our results requires caution. Additionally, it is likely that our PRAQ-R2 heightened scores may represent an underreport of the true cases of pregnancy-related anxiety, because of the use of a high cutoff score. Using the 90th percentile of the sample to indicate the cutoff is a very stringent measure. A high cutoff value reduces the possibility of false positive reports of pregnancy-related anxiety but may contribute to injustice to many women who suffer from pregnancy-related anxiety with scores just below the 90th percentile. Using more clinically relevant thresholds might provide more probable levels of pregnancy-related anxiety. The 13% in our study could, therefore, very well be an underreport of the clinical incidence (Evans et al., 2015). The investigation of a cutoff score with a good discriminant property is necessary to avoid underreporting of pregnancy-related anxiety and further studies are needed.

CONCLUSION

Women's coping behavior shows mostly maladaptive ways of managing pregnancy-related anxiety. Maladaptive coping behavior included avoidance, self-blame, substance use, and self-distraction. The explanation for the occurrence of pregnancy-related anxiety might be found in women's medicalized beliefs about childbirth. The coping strategy of self-blame has not been observed before in a pregnant population. Positive thinking was the only adaptive coping style. More research is needed to understand antenatal coping behavior, the phenomenon of self-blame in particular. Practitioners involved with pregnant women can benefit from a better understanding of women's coping mechanisms and awareness of the predisposing factors of pregnancy-related anxiety. Education, screening pathways, preventive interventions, and interprofessional collaboration are recommended. To prevent underreporting of pregnancy-related anxiety measured with the PRAQ-R2, further investigation of valid and reliable PRAQ-R2 cutoff value is required. Further exploration of coping with pregnancy-related anxiety can be recommended, including women who are identified as the more vulnerable pregnant women in our society and distinguishing between low- and high-risk women for the results to be generalized to a wider pregnant population.

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