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Late-pregnancy anxiety as a distinct multidimensional construct: Psychometric evidence from a community-based sample

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ABSTRACT

Anxiety during pregnancy was recognized as a common maternal mental health concern with important implications for maternal well-being and perinatal outcomes. Evidence suggested that anxiety experienced in late pregnancy was more context-specific and qualitatively distinct from general anxiety, yet its underlying structure remained insufficiently examined. This study examined whether anxiety in late pregnancy constituted a distinct multidimensional psychological construct using a theory-driven psychometric approach. A community-based cross-sectional study was conducted among 280 women in late pregnancy between 28 and 40 weeks of gestation. A structured self-report instrument was developed through conceptual analysis and expert review, and its latent factor structure was evaluated using confirmatory factor analysis within a structural equation modeling framework. The analysis supported a three-domain multidimensional structure encompassing childbirth-related anxiety, fetal health anxiety, and maternal mental readiness and self-confidence. The model demonstrated acceptable overall fit ($\chi^2/df = 3.15$; RMSEA = 0.088; CFI = 0.97; TLI = 0.96), with all indicators loading significantly on their respective latent dimensions (standardized loadings ≈ 0.94–1.01). These findings indicated that anxiety in late pregnancy represented a distinct multidimensional construct, supporting dimension-specific assessment in antenatal and perinatal mental health research.

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INTRODUCTION

In antenatal care, differentiating specific dimensions of pregnancy anxiety is clinically important because it allows health professionals to identify targeted psychological needs and provide more focused, phase-appropriate interventions rather than relying on a generalized anxiety approach. Anxiety during pregnancy is a common maternal mental health concern with significant implications for maternal well-being and perinatal outcomes. International studies report that

approximately 20–30% of pregnant women experience anxiety symptoms, with higher prevalence observed in low- and middle-income countries (Moreau et al., 2022; Pfeifer & Haile, 2021; Sheeba et al., 2019). Pregnancy-related anxiety is influenced by multiple psychosocial factors, including pregnancy planning and acceptance, social support, and exposure to stressors during pregnancy (McNamara et al., 2022; Moreau et al., 2022), which interact with biological and psychological changes inherent to pregnancy and increase vulnerability to anxiety (Davis & Narayan, 2020). In Indonesia, limited integration of mental health screening into routine antenatal care may result in the under-identification of anxiety among pregnant women (KKRI, 2022; Noviani A, 2024; WHO, 2016).

Empirical evidence indicates that anxiety during pregnancy is not merely a transient emotional response. Antenatal anxiety has been associated with an increased risk of preterm birth, shorter gestational age, low birth weight, and adverse neurocognitive development in offspring (Bekkhus et al., 2021; Dean et al., 2019; Irwin et al., 2020; Z.B. & M., 2018). Meta-analyses and cohort studies further demonstrate consistent associations between antenatal anxiety and adverse neonatal outcomes, as well as increased maternal morbidity (Li et al., 2021; Schetter et al., 2022). Similar findings have been reported across diverse cultural contexts, including developing countries, underscoring the public health significance of antenatal anxiety (Ola Ali Nassr et al., 2023; Vidhan et al., 2025).

Conceptually, pregnancy-specific anxiety refers to worries directly related to pregnancy, childbirth, fetal safety, and readiness for parenthood. This form of anxiety is considered clinically more relevant than general anxiety because it shows more consistent associations with maternal and neonatal outcomes (Bekkhus et al., 2021; Irwin et al., 2020). Longitudinal research indicates that the focus of anxiety shifts across gestation. In late pregnancy, anxiety becomes increasingly centered on imminent childbirth, fetal safety, and maternal psychological readiness for delivery (Bekkhus et al., 2021; Irwin et al., 2020; Davis & Narayan, 2020).

Early detection of anxiety during pregnancy is therefore essential given its broad impact on maternal and infant health. Several pregnancy-specific anxiety instruments have been developed, including the *Pregnancy-Related Anxiety Scale* (PrAS), the *Pregnancy Anxiety Questionnaire–Revised 2* (PRAQ-R2), and the *Perinatal Anxiety Screening Scale* (PASS). Cross-cultural psychometric studies indicate that these instruments are useful for assessing pregnancy-related anxiety but also reveal variations in factor structure and item sensitivity depending on population characteristics and gestational stage (R. Brunton et al., 2021; Kurniawati et al., 2025). Most available instruments were designed to assess pregnancy anxiety in general and may not adequately capture the distinct psychological characteristics of anxiety in late pregnancy.

Developmental and perinatal health literature suggests that late pregnancy represents a period of unique psychological stress, characterized by heightened concerns about imminent childbirth, fetal safety, and maternal mental readiness and self-confidence. This pattern indicates that late-pregnancy anxiety may possess a distinct and multidimensional latent structure that is not fully captured by general pregnancy anxiety measures. Based on these gaps, the present study aimed to examine whether anxiety in late pregnancy can be conceptualized as a multidimensional psychological construct by evaluating its latent factor structure using a theory-driven psychometric approach through confirmatory factor analysis.

RESEARCH METHOD

Study Design and Setting

This study employed a cross-sectional observational design with a psychometric approach to develop and evaluate the Indonesian version of the *Late Pregnancy Anxiety Scale* (LPAS-ID). The instrument development process followed best-practice guidelines for health and behavioral measurement validation (Boateng et al., 2018). The study focused on women in late pregnancy and

was conducted in Agustus 2025 in Semarang Regency, Indonesia, encompassing 19 districts and 19 community health centers (*Pusat Kesehatan Masyarakat*; Puskesmas).

Participants and Procedures

A total of 19 Puskesmas were purposively selected based on high antenatal care (ANC) attendance. Participants were recruited using consecutive sampling, whereby all women in late pregnancy (gestational age 28–40 weeks) attending ANC services during the data collection period and meeting the inclusion criteria were invited to participate. Inclusion criteria included the ability to understand the Indonesian language and willingness to provide written informed consent. Exclusion criteria comprised severe obstetric complications, acute medical conditions requiring immediate treatment, diagnosed severe psychiatric disorders or ongoing intensive psychiatric treatment, and cognitive impairments that could hinder independent questionnaire completion. A total of 280 participants were recruited within approximately five weeks, with an average of 8–12 respondents per health center. The LPAS-ID consists of eight items and requires less than five minutes to complete, allowing seamless integration into routine ANC services. Questionnaires were self-administered with assistance from trained researchers and midwives when needed. All participants provided written informed consent, and ethical approval was obtained from the Ministry of Health, Semarang Health Polytechnic.

Instrument Development (Phase I)

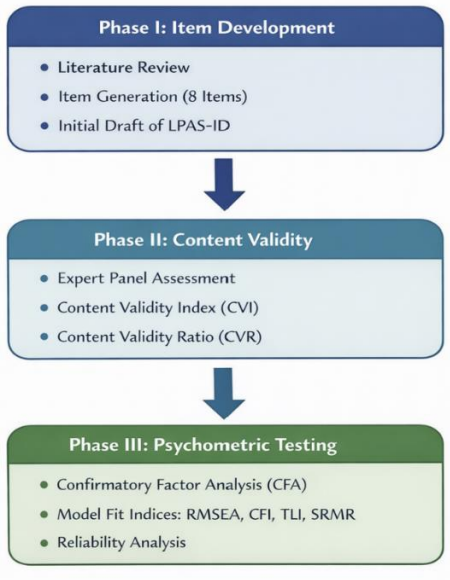

Figure 1. Instrument Development and Validation Process of the late Pregnancy Scale_Indonesian Version (LPAS-ID)

The LPAS-ID was developed based on conceptual and clinical frameworks of pregnancy-specific anxiety in late gestation. Existing literature indicates that anxiety in late pregnancy is multidimensional, encompassing concerns related to childbirth, fetal health and safety, and maternal psychological readiness (Davis & Narayan, 2020; Brunton et al., 2021). Evidence of variability in factor structures across contexts and gestational stages further supports the need for phase-specific measurement approaches (R. Brunton et al., 2021; Kurniawati et al., 2025). Accordingly, eight items were generated to represent three conceptual dimensions: *Birth-Related Anxiety*, *Fetal Health Anxiety*, and *Mental Readiness and Self-Confidence*.

Content Validity (Phase II)

Content validity was assessed using the *Content Validity Index* (CVI) and *Content Validity Ratio* (CVR) based on evaluations by seven experts, including practicing midwives, midwifery academics, and an obstetrician–gynecologist. Items were rated on a four-point Likert scale. Acceptance criteria included an item-level CVI (I-CVI) ≥ 0.78 and CVR values meeting Lawshe's criteria. All items satisfied content validity requirements, with a mean *Scale-Level CVI* exceeding 0.90.

Psychometric Analysis (Phase III)

The latent factor structure of the LPAS-ID was examined using *Confirmatory Factor Analysis* (CFA) within a *Structural Equation Modeling* (SEM) framework. Given the ordinal nature of the item responses, model estimation employed the *Weighted Least Squares Mean and Variance Adjusted* (WLSMV) estimator, which is appropriate for categorical data (Agustini, 2016; Lander & Brown, 1995). Model fit was evaluated using the *Root Mean Square Error of Approximation* (RMSEA), *Comparative Fit Index* (CFI), *Tucker–Lewis Index* (TLI), and *Standardized Root Mean Square Residual* (SRMR), applying conventional cut-off criteria (Marsh et al., 2002). Statistical analyses were conducted using JAMOVI, with the level of significance set at $p < 0.05$. Overall, this methodological framework ensured that the data source, data collection procedures, and analytical strategies were systematically aligned to support the psychometric evaluation of the LPAS-ID.

RESULTS AND DISCUSSIONS

Results

Univariate analyses to explain each characteristic. Sociodemographic and Obstetric Characteristics

Table 1. Sociodemographic and obstetric characteristics of participants

Variable	Frequency (n)	Percentage (%)
Gestational Age (Trimester III)		
Early third trimester (28–31 weeks)	28	30.77
Mid third trimester (32–35 weeks)	33	36.26
Late third trimester (36–40 weeks)	30	32.97
Employment Status		
Not employed	57	62.64
Employed	34	37.36
Education Level		
Primary level	2	2.20
Secondary level	51	56.04
Tertiary level	37	40.66
Parity		
Primipara	34	37.36
Multipara	49	53.85
Grand multipara	8	8.79
Living Arrangement		
Nuclear family only	52	57.14
Living with extended family	39	42.86

Based on Table 1, all participants were women in the third trimester of pregnancy (28–40 weeks) aged 20–35 years, with a relatively balanced distribution across early, mid, and late phases of the third trimester. Most participants were not employed, had secondary to higher education levels, and were multiparous, with a proportion living with extended family members. These characteristics indicate adequate demographic, obstetric, and social variability for the psychometric evaluation of the LPAS-ID. All participants provided written informed consent, and data confidentiality was ensured through anonymization and aggregate reporting.

Table 2. Model fit summary of the multidimensional CFA model

Fit Index	Value
χ^2 (df)	53.6 (17), $p < .001$
SRMR	0.030
RMSEA	0.088 (95% CI: 0.062–0.115)
CFI	0.97
TLI	0.96

Confirmatory factor analysis indicated that the proposed multidimensional model provided an acceptable representation of the data. Model fit was supported by low residual discrepancies and acceptable approximate and comparative fit indices (Table 2).

Table 3. Standardized factor loadings of the LPAS-ID (the first-order)

Latent Dimension	Item	Standardized Loading (β)	S.E.	z	p
1. Birth-Related Anxiety (BRA)	BRA1	0.992	—	—	—
	BRA2	0.937	0.013	72.20	< .001
	BRA3	0.988	0.007	140.30	< .001
2. Fetal Health Anxiety (FHA)	FHA1	0.963	—	—	—
	FHA2	0.942	0.006	170.90	< .001
	FHA3	0.992	0.007	152.50	< .001
3. Maternal Readiness Self-Concern (MRSC)	MRSC1	1.013	—	—	—
	MRSC2	0.986	0.005	189.30	< .001

As shown in Table 3, the first-order CFA indicated that items loaded strongly on their respective latent dimensions. Standardized factor loadings ranged from 0.937 to 1.013 across the three domains, with all freely estimated parameters reaching statistical significance ($p < .001$). These results indicate that birth-related anxiety, fetal health anxiety, and maternal readiness self-concern were each well defined at the measurement level, providing empirical support for the multidimensional structure of late-pregnancy anxiety.

The maternal readiness self-concern dimension reflects maternal perceptions of emotional preparedness and self-confidence in facing childbirth, indicating that higher anxiety within this domain represents lower perceived coping capacity prior to delivery.

Table 4. Standardized second-order CFA results of the LPAS-IDE

Dimension	Coefficient (λ)	Item Loading Range (β)	Standard Error (S.E.)	T-Value	P-Value
1. Birth-Related Anxiety (BRA)	0.984	0.937 – 0.992	0.007	144.50	< .001
2. Fetal Health Anxiety (FHA)	0.999	0.942 – 0.992	0.007	144.50	< .001
3. Maternal Readiness Self-Concern (MRSC)	1.015	0.986 – 1.013	0.010	108.60	< .001

Note. **p < 0.05 indicates statistical significance.*

As shown in Table 4, all dimensions contributed significantly to the higher-order construct of late-pregnancy anxiety. Birth-related anxiety (λ = 0.984), fetal health anxiety (λ = 0.999), and maternal readiness self-concern (λ = 1.015) demonstrated substantial standardized loadings. Item-level loadings within each dimension were consistently high (β ranges: 0.937–0.992 for birth-related anxiety; 0.942–0.992 for fetal health anxiety; and 0.986–1.013 for maternal readiness self-concern), indicating that both item- and dimension-level structures support the multidimensional conceptualization of late-pregnancy anxiety.

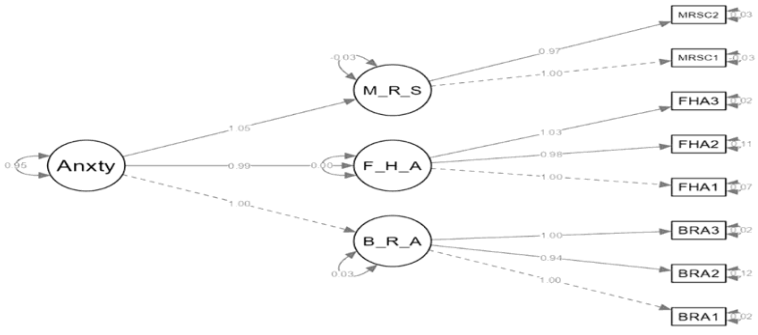

Figure 1. Second-order confirmatory factor analysis model of late-pregnancy anxiety

Figure 1 presents the standardized second-order confirmatory factor analysis model of late-pregnancy anxiety. The model illustrates three first-order latent dimensions Birth-Related Anxiety (BRA), Fetal Health Anxiety (FHA), and Maternal Readiness Self-Concern (MRSC) and their loadings onto a higher-order latent anxiety construct. All observed indicators loaded on their respective first-order factors, and each first-order dimension contributed to the higher-order construct. Dashed paths indicate parameters fixed for model identification, whereas solid paths represent freely estimated standardized loadings. The diagram visually supports the multidimensional structure of late-pregnancy anxiety as evaluated in this study.

Discussion

This study was conducted to address an important gap in the literature by examining whether anxiety in late pregnancy can be conceptualized as a multidimensional psychological construct through evaluation of its latent factor structure using a theory-driven psychometric approach. Accordingly, the discussion is organized to directly address the three interrelated research questions underlying this objective.

To address the primary aim of the study, namely determining whether anxiety in late pregnancy can be adequately represented as a multidimensional construct, the findings provide strong empirical evidence that a unidimensional representation is insufficient. The confirmatory factor analysis results clearly indicated that a one-factor model did not adequately capture the complexity of anxiety experienced during the third trimester. Instead, the data supported a multidimensional latent structure in which several correlated domains jointly represented late-pregnancy anxiety. This finding directly answers the primary research question and reinforces the conceptual distinction between pregnancy-related anxiety and general anxiety previously noted in the literature (Ibrahim & Lobel, 2020). Importantly, the present results demonstrate that even within pregnancy-specific anxiety, the late gestational phase is characterized by internal differentiation rather than a uniform emotional response.

With respect to the second aim, concerning the nature and interpretation of the identified dimensions, the observed factor structure reflects psychological processes that are specific to the late-pregnancy phase. The three latent domains—birth-related anxiety, fetal health anxiety, and mental readiness and self-confidence—are theoretically coherent with developmental and perinatal models describing shifts in maternal concerns as childbirth approaches (Davis & Narayan, 2020). Birth-related anxiety and fetal health anxiety capture externally oriented concerns related to imminent labor and fetal outcomes, which have consistently been identified as dominant sources of concern near delivery. In contrast, the domain of mental readiness and self-confidence represents an internally oriented psychological dimension associated with perceived preparedness, emotional regulation, and adaptive coping. Together, these domains suggest that late-pregnancy anxiety reflects an interaction between perceived perinatal risks and maternal psychological resources, highlighting its phase-specific and multidimensional nature.

To address the third aim, focusing on the methodological adequacy of a theory-driven psychometric approach, the use of confirmatory factor analysis based on an a priori theoretical model provides robust support for the proposed conceptualization of late-pregnancy anxiety. By employing confirmatory factor analysis grounded in theory, this study aligns with contemporary recommendations for construct validation in psychometric research (Boateng et al., 2018; Kline, 2005). Within this framework, validity is conceptualized as a cumulative, evidence-based process rather than a fixed property of an instrument (Anuar & Sadek, 2018). The LPAS-ID was therefore positioned as an operational tool to empirically test the hypothesized latent structure, rather than as an end product in itself. The satisfactory model fit and coherent factor interpretation provide initial but robust psychometric evidence supporting the multidimensional structure of anxiety in late pregnancy.

Taken together, the findings underscore the importance of phase-sensitive measurement in pregnancy anxiety research. Prior studies have reported variability in factor structures and

psychometric performance of pregnancy anxiety instruments across cultural contexts and gestational stages (R. J. Brunton et al., 2019; Xie et al., 2022; R. Brunton et al., 2021), including within the same national setting (Kurniawati et al., 2025). By clarifying the latent configuration of anxiety specifically in the late-pregnancy phase, the present study contributes to this body of work by moving beyond the treatment of pregnancy anxiety as a homogeneous construct (Wallace & Araji, 2020). From a clinical perspective, conceptualizing late-pregnancy anxiety as a multidimensional construct has practical implications for antenatal care. Differentiating anxiety related to childbirth, fetal health, and psychological readiness may facilitate more targeted identification of maternal needs as delivery approaches (Christian et al., 2019).

Finally, the limitations of the study should be interpreted in relation to its primary objective. Although a cross-sectional design was employed, this approach was appropriate for the central aim of evaluating latent structure at a specific gestational phase. Future research may extend these findings through longitudinal designs, examination of additional sources of validity evidence, and replication across diverse settings to further strengthen the cumulative validity framework (Qomari et al., 2023).

CONCLUSION

This study provides strong psychometric evidence that anxiety in late pregnancy is a phase-specific and multidimensional psychological construct comprising birth-related anxiety, fetal health anxiety, and maternal mental readiness. These findings demonstrate that late-pregnancy anxiety cannot be adequately conceptualized as a single emotional response and highlight the importance of phase-sensitive measurement in perinatal mental health research. Scientifically, this study contributes to perinatal anxiety theory by supporting a pregnancy-phase–based, multidimensional framework, and advances measurement by providing psychometric evidence for a phase-sensitive instrument that captures the distinct latent structure of late-pregnancy anxiety, thereby strengthening both theoretical understanding and clinical applicability.

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References

Agustini, L. I. (2016). Model Pembelajaran Kolaboratif Dan Asesmen Autentik Pada Pembelajaran Bahasa Inggris. *Jurnal Evaluasi Pendidikan*, *7*(2), 86–94. https://doi.org/10.21009/jep.072.02

Anuar, A., & Sadek, D. M. (2018). Validity test of lean healthcare using Lawshe's method. *International Journal of Supply Chain Management*, *7*(6), 197–203.

Bekkhus, M., Lee, Y., Brandlistuen, R. E., Samuelsen, S. O., & Magnus, P. (2021). Maternal Anxiety and Infants Birthweight and Length of Gestation. A sibling design. *BMC Psychiatry*, *21*(1). https://doi.org/10.1186/s12888-021-03620-5

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer. *Frontiers in Public Health*, *6*. https://doi.org/10.3389/fpubh.2018.00149

Brunton, R., Gosper, K., & Dryer, R. (2021). Psychometric evaluation of the pregnancy-related anxiety scale: Acceptance of pregnancy, avoidance, and worry about self subscales. *Journal of Affective Disorders*, *278*,

341–349. https://doi.org/10.1016/j.jad.2020.09.064

Brunton, R. J., Dryer, R., Saliba, A., & Kohlhoff, J. (2019). The initial development of the Pregnancy-related Anxiety Scale. *Women and Birth*, *32*(1), e118–e130. https://doi.org/10.1016/j.wombi.2018.05.004

Christian, L. M., Carroll, J. E., Teti, D. M., & Hall, M. H. (2019). Maternal Sleep in Pregnancy and Postpartum Part I: Mental, Physical, and Interpersonal Consequences. *Current Psychiatry Reports*, *21*(3). https://doi.org/10.1007/s11920-019-0999-y

Davis, E. P., & Narayan, A. J. (2020). Pregnancy as a period of risk, adaptation, and resilience for mothers and infants. *Development and Psychopathology*, *32*(5), 1625–1639. https://doi.org/10.1017/S0954579420001121

Dean, D. C., Planalp, E. M., Wooten, W., Kecskemeti, S. R., Adluru, N., Schmidt, C. K., Frye, C., Birn, R. M., Burghy, C. A., Schmidt, N. L., Styner, M. A., Short, S. J., Kalin, N. H., Goldsmith, H. H., Alexander, A. L., & Davidson, R. J. (2019). Association of prenatal maternal depression and anxiety symptoms with infant white matter microstructure. *Obstetrical and Gynecological Survey*, *74*(3), 138–139. https://doi.org/10.1097/01.ogx.0000554249.59277.9b

Ibrahim, S. M., & Lobel, M. (2020). Conceptualization, measurement, and effects of pregnancy-specific stress: review of research using the original and revised Prenatal Distress Questionnaire. *Journal of Behavioral Medicine*, *43*(1), 16–33. https://doi.org/10.1007/s10865-019-00068-7

Irwin, J. L., Davis, E. P., Hobel, C. J., Coussons-Read, M., & Dunkel Schetter, C. (2020). Maternal prenatal anxiety trajectories and infant developmental outcomes in one-year-old offspring. *Infant Behavior and Development*, *60*. https://doi.org/10.1016/j.infbeh.2020.101468

KKRI. (2022). Buku Kesehatan Ibu dan Anak. In *Kementrian kesehatan RI*.

Kline, R. B. (2005). Principles and practice of structural equation modeling. *Methodology in the Social Sciences*, 1–554. https://www.researchgate.net/publication/235932894_Principles_And_Practice_Of_Structural_Equation_Modeling

Kurniawati, W., Chien, W. T., Lantu, N., Santi, N. F., Astuti, Y. L., Faradiena, F., & Kusumaningrum, A. (2025). Validation of the pregnancy-related anxiety scale (PrAS) for pregnant women in Indonesia. *BMC Pregnancy and Childbirth*, *25*(1). https://doi.org/10.1186/s12884-025-08036-7

Lander, J. A., & Brown, H. D. (1995). Teaching by Principles: An Interactive Approach to Language Pedagogy. *Language*, *71*(4), 843. https://doi.org/10.2307/415773

Li, H., Bowen, A., Bowen, R., Muhajarine, N., & Balbuena, L. (2021). Mood instability, depression, and anxiety in pregnancy and adverse neonatal outcomes. *BMC Pregnancy and Childbirth*, *21*(1). https://doi.org/10.1186/s12884-021-04021-y

Marsh, H. W., Ellis, L. A., & Craven, R. G. (2002). How do preschool children feel about themselves? Unraveling measurement and multidimensional self-concept structure. *Developmental Psychology*, *38*(3), 376–393. https://doi.org/10.1037//0012-1649.38.3.376

McNamara, J., Risi, A., Bird, A. L., Townsend, M. L., & Herbert, J. S. (2022). The role of pregnancy acceptability in maternal mental health and bonding during pregnancy. *BMC Pregnancy and Childbirth*, *22*(1). https://doi.org/10.1186/s12884-022-04558-6

Moreau, C., Bonnet, C., Beuzelin, M., & Blondel, B. (2022). Pregnancy planning and acceptance and maternal psychological distress during pregnancy: results from the National Perinatal Survey, France, 2016. *BMC Pregnancy and Childbirth*, *22*(1). https://doi.org/10.1186/s12884-022-04496-3

Noviani A, et al. (2024). Profil Kesehatan Ibu dan Anak. *Badan Pusat Statistik*, *July*, 405. https://www.bps.go.id/id/publication/2024/12/31/a919c55a72b74e33d011b0dc/profil-kesehatan-ibu-dan-anak-2024.html%0Ahttps://www.bps.go.id/publication/2022/12/23/54f24c0520b257b3def481be/profil-kesehatan-ibu-dan-anak-2022.html

Ola Ali Nassr, Mohammed Mahmood Mohammed, & Hind abdulkhaliq Showman. (2023). Impact of antenatal depressive and anxiety symptoms on adverse birth outcomes in Baghdad, Iraq: a prospective cohort study. *Al Mustansiriyah Journal of Pharmaceutical Sciences*, *23*(1), 68–80. https://doi.org/10.32947/ajps.v23i1.988

Pfeifer, L. R., & Haile, Z. T. (2021). Unmet Mental Health Care Needs and Illicit Drug Use During Pregnancy. *Journal of Addiction Medicine*, *15*(3), 233–240. https://doi.org/10.1097/ADM.0000000000000752

Qomari, S. N., Setiawati, I., Antina, R. R., & Nikmah, N. (2023). Early Assesment on Common Mental Disorders of Pregnant Women Using Self-Reporting Questionnaire (Srq-20). *International Journal of Nursing and Midwifery Science (Ijnms)*, *7*(3), 352–359. https://doi.org/10.29082/ijnms/2023/vol7/iss3/521

Schetter, C. D., Rahal, D., Ponting, C., Julian, M., Ramos, I., Hobel, C. J., & Coussons-Read, M. (2022). Anxiety in Pregnancy and Length of Gestation: Findings From the Healthy Babies Before Birth Study. *Health Psychology*, *41*(12), 894–903. https://doi.org/10.1037/hea0001210

Sheeba, B., Nath, A., Metgud, C. S., Krishna, M., Venkatesh, S., Vindhya, J., & Murthy, G. V. (2019). Prenatal depression and its associated risk factors among pregnant women in Bangalore: A hospital based prevalence study. *Frontiers in Public Health*, *7*(APR). https://doi.org/10.3389/fpubh.2019.00108

Vidhan, D., Rohilla, J., Dhiman, V., & Khoiwal, K. (2025). Associations Between Maternal Anxiety and Depression During Pregnancy and Obstetric Outcomes: A Cross-Sectional Study. *Cureus*. https://doi.org/10.7759/cureus.86541

Wallace, K., & Araji, S. (2020). An Overview of Maternal Anxiety During Pregnancy and the Post-Partum Period. *Journal of Mental Health & Clinical Psychology*, *4*(4), 47–56. https://doi.org/10.29245/2578-2959/2020/4.1221

WHO. (2016). Monitoring the health goal: Indicators of overall progress. *Mointoring Health for the SDGs*, 7–13.

Xie, T., Han, L., Wu, J., Dai, J., Fan, X., Liu, J., Liu, Y., & Bai, J. (2022). Psychometric evaluation of the pregnancy-related anxiety questionnaire—revised 2 for Chinese pregnant women. *Midwifery*, *112*. https://doi.org/10.1016/j.midw.2022.103411

Z.B., K., & M., B. (2018). The association between pregnancy-specific anxiety and preterm birth: A cohort study. *African Health Sciences*, *18*(3), 569–575. http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L623614431%0Ahttp://dx.doi.org/10.4314/ahs.v18i3.14