ปัจจัยทำนายความกลัวการคลอดบุตรของมารดาตั้งครรภ์ที่มีความเสี่ยงสูงที่มารับการฝากครรภ์ที่โรงพยาบาลบาไวลา มาลาวี
Predictors of Fear of Childbirth Among High-risk Pregnant Mothers Attending Antenatal Clinic at Bwaila Hospital Malawi

นิพนธ์ต้นฉบับ

เอเลสตินา กอนโดโลนี[1] , ปัญญรัตน์ ลาภวงศ์วัฒนา[2]*, ดติรัตน์ เตชะศักดิ์ศรี[2] และ สุพิศ ศิริอรุณรัตน์[2]

[1] นักศึกษาระดับบัณฑิตศึกษา มหาวิทยาลัยบูรพา อ.เมือง จ.ชลบุรี 20131
[2] คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา อ.เมือง จ.ชลบุรี 20131

* Corresponding author: punyarat.la@buu.ac.th

Elestina Gondoloni[1], Punyarat Lapvongwatana[2]*, Tatirat Tachasuksri[2] and Supit Siriarunrat[2]

[1] Graduate Student, Burapha University Muang, Chonburi 20131 Thailand
[2] Faculty of Nursing, Burapha University Muang, Chonburi 20131 Thailand

* Corresponding author: punyarat.la@buu.ac.th

บทคัดย่อ

วัตถุประสงค์: เพื่ออธิบายความกลัวการคลอดบุตรและปัจจัยทำนาย ในมารดาตั้งครรภ์ที่มีความเสี่ยงสูง **วิธีการศึกษา:** การศึกษาภาคตัดขวางเชิงคาดการณ์สหสัมพันธ์ที่คลินิกฝากครรภ์ของหน่วยสุขภาพครอบครัวของโรงพยาบาลบาไวลา ลิลองเว มาลาวี ช่วงมีนาคม 2567 รวบรวมมารดาตั้งครรภ์ที่มีความเสี่ยงสูงอายุ 15 ถึง 40 ปี รวบรวมข้อมูลโดยใช้แบบสอบถามทางประชากรและสังคม ความกลัวการคลอดบุตร ความรู้เกี่ยวกับการเตรียมตัวคลอดบุตร มาตรวัดความกลัวการคลอดบุตรแบบเห็นภาพโดยใช้กระดาษ มาตรวัดภาวะซึมเศร้าหลังคลอดของเอดินเบอร์ก การสนับสนุนทางสังคม และความไว้วางใจในความสัมพันธ์ทางสุขภาพ ทดสอบความสัมพันธ์แบบเพียร์สันต์และพอยท์ไบซีเรียล และสหสัมพันธ์ถดถอยแบบมาตรฐาน **ผลการศึกษา:** คะแนนเฉลี่ยความกลัวการคลอดบุตรอยู่ในระดับต่ำ (20.43, SD=10.49)) ความรู้เกี่ยวกับการเตรียมตัวคลอดบุตร ความเจ็บปวดที่เกี่ยวข้องกับการตั้งครรภ์ ภาวะแทรกซ้อนที่เกี่ยวข้องกับการตั้งครรภ์ ภาวะซึมเศร้าขณะตั้งครรภ์ การสนับสนุนจากคู่สมรส และความไว้วางใจในความสัมพันธ์ทางสุขภาพร่วมกันทำนายความสัมพันธ์กับความกลัวการคลอดบุตร 19.0% (R^2 = 0.190, $F_{6,116}$ = 4.53, P-value < 0.001 และภาวะซึมเศร้าขณะตั้งครรภ์ (β = 0.256, P-value = 0.007) และความรู้เกี่ยวกับการเตรียมตัวคลอดบุตร (β = -0.196, P-value = 0.022) ทำนายความสัมพันธ์ได้อย่างมีนัยสำคัญทางสถิติ **สรุป:** มารดาตั้งครรภ์ที่มีความเสี่ยงสูงมีความกลัวการคลอดบุตรในระดับต่ำ โดยมีความรู้เกี่ยวกับการเตรียมตัวคลอดบุตรและภาวะซึมเศร้าขณะตั้งครรภ์เป็นปัจจัยทำนายสำคัญ ควรให้สุขศึกษาอย่างลึกซึ้งเกี่ยวกับการเตรียมการคลอดบุตรร่วมกับการให้บริการทางสุขภาพจิตในระหว่างการตั้งครรภ์เพื่อป้องกันภาวะซึมเศร้าและวิตกกังวล

คำสำคัญ: ความกลัวการคลอดบุตร; ภาวะซึมเศร้าขณะตั้งครรภ์; ความรู้เกี่ยวกับการเตรียมตัวคลอดบุตร; การตั้งครรภ์ที่มีความเสี่ยงสูง; มาลาวี

Abstract

Objectives: To describe the level of fear of childbirth (FoC) and its predicting factors among high-risk pregnant mothers. **Methods:** A correlative predictive cross-sectional study was conducted at the Antenatal Clinic of the Family Health Unit (FHU) of Bwaila Hospital, Lilongwe, Malawi in March 2024. High-risk pregnant mothers aged between 15 and 40 years were included. Data were collected using socio-demographic questionnaire, fear of childbirth questionnaire, knowledge of childbirth preparation questionnaire, paper-based visual analog pain scale, Edinburgh postnatal depression scale, social support effectiveness questionnaire, and the health relationship trust scale. Associations were tested by Pearson's product-moment and point-biserial correlation, and multiple linear regression. **Results**: The participant's FoC was low (mean score = 20.43, SD = 10.49). Knowledge of childbirth preparedness, pregnancy-related pain, pregnancy-related complications, antenatal depression, partner support, and maternal trust in midwife predicted FoC, explaining 19.0% variance of FoC (R^2 = 0.190, $F_{6,116}$ = 4.53, P-value < 0.001). Only antenatal depression (β = 0.256, P-value = 0.007) and knowledge of childbirth preparedness (β = -0.196, P-value = 0.022) significantly predicted FoC. **Conclusion:** The level of FoC among high-risk pregnant mothers was low and only knowledge of childbirth preparedness and antenatal depression significantly predicted FoC. High-risk pregnant mothers should be provided with childbirth preparation and integrated mental health services in ANC to prevent antenatal depression and anxiety.

Keywords: fear of childbirth; antenatal depression; knowledge of childbirth preparedness; high-risk pregnancy; Malawi

Journal website: http://ejournals.swu.ac.th/index.php/pharm/index

Introduction

While the World Health Organization (WHO) has not directly addressed fear of childbirth (FoC), it acknowledges the major public health challenge posed by maternal mental health problems[1], with nearly 20% of women experiencing mental health conditions during or after pregnancy WHO.[2]

Thus, neglecting mental health can adversely affects both mothers' and infants' well-being.[2] Therefore, there is a need for a stronger focus on mental health status in the delivery of integrated maternal and child health services.[1] Childbirth is a significant and often stressful milestone for women, marked

by a range of emotions from joy and satisfaction to anxiety and fear.[3] When feelings of uncertainty and anxiety about childbirth are influenced by personal beliefs, experiences, and personality traits, they can result in a pronounced fear of childbirth.[3] This fear is defined as a negative perception of birth, leading to anxiety and impaired daily functioning and well-being in pregnant women.[4]

Globally the prevalence of FoC varies among countries with global prevalence rates of 14%.[5] African countries like Tanzania, Ethiopia, and Kenya reported 16.0 %, 22.1%, and 24.5% of FoC respectively.[6-8] FoC has also been reported in Malawi, with low-risk pregnant women experiencing higher rates (20%) of FoC compared to postpartum women.[9]

All pregnant women have some degree of FoC. However, if the fear reaches a serious level, it has negative effects on the mother, baby, and partner. These effects include abnormal fetal development termination of a wanted pregnancy, request for caesarian birth without medical indication, sleep disturbances, cognitive impairment, and development of Post-Traumatic Stress Disorder (PTSD).[10] Furthermore, FoC also leads to the development of FoC in the partner, increased pain during labor, unfavorable birth outcomes that impact mother-child bonding, and postpartum depression.[11]

Lilongwe is the capital city of Malawi and the biggest city with a total population of 1637,583.[12] Located in this city is Bwaila Hospital, a district hospital providing a range of services. Bwaila Hospital acts as a referral center for all the high-risk pregnant mothers within the district. A high-risk pregnancy is defined as a pregnancy that is complicated by factors (fetal or maternal) that negatively impact the pregnancy outcome (maternal, perinatal, or both). The risks include anemia, heart disease, hypertension, gestational diabetes, HIV infection, malpresentation, multiple pregnancies (such as twins or triplets), fetal anomalies, complications from previous pregnancies (e.g., uterine scars from prior cesarean sections), and extreme maternal ages (teenage or advanced maternal age). Pregnant women may face risks before conception due to a variety of reasons, and some pregnancies may become high-risk as they progress. Although not many studies have focused specifically on high-risk pregnancies, FoC among women with high-risk pregnancies is also common.[13] Researchers have reported that in high-risk pregnancies fears arise from various factors such as the diagnosis of high-risk status (managing a high-risk pregnancy), pregnancy-related complications, potential for adverse outcomes, uncertainty of the unknown, lack of information about high-risk pregnancies, and loss of control over the gestational situation[14] potentially leading to FoC.[15]

High-risk pregnancies are expected to have intensive utilization and frequent visits to the antenatal clinic for monitoring of their conditions and psychological support. However, in settings like Malawi, it may be difficult for high-risk pregnant mothers to adequately utilize the service due to a strained healthcare system that poses significant challenges, including inadequate emergency obstetric care, a shortage of qualified healthcare professionals, limited access to high-quality healthcare[16], and insufficient maternal health services.[9] As a result, high-risk pregnant mothers face uncertainties about receiving timely and appropriate medical treatment which could exacerbate their fears.[17] In Malawi, the commonest high-risk pregnancies are teenage pregnancy (29%)[18], hypertension (13.4%), and pregnancy-induced hypertension (10.3%).[19]

The present study utilized Engle's BioPsychoSocial (BPS) wellness model and literature review. The BPS model is an interdisciplinary framework that posits that health and well-being stem from a complex interaction of biological, psychological, and sociocultural factors.[20] The interplay of these three components affects the etiology, appearance, and recovery of the sickness.[20] These factors are associated with FoC[21], suggesting that physiological stressors during pregnancy may exacerbate this fear. The model considers biological elements such as inherited traits and prior physical harm or infection experiences that affect health. Biological factors in this study included pain from pregnancy and pregnancy-related complications. Studies have reported a significant positive impact of these factors on FoC.[22,23] According to the BPS, psychological factors assess clients' mental health, and learning, including mood disorders, depression, anxiety, drug abuse, or substance abuse. The psychological element in this study was knowledge of childbirth preparedness and antenatal depression, which had a negative and positive impact on FoC respectively.[15,24] Additionally, social factors include the person's relationships, community, and cultural context. The social factors in the study were partner support [25] and maternal trust in midwives[7], both of which negatively influence FoC.

Research has shown the importance of the BPS model in understanding FoC. Pain (biological symptom) and depression (psychological symptom) are closely related, with physical and

psychological symptoms developing together, research findings have demonstrated this interplay. For instance, research findings showed that pregnant women with higher FoC had poorer physical and mental health whilst on the other hand, increased support could reduce pain and depressive symptoms, ultimately reducing FoC.[21]

In Malawi FoC as a maternal mental health issue requires attention due to its implications on maternal and neonatal health. It is also worth noting that only one study among low-risk pregnant mothers was conducted in Malawi and globally, most of the studies are done among low-risk pregnant women with relatively few addressing high-risk pregnancies. Identifying and addressing factors predicting FoC can lead to better physical and mental health outcomes for pregnant women. Secondly, understanding the specific factors contributing to FoC in Malawi can inform the development of targeted interventions and policies. This can lead to improved training for healthcare professionals, better patient education, and more effective support systems for pregnant women. Furthermore, addressing FoC is crucial for the overall mental health and well-being of pregnant women. Moreover, reducing FoC can lower the incidence of antenatal and postpartum depression, contributing to better long-term outcomes for mothers and their children. Lastly, conducting this research aligns with the UN Sustainable Development Goal 3.4, which aims to reduce premature mortality from non-communicable diseases and promote mental health and well-being. By focusing on maternal mental health in Malawi, this study could contribute to global efforts to improve health outcomes for women and babies.

Therefore, this study aimed to assess the level of FoC and investigate factors predicting FoC among high-risk pregnant mothers in Malawi by addressing the question of what factors could predict FoC among high-risk pregnant mothers. It was hypothesized that pregnancy-related pain, pregnancy-related complications, mothers' knowledge of childbirth preparedness, antenatal depression, partner support, and maternal trust in midwives could predict FoC among high-risk pregnant mothers.

Methods

This cross-sectional study with a predictive correlation approach was conducted at one Antenatal Clinic (ANC) of Bwaila Hospital, a government-run facility located in the urban area of Lilongwe District, Malawi. Bwaila Hospital. This hospital serves both as a district hospital and a referral center for high-risk pregnancies, operates as a crucial healthcare facility within the region.

Bwaila Hospital is one of several healthcare institutions in Lilongwe, which includes a mix of public and private hospitals. For this study, Bwaila Hospital was selected due to its role as the primary referral center for high-risk pregnant women in the district. The choice of Bwaila Hospital was based on its significant caseload and specialized services (i.e., ultra-sound scanning, obstetricians, and blood transfusion) for high-risk pregnancies, making it an ideal setting for collecting relevant data. The ANC at Bwaila Hospital serves a population of approximately 40,852 women of reproductive age (15 - 49). The clinic is equipped with six examination rooms and is staffed by obstetricians and midwives. It operates Monday through Friday from 8:00 a.m. to 12:00 p.m. Data collection was conducted from 11 to 29 March 2024.

The study targeted all high-risk pregnant women aged 15 and above attending the ANC of Bwaila Hospital during this period. High-risk pregnancies included those with gestational diabetes, malaria, pre-eclampsia, previous cesarean births, HIV, syphilis, hepatitis B, anemia, multiple pregnancies, fetal anomalies, adolescents, advanced age, and breech presentation. To be eligible, participants had to be able to read and communicate in Chichewa and give written informed consent. Individuals receiving antipsychotic treatment were excluded from the study. A total of 123 high-risk pregnant women were randomly selected from the ANC for participation in this study. The sample size was determined using G*Power 3.1.9.7[26], with a medium effect size of 0.15, an alpha level of 0.05, and a power of 0.90.[27]

Selection of participants

High-risk pregnant mothers were identified through a review of their health passport books and a series of questions regarding their medical history. Once identified, each high-risk participant was assigned a number between 1 - 15, and on each day, 15 - 16 high-risk pregnant mothers were identified. A simple random sampling method with a random number table was used to select 10 high-risk pregnant women per day. The prospective participants were approached and invited to join the study. They were provided with an information sheet detailing the study's aims and procedures and if they consented to participate, they signed an informed

consent form. Following consent, the participant was given a questionnaire to complete by themselves in a private room.

Research instruments

A Chichewa self-administered questionnaire with seven parts was used to collect data. The socio-demographic characteristics questionnaire had two parts. The first part collected age, educational level, employment status, and marital status. The second part collected obstetric information such as gravidity, parity, gestational age, pregnancy-related complications, or planned and unplanned pregnancies.

Fear of childbirth was evaluated using the Chichewa scale of Fear of Childbirth Questionnaire (FCQ) developed by Slade and colleagues.[28] The scale has 20 items with four categories. The first category is uncertainty and injury (7 items) assessing fear of pain, control, power, and injury. The second one is the behavior of maternity staff (5 items) which assessed fears related to competence, attention, and care. The third part is unpredictability (4 items) which assessed fear of events and challenges. The fourth part is negative emotions (4 items) which assessed fear of loneliness and anxiety. Responses were rated on a 4-point Likert-type rating scale ranging from 0-strongly disagree to 1-somewhat disagree, 2-somewhat agree, and 3- strongly agree. The score was reversed for positive items (i.e., 1, 3, 5, 8, 10, 14, 17, and 20). The possible score ranges from 0 to 60. For this study, items 1 and 11 were excluded due to low reliability ($r \leq 0$), resulting in a revised possible score range of 0 to 54 points. Fear levels were categorized as low, moderate, and severe (≤ 29, $30 - 39$, and ≥ 40 points, respectively). Based on 123 participants in this study, the scale was found to have a high internal consistency reliability (Cronbach's alpha coefficient of 0.83).

Pregnancy-related pain was assessed using the Chichewa Visual Analog Scale (VAS) developed by Weighl and Forstner.[30] The scoring involved marking pain intensity on a 10 cm line. The marked value was converted into millimeters (mm), with categories defined as ≤ 32 mm for no pain, 33 - 49 mm for mild pain, 50 - 66 mm for moderate pain, and ≥ 67 mm for severe pain. The reliability with an intraclass correlation coefficient (ICC) from a pilot study of 30 participants was 0.90.

Pregnancy-related complications was defined as a yes answer to any of the complications in the current or previous pregnancy, such as pre-eclampsia, malaria, gestational diabetes, hyperemesis gravidarum, malaria, antepartum hemorrhage abortion, or anemia. It was assessed through yes/no questions in the socio-demographic questionnaire.

Knowledge of childbirth preparedness was evaluated using the Chichewa version of the Knowledge of Birth Preparedness (KBP) Questionnaire developed by Alatawi and colleagues.[29] The KBP questionnaire consisted of 40 multiple-choice questions. Each question had one answer, with each incorrect and correct response assigned 0 and 1, respectively. Due to low item-objective congruence (IOC) and reliability concerns, 15 items were deleted, and 25 items were left, with a possible score range of 0 to 25 points. Knowledge levels were classified as poor, moderate, and good (≤ 14, $15 - 19$, and ≥ 20 points, respectively). In this study, the questionnaire's reliability was confirmed with a Kuder–Richardson 20 coefficient of 0.73 from a sample of 123 participants.

Antenatal depression was assessed using the Chichewa version of the Edinburgh Postnatal Depression Scale (EPDS) validated by Chorwe and Chips.[31] The tool consisted of 10 items which were rated on a 4-point Likert0type rating scale ranging from 3-Yes, most of the time, to 2-Yes, some of the time, 1-Not very often, and 0-No, never. With the total possible score of $0 - 30$ points, 0 - 9 points were considered no depression, and 10 and above as antenatal depression. Based on the 123 participants in this study, the internal consistency reliability with a Cronbach's alpha coefficient of 0.82.

Partner support was assessed using the Chichewa Social Support Effectiveness Questionnaire (SSE) developed by Rini and colleagues.[32] The tool had three areas including help with tasks or responsibilities, advice or information, and emotional support. Different scorings for specific questions were used for items 1, 6, and 11 (very poor = 0, poor = 1, Fair = 2, good = 3, and excellent = 4), items 2, 7, and 12 (not at all = 4, a little bit = 3, moderately = 2, quite a bit = 1, and extremely = 0), items 3, 8, and 13 (not at all = 0, a little bit = 1, moderately = 2, quite a bit = 3, and extremely = 4), items 4, 9, and 14 (never = 4, rarely = 3, sometimes = 2, often = 1,and always = 0), items 5, 10, and 15 (never = 0, rarely = 1, sometimes = 2, often = 3, always = 4), and items 16 through 25 (yes = 0, and no = 2). Due to low item reliability and content validity, 6 items were removed, leaving 19 items with a possible score range of 0 to 58 points. Absence and presence of partner support were based on scores of $0 - 34$ and 35-58 points, respectively. Based on the 123 participants in this study,

internal consistency reliability was at a high level with a Cronbach's alpha coefficient of 0.78.

Maternal trust in midwives was evaluated using the Chichewa Health Care Relationship (HCR) trust revised scale developed by Bova and colleagues.[33] The scale had 13 items across the three domains namely relationships, respectful communication, and professional collaboration. The scale uses a 5-point Likert-type rating scale ranging from 0-none of the time, to 1-some or a little of the time, 2-occasionally, 3-most of the time, and 4-all of the time. The score was reversed for item 12. With the possible total score of 0 to 52 points, absence and presence of maternal trues were based on scores of 0 – 31 and 34 - 52 points, respectively. With the 123 participants in this study, a internal consistency reliability was high with a Cronbach's alpha coefficient of 0.81.

The EPDS Chichewa version was already validated in the country with 68% sensitivity rate and 88% specificity rate).[31] The Chichewa versions of the FCQ, KBP, VAS, SSE, and HCRT-R were validated for content validity by three experts (2 Malawian lecturers in midwifery and 1 experienced practicing midwife with a master's in midwifery). The FCQ, KBP, VAS, SSE, and HCRT-R demonstrated acceptable content validity with the index of congruence of 0.90, 0.85,1.00, 0.90, 0.82, and 1.00, respectively.

Participant ethical protection

The study was approved by the Institutional Review Board (IRB) of Burapha University (approval number: G-HS111/2566,) and the Research Ethical Board of the National Health Sciences Research Committee (NHSRC) of Malawi (approval number: 24/03/4348). Additionally, permission was sought from the research committee of Lilongwe District Assembly and the management team of Bwaila FHU. During the data collection, potential participants were given detailed information about the study's aims and procedures. The right to voluntarily agree, decline, or withdraw participation without affecting the quality of care was emphasized. Additionally, for the participants who were less than 18 years old, consent was sought from their guardians, and they signed the assent form. To protect the confidentiality, no names were used, instead, each participant was assigned a unique number. For privacy, paper documents containing data were safely kept, and electronic data were protected with passwords, accessible only to the researcher. All data-related documents will be securely destroyed one year after the study's publication.

Participants with higher scores on the EPDS and FCQ were given counseling, ensuring comprehensive support for their well-being.

Data collection procedures

After gaining consent from the participants, data collection took place in a prepared private room within the premises of Bwaila ANC where women were given a questionnaire to answer by themselves. It took approximately 20 - 30 minutes to complete the questionnaire.

Data analysis

The analysis used descriptive statistics (frequency with percentage and mean with standard deviation) to summarize demographic characteristics and study variables. Bivariate correlations of FoC with relevant factors were tested using point biserial and Pearson's product moment correlation analyses. Multiple linear regression analysis was performed to identify the predictive factors of FoC. Assumptions for multiple linear regression such as normality of variables, linearity, homoscedasticity, absence of outliers, no autocorrelation, and no multicollinearity were met. Statistical significance was set at a type I error of 5%. All statistical analyses were conducted using the software program SPSS version 26.

Results

Of the 123 high-risk pregnant women, their mean age was 29.87 ± 6.45 years old. Most participants were married (89.4%), almost half had completed primary (45.5%), and nearly half (47.2%) were self-employed. Majority of the participants were multigravidas (69.9%) with almost half of them were multiparous (49.6%) with a mean gestational age of 27.28 ± 5.44 weeks. Nearly one-third had a pregnancy-related complication (43.9%) with 11.4% of the participants reporting pre-eclampsia (Table 1).

FoC was the dependent variable in this study with a mean score of 20.43±10.49 which indicated a low level of fear. The study's independent variables included pregnancy-related complications (Table 1), knowledge of childbirth preparedness, (moderate level), pregnancy-related pain (no pain), antenatal depression (no depression), partner support (presence of support), and maternal trust in midwives (presence of trust) (Table 2).

Table 1 Socio-demographic and obstetrics characteristics of the participants (N = 123).

Characteristics	N (%)
Age (years)	
15 - 19	10 (8.1)
20 - 34	76 (61.8)
35 - 40	37 (30.1)
Marital status	
Married	110 (89.4)
Unmarried	11 (9.0)
Divorced	1 (0.8)
Widow	1 (0.8)
Education	
Primary	56 (45.5)
Secondary	52 (42.3)
College	12 (9.8)
University	3 (2.4)
Occupation	
Self-employed/Business	58 (47.2)
Housewife	50 (40.7)
Government employed	15 (12.1)
Gravidity	
Primigravida	13 (10.6)
Multigravida	110 (89.4)
Parity	
Nulliparity	16 (13.0)
Primiparity	35 (28.5)
Multiparity	72 (58.5)
Gestational age (weeks), mean = 27.28 ± 5.44.	
1 - 12 (1st trimester)	2 (1.6)
13 - 27 (2nd trimester)	58 (47.2)
28 - 40 (3rd trimester)	63 (51.2)
Planned pregnancy	
Planned	82 (66.7)
Unplanned	39 (31.7)
Not sure	2 (1.6)
Pregnancy-related complications	
Yes	54 (43.9)
Hyperemesis gravidarum	10 (8.1)
Malaria	10 (8.1)
Eclampsia, Pre-eclampsia	14 (11.4)
Antepartum hemorrhage	5 (4.1)
Abortion	4 (3.3)
Fresh/macerated stillborn	8 (6.5)
Gestational diabetes mellitus	3 (2.4)
No complications	69 (56.1)

Table 2 Mean and standard deviation of the studied variable (123)

Variables	Possible Score range	Actual Score range	Mean ± SD	Level
Fear of childbirth	0-54	2- 43	20.43±10.49	Low fear
Knowledge of childbirth preparedness	0-25	10-23	17.24±3.05	Moderate knowledge
Pregnancy-related pain	0-83	16-65	31.02±15.22	No pain
Antenatal depression	0-30	0-21	7.11±5.53	No depression
Partner support	0-58	22-56	41.09±8.48	Presence of support
Maternal trust in midwives	0-52	23-52	41.85±8.05	Presence of trust

* SD=Standard Deviation

Factors associated with FoC

Pearson correlation was computed to establish the relationship between FoC and knowledge of childbirth preparedness, pregnancy-related pain, antenatal depression, partner support, and maternal trust in midwives, and a point-biserial correlation was also conducted to establish the relationship between pregnancy-related complications and FoC.

Results showed that there was a significant positive statistical relationship between FoC and pregnancy-related complications (r=0.181, P-value = 0.04), pregnancy-related pain (r=0.236, P-value < 0.001), and antenatal depression (r= 0.329, P-value < 0.001). Additionally, there was a significant negative statistical relationship between FoC and knowledge of childbirth preparedness (r=-0.208, P-value = 0.03). However, there were negative correlations between partner support (r=- 0.152, P-value = 0.09) and maternal trust in midwives (r=-0.157, P-value = 0.08) with FoC which were not statistically significant (Table 3).

Table 3 Correlation matrix of factors associated with FoC (N = 123).

	Variables	Fear of Childbirth
1.	Pregnancy-related complications	$0.181a^{*}$
2.	Pregnancy-related pain	0.236_b^{**}
3.	Knowledge of childbirth preparedness	-0.208_b^{*}
4.	Antenatal depression	0.329_b^{**}
5.	Partner support	-0.152_b
6.	Maternal trust in midwives	-0.157_b

* $p < .05$ level, ** $p < .01$ level, a=point biserial correlation, b=Pearson's product moment correlation.

A standard multiple regression analysis was computed to find factors contributing to FoC. Results from a standard multiple linear regression revealed that knowledge of childbirth preparedness, pregnancy-related pain, pregnancy-related complications, antenatal depression, partner support, and maternal trust in midwife predicted FoC, explaining 19.0% variance of FoC among high-risk pregnant mothers (R2=0.19, F (6,116) = 4.529, P-value < 0.001). The results also revealed that antenatal depression significantly predicted FoC (β = 0.256, P-value = 0.007). This means higher levels of antenatal depression were associated with higher levels of FoC. Secondly, knowledge of childbirth preparedness significantly predicted FoC (β=-0.196, P-value = 0.022), implying that better knowledge of childbirth preparedness was associated with lower levels of FoC. However, pregnancy-related pain (β=0.119, P-value = 0.186), pregnancy-related complications (β=0.116, P-value = 0.177), partner support (β=0.005, P-value = 0.953), and maternal trust in midwife (β=0.099, P-value = 0.267) did not significantly predict FoC (Table 4). The

equation of FoC predictors includes as following: FoC=16.725+0.496(Antenatal Depression)-0.686 (Knowledge of Childbirth Preparedness).

Table 4 Multiple Regression Analysis for Variables Predicting FoC (N = 123). .

Predictor	B	SE	β	t	P-value
Constant	16.725	9.480		1.764	<.001
Pregnancy-related Complications	2.440	1.798	0.116	1.357	0.177
Pregnancy-related Pain	0.084	0.063	0.119	1.329	0.186
Knowledge of childbirth Preparedness	-0.686	0.296	-0.196	-2.319	0.022
Antenatal Depression	0.496	0.181	0.256	2.745	0.007
Partner support	0.007	0.114	0.005	.060	0.953
Maternal trust in midwives	0.132	0.119	0.099	1.116	0.267

$R^2 = 0.190$, Adjs.$R^2 = 0.148$, $F_{6,116} = 4.53$, P-value < 0.001.

Discussions and Conclusion

The cross-sectional study was conducted to assess the level of FoC and its predicting factors: pregnancy-related complications, pregnancy-related pain, knowledge of childbirth preparedness, antenatal depression, partner support, and maternal trust in midwives b among high-risk pregnant mothers attending ANC at Bwaila Hospital, Lilongwe, Malawi. The study found that the mean score for FoC was 20.43±10.49 indicating low fear among high-risk pregnant women in Malawi. This finding is consistent with previous studies that also reported low levels of fear among high-risk pregnant mothers [34]. However, in contrast, other studies reported moderate to severe fears among pregnant women [35,36]. The current finding is attributed to several factors which include;

Firstly, the multigravidity and multiparity status of the participants (more than two-thirds) could be the reason for the low fear among this group. Multigravida/parous women are generally more prepared for subsequent births, and they exhibit a lower risk of FoC compared to nulliparous women 36. Additionally, the maternal age of the participants also contributed to the lower levels of fear. More than two-thirds of participants were over 20 years of age and fell into the older adult category. This age group is considered fit and mentally mature regarding childbirth, making them less fearful [37]. Lastly, the marital status of the participants also played a role in the low level of fear. More than two-thirds of the participants were married, and FoC is significantly associated with single status compared to married or cohabiting women [38].

These findings suggest that the interplay of good biological well-being (no pain), social well-being (partner support), and psychological well-being (no depression, moderate knowledge) contributed to the low levels of fear in the participants.

In this study, one-third (29.3%) of the participants reported having depressed symptoms with antenatal depression emerging as the strongest predictor of FoC (β = 0.256, P-value = 0.007). Therefore, this study suggests that higher levels of antenatal depression are linked to increased FoC among high-risk pregnant mothers. According to the BPS model, psychological factors such as depression can significantly influence individuals' thoughts and emotional states. Antenatal depression leads women to perceive themselves and the world negatively, fostering feelings of fear and uncertainty about childbirth[17]. The present study supports earlier findings that found that antenatal depression significantly predicted FoC (β = 0.09, P-value= 0.042) and (β = 0.30, P-value < 0.05) [39,40].

These findings underscore the importance of addressing antenatal depression and providing appropriate support and intervention which can help alleviate fears and promote a more positive childbirth experience for mothers at high risk.

In this study, more than two-thirds (68.5%) of the participants had moderate knowledge of childbirth preparedness which negatively impacted FoC (β = -0.196, P-value = 0.022), suggesting that having no or inadequate knowledge about childbirth preparedness can lead to FoC or that knowing childbirth preparedness can reduce the likelihood of developing FoC. Within the BPS framework, knowledge acts as a protective psychological factor, for women with information about childbirth processes, potential complications, and coping strategies, and knowledge enhances their confidence in navigating the birthing experience. This reduction in uncertainty not only empowers mothers but also mitigates feelings of fear and apprehension associated with childbirth. However, those with little or no information regarding childbirth preparedness may panic due to fear of the unknown [41].

The current study finding is consistent with other studies that revealed that birth preparedness significantly predicted FoC among nulliparous (β=-0.40, P-value < 0.01) and multiparous (β=-0.37, P-value < 0.01) women respectively [42]. Despite this fact, few studies have been conducted in this area; thus there is a need for more data that will support the present outcome. On the contrary, researchers also found that

FoC was strongly impacted by not attending antenatal preparation classes (B=19.2, P-value < 0.001) [41]. This underscores the role of antenatal education in equipping pregnant women with the knowledge and skills necessary for childbirth preparation.

In this study, (43.9%) of the participants reported experiencing pregnancy-related complications which were significantly and positively correlated with FoC (r=0.181, P-value=0.04). However, these complications did not significantly impact FoC (β=0.119, P-value=0.177). According to the BPS model, biological factors such as complications can increase fear about childbirth, leading to FoC through high levels of anxiety and fear of potential danger [43]. Additionally, mothers with pregnancy-related complications may anticipate complications during childbirth, medical management, or repeat procedures due to their condition which may increase the fear [44]. Moreover, the lack of support for those with pregnancy-related complications heightens concerns such as fear of death, baby injury, and loss of control during childbirth [8].

The present finding is in contrast to previous studies that found a significant predictive power of pregnancy-related complications in FoC [8,23]. This difference could be attributed to high-risk pregnancy awareness because the participants in this study were already aware of their high-risk status, which led to better psychological preparation, advanced planning, or health care -increased support from providers. Thus, although complication is associated with increased FoC, it may be less involved with already anticipated or already experienced fear, and thus less involved in strong prediction.

One-third of the participants (37.4%) reported pregnancy-related pain of varying levels. The analysis revealed a positive and significant correlation between pregnancy-related pain and FoC (r = 0.236, P-value < 0.001). The BPS model suggests that pain experienced during pregnancy contributes to increased anxiety about labor and delivery, potentially increasing FoC. Individuals experiencing pain from pregnancy, especially if it is severe or persistent, may worry about managing the pregnancy effectively due to the fear that labor pain will be severe, and potentially harmful to their baby. Pain from pregnancy can feel overwhelming and unmanageable as such, individuals may be concerned about their ability to cope with pain during labor and manage the birth effectively [43]. However, despite the significant associations found in this study, pregnancy-related pain did not significantly predict FoC,

presumably due to the absence of pain in the participants. This finding is consistent with other studies whereby vaginismus did not predict FoC (β=0.247, P-value > 0.05), and a non-predictive effect of lower abdominal pain on FoC (β=1.79 95 CI -0.40-3.97, P- value=0.108) in pregnant women [45,40].

However, a study by Mortazavi & Agah found that those with pregnancy-related pain were more likely to have FoC (OR = 2.829; 95% CI: 1.479–5.414) [22]. Differences in the literature may be influenced by mediating factors such as demographic characteristics or other contextual influences such as individual coping strategies, antecedents of pain, and psychological adjustment, and therefore possibly pain of pregnancy is associated with FoC, but its predictive power is limited when considered in isolation from other psychosocial factors.

The study findings show that partner support was not significantly correlated with FoC (r = -0.152, P-value = 0.092) and did not significantly predict FoC, despite a mean score of 41.09 (SD = 8.48), which indicated the presence of partner support. This suggests that although having a supportive partner is helpful, it does not significantly reduce childbirth-related fears, especially in this case where the assessed partner support was done during pregnancy and not during childbirth. The findings are consistent with previous studies that reported no significant impact of partner support on FoC. These studies reported that spousal support did not significantly predict FoC (β=0.04, P-value = 0.504), and (β=-0.856, P-value = 0.064) [46,47]. However, other studies have revealed the significant predictive power of partner support on FoC. For example, a study conducted in China revealed that inadequate or lack of support from a spouse was identified as a predictor for FoC (β=0.93, P-value < 0.001 and β= 0.92, P-value < 0.001, respectively) [48]. Furthermore, in other studies, the women who received low emotional support from their partners were reported to be 2 times more likely to develop FoC than their counterparts [22], and those who received support from their partners were less likely to develop FoC [36,49].

Within the BPS framework, social factors such as support may influence emotional well-being. The availability of support from partners during pregnancy, childbirth, and postpartum is important for problem-solving, reducing emotional intensity, and enhancing psychological well-being thereby reducing fear.

However, cultural norms, attitudes, and contextual issues may affect the effectiveness of predicting FoC among pregnant mothers.

More than two-thirds of the participants reported trusting their midwives (41.85± 8.05). However, the current study finding has revealed a non-significant association between maternal trust in midwives and FoC (r = -0.157, P-value = 0.083) and a non-significant impact of maternal trust in the midwife on FoC (β = 0.099, P-value = 0.267). So, even with trust in their midwives and confidence in staff availability, mothers' fear of childbirth was not strongly influenced. This suggests that factors other than trust in midwives or staff availability likely play a role in mothers' fear of childbirth such as the competence or capability of the healthcare worker and mothers' prioritization based on health issues and medical interventions. In the BPS model, trust in the health care providers as a social factor, is important to reduce anxiety and promote a positive birth experience through improved communication and care, consequently reducing fear and the absence of maternal trust in midwives may exacerbate fear. The current study finding is in contrast to a previous study that found that maternal trust in midwives significantly predicted FoC (β= -1.378, P-value < 0.05) [7].

Therefore, only antenatal depression and knowledge of preparedness for childbirth significantly predicted FoC. In the BPS model, these two factors are interplay factors in such a way that although knowing childbirth preparedness can reduce fear by providing information and reassurance, antenatal depression can undermine this positive effect. Distressed women struggle to process and benefit from their knowledge because their negative thoughts can mask the reassuring aspect of being well-informed. Furthermore, Depression can lead to a lack of motivation or energy to seek or obtain childbirth information, which leads to unpreparedness and conversely, ignorance can create feelings of helplessness and greater anxiety and can exacerbate depressive symptoms.

The level of FoC among high-risk pregnant mothers was low and only antenatal depression and knowledge of childbirth preparedness were found to be significant predictors of FoC. Nonetheless, the overall explained variance was low (19.0%) suggesting that other factors beyond those under consideration are likely to contribute towards levels of fear of childbirth among high-risk pregnant mothers.

The findings of this study underscore the critical need for healthcare providers to enhance their focus on comprehensive education regarding childbirth preparation and to integrate mental health services within ANC settings. Specifically, addressing antenatal depression through targeted interventions is essential for reducing fear and anxiety associated with childbirth.

Despite the lack of significant prediction from factors such as pregnancy-related pain, pregnancy-related complications, partner support, and maternal trust in midwives, it is evident that these elements still play a role in the overall childbirth experience. Thus, healthcare providers must continue to effectively manage pain, communicate clearly about potential complications, and actively involve partners in the care process. Furthermore, the study highlights the importance of prioritizing midwifery care that builds trust through consistent, compassionate, high-quality communication. This approach can provide a more supportive environment for high-risk pregnant women, which in turn can improve their overall experience and outcomes.

This study used a validated questionnaire in Chichewa to collect cross-sectional data and this ensured the cultural relevance and comprehensiveness of the data collected. By focusing on high-risk pregnancies, the study addressed an important area of maternal health that is often under-researched in resource-limited settings such as Malawi. The study highlighted the importance of integrating mental health services into antenatal care (ANC), providing valuable insight into the need for comprehensive care.

However, there are some limitations to this study. Firstly, the single hospital setting limits the ability to generalize the findings to the general population. Moreover, only specific factors were considered, which may not capture all effects of FoC in high-risk pregnant women. Furthermore, failure to control for potential confounders in the regression analysis may lead to biased results. The study's reliance on quantitative data suggests that a qualitative perspective on participants' experiences and perspectives was not captured. Finally, the use of self-administered questionnaires had the potential for response bias and a lack of in-depth understanding of participants' true feelings and experiences.

Therefore, future studies should consider the following; more centers to improve the generalizability of findings, additional factors such as personality traits, socioeconomic status, and cultural norms to develop a comprehensive understanding of FoC, use of both quantitative and qualitative methods to capture the depth and breadth of participants'

experiences and thoughts, inclusion of potentially confounding variables in the regression analysis and the use longitudinal studies to track changes in FoC and related factors over time, to gain insight into the long-term effects of interventions.

Acknowledgments

References

1. World Health Organization (WHO). Maternal mental health. Published online 2024. Accessed July 19, 2024 https://www.who.int/teams/mental-health-and-substance-use/promotion-prevention/maternal-mental-health.

2. World Health Organisation (WHO). Launch of the WHO guide for integration of perinatal mental health in maternal and child health services. Published online 2022. Accessed July 20, 2024. https://www.who.int/news/item/19-09-2022-launch-of-the-who-guide-for-integration-of-perinatal-mental-health.

3. Wigert H, Nilsson C, Dencker A, et al. Women's experiences of fear of childbirth: a metasynthesis of qualitative studies. International Journal of Qualitative Studies on Health and Well-being. 2020;15(1):1704484. doi: 10.1080/17482631.2019.1704484

4. Wijma K, Wijma B, Zar M. Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth. Journal of Psychosomatic Obstetrics & Gynecology. 1998;19(2):84-97. Doi: 10.3109/01674829809048501

5. O'Connell MA, Leahy-Warren P, Khashan AS, Kenny LC, O'Neill SM. Worldwide prevalence of tocophobia in pregnant women: systematic review and meta-analysis. Acta Obstetricia et Gynecologica Scandinavica. 2017;96(8):907-920. Doi: 10.1111/aogs.13138

6. Massae AF, Larsson M, Pembe AB, Mbekenga C, Svanberg AS. Patterns and predictors of fear of childbirth and depressive symptoms over time in a cohort of women in the Pwani region, Tanzania. PLOS ONE 2022;17(11):1-18. doi: 10.1371/journal.pone.0277004

7. Onchonga D, MoghaddamHosseini V, Keraka M, Várnagy Á. Prevalence of fear of childbirth in a sample of gravida women in Kenya. Sexual & Reproductive Healthcare. 2020;24(1):1-5. doi: 10.1016/j.srhc.2020.100510

8. Gelaw T, Ketema TG, Beyene K, Gurara MK, Ukke GG. Fear of childbirth among pregnant women attending antenatal care in Arba Minch town, southern Ethiopia: a cross-sectional study. BMC Pregnancy and Childbirth. 2020;20(1):1-7. doi: 10.1186/s12884-020-03367-z

9. Khwepeya M, Lee GT, Chen S-R, Kuo S-Y. Childbirth fear and related factors among pregnant and postpartum women in Malawi. BMC pregnancy and childbirth. 2018;18(1):1-10. doi: 10.1186/s12884-018-2023-7

10. Klabbers GA, van Bakel HJ, van den Heuvel M, Vingerhoets AJ. Severe fear of childbirth: its features, assessment, prevalence, determinants, consequences and possible treatments. Psihologijske Teme 2016;25(1):107-127. https://www.researchgate.net/publication/301917975_Severe_fear_of_childbirth_Its_features_assesment_prevalence_determinants_consequences_and_possible_treatments

11. Ali MH, Seif SA, Kibusi SM. The Influence of Fear During Pregnancy, Labour and Delivery on Birth Outcome Among Post-Delivery Women: A Case Control Study in Zanzibar. East Afr Health Res J. 2022;6(2):147-154. doi: 10.24248/eahrj.v6i2.693

12. National Statistical Office (NSO). 2018 Malawi Population and Housing Census: Main Report. Zomba: National Statistical Office;2019. Accessed June 20, 2023. https://malawi.unfpa.org/sites/default/files/resourcepdf/2018%20Malawi%20Population%20and%20Housing%20Census%20Main%20Report%20%281%29.pdf

13. Zlakowska P. Fear of childbirth and sense of coherence with their determinants in endangered and healthy pregnancies. Journal of Pre-Clinical and Clinical Research. 2020;14(3):90-93. doi: 10.26444/jpccr/126596

14. Wilhelm L, Neumaier Alves C, Carbonell Demori C, Silva S, Meincke S, Ressel L. Feelings of women who experienced a high-risk pregnancy: A descriptive study. Online Brazilian Journal of Nursing. 2015;(14):284. doi: 10.17665/1676-4285.20155206

15. Yıldırım A, Yilmaz F. Effects of depression and anxiety on the fear of childbirth. Current Psychology 2023;42(26):1-6. doi: 10.1007/s12144-023-04975-6

16. Gondwe MJ, Desmond N, Aminu M, Allen S. Resource availability and barriers to delivering quality care for newborns in hospitals in the southern region of Malawi: A multisite observational study. PLOS Global Public Health. 2022;2(12):1-19. doi: 10.1371/journal.pgph.0001333

17. Isaacs NZ, Andipatin MG. A systematic review regarding women's emotional and psychological experiences of high-risk pregnancies. BMC Psychology 2020;8(1):1-11. doi: 10.1186/s40359-020-00410-8

18. National Statistical Office (NSO). Malawi Demographic and Health Survey 2015-16. Zomba, Malawi: National Statistical Office and ICF;2017. Accessed August 18, 2023. http://dhsprogram.com/pubs/pdf/FR319/FR319.pdf

19. Balkus JE, Neradilek M, Fairlie L, et al. Assessing pregnancy and neonatal outcomes in Malawi, South Africa, Uganda, and Zimbabwe: Results from a systematic chart review. Plos One. 2021;16(3):1-13. doi: 10.1371/journal.pone.0248423

20. Engel GL. The need for a new medical model: a challenge for biomedicine. Science (New York, NY). 1977;196(4286):129-136. doi: 10.1126/science.847460

21. Toohill J, Jennifer F, Gamble J, Creedy D, Buist A, Ryding E. Psycho-Social Predictors of Childbirth Fear in Pregnant Women: An Australian Study. Open Journal of Obstetrics and Gynecology. 2014;4(9):531-543.doi: 10.4236/ojog.2014.49075

22. Mortazavi F, Agah J. Childbirth fear and associated factors in a sample of pregnant Iranian women. Oman Medical Journal 2018;33(6):497-505. doi: 10.5001/omj.2018.91

23. Berhanu RD, Abathun AD, Negessa EH, Amosa LG. The magnitude and associated factors of childbirth fear among pregnant women attending antenatal care at public hospitals in Ethiopia: a cross-sectional study.

BMC Pregnancy and Childbirth. 2022;22(1):1-10. doi: 10.1186/s12884-022-04544-y

24. Zeng T, Li B, Zhang K, et al. The association between childbirth-related fear, childbirth readiness, and fertility intentions, and childbirth readiness as the mediator. Reproductive Health. 2023;20(1):62. doi: 10.1186/s12978-023-01607-x

25. Han L, Wu J, Wu H, et al. Validating the use of the Wijma Delivery Expectancy/Experience Questionnaire in Mainland China: a descriptive, cross-sectional study. BMC Pregnancy and Childbirth. 2022;22(1):1-10. doi: 10.1186/s12884-022-05283-w

26. Faul F, Erdfelder E, Buchner A, Lang A-G. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behavior Research Methods. 2009;41(4):1149-1160. doi: 10.3758/BRM.41.4.1149

27. Polit DF, Beck CT. Chapter 17 Inferential Statistics. Nursing research: Generating and assessing evidence for nursing practice. Vol 9: Lippincott Williams & Wilkins; 2012. 422-423

28. Slade P, Balling K, Houghton G, Sheen K. A new scale for fear of childbirth: the fear of childbirth questionnaire (FCQ). Journal of Reproductive and Infant Psychology. 2022;40(6):602-612. doi: 10.1080/02646838.2021.1928615

29. Alatawi M, Rashad W, Alabdulaziz H. Knowledge, Attitude, and Practice of Primigravida Women on Birth Preparedness. The Open Nursing Journal. 2023;15(1):38-46. doi: 10.2174/1874434602115010038,

30. Weigl K, Forstner T. Design of Paper-Based Visual Analogue Scale Items. Educational and Psychological Measurement. 2021;81(3):595-611. doi: 10.1177/0013164420952118

31. Chorwe- Sungani G, Chipps J. Validity and utility of instruments for screening of depression in women attending antenatal clinics in Blantyre district in Malawi. South African Family Practice. 2018;60(4):114-120. doi: 10.1080/20786190.2018.1432136

32. Rini C, Schetter C, Hobel C, Glynn L, Sandman C. Effective social support: Antecedents and consequences of partner support during pregnancy. Personal Relationships. 2006;13(1):207-229. doi: 10.1111/j.1475-6811.2006.00114.x

33. Bova C, Route PS, Fennie K, Ettinger W, Manchester GW, Weinstein B. Measuring patient–provider trust in a primary care population: Refinement of the health care relationship trust scale. Research in Nursing & Health 2012;35(4):397-408. doi: 10.1002/nur.21484

34. Dal Moro APM, Soecki G, de Fraga FS, Petterle RR, Rückl SZ. Fear of childbirth: prevalence and associated factors in pregnant women of a maternity hospital in southern Brazil. BMC Pregnancy and Childbirth. 2023;23(1):632. doi: 10.1186/s12884-023-05948-0

35. Abali C, S., Çiçek Ö. Determination of Childbirth Readiness and Fear of Childbirth in Multiple Pregnancy and Related Factors: A Cross-sectional Study. Mod Care J. 2024;21(2):e137222. doi: 10.5812/mcj-137222

36. Ibrahim HA, Alshahrani MS, Elgzar WTI. Determinants of Prenatal Childbirth Fear during the Third Trimester among Low-Risk Expectant Mothers: A Cross-Sectional Study. Healthcare. 2024;12(1):50. doi: 10.3390/healthcare12010050

37. Alemu C, Wudu H, Lakew S. Fear of childbirth and its associated factors among pregnant women in Dejen Woreda, East Gojjam Zone, Northwest Ethiopia: a community-based cross-sectional study. Scientific Reports. 2024;14(1):9319. doi: 10.1038/s41598-024-58855-5

38. O'Connell MA, Leahy-Warren P, Kenny LC, O'Neill SM, Khashan AS. The prevalence and risk factors of fear of childbirth among pregnant women: A cross-sectional study in Ireland. Acta obstetricia et gynecologica Scandinavica. 2019;98(8):1014-1023. doi: 10.1111/aogs.13599.

39. Usui Y, Takegata M, Takeda S, Kitamura T. Relationships between Depression, Fear of Childbirth, and Obsessive-Compulsive Symptoms among Pregnant Women under the COVID-19 Pandemic in Japan. Healthcare. 2023;11(3):361. doi: 10.3390/healthcare11030361

40. Zhang T, Liu M, Min F, et al. Fear of childbirth and its determinants in pregnant women in the third trimester: a cross-sectional study. BMC Psychiatry. 2023;23(1):574.doi: 10.1186/s12888-023-05070-7

41. Hassanzadeh R, Abbas-Alizadeh F, Meedya S, Mohammad-Alizadeh-Charandabi S, Mirghafourvand M. Fear of childbirth, anxiety and depression in three groups of primiparous pregnant women not attending, irregularly attending, and regularly attending childbirth preparation classes. BMC Women's Health 2020;20(1):1-8. doi: 10.1186/s12905-020-01048-9

42. Kuljanac A, Brekalo M, Naki Radoš S. Perfectionism, intolerance of uncertainty, and fear of childbirth in pregnant and non-pregnant women. Clínica y Salud. 2023;34(2):65-70.doi: 10.5093/clysa2023a17

43. Sharma B, Jungari S, Lawange A. Factors Affecting Fear of Childbirth Among Urban Women in India: A Qualitative Study. SAGE Open. 2022;12(2):1-10. doi: 10.1177/21582440221089485

44. Sheen K, Slade P. Examining the content and moderators of women's fears for giving birth: A meta-synthesis. Journal of Clinical Nursing 2018;27(13):2523-2535. doi: 10.1111/jocn.14219

45. Esmalian K, Ladan, Tahor-Soltani M, Shabani A, Erfani N. The relationship between vaginismus, dysmenorrhea, social support, and tokophobia with mediating role of childbirth self-efficacy. Journal of Basic Clinical Health Sciences 2023;7(1):75-83. doi: 10.30621/jbachs.1060656

46. Cho H, Ahn S. Do childbirth confidence, prenatal depression, childbirth knowledge, and spousal support influence childbirth fear in pregnant women? Korean Journal of Women Health Nursing. 2020;26(4):358-366. doi: 10.4069/kjwhn.2020.12.14 . In Korean

47. Ölmez F, Oğlak SC. The Prevalence and Associated Factors of Fear of Childbirth Among Pregnant Adolescents in Turkey: A Cross-Sectional Study. Journal of Clinical Obstetrics & Gynecology. 2021;31(4):103 - 110. doi: 10.5336/jcog.2021-86477

48. Huang J, Huang J, Li Y, Liao B. The prevalence and predictors of fear of childbirth among pregnant Chinese women: a hierarchical regression analysis. BMC Pregnancy and Childbirth. 2021;21(1):1-10. doi: 10.1186/s12884-021-04123-7

49. Anjum A, Mushtaq M, Anwar T, Ali MH. Fear of Childbirth: wellbeing and partner support in first-time pregnant women. Journal of Liaquat University of Medical & Health Sciences Published Online 2022 2023;22(1):55-58.

http://ojs.lumhs.edu.pk/index.php/jlumhs/article/view/827