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Analysis of Risk Factors for Violence against Pregnant Women Using a QR Code Survey: A Cross-sectional Study

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Abstract: Violence against pregnant women has serious physical, psychological, and social consequences for both mothers and their unborn children. The World Health Organization (WHO, 2024) reports that one in three women experience violence, yet many cases remain undetected because of reporting barriers, stigma, and limited screening methods. This study aimed to identify the risk factors associated with violence against pregnant women by utilizing QR Code technology as a secure survey tool in the working area of the Yogyakarta City Health Office. A cross-sectional study was conducted among 463 pregnant women using a validated and reliable questionnaire. The prevalence of violence was 36.3%, with psychological violence identified as the most common form. Logistic regression analysis showed that young maternal age (OR = 2.11; p = 0.010), low income (OR = 1.79; p = 0.015), unwanted pregnancy (OR = 2.69; p < 0.001), and a history of previous violence (OR = 4.05; p < 0.001) were significant predictors. Strengthening routine screening and community-based prevention programs is recommended.

Keywords: detection; pregnant women; QR code; risk factor; violence

Abstrak: Kekerasan terhadap ibu hamil memiliki dampak fisik, psikologis, dan sosial yang serius bagi ibu maupun janin yang dikandungnya. Organisasi Kesehatan Dunia (WHO, 2024) melaporkan bahwa satu dari tiga perempuan mengalami kekerasan, namun banyak kasus yang tidak terdeteksi karena hambatan pelaporan, stigma, dan keterbatasan metode skrining. Penelitian ini bertujuan untuk mengidentifikasi faktor risiko yang terkait dengan kekerasan terhadap wanita hamil dengan memanfaatkan teknologi QR Code sebagai alat survei yang aman di wilayah kerja Dinas Kesehatan Kota Yogyakarta. Sebuah studi potong lintang dilakukan terhadap 463 wanita hamil menggunakan kuesioner yang telah tervalidasi dan dapat diandalkan. Prevalensi kekerasan mencapai 36,3%, dengan kekerasan psikologis teridentifikasi sebagai bentuk yang paling umum. Analisis regresi logistik menunjukkan bahwa usia ibu yang muda (OR = 2,11; p = 0,010), pendapatan rendah (OR = 1,79; p = 0,015), kehamilan yang tidak diinginkan (OR = 2,69; p < 0,001), dan riwayat kekerasan sebelumnya (OR = 4,05; p < 0,001) merupakan prediktor yang signifikan. Penelitian ini merekomenta untuk memperkuat skrining rutin dan program pencegahan berbasis masyarakat.

Kata Kunci: deteksi; wanita hamil; kode QR; faktor risiko; kekerasan

A. Introduction

Domestic violence and abuse, especially when repeated, can have serious physical and mental health consequences, requiring special attention.[1] Violence against women, including pregnant women, is an urgent public health issue with physical, mental, and social impacts.[2] During pregnancy, violence can increase the risk of postpartum depression, low birth weight, premature birth, and low breastfeeding rates in the first year.[3] According to the World Health Organization (WHO), approximately 1 in 3 women (30%) worldwide experience physical and/or sexual violence, mostly by an intimate partner, and 27% of women aged 15–49 have experienced it..[4] The incidence of violence during pregnancy varies around the world. Data from 50 countries show that 1 in 10 mothers experience physical violence, 1 in 20 experience psychological violence, and 1 in 20 experience sexual violence.[5] Spousal violence is highest in Africa, while psychological violence is more common in North America, and the lowest rates are recorded in Europe, indicating geographical variations. In East Africa and Southeast Asia, spousal violence is twice as high as in other regions.[6]

Violence against pregnant women in Indonesia is more prevalent among poor communities in rural areas.[7] Victims of violence during pregnancy are

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[1] Rimjim Talukdar, "Breaking the Cycle: Examining the Long-term Effects of Domestic Violence on Women's Mental and Physical Health, and Exploring Effective Intervention Strategies," *International Journal for Multidisciplinary Research* 6, no. 3 (2024): 3, https://doi.org/10.36948/ijfmr.2024.v06i03.23714.

[2] Thao Da Thi Tran, Linda Murray, and Thang Van Vo, "Intimate Partner Violence during Pregnancy and Maternal and Child Health Outcomes: A Scoping Review of the Literature from Low-and-Middle Income Countries from 2016 - 2021," *BMC Pregnancy and Childbirth* 22, no. 1 (2022): 315, https://doi.org/10.1186/s12884-022-04604-3.

[3] Hani Alhalal et al., "Intimate Partner Violence and Its Associations with Adverse Pregnancy Outcomes in Saudi Arabia: A Cross-Sectional Study," *Journal of Interpersonal Violence* 37, no. 15–16 (2022): 14457–84, https://doi.org/10.1177/08862605211005144.

[4] WHO, "Violence against Women," World Health Organization (World Health Organization, 2024), https://www.who.int/news-room/fact-sheets/detail/violence-against-women.

[5] Rosario M. Román-Gálvez et al., "Prevalence of Intimate Partner Violence in Pregnancy: An Umbrella Review," *International Journal of Environmental Research and Public Health* 18, no. 2 (2021): 707, https://doi.org/10.3390/ijerph18020707.

[6] Lynnmarie Sardinha et al., "Global, Regional, and National Prevalence Estimates of Physical or Sexual, or Both, Intimate Partner Violence against Women in 2018," *The Lancet* 399, no. 10327 (2022): 808, https://doi.org/10.1016/S0140-6736(21)02664-7.

[7] Agung Dwi Laksono, Rukmini Rukmini, and Ratna Dwi Wulandari, "Regional Disparities in Antenatal Care Utilization in Indonesia," ed. Solomon Assefa Woreta, *PLoS One* 15, no. 2 (2020): e0224006, https://doi.org/10.1371/journal.pone.0224006.

generally women aged 30–34 years old, with low education, who are unemployed and multiparous. The risk of violence increases in pregnant women with low economic status, as they often become the outlet for their husbands' emotions due to life pressures and economic burdens.[8] Women are often considered responsible for household chores and childcare. However, during pregnancy, physical limitations can make them more vulnerable, especially if they lack support from their partners or communities. This situation has the potential to trigger domestic stress and increase the risk of physical and psychological violence.[9] Meanwhile, the perpetrators, most of whom are husbands, are usually aged 37 and have jobs.[10]

Violence against pregnant women takes many forms, including physical, verbal, emotional, and sexual abuse.[11] Cultural and social norms that accept or justify intimate partner violence can contribute to the persistence of violence against pregnant women, as beliefs that IPV is a private or normalized family matter have been documented in community settings.[12] Additionally, recent evidence indicates that prevalence of different types of IPV during pregnancy varies across settings, with emotional/psychological abuse frequently showing higher estimates than physical or sexual violence.[13] The city of Yogyakarta has recorded a relatively high rate of violence against women, with 920 victims

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[8] Natalia Damaiyanti Putri Raden, Lilik Zuhriyah, and Sri Andarini, "The Trigger Factors of Domestic Violence among Mothers during Pregnancy," *International Journal of Public Health Science (IJPHS)* 12, no. 1 (2023): 131, https://doi.org/10.11591/ijphs.v12i1.21429; Ana Bellot et al., "Factors Associated with Revictimization in Intimate Partner Violence: A Systematic Review and Meta-Analysis," *Behavioral Sciences* 14, no. 2 (2024): 103, https://doi.org/10.3390/bs14020103.

[9] Islamiyatur Rokhmah and Ro'fah Ro'fah, "Positioning Isu Disabilitas dalam Gerakan Gender dan Disabilitas," *Musãwa Jurnal Studi Gender dan Islam* 20, no. 1 (2021): 34, https://doi.org/10.14421/musawa.2021.201.3-31-46.

[10] Şeyma Sehlikoğlu et al., "A Retrospective Descriptive Study of Male Perpetrators of Intimate Partner Violence Referred by Judicial Authorities: An Example from Turkey," *Archives of Women's Mental Health* 28, no. 1 (2025): 133, https://doi.org/10.1007/s00737-024-01495-5.

[11] Laura Brunelli et al., "Prevalence and Screening Tools of Intimate Partner Violence Among Pregnant and Postpartum Women: A Systematic Review and Meta-Analysis," *European Journal of Investigation in Health, Psychology and Education* 15, no. 8 (2025): 161, https://doi.org/10.3390/ejihpe15080161.

[12] Zeleke Dutamo Agde et al., "Community Perspectives on Intimate Partner Violence during Pregnancy: A Qualitative Study from Rural Ethiopia.," *International Journal of Environmental Research and Public Health* 22, no. 2 (2025): 12, https://doi.org/10.3390/ijerph22020197.

[13] Antonella Ludmila Zapata-Calvente, Jesús L. Megías, and Stella Martín-de-las-Heras, "Patterns of Intimate Partner Violence before and during Pregnancy: A Cohort Study," *Journal of Interpersonal Violence*, 2025, https://doi.org/10.1177/08862605251357849.

(83.9%), including 89 cases of violence against wives between January and June 2024. Domestic violence against partners in Yogyakarta is predominantly physical violence (53%), followed by psychological violence (32%), neglect (8%), and sexual violence (7%). Although specific data on violence during pregnancy is not yet available, the high rate of domestic violence indicates a strong potential for pregnant women also to experience violence, as they are more physically and emotionally vulnerable. Additionally, the characteristics of urban society and researchers' access to healthcare facilities make Yogyakarta a strategic and representative location for conducting a QR code-based survey.[14]

Ministry of Health Decision No. HK.01.07/MENKES/2015/2023 regulates standards for screening violence against women, children, and pregnant women through integrated Antenatal Care services at community health centers and health posts. American College of Obstetricians and Gynecologists also recommends routine screening for all women, including during annual checkups, initial visits, every trimester, and postpartum.[15] Although violence screening has been regulated, its implementation in community health centers still faces obstacles. The procedures are not yet comprehensive, cross-sector collaboration is not yet optimal, and screening is often combined with other programs, so it is not carried out specifically.[16] Previous studies have generally relied on direct interviews or conventional methods, which are highly susceptible to underreporting, social desirability bias, interviewer influence, and limited anonymity. These limitations may reduce respondents' willingness to disclose sensitive experiences, particularly in contexts involving stigma or fear of negative consequences, leading to potential underestimation of the prevalence of violence among pregnant women and leaving many cases undetected. Moreover, conventional approaches are often time-consuming and resource-intensive, and are less suitable for sensitive topics because they do not provide a fully private and autonomous environment for respondents.

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[14] DP3AP2 DIY, "1326 Korban Kekerasan terhadap Perempuan dan Anak Ditangani di DIY selama Tahun 2024," 2024, https://dp3ap2.jogjaprov.go.id/blog/1326-Korban-Kekerasan-terhadap-Perempuan-dan-Anak-Ditangani-di-DIY-selama-Tahun-2024.

[15] Cristina Fernandez Turienzo et al., "Midwifery Continuity of Care versus Standard Maternity Care for Women at Increased Risk of Preterm Birth: A Hybrid Implementation–Effectiveness, Randomised Controlled Pilot Trial in the UK," ed. Joshua Vogel, *PLoS Medicine* 17, no. 10 (2020): e1003350, https://doi.org/10.1371/journal.pmed.1003350.

[16] Rosmita Nuzuliana and Siti Istiyati, "Gambaran Pelaksanaan Program Penanganan Kekerasan terhadap Perempuan dan Anak pada Puskesmas di Yogyakarta," *Jurnal Kebidanan* 9, no. 2 (2020): 103–14, https://doi.org/10.26714/jk.9.2.2020.103-114.

In the context of Indonesia, QR code-based studies for violence screening among pregnant women are still very limited in routine healthcare settings. Digital survey approaches using QR codes are considered a potential alternative because they enable anonymous, self-administered, and flexible data collection, which may improve respondent comfort and disclosure compared to face-to-face interviews. However, evidence directly comparing QR code-based self-reporting with conventional interview methods in terms of detection accuracy and disclosure of violence remains scarce. It highlights a significant research gap and the need for further studies to evaluate whether QR code-based methods can improve the identification of violence during pregnancy.

This method allows respondents to access surveys independently on their personal devices, increasing privacy, reducing social bias, and reducing costs and paper use. However, despite these advantages, it remains unclear whether QR code -based self-reporting can significantly improve the detection of violence compared to traditional interview-based approaches in antenatal care settings. This gap is particularly important as accurate identification of violence during pregnancy is essential for timely intervention and care. Previous studies have also shown that QR code-based data collection can speed up survey access, facilitate respondent participation, support real-time data collection, and improve the efficiency of healthcare workflows,[17] suggesting its potential utility in public health research that requires private and sensitive data disclosure. This study addresses this gap by implementing a QR code-based self-administered screening approach for violence detection among pregnant women in antenatal care settings in Indonesia, an area where evidence remains limited.

This study aims to analyze risk factors for violence against pregnant women by utilizing QR Code technology as a survey tool in the working area of the Yogyakarta City Health Office. This study hypothesizes that there is a significant association between risk factors (socioeconomic status, educational level, unintended pregnancy, and prior history of violence) and incidents of

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[17] Eduardo Perez-Alba et al., "Use of Self-Administered Surveys through QR Code and Same Center Telemedicine in a Walk-in Clinic in the Era of COVID-19," *Journal of the American Medical Informatics Association* 27, no. 6 (2020): 985–86, https://doi.org/10.1093/jamia/ocaa054; Pratyusha Joshi and Sahil Sawant, "The Impact and Potential of Quick Response (QR) Codes in Healthcare: A Comprehensive Review," *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* 68, no. 1 (2024): 1153–58, https://doi.org/10.1177/10711813241278266; Alda G. Rivas et al., "Usability of Quick Response (QR) Code as a Method to Access a Survey Using a Smartphone" (Washington, D.C., 2024).

violence against pregnant women. Specifically, it is assumed that pregnant women with low socioeconomic status, low educational level, unintended pregnancy, or prior history of violence are at higher risk of experiencing violence during pregnancy compared to those without these risk factors.

B. Method

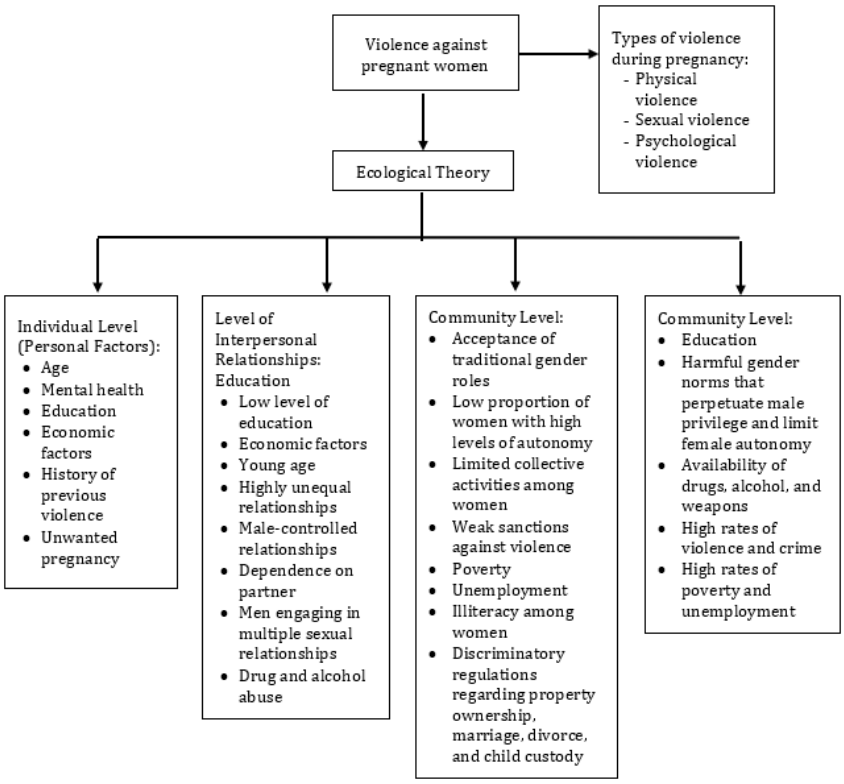
This study is a quantitative, cross-sectional survey. Data collection was conducted digitally through QR codes to enhance privacy and efficiency. The study took place in May–June 2025 at five community health centers in Yogyakarta City, using convenience and quota sampling, and involved 463 pregnant women, proportionally distributed by antenatal visit frequency at each center. This study was approved by the Ethics Committee of Health Research of Ethical Approval Universitas 'Aisyiyah Yogyakarta with ethical clearance number 4316/KEP-UNISA/III/2025.

Inclusion criteria were pregnant women who could read and understand the survey instructions, while exclusion criteria included cognitive or mental disorders that hindered questionnaire completion. The dependent variable was the occurrence of violence during pregnancy (physical, psychological, sexual, or economic), while independent variables included socioeconomic status, educational level, unwanted pregnancy, and history of previous violence, with age, parity, and marital status as confounding variables. See Figure 1.

Data were collected using a self-administered digital questionnaire in accordance with WHO guidelines. Efforts to prevent bias included ensuring that respondents completed the questionnaire independently, without assistance or influence from health workers or other individuals, and using a storage system that did not contain personal identifiers. Univariate, bivariate (chi-square), and multivariate (logistic regression) analyses were performed, with $p < 0.05$ as the significance threshold, using SPSS software.

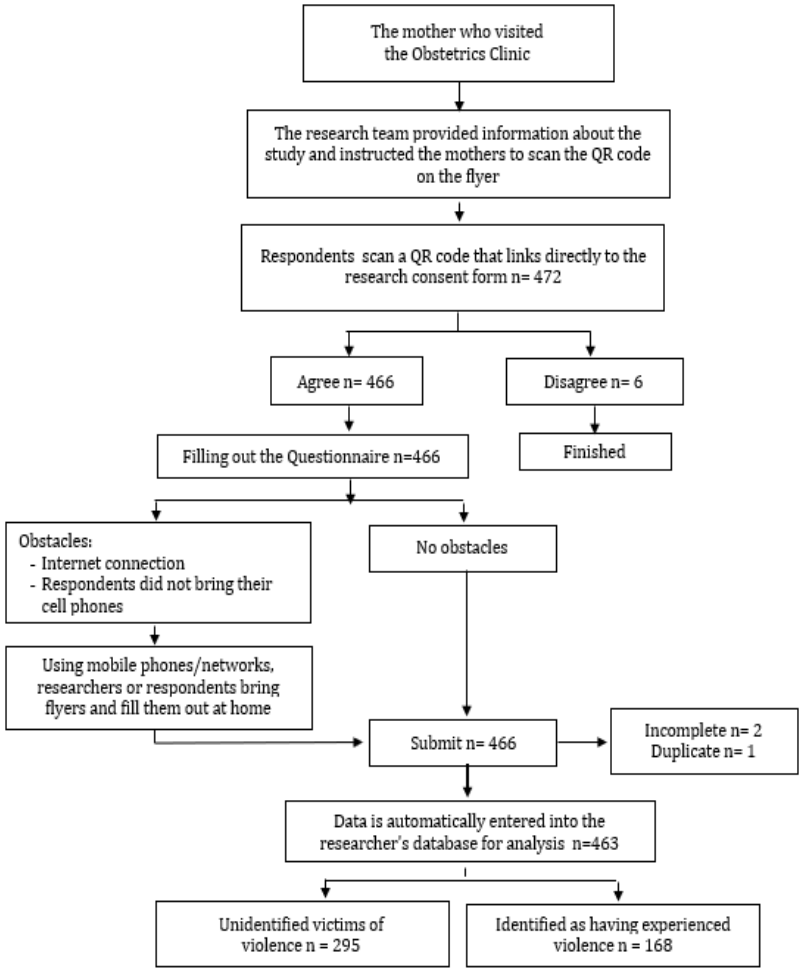
Referring to the data collection flowchart, the study began with pregnant women who attended the Obstetrics clinic. Respondents were directed to scan the QR code on the flyer to access the research consent form. Of the 472 who scanned the code, 466 agreed and completed the questionnaire, while 6 refused. Challenges such as unstable internet connections and lack of mobile phones were addressed by lending devices or providing flyers to be filled out at home. Of the 466 questionnaires collected, two incomplete responses and one duplicate were removed, leaving 463 respondents. The results showed that 295 respondents did not experience violence, while 168 did. See Figure 2.

Figure 1
Theoretical Framework using the Framework for Prevention
Violence against Women of WHO[18]



[18] United Nations Women, *A Framework to Underpin Action to Prevent Violence against Women* (New York: UN Women (United Nations Entity for Gender Equality and the Empowerment of Women), 2015), 19; WHO, *Respect Women: Mencegah Kekerasan terhadap Perempuan* (Genewa, 2019); Habtamu Bekele et al., "Unintended Pregnancy and Associated Factors among Pregnant Women Attending Antenatal Care at Bako Tibe District Public Health Facility, Oromia Region, Ethiopia.," *Journal of Pregnancy* 2020 (2020): 3, https://doi.org/10.1155/2020/3179193.

Figure 2
Data Collection Process Diagram



C. Results and Discussion

A total of 463 pregnant women participated in this study and completed a questionnaire scanned via QR code after receiving an explanation of the filling procedure from the researcher.

Univariate Analysis

Based on Table 1, this study involved 463 pregnant women from five community health centers in Yogyakarta City. The majority of respondents were aged 25–35 years (61.8%), had a secondary education (54.6%), were unemployed (59%), and had a low income (62.2%). Most were in their third trimester of pregnancy (44.1%), were multigravida (67.6%), and had no history of abortion (84%). Characteristics of their partners showed that the majority had a secondary education (53.6%), had a high income (51.6%), and were almost all employed (99.8%). The status of unwanted pregnancy was determined based on the mother's perception of her current pregnancy and pregnancy planning. The results showed that 152 pregnant women (32.8%) experienced unwanted pregnancies, either because they were unplanned or emotionally undesirable. See Table 2.

Of the 463 respondents, 2.8% reported physical violence, 4.8% psychological violence, and 2.6% sexual violence before pregnancy, with psychological violence being the most common form. See Table 3.

Based on the analysis results, 29 pregnant women experienced violence before pregnancy, including physical, psychological, and sexual forms of violence. Most experienced a single form of violence, while others experienced more than one type of violence simultaneously. Single violence consisted of 10 people experiencing psychological violence only, 4 people experiencing physical violence only, and 3 people experiencing sexual violence only. Dual violence was experienced by 3 individuals (physical and psychological without sexual) and 3 others (physical and sexual without psychological). Meanwhile, the most complex form of violence was found in 6 respondents who experienced all three types of violence simultaneously: physical, psychological, and sexual. This finding indicates an overlap in the forms of violence experienced by some women before entering pregnancy (Figure 3).

Based on measurements using the Women Abuse Screening Tool (WAST) (see Table 4), the majority of pregnant women have harmonious relationships with their partners. As 70.6% do not experience tension, 27.4% experience some tension, and 1.9% experience a lot of tension. In problem-solving, 76.5% do not experience difficulties, while 23.5% do at various levels. Most (51.6%) never felt sad or low in self-esteem due to arguments, but 46% experienced it occasionally, and 2.4% frequently did. Physical violence during pregnancy was reported by 1.3% of respondents, psychological violence by 3.9%, and sexual

violence by 2.6%. Based on the total WAST score, 63.7% of respondents were not identified as having experienced violence, while 36.3% were identified as having experienced some form of violence during pregnancy.

Table 1
Respondent Characteristics

No.	Respondent Characteristics	Frequency (f)	Percentage (%)
1	Mother's Age		
	< 25 years	127	21.6 %
	25-35 years	286	61.8 %
	>35 years	50	10.8 %
2	Mother's Education		
	Low	34	7.3 %
	Medium	253	54.6 %
	High	176	38 %
3	Mother's Employment		
	Employed	190	41 %
	Unemployed	273	59 %
4	Mother's Income		
	Low	288	62.2 %
	High	175	37.8 %
5	Pregnancy Age		
	First Trimester	122	26.3 %
	Second Trimester	137	29.6 %
	Third Trimester	204	44.1 %
6	Gravida		
	Primigravida	150	32.4 %
	Multigravida	313	67.6 %
7	Abortus		
	Never	389	84 %
	Ever	74	16 %
8	Husband's Education		
	Low	45	9.7 %
	Medium	248	53.6 %
	High	170	36.7 %
9	Husband's Income		
	Low	224	48.4 %
	High	239	51.6 %
10	Husband's Occupation		
	Employed	462	99.8 %
	Unemployed	1	0.2 %

Table 2
Frequency Distribution of Unwanted Pregnancies (n = 463)

No.	Indicator	Category	Frequency (f)	Percentage (%)
1	Mother's Perception	Desired	430	92.9 %
		Undecided/ undesired	33	7.1 %
2	Pregnancy Planning	Planned	325	70.2 %
		Unplanned	138	29.8 %
3	Final Pregnancy Status	Desired	311	67.2 %
		Undesired	152	32.8 %
Total			463	100 %

Table 3
History of Violence before Pregnancy (n = 463)

No.	Unwanted Pregnancy	Frequency (f)		Percentage (%)	
		Yes	No	Yes	No
1	Physical Violence	13	450	2.8 %	97.2 %
2	Psychological Violence	22	441	4.8 %	95.2 %
3	Sexual Violence	12	451	2.6 %	97.4 %

Figure 3

History of Violence before Pregnancy (n = 29)

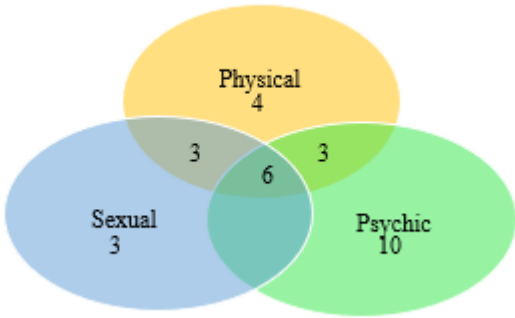


Table 4
Violence during Pregnancy Using Instruments WAST (n = 463)

No.	Questions	Frequency (f)	Percentage (%)
1	Description of relationship with partner		
	No tension	327	70.6 %
	Some tension	127	27.4 %
	A lot of tension	9	1.9 %
2	Resolving issues		
	No difficulties	354	76.5 %
	Some difficulties	107	23.1 %
	Many difficulties	2	0.4 %
3	Arguments make me sad and insecure		
	Never	239	51.6 %
	Sometimes	213	46.0 %
	Often	11	2.4 %
4	Arguments leading to physical violence		
	Never	451	97. 4 %
	Sometimes	10	2.2 %
	Often	2	0.4 %
5	Fear of what your partner says		
	Never	390	84.2 %
	Sometimes	66	14.3 %
	Often	7	1.5 %
6	Experienced physical violence during pregnancy		
	Never	457	98.7 %
	Sometimes	5	1.1 %
	Often	1	0.2 %
7	Psychological violence during pregnancy		
	Never	445	96.1 %
	Sometimes	18	3.9 %
	Often	0	0
8	Sexual violence during pregnancy		
	Never	451	97.4 %
	Sometimes	11	2.4 %
	Often	1	0.2 %
Total WAST			
1	Not experiencing violence	295	63.7 %
2	Experiencing violence	168	36.3 %
	Total	463	100 %

In Table 5, the average perception of respondents regarding the benefits of using QR codes was 4.27, with 84.4% falling into the high category. The perception of ease of use had an average of 4.29, and 78.8% of respondents fell into the high category.

These findings indicate a high level of acceptance of QR code-based screening among pregnant women. The results suggest that respondents perceived the digital self-administered approach as useful and easy to use. The high acceptance rate demonstrates the feasibility of integrating QR code-based violence screening into routine antenatal care services and supports its potential as an accessible digital screening tool.

Table 5
Pregnant Women's Acceptance of QR Code Use for Violence Detection Using the Technology Acceptance Model (TAM)

No.	Variable	Average Score	Respondent Perception Distribution	Total
1	Perceived usefulness	4.27	Low: 14 (3.0%) Medium: 58 (12.5%) High: 391 (84.4%)	463 (100%)
2	Perceived ease of use	4.29	Low: 16 (3.5%) Medium: 82 (17.7%) High: 365 (78.8%)	

Bivariate Analysis

In Table 6, bivariate analysis showed that several factors were significantly associated with violence during pregnancy. Mothers with low income had almost twice the risk of experiencing violence compared to mothers with high income (p = 0.001; OR = 1.973; 95% CI: 1.312–2.967). Educational level also plays a role, with mothers with a low/secondary education having a 1.687 times higher risk of experiencing violence compared to those with a high education (p = 0.029; 95% CI: 1.129–2.521). Pregnancy status also plays a role, with mothers who have an unwanted pregnancy having a 1.78 times higher risk compared to mothers who have a wanted pregnancy (p = 0.006; 95% CI: 1.195–2.652). The strongest associated factor was a history of violence before pregnancy, with mothers with such a history being 7.64 times more likely to

experience violence during pregnancy than those without a history of violence ($p < 0.001$; 95% CI: 3.044–19.178).

Table 6
The Relationship Between Economic Factors and Violence during Pregnancy

Variable	Violence during Pregnancy		Total	p Value	POR (CI 95 %)
	Did not Experience Violence	Experienced Violence			
Economic Factors					
High	128 (73.1 %)	47 (26.9 %)	175 (100 %)	0.001	1.973
Low	167 (58 %)	121 (42 %)	288 (100 %)		(1.312-2.967)
Educational Factors					
High	125 (71 %)	51 (29 %)	176 (100 %)	0.029	1.687
Medium	148 (58.5 %)	105 (41.5 %)	253 (100 %)		(1.129-2.521)
Low	22 (64.7 %)	12 (35.5 %)	34 (100 %)		
Unwanted Pregnancy					
Desired	212 (68.2 %)	99 (31.8%)	311 (100 %)	0.006	1.780
Unwanted	83 (54.6 %)	69 (45.5 %)	152 (100%)		(1.195-2.652)
Previous History of Violence					
None	289 (66.6 %)	145 (33.4 %)	434 (100 %)	0.000	7.640
Yes	6(20.7 %)	23 (79.3 %)	29(100 %)		(3.044-19.178)

Figure 4
Distribution of Violence Against Pregnant Women Based on Risk Factors

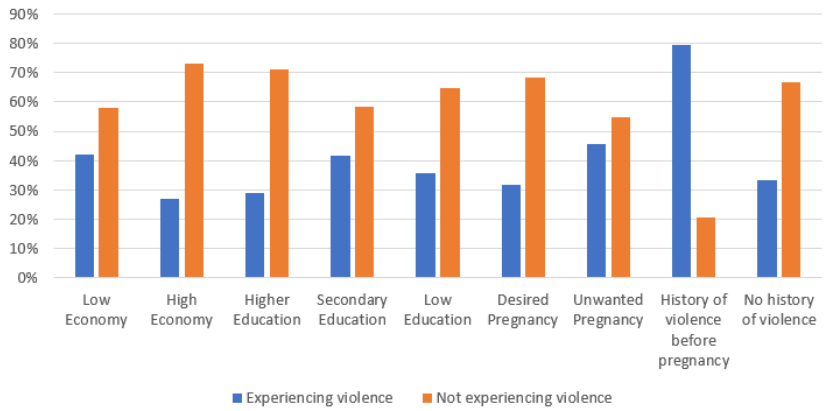


Figure 4 shows that a history of previous violence has the strongest correlation with violence during pregnancy, with the majority of mothers with a

history of violence experiencing violence again during pregnancy. In addition, mothers with low incomes, low levels of education, and unwanted pregnancies also experience more violence than other groups. Conversely, mothers with high income and education levels and no history of violence tend to experience less violence.

Confounding Variable

Table 7
The Relationship between Age, Occupation, and Gestational Age with Violence during Pregnancy

Variable	Violence during Pregnancy		Total	p Value	Exp(B)	(CI 95 %)
	Did not Experience Violence	Experienced Violence				
Age						
< 25 Years	61 (48.9%)	66 (52%)	127 (100%)	0.005	2.782	(1.370-5.652)
25-35 Years	198 (69.2%)	88 (30.8%)	286 (100%)	0.695	1.143	(0.587-2.225)
>35 Years	36 (72%)	14 (28%)	50 (100%)	-	-	-
Employment						
Employed	130 (68.4 %)	60 (31.6%)	190 (100%)	0.097	1.418	(0.960-2.095)
Unemployed	165 (60.4 %)	108 (39.6%)	273 (100%)	-	-	-
Gestational Age						
First trimester	75 (61.5%)	47 (38.5%)	122 (100%)	0.499	1.174	(0.739-1.868)
Second trimester	87 (63.5%)	50 (36.5%)	137 (100%)	0.749	1.077	(0.685-1.691)
Third trimester	133 (65..2%)	71 (34.8%)	204 (100%)	-	-	-

Based on Table 7 shows the association between age, employment status, and gestational age with the occurrence of violence during pregnancy. By age, respondents aged <25 years had the highest proportion of violence experiences (52.0%) and this was significantly associated with the occurrence of violence during pregnancy (p = 0.005; OR = 2.782; 95% CI: 1.370–5.652). Meanwhile,

the 25–35 age group showed no significant association (p = 0.695). Based on employment status, the proportion of violence was higher among unemployed respondents (39.6%) compared to employed respondents (31.6%); however, this association was not significant (p = 0.097). Similarly, gestational age was not significantly associated with the incidence of violence, neither in the second trimester (p = 0.499) nor in the third trimester (p = 0.749).

Multivariate Analysis

Based on Table 8, the results of logistic regression analysis show that maternal age <25 years, low income, history of violence before pregnancy, and unwanted pregnancy are consistently and significantly associated with the occurrence of violence during pregnancy in all models. Age <25 years has a risk approximately 4. 325 times greater than >35 years, a history of violence increases the risk by approximately 5.957 times, unwanted pregnancy by approximately 2.261 times, and low income by approximately 1.795 times. Meanwhile, education, employment, and age 25–35 years are not significantly associated.

Table 8
Multivariate Analysis of Independent, Dependent, and External Variables

Variable	Model 1 OR 95 % CI	Model 2 OR 95 % CI	Model 3 OR 95 % CI
Age			
< 25 Years	4.094 (1.850-9.056)	4.301 (1.966-9.408)	4.325(1.976-9.466)
25-35 Years	0.132 (0.845-3.626)	1.746 (0.851-3.581)	1.728 (0.843-3.544)
>35 Years	-	-	-
Education			
Low	0.980 (0.416-2.309)	-	-
Medium	1.183 (0.529-2.643)	-	-
High	-		
Employment			
Unemployed	1.109 (0.705-1.743)	1.152 (0.743-1.785)	-
Employed	-	-	-
Mother's Income			
Low	1.687 (1.073-2.652)	1.723 (1.099-2.699)	1.795 (1.167-2.761)
High			
History of Violence			
Yes	6.080 (2.314-15.974)	6.096 (2.322-16.005)	5.957 (2.277-15.580)
No	-	-	-
Unwanted Pregnancy			
Unwanted	2.253 (1.437-3.533)	2.238 (1.429-3.503)	2.261(1.446-3.537)
Wanted	-	-	-

Discussion

The results of measurements using the Women Abuse Screening Tool (WAST) showed that of the 463 respondents, 168 people (36.3%) were identified as experiencing domestic violence during pregnancy. A total of 63.7% of respondents stated that there was no tension in their relationship, indicating that most couples were able to maintain emotional stability in the household during pregnancy. This finding reinforces the results of a study by Salvi et al. in India, which showed that around 37 % of pregnant women reported verbal conflict or tension with their partners during pregnancy, although not all of these cases developed into physical violence.[19] Similarly, a study by Asefa et al. in Ethiopia reported that approximately 45.1% of pregnant women experience intimate partner violence, with psychological abuse being the most prevalent form.[20] In addition, the Agde study found that the prevalence of intimate partner violence (IPV) during pregnancy was 38.37%.[21]

Among the specific types of violence, psychological violence was the most frequently reported form (3.9%), followed by sexual violence (2.6%) and physical violence (1.3%). These proportions were derived from respondents who reported experiencing each form of violence either "sometimes" or "often". Twenty-seven poin four percent (27.4%) of respondents experienced relationship tension and 23.5% experienced difficulty resolving problems, factors that, according to Hammet and the U.S. CDC, are at risk of triggering violence.[22] Emotional distress was also high, with 46% feeling sad or low self-esteem due to conflict, in line with Yimer et al. found that experiencing intimate

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[19] Pankaj Salvi et al., "The Prevalence of Domestic Verbal Abuse in Pregnant Women in a Semi-Urban Area," *Cureus* 16, no. Dv (2024), https://doi.org/10.7759/cureus.60740.

[20] Destaw Asefa, Endalkachew Worku Mengesha, and Zemenu S. Yadita, "Intimate Partner Violence and Associated Factors Among Pregnant Women in the Conflicted Northeast Ethiopia: A Cross-Sectional Study," *Health Science Reports* 7, no. 11 (2024), https://doi.org/10.1002/hsr2.70158.

[21] Zeleke Dutamo Agde, Nega Assefa, and Muluemebet Abera Wordofa, "The Magnitude of Intimate Partner Violence during Pregnancy and Associated Factors in Rural Ethiopia," *International Health* 17, no. 6 (2025): 993, https://doi.org/10.1093/inthealth/ihaf043.

[22] Julia F. Hammett, Donna M. Castañeda, and Emilio C. Ulloa, "The Association Between Affective and Problem-Solving Communication and Intimate Partner Violence Among Caucasian and Mexican American Couples: A Dyadic Approach," *Journal of Family Violence* 31, no. 2 (2016): 167–78, https://doi.org/10.1007/s10896-015-9762-2; U.S. CDC, "Unintended Pregnancy," CDC - Reproductive Health, May 15, 2024, https://www.cdc.gov/reproductive-health/hcp/unintended-pregnancy/index.html?utm_source.

partner violence during pregnancy was significantly associated with an increased risk of antepartum depression; women who experienced IPV were 2.24 times more likely to experience symptoms of depression than those who were not exposed to violence.[23] Psychological violence was found to be consistent with Maruyama's study, which identified it as the most common form, while sexual and physical violence were reported in smaller but still significant proportions.[24] This prevalence rate of 36.3% is close to the national prevalence (37.9%) of violence against pregnant women in Indonesia, indicating that non-physical violence remains a serious problem that impacts the health and well-being of mothers.[25]

This study also found multiviolence, where respondents experienced various forms of violence simultaneously (physical, psychological, and sexual). This phenomenon shows that violence against pregnant women often overlaps rather than occurring in isolation. Such overlap indicates that victims are frequently exposed to multiple forms of abuse within the same relationship context, which may intensify the severity of its impact. These findings are consistent with a study in Zahedan that reported 72.5% of pregnant women experienced all types of violence (physical, emotional, sexual, economic) simultaneously, as well as research in Brazil that showed an overlap of psychological violence (16.1%), physical violence (7.6%), and sexual violence (2.7%).[26]

The results of the study indicate a significant relationship between economic factors and incidents of violence during pregnancy. Pregnant women with low incomes or who are completely dependent on their partners are at

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[23] Nigus Bililign Yimer et al., "Experiences of Intimate Partner Violence and Antepartum Depression among Women Seeking Antenatal Care in Addis Ababa, Ethiopia: Findings from the MISPOD Study.," *Scientific Reports* 15, no. 1 (2025): 13115, https://doi.org/10.1038/s41598-025-93342-5.

[24] Naoko Maruyama, Shigeko Horiuchi, and Yaeko Kataoka, "Prevalence and Associated Factors of Intimate Partner Violence against Pregnant Women in Urban Areas of Japan: A Cross-Sectional Study," *BMC Public Health* 23, no. 1 (2023): 1168, https://doi.org/10.1186/s12889-023-16105-9.

[25] Agung Dwi Laksono and Ratna Dwi Wulandari, "Violence against Pregnant Women in Indonesia," *Iranian Journal of Public Health* 51, no. 6 (2022): 1265–73, https://doi.org/10.18502/ijph.v51i6.9670.

[26] Ranielle de Paula Silva and Franciéle Marabotti Costa Leite, "Violências Por Parceiro Íntimo Na Gestação," *Revista de Saúde Pública* 54 (2020): 97, https://doi.org/10.11606/s1518-8787.2020054002103.

higher risk of experiencing violence than those with higher incomes. These findings are consistent with those of Morgan and Bergvall, who emphasize that financial stress and the inability to meet economic needs can exacerbate domestic conflicts and trigger violence.[27] Cochran et al. add that issues such as food insecurity and financial hardship have the potential to prolong periods of violence.[28] Meanwhile, Utaile, Ahmed and Yalew found that the lack of female control in financial decisions increases the risk by up to 2.5 times.[29] Economic dependence often makes it difficult for women to refuse violence or seek help, although in certain cases even women with their own income can become victims if their husbands feel economically threatened, especially in patriarchal cultures.

From an Islamic perspective, economic hardship cannot be used as an excuse for violence, especially when the wife is pregnant. QS. al-Talaq: 7 emphasizes the husband's obligation to provide financial support according to his ability, and the Prophet Muhammad SAW exemplified gentleness and patience in facing economic difficulties.[30] The principle of *mu'asyarah bil ma'ruf* serves as the foundation that the relationship between husband and wife should be built on love, respect, and cooperation, not violence. This principle further reinforces that marital relationships must prioritize mutual compassion and ethical conduct in all circumstances.

Educational attainment has a significant relationship with violence during pregnancy. Pregnant women with low or medium levels of education are at higher risk of becoming victims than those with high levels of education due to limited access to information, empowerment, and social support.[31]

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[27] Anthony Morgan, *Economic Insecurity and Intimate Partner Violence in Australia during the COVID-19 Pandemic*, 2022, 8; Sanna Bergvall, "Women's Economic Empowerment and Intimate Partner Violence," *Journal of Public Economics* 239, no. August (2024): 105211, https://doi.org/10.1016/j.jpubeco.2024.105211.

[28] Kara A. Cochran et al., "Economic Hardship Predicts Intimate Partner Violence Victimization during Pregnancy.," *Psychology of Violence* 13, no. 5 (2023): 396–404, https://doi.org/10.1037/vio0000454.

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[30] Abū Ḥusayn Muslim Ibn al-Ḥajjāj al-Naysābūrī, *Ṣaḥīḥ Muslim* (Beirut: Dār al-Kutub al-'Ilmiyyah, 2008), hd. 2792.

[31] Nuhour Ali al Shidhani, Asma Ali al Kendi, and Maisa Hamed al Kiyumi, "Prevalence, Risk Factors and Effects of Domestic Violence before and during Pregnancy on Birth Outcomes: An

Higher education provides a better understanding of rights, the ability to recognize violence, and access to protection services, which strengthens women's bargaining position.[32] Lukman, Kit and Pratiwi adding that women with low levels of education often face pressure from their partners and in-laws, while those with higher levels of education tend to have economic independence.[33] These findings are consistent with a recent meta-analysis showing that low educational attainment is a major risk factor for intimate partner violence during pregnancy worldwide.[34] Other studies have also confirmed that educational attainment is consistently associated with the incidence of violence during the perinatal period, with women who have lower levels of education facing a higher risk of experiencing IPV compared to highly educated women.[35]

In Islam, both general and religious education are essential in empowering women to recognize, prevent, and reject violence, in line with the principle that husbands are commanded to treat their wives with kindness.[36] Education in this context not only strengthens spiritual understanding but also enhances social awareness and communication skills necessary for maintaining healthy marital relationships. Furthermore, access to education enables women to develop critical awareness in identifying abusive behaviors and understanding appropriate responses within marital dynamics. This awareness contributes to early recognition and prevention of violence during pregnancy. From a broader

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Observational Study of Literate Omani Women," *International Journal of Women's Health* 12 (2020): 911–25, https://doi.org/10.2147/IJWH.S272419; Saraj Gurung, "Experience of Domestic Violence Among Pregnant Women," *Journal of Chitwan Medical College* 3, no. 1 (2013): 51–55, https://doi.org/10.3126/jcmc.v3i1.8467.

[32] Triyana Harlia Putri and Fitri Fujiana, "Kekerasan Rumah Tangga pada Ibu Hamil Selama Pandemi Covid-19," *Jurnal Keperawatan Jiwa* 10, no. 3 (2022): 627, https://doi.org/10.26714/jkj.10.3.2022.625-632.

[33] Sesaria Lukman, Ayano Kit, and Cesa Septiana Pratiwi, "Coping Strategies of Pregnant Women who Experience Violence In Asia: Scoping Review," *Women, Midwives and Midwifery* 5, no. 2 (2025): 81, https://doi.org/10.36749/wmm.5.2.71-92.2025.

[34] Le Chen et al., "Risk Factors for Perinatal Intimate Partner Violence: A Global Systematic Review and Meta-Analyses," *BMC Women's Health* 25, no. 1 (2025): 528, https://doi.org/10.1186/s12905-025-04078-3.

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[36] Abū 'Abdullāh Muḥammad Ibn Ismā'īl al-Bukhārī, *Ṣaḥīḥ al-Bukhārī* (Amman: Bayt al-Afkar al-Dawliyyah, 1998), hd. 3331; al-Naysābūrī, *Ṣaḥīḥ Muslim*, hd. 1468.

perspective, improving women's education represents a strategic preventive approach to reducing domestic violence and strengthening family resilience. This aligns with Islamic values that emphasize justice, compassion, and harmonious family relationships.

Unplanned pregnancies have been shown to be significantly associated with an increased risk of violence during pregnancy. Pregnant women without planning are more vulnerable to physical, emotional, and verbal abuse due to their partner's emotional unpreparedness.[37] Lukman, Kit and Pratiwi emphasizes that a partner's rejection or disapproval of pregnancy can trigger conflict and worsen domestic relations.[38] Tarzia and McKenzie's study shows that recent evidence indicates that reproductive coercion and sexual violence are closely intertwined with intimate partner violence and significantly undermine women's reproductive autonomy.[39] Unplanned pregnancies are closely associated with an increased risk of violence during pregnancy, including physical, emotional, and verbal abuse. Evidence indicates that reproductive coercion and intimate partner violence often occur concurrently and contribute to the occurrence of unwanted pregnancies.[40] A partner's refusal or opposition to pregnancy can trigger conflict within the relationship and exacerbate household dynamics, ultimately increasing the risk of violence against women Ma and Zhang. Furthermore, reproductive coercion and contraceptive sabotage are forms of control within relationships that significantly reduce women's reproductive autonomy and increase the risk of unplanned pregnancy.[41]

Pregnancy is regarded in Islam as a gift from God that must be protected with love and responsibility. This perspective highlights the moral and spiritual

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[37] Al Shidhani, Al Kendi, and Al Kiyumi, "Prevalence, Risk Factors and Effects of Domestic Violence before and during Pregnancy on Birth Outcomes: An Observational Study of Literate Omani Women."

[38] Lukman, Kit, and Pratiwi, "Coping Strategies of Pregnant Women who Experience Violence In Asia: Scoping Review."

[39] Laura Tarzia and Mandy McKenzie, "Reproductive Coercion and Abuse in Intimate Relationships: Women's Perceptions of Perpetrator Motivations," ed. Michal Mahat-Shamir, *PLoS One* 19, no. 4 (2024): e0299069, https://doi.org/10.1371/journal.pone.0299069.

[40] Asefa, Worku Mengesha, and Yadita, "Intimate Partner Violence and Associated Factors Among Pregnant Women in the Conflicted Northeast Ethiopia: A Cross-Sectional Study."

[41] Ma and Zhang, "Prevalence and Risk Factors of Intimate Partner Violence among Pregnant Women: A Systematic Review and Meta-Analysis."

duty of both partners in safeguarding maternal well-being. QS. al-Rum: 21 emphasizes the importance of mutual affection, mercy, and support between husband and wife as the foundation of a harmonious relationship. This principle underscores the need for emotional balance within marriage, especially during pregnancy. In addition, the hadith narrated by Tirmidzi prohibits all forms of violence against wives, reinforcing the ethical boundaries of marital conduct in Islam. These teachings collectively reject any form of harm within the household. The emotional and spiritual readiness of the couple, according to Islamic teachings, is the key to creating a harmonious family free from violence. Such readiness contributes to a stable marital relationship grounded in compassion, respect, and shared responsibility.

A history of violence prior to pregnancy has been shown to be a strong predictor of violence during pregnancy, indicating that intimate partner violence is often part of a recurring cycle rather than a single event. Adge reported that women with a history of violence are 32 times more likely to experience violence again, with 90% of cases occurring in the first trimester.[42] Bellot et al. recent meta-analytic evidence indicates that intimate partner violence (IPV) is frequently a recurrent problem: women with a history of IPV are at markedly higher risk of experiencing further episodes of abuse over time, reinforcing that, without effective intervention, violence tends to persist and recur.[43] A study by Sapkota et al. findings indicate that anticipated stigma, normalization of violence, and fear of not being taken seriously by health or legal professionals contribute to low reporting rates.[44]

Repeated violence is a serious violation of women's rights and dignity, contrary to the principle of compassion in Surah al-Nisa:19 and the words of the Prophet Muhammad SAW that the best of people are those who are best to their families.[45] Islam encourages peaceful conflict resolution and requires victims to seek protection and justice through religious and state legal channels.

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[42] Agde et al., "Community Perspectives on Intimate Partner Violence during Pregnancy: A Qualitative Study from Rural Ethiopia."

[43] Bellot et al., "Factors Associated with Revictimization in Intimate Partner Violence: A Systematic Review and Meta-Analysis."

[44] Diksha Sapkota et al., "Domestic Violence and Its Associated Factors among Married Women of a Village Development Committee of Rural Nepal," *BMC Research Notes* 9, no. 1 (2016): 178, https://doi.org/10.1186/s13104-016-1986-6.

[45] Abu 'Īsā al-Tirmidhī, *Sunan al-Tirmidhī* (Beirut: Dār al-Fikr, 2005), hd. 3895.

Early detection and intervention are key to breaking the cycle of violence and achieving harmonious families in accordance with Islamic values.

The results of logistic regression analysis show that young age, low income, history of violence prior to pregnancy, and unwanted pregnancy are significant factors associated with violence during pregnancy. Young pregnant women are more vulnerable to becoming victims, in line with the findings of Bergvall et al. which link low experience, emotional independence, and bargaining power with a high risk of violence.[46] Employment status was not found to be significant in this study, although some studies have reported different findings. Bergvall's study shows that when women's earning potential increases relative to their partners, there is an increased risk of hospital visits due to assault, especially for women who have low bargaining power in the household.[47] Meanwhile Abujilban et al. identify employment as a protective factor that enhances financial independence and bargaining power.[48] Pregnancy age is not significantly associated with the incidence of violence, supporting the findings of Brunelli et al. that violence can occur in all trimesters.[49] The most dominant variable was a history of previous violence (OR = 4.049), indicating a fourfold risk of repeated violence, in line with Raden et al.[50] Although age, income, and unwanted pregnancy were significant factors, their contribution was relatively small, and controlling for confounding variables strengthened the reliability of these results.

These findings suggest that routine antenatal screening for intimate partner violence should prioritize high-risk groups, particularly young women, those with low income, unintended pregnancies, and a history of prior violence, with strengthened referral pathways and integrated psychosocial support. Clinically, early identification of prior violence is essential given its strong association with recurrence, and care should incorporate a non-judgmental,

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[46] Bergvall, "Women's Economic Empowerment and Intimate Partner Violence."

[47] Bergvall.

[48] Sanaa Abujilban, Lina Mrayan, and Jalal K Damra, "Intimate Partner Violence among Jordanian Pregnant Women and Its Predictors," *Nursing Open* 9, no. 1 (2022): 271, https://doi.org/10.1002/nop2.1060.

[49] Brunelli et al., "Prevalence and Screening Tools of Intimate Partner Violence Among Pregnant and Postpartum Women: A Systematic Review and Meta-Analysis."

[50] Raden, Zuhriyah, and Andarini, "The Trigger Factors of Domestic Violence among Mothers during Pregnancy."

supportive approach during antenatal visits. Methodologically, while logistic regression identified key predictors, self-reported data may introduce reporting bias; future studies may improve data quality and disclosure through digital tools such as QR code-based self-administered screening systems.

In addition to identifying risk factors, this study demonstrates the acceptability of QR code-based screening among pregnant women. More than four-fifths of respondents perceived the system as useful and easy to use. These findings support previous studies showing that QR code-enabled self-administered surveys can improve accessibility, reduce administrative burden, and facilitate participation in sensitive health surveys. In the context of violence screening, the anonymous nature of QR code-based questionnaires may help create a more private environment for respondents and potentially reduce social desirability bias, although these aspects require further investigation.

The novelty of this study lies in the application of a QR code-based self-administered screening system for detecting violence among pregnant women within routine antenatal care services in a low- and middle-income country context. While previous studies on intimate partner violence during pregnancy have predominantly relied on face-to-face interviews or paper-based surveys, limited evidence exists regarding the implementation of digital self-screening approaches in routine maternal healthcare. This study contributes methodologically by demonstrating the feasibility and acceptability of QR code-based screening, as reflected by the high levels of perceived usefulness and perceived ease of use among respondents. These findings provide preliminary evidence that QR code-based self-screening may represent a practical and scalable strategy for supporting violence detection within antenatal care services. However, future comparative studies are needed to evaluate its effectiveness relative to conventional screening methods.

D. Conclusion

This study reveals that violence against pregnant women remains a significant problem in the working area of the Yogyakarta City Health Office. Factors significantly associated with incidents of violence include a history of violence before pregnancy, unwanted pregnancy, young maternal age, and low income. Among these factors, a history of prior violence is the strongest predictor, reinforcing the concept of the cycle of domestic violence. These findings underscore the need for comprehensive interventions, including early detection through routine screening, couple education, psychosocial support,

and legal protection, to prevent repeated violence and create a safe environment for mothers and their fetuses.

This study has several strengths, including the use of QR codes as an innovative, efficient, and accessible data collection method that ensured respondent privacy and minimized social bias, as the questionnaire was completed independently without external influence. The topic, violence against pregnant women, is urgent and relevant, and the variables examined (age, education, income, unwanted pregnancy, and history of violence) are theoretically well-grounded.

However, the cross-sectional design only allows for associations rather than causal inferences, and the limited study population in five community health centers restricts generalizability. Technical challenges such as unstable internet access in one site may also have affected data representation. In addition, reliance solely on quantitative questionnaires limited the depth of understanding regarding personal experiences and sociocultural factors. Future studies are recommended to combine surveys with qualitative methods, such as in-depth interviews or focus group discussions, to provide a more comprehensive perspective.[s]

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