

Research Article

Intimate Partner Violence among Pregnant Women in Addis Ababa, Ethiopia: Ignored Antenatal Care Component

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Abstract

Background: Intimate Partner Violence (IPV) is a preventable public health problem and one of the most common types of violence against pregnant women which could be a cause of perinatal and maternal morbidities and mortalities. Screening for IPV during pregnancy provides an important window of opportunity for identifying pregnant women experiencing/ed IPV.

Objectives: This study assessed the prevalence of Intimate Partner Violence (IPV) and associated factors among the pregnant women attending the antenatal clinic in Addis Ababa. Methods: Descriptive statistical analysis was used to analyze the socio-demographic, prevalence of IPV, and chi-square and logistic regression with a P-value ≤ 0.05 .

Results: Current and index pregnancy prevalence of intimate partner violence against pregnant women were found to be 55.7% (95% CI: 50.6-60.8) and 56.5% (95% CI: 51.4-61.5) respectively. Psychological violence was the most common form [53.4% (95% CI: 48.3-58.5)] followed by physical [13.5% (95% CI: 10.3-17.4)] then sexual violence 6.5 (95% CI: 4.3-9.5) during index pregnancy. Pregnant women who had primary level education (AOR = 1.23 (1.00-2.50)) and secondary level education (AOR = 2.00 (1.01-3.96)), women who had their first Antenatal Care (ANC) booking in the second trimester were about 1.7 times (AOR = 1.74 (1.2-2.85)) were more likely to experience IPV. Partner problematic alcohol consumption [AOR = 4.36 (1.73-10.998)] P = 0.001, Khat chewing [AOR = 2.4 (1.11-5.28)], partner educational level being primary [AOR = 7.02 (3.29-15.2)] and secondary 5 times (2.38-11.45) and, history of IPV before pregnancy were independently associated with increased risk of intimate partner violence during the index pregnancy.

Conclusion: More than half of the pregnant women during the index and current pregnancy experienced at least one form of IPV. Women's and partners' education status, gestational age at ANC booking, and partner's problematic alcohol drinking and khat chewing habits were independent determinants of intimate partner violence during pregnancy.

ABBREVIATIONS

ANC: Antenatal Care; IPV: Intimate Partner Violence

INTRODUCTION

Intimate Partner Violence (IPV), interchangeable with domestic violence, is the most common type of violence against women and refers to any behavior within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship [1,2]. IPV occurs in all settings and among all socioeconomic, religious, and cultural groups. The overwhelming global burden of IPV is borne by women [3]. Intimate partner violence includes acts of physical violence, such as slapping, hitting, kicking, and beating; Sexual violence, including forced sexual intercourse and other forms of sexual coercion; Psychological abuse, such as insults, belittling, constant humiliation, intimidation, threats of harm, threats to take away children; Controlling behaviors, such as isolating a person from family and friends; monitoring their movements; and restricting access to financial resources, employment, education or medical care [1].

The root causes of intimate partner violence against women

are diverse and there is no single factor that explains further why some individuals are violent, or why violence is more prevalent in some communities than in others. Rather, several complex and interconnected social and cultural factors are involved [1,2]. Existing research suggests that different types of violence often coexist: physical IPV is often accompanied by sexual IPV, and is usually accompanied by emotional abuse [4,5]. For example, in the WHO multi-country study, 23-56% of women who reported ever experiencing physical or sexual IPV had experienced both [6].

Intimate partner violence during pregnancy is more common than some maternal health conditions routinely screened for in antenatal care [5]. Most research demonstrates that approximately 4-8% of pregnant women are currently abused by their partners and, in some settings, the rate of current victimization exceeds 20% [5-9]. According to the 2016 Ethiopian Demographic and Health Survey (EDHS), more than one-third of ever-married women (35%) report that they have experienced physical, emotional, or sexual violence from their husband or partner at some point in time. Twenty-four percent of women report that they experienced emotional violence, 25 percent experienced physical violence, and 11 percent experienced sexual violence

[10]. According to a handful of available population-based studies from the northern and southern parts of Ethiopia, the prevalence of IPVAW varies from 49 to 81% during a lifetime and 29-44% for the past 12 months, and 23-35.6% during pregnancy [11-15].

Pregnancy is a particularly vulnerable time for women at risk for IPV [16]. Abuse may begin, cease, or escalate during pregnancy [9,17-19]. It is unclear why particular scenarios occur, especially why violence abates in some relationships and worsens in others [19]. In the WHO multi-country study on women's health and domestic violence against women, the majority of women who reported physical abuse during pregnancy have also been beaten before getting pregnant, although around 50% of women in three sites stated that they were beaten for the first time during pregnancy [20]. It is also important to know that risk factors for intimate partner violence during pregnancy are often similar to risk factors for intimate partner violence in general [20,21].

The main goal of an IPV screen in a prenatal care setting is to quickly and effectively identify all women who have recently experienced or are at risk of experiencing violence [5]. Knowing the prevalence of intimate partner violence during pregnancy is the first step in helping to inform the development and implementation of interventions to prevent and treat sequelae [21]. This study aimed to assess the prevalence of intimate partner violence and associated factors among pregnant women attending antenatal care clinics in health centers of Addis Abeba, Ethiopia.

METHODS

Study Design and Settings

A facility-based cross-sectional descriptive study design was used to study Intimate Partner Violence among selected pregnant women who were attending Addis Abeba health centers during the study period. According to the Addis Abeba city administration health bureau office of data, there are one hundred health centers and eleven public hospitals in Addis Abeba. Each health center provides services to approximately 25,000 people which provides both preventive and curative services and also serves as a referral center and practical training institution for health extension workers.

Study Population

All pregnant women who were attending antenatal care clinics in the selected health centers and who fulfilled the inclusion criteria were randomly selected. Pregnant mothers who presented with emergency obstetric, medical, and surgical conditions at the time of the study, accompanied by a partner/husband, and were not willing to participate were excluded.

Sample Size Calculation and Sampling Procedure

The sample size was calculated by a single population proportion formula using a prevalence of 35.6% [22], 95% confidence interval, 5% degree of precision, and a 10% possible non-response, resulting in 384 participants.

A simple random technique was used to select ten health centers from one hundred health centers in Addis Abeba, which have homogenous characteristics. The sample size was allocated proportionally among the selected ten health centers based on the number of pregnant women they serve on average each month the first woman was selected randomly and then all women who fulfilled the inclusion criteria were included. If the selected woman didn't fulfill the inclusion criteria the next woman who consented was included in the study.

Study Variables

The main outcome variable in the study was intimate partner violence (women who experienced any act of physical, sexual, and psychological) during index pregnancy and/or within one year before index pregnancy. The independent variables such as socio-demographic characteristics, intimate partner personal characteristics, obstetrics, and reproductive history of the participants were collected.

Data Collection Instrument and Procedures

The data was collected using a standard, structured & validated interviewer-based administered questionnaire which was adopted from a WHO multi-country study on women's health and domestic violence. This instrument is cross-culturally valid and has previously been successfully used for similar studies in pregnant women [23]. The questionnaire was first prepared in English and then translated into Amharic and then translated back to English to check for its consistency. The instrument contains four sections with multiple questions in each section. The questions in the data collection tool related to socio-demographic characteristics of respondents and their partner, pregnancy and reproductive history, and history of physical, sexual, and psychological behavior.

The questionnaire was pretested on 5% of the sample before the actual data collection time on non-selected health institutions and the questionnaire was revised for possible modification. Ten female nurses as interviewers and three female health officers as supervisors were recruited and data collectors and supervisors were given necessary training for one day. Interviews were conducted individually in a convenient room in the same compound of the selected health centers by trained interviewers who are not the primary service providers of the selected pregnant woman. The supervisors made a day today and the principal investigator had weekly on-site supervision during the whole period of data collection and checked each questionnaire for completeness and consistency.

Data Processing and Analysis

Data were first checked for completeness and then coded and entered into IBM SPSS Statistics 24.0 software for analysis. Descriptive statistics, chi-square, and, bivariate logistic regression analysis were used. Independent variables with $P \leq 0.20$ in the univariate logistic regression analysis were transferred to the multivariate logistic regression model together

and analyzed using backward- stepwise regression analysis. Hosmer - Lemeshow goodness of fit of the model was used. The statistical significance was taken at a P -value ≤ 0.05 . The results were reported using an Adjusted Odds Ratio (AOR) with a 95% confidence interval.

For this Study we use the Following Operational Definitions

Current Intimate Partner violence - Was measured by any act of physical, sexual, or psychological abuse within the 12 months before the index pregnancy.

Ever Experienced IPV - Was measured by one or more episodes of any form of violence in the given time frame (i.e. during index pregnancy and or one year before it)

Intimate partner refers to a male companion who was (in) / had marital and non-marital relationship (includes boyfriend, husband/ spouses, ongoing sex partner, dating partner) to the pregnant woman.

Intimate partner violence during pregnancy - Was measured by any act of physical, sexual, or psychological abuse during the index pregnancy by an intimate partner.

Never experienced IPV - Was defined by no history of violence in the given time frame (i.e. during index pregnancy or one year before it).

Physical violence - Meant the woman had experienced one or more of the following: slapped or had something thrown at her that could hurt; pushed or shoved; hit with a fist or something else that could hurt; kicked, dragged or beaten up; choked or burnt on purpose; threatened with or had a weapon used against her.

Psychological violence - Meant the woman had experienced any one or more of the following: was insulted or made to feel bad about herself; was belittled or humiliated in front of other people; her partner had done things to scare or intimidate her on purpose, e.g. by the way he looked at her, by yelling or smashing things; her partner had threatened to hurt someone she cared about and/or if her partner tried to keep her seeing/contacting her friends or family of birth; insisted on knowing where she is at all times; ignored and treated her indifferently; got angry when she spoke with another man; often suspicious that she is unfaithful; Expected permission before seeking health care for herself.

Ethical Considerations

Ethical clearance was obtained from the department of obstetrics and gynecology, college of health sciences, Addis Abeba university research and publication committee, and the Addis Abeba City administration health bureau-Institutional Review Board (IRB). Data collection was following the recommendations of WHO ethical standards on ethical and safety recommendations for domestic violence research [24-26]. The purpose of the study

and the expected outcomes was clearly stated on the front page of the questionnaire and also had a part to obtain verbal and informed consent from the informants. Those who didn't consent were free to opt out and only those who consented proceeded to the next part. The questionnaires were only accessed by the researchers and were used only for this study.

RESULTS

Socio-Demographic and Reproductive Characteristics of the Participants and Their Partners

Three hundred eighty-four pregnant women participated in the study making a response rate of 100%. The majority 164 (42.7%) of the participants were in the age group of 25-29 years of age and the mean age was 26.9 years (± 4.7) with the range between 17-45 years and teenagers constituting 2.6% of the participants. The majorities of the respondents were residing in Addis Abeba (93.8%), unemployed (39.6%), married (68.8%), and had their first ANC visit (52.6%) in the first trimester (Table 1).

The median age of the pregnant women's intimate partners was 31 years and the range was from 19-60 years. The majorities of partners were educated in college and above owned private businesses (Table 1). The median age of the pregnant women's intimate partners was 31 years and the range was from 19-60 years. Majority partners were educated college and above, owned private business (Table 1).

Prevalence and Forms of Intimate Partner Violence among the Participants of the Study

About fifty seven percent [(95% CI: 51.4-61.5)] of pregnant women reported at least one form of intimate partner violence during the index pregnancy. Psychological violence was the most commonly reported [53.4% (95% CI: 48.3-58.5)] form of IPV by pregnant women during the index pregnancy followed by physical violence, 13.5% (95% CI: 10.3-17.4) and sexual violence, 6.5 (95% CI: 4.3-9.5). The most frequent coexisted type of IPV during index pregnancy was psychological and physical, 10.7% (95% CI: 7.8-14.2) among the study participants (Table 2).

The overall (i.e. any kind of IPV) prevalence of current intimate partner violence was 55.7% (95% CI: 50.6-60.8) within one year prior to index pregnancy. Amongst this 52.6% (95% CI: 47.5-57.7) reported psychological, 14.1% (95% CI: 10.7-17.9) physical and 9.1% (6.4-12.4) sexual violence. More than one in ten women [12% (95% CI: 8.9-15.7)] reported both psychological and physical violence within the same time frame. Nearly five percent (4.7%, CI: 2.8-7.3) of pregnant women ever experienced all three forms of IPV (Table 2).

Determinants of Intimate Partner Violence against Women (IPAW)

Statistically, a significant association was observed between IPV during index pregnancy versus women's education level,

Table 1: Socio-demographic and reproductive characteristics of the pregnant women attended ANC clinics and their partners in selected health centers in Addis Abeba, 2019.

Characteristics	Frequency (%)	Characteristics	Frequency (%)
Current place of residence		Women's religion	
Addis Abeba	360 (93.8)	Orthodox	223 (58.1)
Out of Addis Abeba	24 (6.3)	Muslim	98 (25.5)
Childhood place of residence		Catholic & others*	29 (7.6)
Urban	187 (48.7)	Protestant	34 (8.9)
Rural	197 (51.3)	Woman's occupational status	
Age (in yrs.) 26.93 ± 4.65 (17-45)		Government employee	84 (21.9)
15-19	10 (2.6)	House wife	152 (39.6)
20-24	102 (26.6)	Self employed	123 (32.0)
25-29	164 (42.7)	NGO/student	25 (6.5)
30-34	77 (20.1)	Household monthly income	
35 and above	31 (8.1)	Less than 1630 ETB (1USD = 28.5ETB)	48 (12.5)
Women's educational status		More than 1630 ETB	336 (87.5)
No formal education	50 (13.0)	Relationship to current partner	
Primary school (grade 1-8)	136 (35.4)	Married	242 (63.0)
Secondary school (grade 9-12)	106 (27.6)	Unmarried	127 (33.1)
Tertiary school (above 12)	92 (24.0)	Divorced/Separated/widowed	15 (3.9)
Age at first relationship/marriage		Partner's occupational status	
≤ 24	99 (25.8)	Governmental employee	81 (21.1)
25-29	175 (45.6)	Private business or merchant	258 (67.2)
30-34	96 (25)	Others (Unemployed, daily laborers , etc)	45 (11.7)
35 and above	14 (3.6)	Partner's alcohol consumption	
Relationship (marital)duration		Yes	64 (16.7)
Less than 2years	96 (25.0)	No	320 (83.3)
2-4 years	152 (39.6)	Partner khat chewing	
5-10 years	94 (24.5)	Yes	92 (24.0)
More than 10 years	42 (10.9)	No	292 (76.0)
Partner's age (yrs)		Partner cigarette smoking	
≤ 24	18 (4.7)	Yes	43 (11.2)
25-29	110 (28.6)	No	341 (88.8)
30-34	121 (31.5)	Parity	
≥ 35	135 (35.2)	0	176 (45.8)
Partner's educational status		1	89 (23.2)
No formal education	46 (12.0)	2	73 (19.0)
Primary school (grade 1-8)	64 (16.7)	≥ 3	46 (12.0)
Secondary school (grade 9-12)	127 (33.1)	Planned pregnancy	
Tertiary school (> 12 th grade)	147 (38.3)	Yes	333 (86.7)
Gestational age at 1st ANC booking		No	51 (13.3)
1 st trimester	202 (52.6)	Wanted pregnancy	
2 nd trimester	171 (44.5)	Yes	333 (86.7)
3 rd trimester	11 (2.9)	No	51 (13.3)

religion, occupation, relationship to the current partner, partner's education, and occupation, partner alcohol consumption, khat-chewing, and gestational age at first ANC booking (not shown in table). Binary regression was done to identify factors that affect intimate partner violence during index pregnancy against women. Women who were housewives, divorced/separated/widowed, unmarried, had secondary school and below, and started ANC in the second and third trimester are more likely to face IPV than other pregnant women (Table 3).

Pregnant women who had primary and secondary levels of education, and unmarried had 8,5 and 4 times the odds ratio of being IPV victims respectively. Pregnant women who had a partner with problematic alcohol consumption, khat-chewer, and were educated in primary and secondary school had a 3,2,4,

and 2 times odds ratio of being experienced IPV respectively (Table 3).

After adjusted, pregnant women who had primary [AOR = 1.23 CI 1.00-2.5] and secondary school [AOR = 2.0 with CI 1.01-3.96], unmarried [AOR = 1.59 with CI 1.00-2.46], problematic partner alcohol consumption [AOR = 4.36 with CI 1.73-10.998], partner khat-chewer [AOR = 2.42 with CI 1.11-5.076], partner educational level being primary [AOR = 7.02 with CI 3.24-15.22] or secondary [AOR = 5.22 with CI 2.38-11.45] and gestational age at first ANC booking at 2nd & 3rd trimester [AOR = 1.79 with 95% CI 1.12-2.85] (Table 3). Another interesting finding was, that women who experienced previous IPV had a 205 times odds ratio of being experienced another IPV during the current pregnancy. It is significant after being adjusted (Table 3).

Table 2: Prevalence and forms of intimate partner violence among the participants of the study in selected health centers in Addis Abeba, 2019.

Type of violence	Index pregnancy (% and 95% CI)	Previous one year (Recent/current IPV) (% and 95% CI)	Ever experienced IPV[Index pregnancy & or previous one year] (% and 95% CI)
Psychological IPV	53.4 (48.3-58.5)	52.6 (47.5-57.7)	56.2 (51.1-61.3)
Physical IPV	13.5 (10.3-17.4)	14.1 (10.7-17.9)	17.7 (14.0-21.9)
Sexual IPV	6.5 (4.3-9.5)	9.1 (6.4-12.4)	9.9 (7.1-13.3)
All the 3 kinds of IPV (overlapping)	2.6 (1.3-4.7)	3.4 (1.8-5.7)	4.7 (2.8-7.3)
Any kind of IPV (psychological or physical or sexual)	56.5 (51.4-61.5)	55.7 (50.6-60.8)	59.4 (54.3-64.3)
Psychological & Physical (overlapping)	10.7 (7.8-14.2)	12.0 (8.9-15.7)	15.1 (11.7-19.1)
Psychological & Sexual (overlapping)	6.2 (4.0-9.2)	7.8 (5.3-11.0)	9.1 (6.4-12.4)
Physical & Sexual (overlapping)	2.6 (1.3-4.7)	3.6 (2.0-6.0)	4.9 (3.0-7.6)

Table 3: Determinants of IPV during pregnancy among women attending ANC in selected health centers in Addis Abeba, 2019.

	UI current pregnancy		COR (95%CI)	AOR* (95%CI)
	NO, N (%) [Total = 223]	YES, N (%) [Total = 49]		
No formal education	24 (48.0)	26 (52.0)	2.615 (1.268-5.395)*	.98 (.39-2.46)
Primary school	100 (73.5)	36 (26.5)	7.87 (4.31-14.36)*	1.23 (1.00-2.50)**
Secondary school	69 (65.1)	37 (34.9)	5.28 (2.86-9.756)	2.00 (1.01-3.96)**
Tertiary school	24 (26.1)	68 (73.9)	1	1
Muslim	58 (59.8)	39 (40.2)	2.66 (1.18-5.979)*	1.27 (.43-3.76)
Orthodox	139 (58.4)	99 (41.6)	2.47 (1.165-5.24)*	1.98 (.73-5.36)
Catholic & others	10 (55.6)	8 (44.4)	3.48 (1.23-9.85)*	2.2 (.55-8.76)
Protestant	10 (32.3)	21 (67.7)	1	1
Government employee	35 (41.7)	49 (58.3)	1	1
Housewife	95 (62.5)	57 (37.5)	2.33 (1.35-4.02)*	1.35 (.67-2.73)
Self employed	73 (59.3)	50 (40.7)	2.04 (1.16-3.59)*	1.11 (.55-2.21)
NGO/Student	14 (56.0)	11 (44.0)	1.78 (.72-4.39)*	1.257 (.45-3.50)
Married	107 (44.2)	135 (55.8)	1	1
Unmarried+	110 (77.5)	32 (22.5)	4.337 (2.72-6.93)*	1.12 (0.267-4.69)
No formal education	32 (69.5)	14 (30.4)	2.96 (1.46-6.015)*	1.99 (.80-4.98)
Primary School	41 (64.1)	23 (35.9)	2.31 (1.26-4.237)*	7.02 (3.24-15.22)**
Secondary school	80 (63.0)	47 (37.0)	2.2 (1.356-3.588)*	5.22 (2.38-11.45)**
Tertiary education	64 (43.5)	83 (56.5)	1	1
Government employee	36 (44.4)	45 (55.6)	1	1
Private business/Merchant	154 (59.7)	104 (40.3)	1.85 (1.12-3.06)*	1.42 (.77-2.62)
Others ±	27 (60)	18 (40)	1.88 (.89-3.93)	1.30 (.54-3.12)
Yes	49 (76.6)	15 (23.4)	2.96 (1.59-5.49)*	4.36 (1.73-10.998)**
No	168 (52.5)	152 (47.5)	1	1
Yes	66 (71.7)	26 (28.3)	2.37 (1.43-3.94)*	2.4 (1.11-5.276)**
No	151 (51.7)	141 (48.3)	1	1
1st trimester	97 (48.0)	105 (52.0)	1	1
2nd & 3rd trimester	120 (65.9)	62 (34.1)	2.095 (1.387-3.165)*	1.74 (1.2-2.85)**
Yes	203 (94.9)	14 (8.2)	205.636 (90.86-465.41)*	850.989 (199.497-3630.035)**
No	14 (5.1)	156 (91.8)	1	1

± unemployed, pensioner, daily laborer, driver etc; + single, divorced, cohabitated; * $P \leq 0.05$; ** $P \leq 0.05$ after adjusted to religion, occupation, relationship to the partner, partner occupation, educational level of both, ANC booking time, partner Khat chewing & alcohol consumption, history of violence before pregnancy. ANC= antenatal Care; GA=Gestational Age.

DISCUSSION

Among 384 pregnant mothers, 56.5% reported at least one form of Intimate Partner Violence (IPV). Psychological violence and, psychological & physical overlapping was the most frequently reported type of IPV forms. Women's and partner education level, gestational age at 2nd and 3rd-trimester antenatal booking, partner's problematic alcohol drinking, and khat-chewing habits and history of violence before pregnancy were independent determinants of intimate partner violence during index pregnancy.

Our study findings showed that IPV during pregnancy is a common experience [56.5% (95% CI: 51.4-61.5)] in Addis Abeba. This is consistent with studies in the Bale zone, Ethiopia, (59%) [27] and a systematic review of African studies (2.3% to 57.1%) [28]. It is lower than the study in other African countries [29-32] but it is higher than in a recently conducted systematic review and meta-analysis in Ethiopia (12.0%-44.7%) [33] and a systematic review conducted in Nigeria (2.3%-44.6%) [34]. This finding is also higher than most cross-sectional studies conducted in other parts of Ethiopia [13,14,35,36] and some African reports [37,38]. This may be due to women living in the capital city of the country

having a good awareness of intimate partner violence than parts of the country.

The rates reported in studies around the world were quite different. This difference is thought to be due to the definition and the scales used to measure violence (WHO tool vs Conflict Tactics Scale 2/CTS2 Vs Abuse Assessment Screen/AAS), the interview method used in the study, and the perception and cultural differences in societies. The observed difference may also be due to variation in the type of violence included in the study as most of the studies only focused on physical violence while in our case and some other studies [27,39] for example the three types of the intimate partner with controlling behaviors as a component of psychological violence were included. In addition, we referred to the index pregnancy however some of the studies compared measured violence in any pregnancy a woman ever had. The antenatal health care setting in our study may also have allowed greater disclosure of violence compared to the home where the perpetrator may hinder disclosure [40,41].

Analyzing each form of IPV separately, psychological violence was the most common type of violence during the index pregnancy. This finding is in agreement with systematic review and meta-analysis in Ethiopia [33] and [13,29,30,37]. Contrary to this, a systematic review in Nigeria [34] showed that physical violence was the most common type among pregnant women. This could be due to the difference in cultural acceptability of wife-beating between the two countries. The prevalence of psychological violence during index pregnancy was slightly higher than in a study done in Rwanda [42]. However, a systematic review of African studies reported records of psychological violence in three studies with the prevalence of 24.8%, 41%, and 49% [28].

Prevalence rates for physical 13.5% (95% CI: 10.3-17.4) violence was comparable with reports from meta-analysis in Ethiopia [23] and cross-sectional studies in our country [13,37] and Zimbabwe [30]. On contrary, the study result was lower than reports from Shire Endaselassie [43], West Pokot County, Kenya [29]. This may be due to cultural differences and areas of living.

Sexual 6.5% (95% CI: 4.3-9.5) violence was the least common form during the index pregnancy. Our result was in agreement with studies in Namibia [38]. However, Sexual violence was the most frequent type of violence encountered by more than one-third of the pregnant women in Bale Zone, Southeast Ethiopia [27]. This discrepancy may be observed due to differences in society's perception of sexual violence between the two settings.

This study also showed an overlapping report of IPV during the index pregnancy. The most common overlapped report of IPV was psychological and physical in 10.7% (95% CI: 7.8-14.2), followed by psychological and sexual in 6.2% (95% CI: 4.0-9.2 then physical and sexual in 2.6% (95% CI: 1.3-4.7), all the three forms overlapping in 2.6% (95% CI: 1.3-4.7). Our result was comparable with a study in Kisumu, Kenya [44] except for psychological and physical overlapping. The most frequently coexisted form was psychological and physical which is supported by a study from Bale, Southeast Ethiopia [27] but

the prevalence of each overlapping form is lower than a report from the same study.

In our study, we also explored factors associated with IPV among pregnant women in Addis Abeba. Those women who had primary educational status [AOR = 1.23(95% CI: 1.00-2.50)] experienced IPV 1.2 times higher & those who had secondary education two times higher [AOR = 2.00 (1.01-3.96)] compared to those with the educational status of college and above. Aligned with our result a study in Kano, Nigeria [45] demonstrated raised risk of IPV in women with primary and secondary education relative to those with tertiary education. However, the same study and others showed even higher risk in those with no formal education but this was not evident in our study. Opposing to the current research result, few studies were done in Ethiopia [14,35], and Africa [38,44] didn't show a significant association between IPV in pregnancy and the level of women's education. A systematic review of African studies identified three studies that reported a strong positive association between pregnant women's low level of education and experiencing IPV and six other studies where the relationship did not reach statistical significance [28]. Though pieces of evidence on the effect of women's education on IPV have been mixed in general education is thought to be a tool for empowerment and improves negotiating capacity.

Problematic alcohol intake by a partner was found to be significantly associated with an increased report of overall IPV in pregnancy. This finding is in line with a systematic review and meta-analysis conducted in China [46], and systematic reviews in Africa [28]. Similarly, the overall pooled result of a meta-analysis of eight observational studies conducted in Ethiopia (2018) revealed that pregnant women whose intimate partners consumed alcohol were 11.4 times more likely to be abused as compared to their counterparts (OR:11.4, 95% CI:2.3, 56.6) [37]. Drinking alcohol could affect cognitive and physical functions directly, which could lead to a decrease in a couple's ability to solve conflicts peacefully. It also could increase the risk of infidelity, which would possibly lead to conflict between couples and the occurrence of IPV during pregnancy [47,48].

Abused pregnant women were more likely to report being prevented from accessing antenatal care, confirming the male domination in decisions about sexual and reproductive health. In our study compared to those pregnant women who started their ANC during the first trimester, those that started their prenatal visit in the second trimester were 1.7 times [(AOR = 1.74, 95% CI: 1.2-2.85), $P = 0.043$] more likely to report IPV. Similar findings were reported by another study in the same study area (Addis Abeba, Ethiopia) [49] and Jimma, Ethiopia [50]. Studies across different countries also demonstrated that women experiencing IPV (lifetime/current pregnancy) in their relationship were less likely to enter ANC within the first trimester [51-53]. Women who have experienced partner control in their relationship were less likely to start ANC in the first three months and to use ANC four or more times [49]. In support of the above explanation, a population-based study in Rwanda [44] showed usage of antenatal care services was less common among women

who reported controlling behaviors (OR) 1.93 (95% CI 1.34 to 2.79) however, no statistically significant associations between physical, psychological and sexual violence and antenatal care usage were found.

Some factors that are associated with IPV in other studies were not found in our study. In this study, the woman's age, religion, and partner's age had no independent association with IPV. This may be related to the fact that IPV cuts across age, religion, and national boundaries [54,55]. This may also be due to the patriarchal nature of Ethiopian societies and religions. In addition, household monthly income and occupational status were found to have no significant association with intimate partner violence in our study. Studies that are in line with our findings suggest that occupation and socioeconomic status had a minimal effect or do not reduce the likelihood of domestic violence during pregnancy [56] especially for women in low-income countries (pregnant women work largely in informal sectors with low paid jobs).

Strength and Limitations of the study

The strength of this study is the use of a validated instrument of the WHO multi-country study on violence against women and achieving a response rate of 100%. To minimize recall bias the study only focused on the index pregnancy and female data collectors and supervisors were used to minimize social-desirability bias.

This study also has some important limitations that should be considered when interpreting the results. Since the topic is sensitive, some respondents may not volunteer to disclose their violence (social desirability bias), which in turn leads to underreporting. We have included those pregnant women who came for ANC irrespective of their gestational age and interviews were conducted only once during pregnancy and this could also underestimate the prevalence of IPV.

CONCLUSION

Overall IPV was reported in more than half of pregnant mothers during the current and index pregnancy. Psychological violence was the most commonly reported form followed by physical then sexual violence. The most common overlapped report of IPV was psychological and physical followed by psychological and sexual then physical and sexual; and all the three forms overlapped in 2.6%.

Women's and partners' education status, gestational age at ANC booking, partner's problematic alcohol drinking and chewing-khat habits, and history of violence before pregnancy were independent determinants of intimate partner violence during the index pregnancy. Large-scale longitudinal and qualitative studies are needed to explore determinants, impact, and types of interventions needed on intimate partner violence among pregnant women.

DATA SHARING STATEMENT

Most of the data supporting our findings are contained within

the manuscript, and all others, excluding identifying/ confidential patient data, will be shared upon request by contacting the corresponding author: Endalkachew Mekonnen; endalkmekon@gmail.com

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AUTHOR CONTRIBUTIONS

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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