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Mental health impacts of reproductive coercion among women in Côte d'Ivoire

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Abstract

Objective—To assess the independent associations of partner-perpetrated reproductive coercion, intimate partner violence (IPV), in-law reproductive coercion, and in-law abuse with recent probable post-traumatic stress disorder (PTSD), and to test their relationship with PTSD symptoms when controlling for the other types of abuse among partnered women in rural Côte d'Ivoire.

Methods—Cross-sectional analyses were conducted using logistic generalized estimating equations, which accounted for village-level clustering. Data were drawn from baseline data from a randomized controlled trial among 24 villages in rural Côte d'Ivoire (n = 953 partnered women). Three adjusted models were used to test associations of reproductive coercion and abuse with probable PTSD.

Results—Partner-perpetrated reproductive coercion was experienced by 176 (18.5%) women. In model 3, which accounted for the co-occurrence of abuses, partner-perpetrated reproductive coercion (odds ratio [OR] 2.3; 95% confidence interval [CI], 1.4–3.9) and partner-perpetrated IPV (OR 1.7; 95% CI, 1.1–2.7) were the most significant predictors of past-week probable PTSD ($P < 0.05$).

Conclusion—Reproductive coercion may be a significant contributor to poor mental health. The mental health impacts of reproductive coercion and IPV should be considered within psychosocial

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Conflict of interest

The views presented are those of the authors and do not necessarily represent the views of the World Bank, NIMH, NIH, or HRSA. Study sponsors had no role in the planning of the study or in writing/approving the manuscript. The authors have no conflicts of interest.

programming for rural Ivorian communities to address the full range of traumatic experiences that may have been experienced by women.

Keywords

Gender-based violence; In-law abuse; In-law reproductive coercion; Intimate partner violence; Mental health; Partner-perpetrated reproductive coercion; Post-traumatic stress disorder; Reproductive control

1. Introduction

Reproductive coercion—"behavior intended to maintain power and control in a relationship...through the interference of contraceptive use and decisions about pregnancy" [1]—is rapidly gaining attention as a key issue impacting the health of women and girls. Reproductive coercion includes birth control sabotage (withholding or destroying female contraception), pregnancy pressure (pressuring a female partner to become pregnant when she does not want to be), and pregnancy coercion (coercive behavior such as threats of violence if a woman does not comply with a male partner's wishes to continue or terminate a pregnancy) [1].

Based on findings of a growing body of literature that initially surveyed populations in the USA, between 9% and 25% of women have experienced reproductive coercion in their lifetime, and these women are at greater risk for poor reproductive outcomes, including unintended pregnancy [2,3]. More recently, research studies involving women from other countries, for example, Jordan and Pakistan [4,5], have also documented reproductive coercion and/or interference with reproductive decision-making by male partners.

Women may not only be at risk of experiencing reproductive coercion from their male partner, but also from family members of their male partner (i.e. in laws) [6–8]. Reproductive coercion is more likely to occur within the context of a relationship where male perpetrated physical and sexual intimate partner violence (IPV) is present, or where there is abuse perpetrated by in-laws [2,6]. However, reproductive coercion can be present when other forms of abuse are not [2]. Previous studies have found reproductive coercion to be associated with poor reproductive health outcomes and childlessness [2,6].

Although the links between reproductive coercion and mental health have not been assessed, poor mental health resulting from IPV has been documented to be of great concern [9,10]. For example, a nationally representative survey of more than 4000 South African adults found that women who experienced physical IPV were more than three times as likely to have been diagnosed with post-traumatic stress disorder (PTSD) during their lifetime compared with women without this exposure [11]. These findings are supported by work in various global settings, which has indicated that severity, frequency, and the co-occurrence of more than one type of abuse is associated with a greater number of PTSD symptoms [10,12]. The few studies that have assessed the mental health impacts of in-law abuse have found higher rates of depression among women who experienced in-law abuse [13]. Given the lack of inquiry regarding the mental health impacts of reproductive coercion, the potential mechanisms of the association are not yet clear. However, facets of reproductive

coercion, including manipulation and threats of abuse by male partners, mirror tactics of other forms of emotional abuse that have been associated with PTSD in other studies [14]. It is possible that fear of partner retaliation if the woman does not comply with her partner's wishes for a pregnancy triggers PTSD symptoms. Understanding whether reproductive coercion impacts the mental health of women, above and beyond that of physical or sexual violence, may help to inform future research in this crucial area.

Globally, there has been limited investigation regarding how reproductive coercion, IPV, and in-law abuse impact women's mental health, despite their common co-occurrence. Understanding is also limited regarding the role of these forms of violence among women affected by conflict because most research has focused on sexual violence perpetrated by non-partners in conflict settings [15,16]. Since 1999, Côte d'Ivoire has been characterized by political instability, armed conflict, and violence, which was amplified in 2010 as a result of a military coup. Additionally, studies have documented the prevalence of lifetime IPV to be approximately 50% and past-year IPV to range from 20%–30% in this country [17,18]. As a result, researchers and organizations have called for increased understanding of the role of reproductive coercion, IPV, and in-law abuse in the lives of women affected by conflict to guide programs and policies to improve the health and psychosocial well-being of women [6,19–21].

The aim of the present study was to assess the independent associations of partner-perpetrated reproductive coercion, IPV, in-law reproductive coercion, and in-law abuse and their association with probable PTSD; and to test their relationship with probable PTSD when controlling for the other types of abuse among partnered women in rural Côte d'Ivoire.

2. Materials and methods

A baseline survey was conducted between September 28, 2010, and October 15, 2010, as part of a randomized controlled trial within 24 villages in rural Côte d'Ivoire. The overarching study assessed the effectiveness of gender dialog groups and an economic empowerment component on reduction of IPV [17]. Field staff explained the study to the village leaders and eligible women and invited the eligible women (aged over 18 years) to participate (n = 1273; 96% response rate). Informed consent was obtained from the women by trained female research assistants who were matched with the participants on the basis of language. The research assistants also verbally read the paper-based survey to the participants in their own language. Responses were recorded by the research assistant and later entered into a database. The present study was conducted in partnership with the International Rescue Committee and Innovations for Poverty Action (IPA). Ethics approval for all study protocols was obtained from the Ethics Boards at the Yale School of Public Health and IPA.

Lifetime sexual and/or physical IPV was assessed via items from the WHO Study on Domestic Violence and Women's Health [22]. Partner and in-law perpetrated reproductive coercion items were adapted from studies previously conducted in the USA by Miller et al. [2] and pilot tested with a separate sample of rural Ivorian women. In-law abuse items were adapted from existing partner violence scales that were modified for use in Côte d'Ivoire and

a study of in-law abuse with low-income women in India [23,24]. In-laws were defined as any member of the woman's partner's family. The outcome of interest in the present study, past-week probable PTSD, was generated by creating a cut-off score for women who averaged 2.0 or greater on items from the Harvard Trauma Questionnaire, a cut-off consistent with previous research [25]. Demographic data recorded were age, marital status, religion, educational attainment, ethnicity, and number of pregnancies.

Data were analyzed using SAS version 9.2 (SAS Institute, Cary, NC, USA). Using a complete case analysis approach among partnered women, descriptive statistics were generated for partner-perpetrated and in-law perpetrated abuse exposures and demographics. Logistic generalized estimating equations were used to assess relationships of interest in unadjusted and adjusted estimates. This statistical approach was used to account for clustering within villages or the correlation of responses among participants residing in each village to improve the precision of the estimates calculated. Given overlaps in reproductive coercion and IPV, model 1 specified both partner-related variables, whereas model 2 assessed in-law abuse and in-law reproductive coercion as independent variables. Previous studies have suggested that in-law abuse often occurs in the context of a relationship where partner-perpetrated abuse is also present [7]. Therefore a final model (model 3) was used to test the association of partner-perpetrated and in-law-perpetrated reproductive coercion and probable PTSD while controlling for the other types of abuse. $P < 0.05$ was considered statistically significant.

3. Results

Of the 953 partnered women included in the study, the mean age of respondents was 37.4 years, 803 (84.3%) women were married, and 696 (73.0%) reported four or more pregnancies (Table 1). Predominantly the women were Christian ($n = 415$; 43.5%) and the largest ethnic group was the Yacouba ($n = 587$; 61.6%). The majority of women ($n = 678$; 71.1%) had not received primary education.

Among the participants, 176 (18.5%) women had experienced partner-perpetrated reproductive coercion and 475 (49.8%) women reported lifetime IPV. Frequently reported reproductive coercion items included: a partner telling her not to use any birth control (e.g. "the pill" [oral hormonal contraceptive] or "the shot" [injectable hormonal contraceptive]); telling her he would have a baby with someone else if she did not get pregnant; telling her he would leave her if she did not get pregnant; and making her have sex without a condom (Table 2). In-law-perpetrated reproductive coercion was reported by 52 (5.5%) women, and 255 (26.8%) women experienced in-law abuse. Frequently reported in-law-perpetrated reproductive coercion items included: telling her husband to leave if she did not get pregnant; telling her husband to have a baby with someone else if she did not get pregnant; humiliating her if she did not get pregnant; and trying to force or pressure her to get pregnant (Table 2).

The outcome of interest in the present study, past-week probable PTSD, was reported by 124 (13.0%) women. Among the 176 women who experienced partner-perpetrated reproductive coercion, 39 (22.2%) reported past-week probable PTSD ($P < 0.001$) (Table 1). Furthermore,

80 (16.8%) of the 475 women who experienced IPV, 14 (25.0%) of the 52 women who experienced in-law-perpetrated reproductive coercion, and 46 (18.0%) of the 255 women who experienced in-law abuse also reported past-week probable PTSD ($P < 0.05$) (Table 1).

Three adjusted models were used to test associations of reproductive coercion and abuse with probable PTSD (Table 3). In model 1, women who experienced partner-perpetrated reproductive coercion were 2.6 times more likely than those without exposure to reproductive coercion to report past-week probable PTSD (95% confidence interval [CI], 1.7–4.0; $P < 0.001$), adjusting for exposure to IPV and demographic characteristics. Exposure to lifetime IPV was associated with a 1.9 increase in odds of reporting past-week probable PTSD (95% CI, 1.2–3.0; $P < 0.05$) compared with women who did not report IPV, controlling for reproductive coercion and demographic characteristics. In model 2, women who experienced in-law perpetrated reproductive coercion (adjusted odds ratio [aOR] 2.3; 95% CI, 1.2–4.4; $P < 0.05$) and in-law abuse (aOR 1.7; 95% CI, 1.2–2.6; $P < 0.05$) were also more likely to experience past-week probable PTSD compared with women without exposure to abuse and coercion, controlling for the other exposure variable (either abuse or coercion) and demographic characteristics. Model 3 assessed these exposures collectively. Partner-perpetrated reproductive coercion (odds ratio [OR] 2.3; 95% CI, 1.4–3.9) and partner-perpetrated IPV (OR 1.7; 95% CI, 1.1–2.7) were still significantly associated with past-week probable PTSD ($P < 0.05$), whereas in-law abuse was not significantly predictive of probable PTSD, controlling for covariates and demographic factors.

4. Discussion

Reproductive coercion was significantly associated with past-week probable PTSD among this community-based sample of rural Ivorian women, extending the health implications of reproductive coercion beyond pregnancy-related implications to another crucial issue that disproportionately impacts women—poor mental health. Specifically, the odds of women who had experienced reproductive coercion having probable PTSD was 2.3 times greater than for women without such exposure ($P < 0.05$), controlling for other forms of abuse and demographic characteristics. Given that there are no previous data regarding the mental health impacts of reproductive coercion, the mechanisms proposed in the present study are speculative. However, women who have experienced emotional or psychological abuse are more likely to experience several poor mental health outcomes, including PTSD [14]. It is possible that facets of reproductive coercion similar to emotional abuse, such as the fear of abuse or abandonment if she does not comply with her partner's wishes for pregnancy, trigger traumatic symptoms in women. Alternatively, reproductive coercion may serve as a marker for unmeasured pregnancy-related outcomes, such as unintended pregnancy, fetal loss, or childlessness, which have been linked to poor mental health [26,27]. The present study illustrates one way in which women may not have autonomy over their reproductive behavior; however, further research regarding precise mechanisms is indicated.

The mental health consequences of reproductive coercion reported in the present study provide evidence that reproductive coercion should be considered within the larger context of women's reproductive rights. Moreover, in conjunction with prior evidence that reproductive coercion impacts women's reproductive health [1,2], these findings suggest that

global health communities should recognize reproductive coercion as a global mental health concern for women of reproductive age.

Even though in-law abuse and in-law perpetrated reproductive coercion were not significant in adjusted models, in-law abuse should not be ignored in the West African context. It is possible that in-law abuse was mediated by IPV. Alternatively, findings could be related to insufficient variance given the co-occurrence of these types of abuse or potential qualitative differences in partner-perpetrated and in-law-perpetrated reproductive coercion, resulting in different mental health outcomes among women. Further research is needed to understand how partner-perpetrated abuse and in-law abuse are experienced and perceived by women in this context to help us better measure and understand the mechanisms through which reproductive coercion impacts women's health. The findings in the present study indicate that clinicians should assess for lifetime IPV and reproductive coercion in their patient population because histories of abuse may be markers of poor health among partnered women in rural Côte d'Ivoire.

The present study has several limitations. The cross-sectional nature of the sample population meant that associations could not be interpreted as causal. Furthermore, the parent study [20] tested a socioeconomic intervention and, therefore, the present sample had to meet inclusion criteria for the parent study, including reporting a partner at the time of baseline survey administration. Moreover, some reproductive coercion items may not have been relevant to Ivorian women who did not use particular contraceptive methods (the pill or shot). Therefore, the findings may not translate to all Ivorian women, including unpartnered women, and may only represent one facet of women's reproductive lives. Reporting bias was another potential concern, with women most likely under-reporting their histories of abuse and reproductive coercion given the sensitive nature of the questions. This would have resulted in an underestimation of the association between reproductive coercion, abuse, and PTSD. Even though lifetime exposure to IPV is associated with poor health over time, recent measures of IPV and reproductive coercion would have been preferable to minimize temporality concerns. Further studies assessing exposure to recent IPV and reproductive coercion are warranted. Another limitation is that only a limited range of traumatic exposures were measured in this population, which may be an important confounder of the relationship between IPV and probable PTSD. Lastly, clinical measures of PTSD would be useful to confirm the mental health impacts of reproductive coercion and IPV.

Despite these limitations, the findings of the present study indicate that reproductive coercion among rural Ivorian women may be a significant contributor to poor mental health among women. Given that the global burden of mental health, including gender-specific risk factors, is attracting more attention, further studies of the association between reproductive coercion and PTSD are warranted across diverse settings. The mental health impacts of reproductive coercion and abuse should be considered within psychosocial programming for communities affected by conflict to address the full range of traumatic experiences women may have experienced. Although in-law-perpetrated reproductive coercion and in-law abuse were not significant predictors of PTSD in model 3, further investigation of the influence that in-laws have on women's reproductive health, and their influence on male-partner's perpetration of abuse against women is needed to understand the context in which abuse and

coercion take place. Reproductive coercion has been identified as an important correlate of poor health among women of reproductive age [1,2] and the findings in the present study highlight an important link between coercion, abuse, and mental health.

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Table 1

Frequency and unadjusted generalized estimating equations of associations of reproductive coercion, abuse, and demographics with past-week probable post-traumatic stress disorder.^a

	No. (%) (n = 953)	No. with PTSD (%)	Unadjusted odds ratio (95% confidence interval)	P value
Past-week PTSD symptoms	—	124 (13.0)	—	
Partner-perpetrated abuses				
Reproductive coercion	176 (18.5)	39 (22.2)	2.3 (1.6–3.4)	<0.001
IPV	475 (49.8)	80 (16.8)	2.0 (1.3–3.1)	0.002
In-law-perpetrated abuses				
Reproductive coercion	52 (5.5)	14 (25.0)	2.4 (1.4–4.1)	0.002
Abuse	255 (26.8)	46 (18.0)	1.7 (1.2–2.5)	0.002
Demographics				
Age, y	37.4 ± 11.4	40.3 ± 9.6	1.03 (1.01–1.05)	0.01
Marital status				
Married	803 (84.3)	106 (13.2)	Reference	
Living with partner	105 (11.0)	13 (12.4)	0.9 (0.4–2.0)	0.8
Not living with partner	45 (4.7)	5 (11.1)	0.8 (0.4–1.9)	0.6
Religion				
Christian	415 (43.5)	35 (8.4)	Reference	
Muslim	163 (17.1)	7 (4.3)	0.5 (0.2–1.3)	0.2
Traditional	156 (16.4)	53 (34.0)	5.6 (2.8–11.2)	<0.001
Other/none	219 (23.0)	29 (13.2)	1.7 (0.9–3.1)	0.1
Educational attainment				
Less than primary	678 (71.1)	103 (15.2)	Reference	
Primary	212 (22.3)	17 (8.0)	0.5 (0.3–0.9)	0.02
Secondary or higher	63 (6.6)	4 (6.3)	0.4 (0.1–0.9)	0.04
Ethnicity				
Yacouba	587 (61.6)	109 (18.6)	Reference	
Baoule	114 (12.0)	5 (4.4)	0.2 (0.1–0.3)	<0.001
Guere	69 (7.2)	2 (2.9)	0.1 (0.08–0.2)	<0.001
Senoufo	58 (6.1)	4 (6.9)	0.3 (0.2–0.5)	<0.001
Other	125 (13.1)	4 (3.2)	0.1 (0.06–0.3)	<0.001
No. of pregnancies				
0	27 (2.8)	2 (7.4)	1.2 (0.2–6.1)	0.8
1–3	23 (24.1)	20 (87)	2.2 (0.5–9.9)	0.3
4	696 (73.0)	102 (14.7)	Reference	

Abbreviations: IPV, intimate partner violence; PTSD, post-traumatic stress disorder.

^aValues are given as a mean ± SD or number (percentage), unless otherwise indicated.

Table 2

Partner-perpetrated and in-law perpetrated reproductive coercion by item.

Partner perpetrated reproductive coercion					In-law perpetrated reproductive coercion				
	No. (%)(n = 953)	No. with PTSD (%)(n = 124)	No. without PTSD (%) (n = 829)	P value ^a		No. (%)(n = 953)	No. with PTSD (%) (n = 124)	No. without PTSD (%) (n = 829)	P value ^a
Told you not to use any birth control (e.g. the pill or shot)	87 (9.1)	13 (10.5)	74 (8.9)	0.01	Told your husband to leave you if you did not get pregnant?	36 (3.8)	11 (8.9)	25 (3.0)	<0.001
Told you he would have a baby with someone else if you didn't get pregnant	53 (5.6)	19 (15.3)	34 (4.1)	<0.001	Told your husband to have a baby with someone else if you didn't get pregnant	36 (3.8)	11 (8.9)	25 (3.0)	<0.001
Said he would leave you if you did not get pregnant	50 (5.2)	15 (12.1)	35 (4.2)	<0.001	Insulted or humiliated you because you did not become pregnant	25 (2.6)	10 (8.1)	15 (1.8)	<0.001
Made you have sex without a condom	48 (5.0)	15 (12.1)	33 (4.0)	<0.001	Tried to force or pressure you to become pregnant	22 (2.3)	8 (6.5)	14 (1.7)	<0.001
Tried to force or pressure you to become pregnant	43 (4.5)	17 (13.7)	26 (3.1)	<0.001	Told you not to use any birth control (e.g. the pill or shot)	19 (2.0)	3 (2.4)	16 (1.9)	0.007
Hidden birth control from partner because you thought he would be upset with you for using it	29 (3.0)	7 (5.6)	22 (2.7)	<0.001	Told your husband to prevent you from using any birth control	13 (1.4)	3 (2.4)	10 (1.2)	0.002
Taken off the condom while you were having sex	18 (1.9)	5 (4.0)	13 (1.6)	0.02	Told your husband to hurt you physically because you did not get pregnant?	9 (0.9)	6 (4.8)	3 (0.4)	<0.001
Taken your birth control (e.g. pills) away from you or kept so that you would get pregnant?	16 (1.7)	4 (3.2)	12 (1.4)	0.02	Did not allow you in the house if you did not become pregnant	4 (0.4)	3 (2.4)	1 (0.1)	<0.001
Put holes in the condom so you would get pregnant	5 (0.5)	1 (0.8)	4 (0.5)	0.2	Did not allow you to eat because you did not become pregnant	2 (0.2)	2 (1.6)	0 (0.0)	<0.001

Abbreviation: PTSD, post-traumatic stress disorder.

^a *P* values are χ^2 estimates.

Table 3

Adjusted logistic generalized estimating equations of associations of partner-perpetrated and in-law perpetrated abuses with past-week probable PTSD (n = 951).^a

	Model 1		Model 2		Model 3	
	Adjusted odds ratio (95% confidence interval)	P value	Adjusted odds ratio (95% confidence interval)	P value	Adjusted odds ratio (95% confidence interval)	P value
Partner-perpetrated reproductive coercion	2.6 (1.7–4.0)	<0.001	—		2.3 (1.4–3.9)	0.002
IPV	1.9 (1.2–3.0)	0.008	—		1.7 (1.1–2.7)	0.02
In-law reproductive coercion	—		2.3 (1.2–4.4)	0.01	1.3 (0.6–3.0)	0.50
In-law abuse	—		1.7 (1.2–2.6)	0.006	1.4 (0.9–2.1)	0.16

Abbreviations: IPV, intimate partner violence; PTSD, post-traumatic stress disorder.

^aModels controlled for age, marital status, religion, educational attainment, ethnicity and number of pregnancies.