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Characteristics and Obstetrical Outcomes of Post-Rape Pregnancies among Adolescent Girls in Post Conflict Context in Eastern DR Congo

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Abstract

Introduction: In conflicts such as the Democratic Republic of the Congo, sexual violence is systematically perpetrated against children and adolescent girls. Unwanted pregnancy is one of the complications with a myriad of consequences for the victim, the newborn, and society. This study aims to draw up characteristics and obstetrical outcomes of post-rape pregnancies of victims under 18 years old treated at Panzi General Referral Hospital (PGRH) in Eastern DR Congo. **Methods:** A single-centre prospective descriptive study was conducted at PGRH over two years (June 2020 to June 2022). This study included 140 adolescent girls who became pregnant post sexual assault. They were followed from confirmation of pregnancy to delivery. Sociodemographic, psycho-affective and clinical parameters were recorded and analyzed using XLSTAT 2014 software. **Results:** 76.4% came from rural areas, with a median age of 16 [13-17]. Pregnancy was continued in 50.7% and terminated in 20%. The victims were casual acquaintances of the perpetrators in 33.6% and unknown in 26.4%. 57.9% attended regular antenatal consultations. 74.3% had an individual birth plan/preparation for labor, with the primary route of delivery being vaginal (69.3%). The frequency of caesarean sections was 30.7%. Some psychological symptoms were identified during labor in 52.9% like agitation (10.7%) and hypersensitivity (8.6%). **Conclusion:** Pregnancy post rape is a public health problem affecting adolescents between 13 and 17 years of age. These pregnancies require closer follow-up with multi-disciplinary shared care, including psychology, obstetrics, and community input, to improve mother and newborn antenatal, intrapartum, and postpartum outcomes. In addition, long-term psychological sequelae of these pregnancies can be mitigated through supportive care in this high-risk period.

Keywords

Sexual Violence, Pregnancy, Adolescent Victims, Complications, Prognosis, Perpetrators Profile

1. Introduction

Sexual violence is defined by the World Health Organization (WHO) as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic or otherwise directed against a person's sexuality using coercion, by any person, regardless of their relationship to the victim, in any setting, including but not limited to home and work. It's a global health issue with multiple interacting risk factors at the individual, relationship and community levels [1]. This human rights violation has short and long-term consequences. Acutely, sexual violence is associated with sexually transmitted infections, unwanted pregnancies, and physical injuries; however, it also has severe economic and psychosocial implications [2] [3] [4].

In the eastern Democratic Republic of the Congo (DRC), the incidence of sexual violence has increased over the last two decades, perpetuated by civil war and ongoing civil unrest. Approximately 1.69 to 1.80 million women have experienced sexual abuse in their lifetime, and 3.07 to 3.37 million women have survived intimate partner sexual violence in DRC [5].

Sexual violence was used as a weapon of war to destabilize communities. A study conducted in eastern DRC reported the prevalence of sexual violence was ~40% [6]. One of the characteristics of sexual violence in the context of conflicts is its systemic nature, regardless of the victim's age. Children, young girls, adult women, and the elderly are all assaulted, often in settings of public shame and humiliation [7].

A study by Bartels and al. (2010) reports assault rates of 6.2% among women over 55 years of age, 38.9% among women 36 - 55 years of age, 44% among women 16 - 35 years of age, and 10.9% among adolescent whose age is ≤15 [8].

It should be noted that in the DRC, sexual intercourse with a person under the age of 18 is considered rape in all circumstances by the current legislation [9]. Pregnancy resulting from rape is a public health and sexual and reproductive health problem [10] [11].

In the eastern DRC, the incidence of unwanted pregnancies is 17%. Unwanted pregnancies present increased risks of maternal and perinatal morbidities, such as low birth weight, premature delivery, perinatal death, cephalopelvic disproportion, and maternal death.

Apart from the study conducted by Gillian Burkhardt and al [6] which traces the dangers faced by women with post rape pregnancies in areas where abortion is not legalized, few studies are addressing the clinical issues, follow-up, and obstetric outcomes of pregnancies post rape among adolescents in the context of

conflicts in Eastern DRC.

This study aims to draw up characteristics and obstetrical outcomes of post-rape pregnancies of victims under 18 years old treated at PGRH in Eastern DRC.

2. Methodology

This is a single-centre prospective descriptive study on 140 post-sexual abuse pregnant adolescent girls over two years from June 2020 to June 2022. PGRH is located in Bukavu, Eastern DR Congo. Founded in 1999, it remains a center of excellence for the care of victims of sexual violence. Since this period, victims have been supported in the holistic model of care structured in four pillars: medical, psychosocial, socioeconomic, and legal. Men, women, young girls, and children, including victims of sexual violence from major cities of DRC and remote areas, come to PGRH for treatment [12].

The current study adhered to the principles of the Helsinki Declaration. Ethics approval was obtained through the "Comité National D'éthique de la Santé" Bukavu-DRC (approval number CNES 001/DPSK/192PM/2022).

Pregnant women were selected by voluntary, non-random sampling. All pregnant minors were included in the study after sexual intercourse obtained under physical duress or with their consent. Excluded from the study were all pregnant women over 18 years of age and those under 18 years of age whose guardians did not consent to the study.

All post rape pregnant victims under 18 years old were included in this study. On arrival, all victims were consulted in the service, and then the pregnancy was confirmed. The follow-up was carried out from the prenatal consultations until delivery.

This study includes socio-demographic and clinical profiles of pregnancy variables. The socio-demographic variables include age, provenance (urban, rural), schooling (yes, no) and BMI (normal weight, Overweight, obesity). Clinical variables and profile of pregnancies were defined as accepted pregnancy (yes, No), the relationship of the victim and the perpetrator (In relationship with, a close partner, an ex-partner, foreign person, family member; unknown), characteristic of the perpetrator (militias, civil, peacekeepers). In addition, the profile of pregnancy was prenatal care (number of prenatal consultations), attempted termination of the pregnancy (yes, no), mode of delivery (vaginal, cesarean section), neonatal prognosis: asphyxia (yes, no), the neonatal intensive care unit follow-up (yes, no), maternal prognosis: psychological symptoms during labor and delivery (Agitation, hypersensitivity, mutism, inability to tolerate vaginal examination), complications (perineal tear, postpartum haemorrhage).

The data was collected through a questionnaire after the victim's parent has signed the consent form as required by the Congolese constitution. The collection was progressively done from the prenatal consultations until delivery. Since

informed, consent was already signed upon admission to the service for victims of sexual violence, confidentiality and anonymity were guaranteed. The survey questionnaire used was designed by a multidisciplinary team of gynaecologists, paediatricians, psychologists and sociologists and was tested before use. Annex 1 presents the questionnaire used.

Data were analysed using XLSTAT 2014 software. The descriptive summary statistics were calculated using the mean (SD) and median (IQR) for the continuous variables and the proportions for the categorical variables.

3. Results

The findings show that 140 post-raped minor pregnant women were included in this study, 76.4% were from rural areas, 68.6% were schooled, the average age was 16 (13 - 17) years, 36.4% of these women were overweight, and 6.4% were obese. Table 1 presents socio-demographic distribution of survivors.

The pregnancy was accepted in 50.7%, the victim had a simple acquaintance with the perpetrator in 33.6% and unknown in 26.4%; the perpetrator was a civilian (77.9%). Table 2 presents the perception of pregnancy. 57.9% attended antenatal consultation regularly; 74.3% had an individual birth plan/preparation for labor; 20% attempted abortion. Table 3 presents the Antenatal consultation follow-up and delivery plan. During pregnancy, some complications were observed, including intrauterine growth restriction (7.9%) and intra-uterine fetal demise (2.9%). Prematurity was observed in 22.1% of births versus full-term pregnancies at 74.3%. Premature rupture of membranes was observed in 12.2% and onset of spontaneous labor (79.3%). We note the induction/augmentation of labor (labor stimulation) 20.7%. In total, the vaginal delivery was 69.3% versus caesarean section (30.7%). Table 4 presents the Complications during the

Table 1. Socio-demographic distribution of survivors.

Variables	N (%)
	140 (100)
Provenance	
Rural	107 (76.4)
Urban	33 (23.6)
Schooled	
Yes	96 (68.6)
No	44 (31.4)
Average age [min; max] years	16 [13- 17]
Body Mass Index (N = 140)	
Normal weight	80 (57.1)
Excess Weight	51 (36.4)
Obesity	9 (6.4)

Table 2. Perception of pregnancy.

Variables	N (%)
	140 (100)
Accepted Pregnancy	
No	69 (49.3)
Yes	71 (50.7)
Relationship with the perpetrator	
Casual acquaintance	47 (33.6)
Intimate partner/ex-partner	31 (22.1)
Foreign	21 (15)
Family member	4 (2.9)
Unknown	37 (26.4)
Profile of perpetrators	
Civil	109 (77.9)
Rebel	25 (17.9)
Peacekeepers (Military, Police officers)	6 (4.1)

Table 3. Antenatal consultation follow-up and delivery plan.

Variables	n (%)
Pregnancy Considered at risk by obstetric practitioners (N = 140)	
No	59 (42.1)
Yes	81 (57.9)
Preparation for labor	
No	36 (25.7)
Yes	104 (74.3)
Attempted abortion	
No	112 (80)
Yes	28 (20)

pregnancy and labor process.

The results of the neonatal prognosis show that 9.6% of newborns experienced asphyxia; 4.3% had visible malformations, 21.3% had received resuscitation, and 24.3 had a stay in neonatal intensive care. In addition, the maternal morbidities included postpartum hemorrhage in 5% of births, soft tissue tears in 34%, 64.6% of perineal tears, and 31.3% involved cervical tears. Table 5 presents the maternal and neonatal prognosis.

Some psychological symptoms were identified during labor in 52.9% of women with post-rape pregnancies. The frequent psychological symptoms identified were

Table 4. Complications during the pregnancy and labor process.

Variables	n (%)
Pre-eclampsia (N = 140)	
No	133 (95)
Yes	7 (5)
Intrauterine growth restriction (N = 140)	
No	129 (92.1)
Yes	11 (7.9)
Term of pregnancy (N = 140)	
Term	104 (74.3)
Post mature	5 (3.6)
Premature	31 (22.1)
Premature tears of membranes (N = 140)	
No	122 (87.8)
Yes	17 (12.2)
Intrauterine fetal death (N = 140)	
No	136 (97.1)
Yes	4 (2.9)
Spontaneous labor set (N = 140)	
No	29 (20.7)
Yes	111 (79.3)
Labor Stimulation (N = 140)	
No	111 (79.3)
Yes	29 (20.7)
Route of delivery (N = 140)	
Vaginal	97 (69.3)
Cesarean section	43 (30.7)

Table 5. The maternal and neonatal prognosis.

Variables	N (%)
Neonatal prognosis	**140 (100)**
Asphyxia (N = 136)	
No	123 (90.4)
Yes	13 (9.6)
Foetal malformations (N = 140)	
No	134 (95.7)
Yes	6 (4.3)

Continued

Weight (N = 140)	
Hypotrophy	17 (12.1)
Normal weight	121 (86.4)
Macrosomia	2 (1.4)
Resuscitation (N = 136)	
No	107 (78.7)
Yes	29 (21.3)
Hospitalization in neonatal intensive care unit (N = 136)	
No	103 (75.7)
Yes	33 (24.3)
Maternal prognosis	
Postpartum haemorrhage (N = 140)	
No	133 (95)
Yes	7 (5)
Soft tissue tear (N = 140)	
No	92 (65.7)
Yes	48 (34.3)
Perineal tear (N = 140)	
No	17 (35.4)
Yes	31 (64.6)
Perineal tear degree (N = 31)	
1st	5 (16.1)
2nd	20 (64.5)
3rd	6 (19.4)
Vaginal tear (N = 140)	
No	36 (75)
Yes	12 (25)
Cervical laceration (N = 140)	
No	33 (68.8)
Yes	15 (31.3)

agitation in 10.7% and hypersensitivity in 8.6%. Table 6 presents psychological symptoms during labor.

4. Discussion

This study documented intra-hospital clinical data on the characteristics and

Table 6. Psychological symptoms during labor.

Variables	N (%)
	(N = 140)
Agitation	15 (10.7)
Hypersensitivity	12 (8.6)
Vaginal Touch refusal	11 (7.9)
Vaginal Touch refusal/agitation	11 (7.9)
Hypersensitivity/refusal of Vaginal Touch	8 (5.7)
Hypersensitivity/agitation	6 (4.3)
Hypersensitivity/mutism	6 (4.3)
Mutism	4 (2.9)
Refusal of Vaginal Touch/mutism	1 (0.7)
No objectified sign	66 (47.1)

outcomes of post-rape pregnancy among adolescent girls in post conflict context in Eastern DR Congo.

We noted that three-quarters of the victims came from rural areas, and most were schooled with a median age of sixteen. Half of the victims accepted the pregnancy after psychological consultation. In reference to the relationship with the perpetrator, the victim was simply acquainted with him at (33%) and unknown in only 26 %. The majority of the victims gave birth by vaginal route (~75%) and 30% by caesarean section. Postpartum complications included postpartum hemorrhage and soft tissue injury (34%). In addition, 50% developed psychological symptoms during labor. Neonatal asphyxia was found in 10%, prematurity at 22.1%, and intrauterine growth restriction at 7.9%. Neonatal intensive care was required in 21% of births, and neonatal hospital stay was required in 24% of cases.

The findings of this study show some specific characteristics of the population. The age group of minors in this study was between 13 and 17 years. Most of them are schooled and come from rural areas. Several authors [8] [13] demonstrate the frequency of pregnancy in this population. In this current context of recurrent conflict in the Eastern DRC, the rural population live in constant social and health insecurity, complicated by the culture promoting the antiquated practice of child marriages [14]. In fact, health insecurity in rural areas is characteristic and perpetuated by the presence of different militia groups and rebel forces that sustain wars in these areas where rape is used as a weapon [5] [15] Children, young girls, and women are all assaulted without much disparity of age. The objective is to ultimately destroy the current social fabric and promote a thriving future for the new generation [16].

In DRC, any sexual intercourse with an adolescent is considered rape. Sexual assault can be perpetrated without physical violence in most cases and more

rarely with violence, even to the point of homicide. In a large proportion of cases, perpetrators may be kind, friendly, and well [9] [17]. In the shadow of our study, the perpetrator was mostly civilians (77.9%), as reported in several other studies [18] [19]. The degree of relationship between the perpetrators and the victim is variable, ranging from a simple acquaintance in 33.6% to a complete stranger in 26.4%. Various authors report the same finding [18] [20].

In this situation, there is a neo-culture that has been established in areas where the victims originate. The profile of the perpetrators has changed over time. Currently, former rebels and demobilized militia are returning to the community as civilians and continuing their violent practices. Unfortunately, the lack of justice continues to maintain this culture. A study in Ituri [21] also found that perpetrators of child rape were civilians (81%) and known by the family (74%) in many instances. Nelson [22] described the profile of perpetrators and assaults as isolated incidents during the day and as gang rape.

In our study, the pregnancy was considered at risk; thus, the prenatal consultations required a strict follow-up by a psychologist and obstetrician as recommended by WHO [23]. However, only 74.3% of victims received complete orientation on labor preparation. We noted 20% of attempted termination. The most common characteristics of pregnancies with attempted termination included: unplanned pregnancy and assault by an unknown perpetrator, which included physical coercion. It is important to note that some women came to the hospital with pregnancies that had already progressed, while others did not adhere to the scheduled appointments for their follow-up. Some of them accepted this pregnancy and perceived it as normal due to a solid relationship with the perpetrator (acquaintance, intimate partner, or ex-partner).

The Maputo Protocol authorizing medical abortion in cases of sexual violence should be implemented in the DRC [24]. This would avoid the psychological support of maintaining the pregnancy. Previous studies [6] [25] also indicate attempted abortions in cases of rape or unwanted pregnancy. Unfortunately, in these practices, the methods used to terminate pregnancies are not based on evidence. One study [6] revealed that women often use herbs or drugs to induce an abortion obtained through informal healthcare networks, either through a friend, family member, or traditional healer. Indeed, according to current Congolese law, abortion services cannot be provided even when requested by the woman or her family in such circumstances [25].

The primary route of delivery was vaginal delivery (69.3%), followed by caesarean section (30.7%). This rate of cesarean delivery in our study is high compared to the finding of Nerum and al. in his study (18%). Indeed, cesarean section rates differ between countries [26] For Karatasli and al (2019), pregnant adolescents have higher cesarean section rates. However, with no statistically significant difference between the adolescent and adult groups [26] compared with adults, the rate of cesarean section is lower among adolescents [12] [27].

The incidence of preterm delivery has been the subject of several studies [27] [28] Adolescents aged 15 to 19 years are at higher risk of preterm birth and a

low-birth-weight foetus. This is because the physical immaturity of the uterus causes prematurity. In addition, psychological instability is also significant in young mothers [29].

This is important to emphasize because the wishes of these women during pregnancy, labor, and postpartum must be considered. As reported in the study [9], women with a history of sexual trauma during the prenatal period want this to be communicated to members of the delivery care team. During the intrapartum period, they want to have control over who is present and how their bodies are displayed in the labor room. They want healthcare providers to avoid language that leads to recall of previous trauma, and their preference for the gender of the provider should be met. Finally, some women with a history of sexual trauma find breastfeeding challenging but empowering during the postpartum period [9].

Our findings show several maternal morbidities, such as perineal tears (64.6%), especially 2nd degree (64.5%), and perineal lacerations (31.3%). The high prevalence of perineal tears in post-rape minors in our study should be noted. Suna Yıldırım in Turkey found a low rate of perineal tears among adolescents [30] while In Lubumbashi, a study [29] reported no statistically significant difference between adolescent girls and adults in the prevalence of soft tissue tears, with a rate of 10% among adolescent girls. In fact, another study conducted in France reported that the rate of vaginal tears was statistically higher in adolescents than in adults (14.7% vs. 3.9%). However, there was no difference in the rate of perineal tears between the two groups (adolescents vs. adults) [31]. A study in Mexico and Cameroon [31] [32] indicated that adolescents were the most affected by perineal trauma, with no difference in risk factors related to the grade of tear and age.

The rate of neonatal asphyxia in our study population was 9.6%, and 24.3% admission to the neonatal intensive care unit. Several other studies [33] [34] have found almost similar results. Psychological symptoms were identified during labor in our population (52.9%). The frequent signs identified were agitation (10.7%) and hypersensitivity (8.6%). During labor, it is in post-rape pregnancies. Sobel and al [10] report signs of anxiety, fear, and reliving trauma during vaginal examination.

WHO wishes to see deliveries in a safe environment [35], and supportive psychotherapy should be continuous even during labor, especially in this category of patients. This in-hospital study has considered adolescent girls with a pregnancy resulting from rape from the time of arrival at the hospital until delivery in a context of conflict. This phenomenon has a legal connotation concerning Congolese legislation and/or narrative. The follow-up was performed in a center of excellence for the care of victims of rape and sexual violence. However, this study is limited by its mono-centric approach.

5. Conclusion

The pregnancies following sexual assault among girls under 18 years of age are a

reality in an environment of post conflict and impunity, like the Eastern DRC. The perpetrators were usually civilians, well acquainted but unknown to the survivors at times. Those who have had physical coercion with strangers tended to have a termination. Maternal-fetal morbidity and psychological morbidity, including psychological symptoms, had been observed regardless of the route of delivery. These pregnancies deserve special attention through follow-up and multi-disciplinary care in the community, with psychological and obstetric support, to improve medical, obstetrical, and psychological maternal and neonatal outcomes.

Ethics Approval and Consent to Participate

All methods used in this study followed the Helsinki and STROBE guidelines. The National Health Ethics Committee, DRC, approved this study under the number CNES001/DPSK/192PM/2022. Informed consent from a parent or legal guardian was obtained for study participation

Consent for Publication

Informed consent was obtained from all subjects and/or their legal guardian(s) for publication of identifying information/images in an online open-access publication.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Contributions

KK, RM, EIM contributed to the study design, planning, data collection, data analysis, manuscript writing and final manuscript editing. MM contributed to the data analysis and manuscript writing. KKL, JB contributed data collection supervision. NNO, DM contributed to the study design, planning data collection and final manuscript editing.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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