

Characteristics of violence, timely care-seeking and perceived barriers: a cross-sectional analysis of sexual violence among displaced and resident populations in North Kivu, Democratic Republic of the Congo

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To cite: Reinholdz H, Agardh A, Palmieri J, *et al*. Characteristics of violence, timely care-seeking and perceived barriers: a cross-sectional analysis of sexual violence among displaced and resident populations in North Kivu, Democratic Republic of the Congo. *BMJ Glob Health* 2026;**11**:e024220. doi:10.1136/bmjgh-2026-024220

Handling editor Barnabas Tobi Alayande

► Additional supplemental material is published online only. To view, please visit the journal online (<https://doi.org/10.1136/bmjgh-2026-024220>).

Received 12 March 2026
Accepted 5 July 2026



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ABSTRACT

Introduction Sexual violence is highly prevalent in North Kivu, the Democratic Republic of the Congo and access to care for survivors remains challenging. This study aims to analyse characteristics of violence, barriers to care and timely access to care among survivors of sexual violence who accessed care in North Kivu following the increase of violence and displacement 2023–2024. Furthermore, it examines how violence characteristics differ between survivors with different residential status and factors associated with timely access to care and main barriers.

Methods This cross-sectional study uses data collected, as part of routine programme monitoring, from survivors of sexual violence who received care in three Médecins Sans Frontières programmes in North Kivu, 2023–2024. χ^2 tests were conducted to explore differences between residents and displaced survivors, and multivariable logistic regression models were performed to explore factors associated with timely access to care and the main perceived barriers.

Results A total of 16 712 survivors were included, of whom a majority were females (95.5%) and displaced (83.4%). Displaced survivors more commonly reported multiple assailants, violence during livelihood activities and being referred by a trained community focal point compared with residents. Lack of information and fear of social consequences were the main reported barriers to access care. Several factors, including resident status, age, assailant type and whether the assailant was armed, were significantly associated with care-seeking within 72 hours and experience of the main barriers.

Conclusion This study provides new insights regarding the impact of increased violence and displacement on sexual violence characteristics and care-seeking patterns. The main barriers, lack of knowledge and fear of social consequences, call for responses which specifically address these challenges. As changes in context impact both violence and care-seeking patterns, responses to

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Sexual violence is known to be widespread in the eastern parts of the Democratic Republic of the Congo (DRC). However, access to care for survivors of sexual violence remains challenging. The situation in DRC is constantly changing with active conflict and displacements of populations. Knowledge around how displacement and other factors impact access to care is limited.

WHAT THIS STUDY ADDS

⇒ This study shows how displacement impacts violence characteristics as well as access to care for survivors and explores factors associated with the perceived barriers among survivors accessing care in Médecins Sans Frontières supported programmes in North Kivu.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This knowledge will be key for actors responding to sexual violence, to be able to better adapt and adjust their responses to meet survivors' needs in an evidence-based manner.

sexual violence need to be flexible to be able to meet survivors' needs during humanitarian crises.

INTRODUCTION

The province of North Kivu, located in eastern Democratic Republic of the Congo (DRC), has been ravaged by conflicts, violence and displacement for several decades which has resulted in high levels of humanitarian needs^{1 2} and widespread sexual violence.³

Survivors of sexual violence are at risk for several medical and psychological sequelae.^{4,5} In addition, they might experience social consequences including stigmatisation, shame and rejection.⁶ To prevent some of the consequences and support survivors to heal and recover, access to healthcare is crucial. Certain components of the medical care package have time limits (72 hours for HIV post-exposure prophylaxis and 120 hours for emergency contraception), therefore, timely access to care is important, even though other parts of the care package can still be delivered after these time limits. Despite the need for timely access to care, it remains a challenge in DRC and the proportion of survivors accessing care within 72 hours varies between studies from eastern DRC, ranging from 0.6% to 85.6%.^{7–16} Barriers to accessing care reported from DRC include fear of social consequences, lack of information and lack of adapted, respectful and available care.^{7 16–18}

The escalation of violence in North Kivu in 2022 led to an influx of internally displaced people to Goma, many of whom were concentrated in large camps. By October 2024, the United Nations Office for the Coordination of Humanitarian Affairs reported a total of 2.4 million internally displaced persons in North Kivu.¹⁹ In the context of armed conflict and displacement, sexual violence is known to be highly prevalent,^{20 21} a pattern that has also been reported from DRC in recent years.^{22–24} A recent study from North Kivu, examining survivors who received care at four different hospitals in Goma shows that 38.6% of the survivors reported the assailants to be military or police and 60.7% reported the assailant to be armed, indicating a high rate of militarised violence.¹⁴ A change in context may influence patterns of violence as well as access to care. One study from South Kivu showed a non-significant negative association between being displaced and accessing care within 72 hours,¹¹ and it has been suggested that displaced survivors' care-seeking might be limited due to fear of social retaliations.²⁵ However, the impact of displacement on sexual violence patterns, barriers to care and care-seeking behaviours is not well understood. The current study builds on our previous research conducted in North Kivu,^{16 26} adding understanding around violence characteristics and care-seeking following the surge of violence and displacement. We also aim to examine barriers experienced by survivors who access care, an aspect which to our knowledge has not been previously studied. The analysis is informed by the socio-ecological model adapted by McLeroy *et al*,²⁷ applied here to explain how care-seeking and access to care is influenced by factors at different levels (individual, interpersonal, organisational, community and policy) and the interplay between those factors and levels.

Aim

This study aims to describe the characteristics of violence, patterns of care-seeking and perceived barriers to care among survivors of sexual violence accessing care in North Kivu 2023–2024 and how these differ between residents

and displaced persons. It also aims to examine factors associated with timely care-seeking and factors associated with commonly reported barriers to care access.

METHODS

A register-based observational cross-sectional study design was used.

Study setting and study population

The study used data routinely collected in medical facilities supported by Médecins Sans Frontières (MSF) in three programme locations, that is, Walikale, Mweso and Goma, in North Kivu, DRC. During the study period MSF, in collaboration with the Ministry of Health, offered care and support to survivors of sexual violence integrated in health centres and health posts (8 in Walikale, 8 in Mweso) and through semi-vertical clinics, called Tumainis (1 in Walikale, 2 in Mweso and 2 in Goma). The Goma response to survivors of sexual violence started at the end of 2022 following the creation of camps for internally displaced people in the area, whereas the sexual violence responses in Walikale and Mweso have been established since 2010 and 2013, respectively. There was displacement around Walikale and Mweso prior to and during the study period but not to the extent that was seen in Goma during the study period. The Tumaini is a model where care is offered in a standalone building or part of a building situated in the compound of a hospital or health centre, equipped with a separate entrance and reception. With the aim of reducing risk of exposure and stigma, in addition to care offered to survivors of sexual violence and intimate partner violence, the Tumainis provide basic sexual and reproductive healthcare, mental healthcare and psychosocial support to everyone. The care offered to survivors of sexual violence includes treatment of injuries, pain management, HIV post-exposure prophylaxis, prevention of unwanted pregnancies, post-exposure prophylaxis or treatment of other sexually transmitted infections and tetanus, safe abortion care, psychosocial support, medical certificates and referrals to other actors for legal aid, protection or other support services whenever possible.²⁸ Even if the intention is to always have an up-to-date mapping of available support services and a referral system in place, that has not always been possible due to lack of other actors, lack of capacity of actors and lack of coordination. All care is provided for free and with respect for survivor-centred principles, putting the survivors' safety, confidentiality, well-being and wishes first.²⁹ Awareness raising activities were conducted by dedicated teams in and around the healthcare facilities, including door-to-door campaigns, mass sensitisation events and distribution of print materials.

Data from all survivors of sexual violence who received care between 1 January 2023 and 31 December 2024 were included in the study. Individuals who self-reported experience of sexual violence and received care due to the

sexual violence event were considered as sexual violence survivors.

Three of the co-authors of this study are living and working in the study area but there was no further involvement of the public or patients in the design of this study.

Data collection

Data were collected prior to the study start, as part of the MSF routine medical activities. During medical consultations, information was recorded on standardised medical forms by the healthcare worker (MSF or Ministry of Health staff) providing the care. Data were then transferred to a data collection form which was subsequently entered into the district health information system (DHIS2), an electronic data set configured by MSF, by trained data encoders. All recorded information was self-reported by survivors during the medical consultation. The data set used was pseudonymised and no data could be tracked back to individuals.

Data variables included

Variables included encompass four domains; survivor characteristics, violence characteristics, access to care and perceived barriers. For some of the variables, values have been combined to facilitate analysis and enhance their relevance for the context and the objectives of this study.

Survivor characteristics

Age was recorded in years and categorised as age groups with 10-year increments. We tested a 5-year categorisation but did not see any important difference and used the 10-year categorisation to increase the power of the analysis. The 10-year categorisation allowed for the identification of a group aged 10–19 years old, which corresponds to the WHO definition of adolescents,³⁰ relevant for the analysis.

Information on sex was recorded as female, male, unknown/unspecified and refers to sex assigned at birth. The values 'Unknown/unspecified' were treated as missing values.

Residential status was recorded as resident, internally displaced, refugee/asylum seeker, migrant and unspecified. There were no instances of migrant or unspecified status in the data set. Internally displaced and refugee/asylum seeker were combined into one item, 'Displaced'.

Violence characteristics

The type of assailant was categorised as: non-civilian (including state army, non-state armed groups, police); intimate partner (including current/former intimate partner); civilian (recorded as: family member, known civilian, unknown civilian, teacher, supervisor/employer, UN/NGO staff, supervisor/employer UN/NGO, member of criminal gang) or other/multiple types. These categorisations were created to avoid groups with small numbers and to capture the main different types of assailants.

Whether the assailant was armed was recorded as firearm, machete/knife, blunt object, other, unarmed and unknown. The variable was dichotomised as armed 'Yes' or 'No', since the type of weapon was not considered important for the current analysis. Unknown values were treated as missing values.

The variable 'place/context of violence' was categorised as: private/domestic setting (recorded as: survivor's home, friend/relative's home, assailant's home), movement-related/public space (recorded as: path/road while travelling, flight/migration/in transit), livelihood/essential activity (recorded as: collecting wood/water/food, working in/on the way to the fields), other and not disclosed (recorded as: other/not disclosed, at a checkpoint, detention/captivity, school, workplace). This categorisation allows for the comparison of assaults occurring in domestic contexts versus those during movement, commonly associated with exposure to armed groups, insecurity or lack of safe passage and during activities linked to survival and livelihood. The category 'Other and not disclosed' represents heterogeneous locations which do not fit exactly into the other categories and represents small numbers and grouping them retains data completeness while avoiding sparse categories that could distort statistical tests.

Access to care

Time of care-seeking was recorded as <72 hours, 72–120 hours, >120 hours and uncertain. Values recorded as 'Uncertain' were treated as missing values. The items were dichotomised as timely access within 72 hours 'Yes' or 'No'. The cut-off of 72 hours was chosen as this represents the time-frame when survivors of sexual violence can receive the full medical care package, including post-exposure prophylaxis for HIV.

The referral variable was categorised as: self-referral (recorded as: self-referral), informal referral (recorded as: friend, family, community), trained community focal point (recorded as: health promoter/community health worker, sexual violence community-based care model), formal/institutional referral (recorded as: MSF healthcare facility, non-MSF healthcare facility, other humanitarian actor/non-governmental organisation, authorities, hotline) and other (recorded as: other). This allows referrals made by formally trained community-based persons to be distinguished from those made by untrained community members as well as to combine all referrals from formal actors.

Perceived barriers

During the consultation, the survivors were asked if they had encountered any barriers before accessing the care. Multiple answers, from a pre-defined list, were possible and each listed barrier has been treated as a binomial variable. The options in the pre-defined list included lack of information, fear of social consequences, distance to healthcare, insecurity, lack of family support, fear of mandatory reporting, threats from the assailant, cost of

transport and other. A variable indicating if any perceived barrier(s) were reported ('Yes' or 'No') was created.

Data analysis

Data were analysed using STATA software, V.19.³¹ As the amount of missing data was low (proportion ranging from 0 to 2.2% across variables) and appeared to be random, we conducted complete-case analyses, only excluding cases with missing values in the variable used for a given model.

Descriptive analyses were used to describe and explore the sample and χ^2 tests were used to identify significant differences between displaced and resident survivors as well as between those accessing care within or after 72 hours, between year 2023 and 2024 and between programme sites.

Correlation between variables planned to be included in the multivariable logistic regression models was analysed using correlation matrix. As programme site and residential status were highly correlated ($r=0.81$), programme site was excluded from the multivariable models due to collinearity. In order to analyse the specifics of each site, the logistic regression models were instead carried out for each site separately. Moderate correlation was found between armed assailants and type of assailants ($r=0.45$) and between armed assailant and place/context of violence ($r=0.4$), but not deemed to be problematic as they capture distinct aspects of the assaults. The variable 'perceived any barrier' was conceptualised as a potential mediator in the association between residential status and timely access to care. A moderate correlation between residential status and 'perceived any barrier' ($r=0.56$) supported its consideration as a mediator. This potential mediation effect was subsequently assessed in the analysis.

To examine factors associated with timely care-seeking, as well as with the two most commonly reported barriers (lack of information and fear of social consequences) bivariable logistic regression models were carried out for each independent variable. We then performed stepwise multivariable regression models where the survivor demographic variables were first introduced, followed by violence-related variables and then referral pathways in the fully adjusted models. The fully adjusted models had the lowest Akaike Information Criterion, indicating the best fit, and the fully adjusted models are therefore presented in this paper (all models are available as online supplemental appendix). The logistic regression models were also conducted for each programme site and for each year specifically. To explore the potential mediating role of barriers in the relationship between residential status and timely access to care, we conducted an analysis in which the variable 'perceived any barrier' was added as a covariate to the pooled fully adjusted model to estimate the direct effect, whereas the model without the barrier variable estimated the total effect. This approach allows assessment of how barriers may partially mediate the association between residential status and timely access.

Statistical significance was considered when p values were <0.05 .

RESULTS

Sample description and comparison between resident and displaced survivors

Table 1 presents a description of the study sample, with stratification per residential status, timely access to care, year and programme site. Some key findings include that a total of 16 712 survivors of sexual violence accessed care in one of the programme sites during the full study period. Of these 21.5% ($n=3595$) were adolescents (age 10–19) and 95.5% ($n=15\,942$) were female. More than half of the survivors reported the assailant to be a non-civilian (53.2%, $n=8862$), armed (71.4%, $n=11\,675$) and the violence to have taken place during livelihood/essential activities (50.2%, $n=8312$) (table 1).

Displaced survivors were less frequently in the 0–9 and 10–19 years age groups and more frequently reported an armed assailant, the assailant to be a non-civilian or an intimate partner, multiple assailants and the violence to have happened during livelihood/essential activities, compared to resident survivors (table 1).

Compared to 2023, more survivors accessed care in Goma and more displaced survivors accessed care in 2024. A larger proportion of survivors had timely access to care in 2024 at the same time as a larger proportion reported that they had experienced one or more barriers (table 1).

The two main barriers encountered before accessing care were lack of information and fear of social consequences, reported by 47.0% ($n=7855$) and 27.3% ($n=4553$) of all the survivors, respectively (table 2).

Factors associated with care-seeking within 72 hours

Table 3 shows the results of the fully adjusted multivariable logistic regression models with adjusted ORs (aORs), 95% CIs and p values. The mean variance inflation factors (VIFs) for the fully adjusted models ranged between 2.61 and 3.85, indicating that multicollinearity was not a concern.

As shown in table 3, displaced survivors had 36% lower odds of accessing timely care compared with residents (aOR 0.64 (95% CI 0.57 to 0.71)). Children aged 0–9 years (aOR 0.64 (95% CI 0.43 to 0.95)), adolescents aged 10–19 (aOR 0.62 (95% CI 0.56 to 0.68)), survivors aged 40–49 (aOR 0.84 (95% CI 0.73 to 0.96)) and 50 years and older (aOR 0.45 (95% CI 0.38 to 0.53)) had significantly lower odds of accessing care within 72 hours compared with survivors aged 20–29. These results were broadly similar for each year and programme site, with some small variation in magnitude and precision.

Survivors of intimate partner sexual violence had 34% lower odds of accessing care within 72 hours compared with those experiencing violence by a non-civilian (aOR 0.66 (95% CI 0.57 to 0.76)) in the analysis of pooled data. In both Mweso (aOR 1.28 (95% CI 0.63 to 2.61))

Table 1 Demographics, violence characteristics, assailant characteristics and care-seeking pathways among survivors of sexual violence accessing care in MSF supported programmes in North Kivu, DRC 2023–2024, stratified per residential status, timing of care-seeking to care (within 72 hours), year and programme site

	Residential status			Timing of care-seeking			Year		Programme site		
	Total n (%)	Resident, n (%)	Displaced, n (%)	P value\$	After 72 hours, n (%)	Within 72 hours, n (%)	2023, n (%)	2024, n (%)	Walikale, n (%)	Mweso, n (%)	Goma, n (%)
N	16 712	2764 (16.6)	13 936 (83.4)		5116 (31.2)	11 301 (68.8)	6395 (38.3)	10 317 (61.7)	652 (3.9)	2485 (14.9)	13 575 (81.2)
Year of visit				<0.001							<0.001
2023	6395 (38.3)	1388 (50.2)	4999 (35.9)		2249 (44.0)	3874 (34.3)			356 (54.6)	1237 (49.8)	4802 (35.4)
2024	10 317 (61.7)	1376 (49.8)	8937 (64.1)		2867 (56.0)	7427 (65.7)			296 (45.4)	1248 (50.2)	8773 (64.6)
Programme site				<0.001					<0.001		
Walikale	652 (3.9)	624 (22.6)	27 (0.2)		380 (7.4)	270 (2.4)	356 (5.6)	296 (2.9)			
Mweso	2485 (14.9)	1920 (69.5)	561 (4.0)		334 (6.5)	2147 (19.0)	1237 (19.3)	1248 (12.1)			
Goma	13 575 (81.2)	220 (8.0)	13 348 (95.8)		4402 (86.0)	8884 (78.6)	4802 (75.1)	8773 (85.0)			
Age group				<0.001					<0.001		<0.001
0–9	133 (0.8)	55 (2.0)	78 (0.6)		48 (0.9)	81 (0.7)	64 (1.0)	69 (0.7)	29 (4.4)	30 (1.2)	74 (0.5)
10–19	3595 (21.5)	901 (32.6)	2692 (19.3)		1397 (27.3)	2134 (18.9)	1304 (20.4)	2291 (22.2)	304 (46.6)	647 (26.0)	2644 (19.5)
20–29	6730 (40.3)	1080 (39.1)	5645 (40.5)		1889 (36.9)	4748 (42.0)	2430 (38.0)	4300 (41.7)	210 (32.2)	995 (40.0)	5525 (40.7)
30–39	4230 (25.3)	528 (19.1)	3697 (26.5)		1063 (20.8)	3093 (27.4)	1592 (24.9)	2638 (25.6)	71 (10.9)	579 (23.3)	3580 (26.4)
40–49	1350 (8.1)	162 (5.9)	1188 (8.5)		415 (8.1)	901 (8.0)	647 (10.1)	703 (6.8)	23 (3.5)	198 (8.0)	1129 (8.3)
≥50	674 (4.0)	38 (1.4)	636 (4.6)		304 (5.9)	344 (3.0)	358 (5.6)	316 (3.1)	15 (2.3)	36 (1.4)	623 (4.6)
Sex of survivor				0.911			0.999		0.027		0.006
Male	750 (4.5)	123 (4.5)	626 (4.5)		232 (4.5)	513 (4.5)	258 (4.0)	492 (4.8)	14 (2.1)	102 (4.1)	634 (4.7)
Female	15 942 (95.5)	2641 (95.5)	13 290 (95.5)		4875 (95.5)	10 778 (95.5)	6124 (96.0)	9818 (95.2)	638 (97.9)	2383 (95.9)	12 921 (95.3)
Resident status							<0.001		<0.001		<0.001
Resident	2764 (16.6)				684 (13.4)	2074 (18.4)	1388 (21.7)	1376 (13.3)	624 (95.9)	1920 (77.4)	220 (1.6)
Displaced	13 936 (83.4)				4429 (86.6)	9218 (81.6)	4999 (78.3)	8937 (86.7)	27 (4.1)	561 (22.6)	13 348 (98.4)
Assailant type				<0.001			<0.001		<0.001		<0.001

Continued

Table 1 Continued

Total		Residential status		Timing of care-seeking				Year		Programme site				
n (%)		Resident, n (%)	Displaced, n (%)	P value\$	After 72 hours, n (%)	Within 72 hours, n (%)	P value\$	2023, n (%)	2024, n (%)	P value\$	Walikale, n (%)	Mweso, n (%)	Goma, n (%)	P value\$
Non-civilian	8862 (53.2)	1396 (50.8)	7459 (53.7)		2510 (49.3)	6185 (54.9)		3255 (51.1)	5607 (54.5)		65 (10.0)	1712 (69.3)	7085 (52.3)	
Intimate partner	1151 (6.9)	163 (5.9)	988 (7.1)		490 (9.6)	651 (5.8)		354 (5.6)	797 (7.7)		55 (8.5)	105 (4.2)	991 (7.3)	
Civilian (non-partner)	6572 (39.5)	1156 (42.0)	5411 (38.9)		2070 (40.6)	4386 (38.9)		2721 (42.8)	3851 (37.4)		510 (78.6)	638 (25.8)	5424 (40.1)	
Other/multiple types	74 (0.4)	35 (1.3)	39 (0.3)		26 (0.5)	46 (0.4)		34 (0.5)	40 (0.4)		19 (2.9)	16 (0.6)	39 (0.3)	
Assailant armed				<0.001			<0.001			<0.001				<0.001
No	4676 (28.6)	860 (31.9)	3813 (27.9)		1759 (35.2)	2872 (25.9)		1555 (25.1)	3121 (30.7)		430 (69.5)	385 (15.8)	3861 (29.0)	
Yes	11 675 (71.4)	1833 (68.1)	9834 (72.1)		3241 (64.8)	8208 (74.1)		4633 (74.9)	7042 (69.3)		189 (30.5)	2048 (84.2)	9438 (71.0)	
Number of assailants				<0.001			0.014			<0.001				<0.001
Single	11 917 (71.5)	2387 (86.9)	9523 (68.5)		3726 (73.1)	8027 (71.2)		4298 (67.5)	7619 (74.0)		558 (87.9)	2174 (87.6)	9185 (67.8)	
Multiple	4751 (28.5)	359 (13.1)	4388 (31.5)		1374 (26.9)	3247 (28.8)		2073 (32.5)	2678 (26.0)		77 (12.1)	309 (12.4)	4365 (32.2)	
Place/context of violence				<0.001			<0.001			<0.001				<0.001
Private/domestic setting	5053 (30.5)	901 (33.3)	4149 (30.0)		1678 (33.2)	3325 (29.7)		1645 (26.0)	3408 (33.4)		350 (55.1)	529 (21.7)	4174 (31.0)	
Movement-related/public space	2567 (15.5)	918 (33.9)	1647 (11.9)		863 (17.1)	1651 (14.8)		1303 (20.6)	1264 (12.4)		123 (19.4)	1047 (43.0)	1397 (10.4)	
Livelihood/essential activity	8312 (50.2)	731 (27.0)	7576 (54.8)		2306 (45.6)	5821 (52.0)		3154 (49.8)	5158 (50.5)		122 (19.2)	732 (30.0)	7458 (55.4)	
Other and not disclosed	613 (3.7)	157 (5.8)	454 (3.3)		212 (4.2)	395 (3.5)		226 (3.6)	387 (3.8)		40 (6.3)	128 (5.3)	445 (3.3)	
Referred by				<0.001			<0.001			<0.001				<0.001
Self-referred	4705 (28.3)	1603 (58.3)	3098 (22.3)		1186 (23.3)	3486 (31.0)		2090 (32.8)	2615 (25.4)		357 (55.7)	1510 (61.0)	2838 (21.0)	
Informal referral	2901 (17.4)	614 (22.3)	2285 (16.5)		1014 (19.9)	1841 (16.3)		1077 (16.9)	1824 (17.7)		124 (19.3)	461 (18.6)	2316 (17.1)	
Trained community focal point	7085 (42.6)	208 (7.6)	6873 (49.5)		2283 (44.8)	4629 (41.1)		2385 (37.5)	4700 (45.7)		100 (15.6)	106 (4.3)	6879 (50.8)	
Formal/institutional referral	1936 (11.6)	317 (11.5)	1619 (11.7)		599 (11.8)	1295 (11.5)		795 (12.5)	1141 (11.1)		57 (8.9)	394 (15.9)	1485 (11.0)	
Other	23 (0.1)	8 (0.3)	15 (0.1)		12 (0.2)	11 (0.1)		16 (0.3)	7 (0.1)		3 (0.5)	6 (0.2)	14 (0.1)	

Continued

Table 1 Continued

	Total n (%)	Residential status		Timing of care-seeking				Year		Programme site		
		Resident, n (%)†	Displaced, n (%)‡	P value\$	After 72 hours, n (%)¶	Within 72 hours, n (%)**	P value\$	2023, n (%)††	2024, n (%)‡‡	P value\$	Walikale, n (%)§§	Goma, n (%)***
Accessed care within 72 hours				<0.001			<0.001			<0.001		<0.001
No	5116 (31.2)	684 (24.8)	4429 (32.5)					2249 (36.7)	2867 (27.9)		380 (58.5)	4402 (33.1)
Yes	11 301 (68.8)	2074 (75.2)	9218 (67.5)					3874 (63.3)	7427 (72.1)		270 (41.5)	8884 (66.9)
Perceived any barriers				<0.001			<0.001			<0.001		<0.001
No	2192 (13.1)	1530 (55.4)	658 (4.7)		283 (5.5)	1905 (16.9)		1382 (21.6)	810 (7.9)		208 (31.9)	279 (2.1)
Yes	14 520 (86.9)	1234 (44.6)	13 278 (95.3)		4833 (94.5)	9396 (83.1)		5013 (78.4)	9507 (92.1)		444 (68.1)	13 296 (97.9)

*Among all survivors of sexual violence.
†Among resident survivors of sexual violence.
‡Among displaced survivors of sexual violence.
\$Pearson's χ^2 test.
¶Among survivors accessing care after 72 hours.
**Among survivors accessing care within 72 hours.
††Among survivors accessing care in 2023.
‡‡Among survivors accessing care in 2024.
§§Among survivors accessing care in Walikale.
¶¶Among survivors accessing care in Mweso.
***Among survivors accessing care in Goma.
DRC, Democratic Republic of the Congo; MSF, Médecins Sans Frontières.

Table 2 Perceived barriers as reported by survivors of sexual violence accessing care in MSF supported programmes in North Kivu, DRC 2023–2024, stratified per residential status, year and programme site, with χ^2 test of association results

	Total n (%)	Resident status		Year		Programme site					
		Resident, n (%)†	Displaced, n (%)‡	P value§	2023, n (%)¶	P value§	Walikale, n (%††)	Mweso, n (%‡‡)	Goma, n (%\$\$\$)	P value§	
Lack of information	7855 (47.0)	451 (16.3)	7404 (53.1)	<0.001	2783 (43.5)	5079 (49.2)	<0.001	227 (34.8)	191 (7.7)	7444 (54.8)	<0.001
Fear of social consequences	4553 (27.3)	335 (12.1)	4218 (30.3)	<0.001	1410 (22.0)	3143 (30.5)	<0.001	53 (8.1)	289 (11.6)	4211 (31.0)	<0.001
Distance to healthcare	626 (3.7)	248 (9.0)	378 (2.7)	<0.001	181 (2.8)	446 (4.3)	<0.001	88 (13.5)	165 (6.6)	374 (2.8)	<0.001
Insecurity	293 (1.8)	64 (2.3)	229 (1.6)	0.014	102 (1.6)	191 (1.9)	0.22	8 (1.2)	78 (3.1)	207 (1.5)	<0.001
Lack of family support	185 (1.1)	72 (2.6)	113 (0.8)	<0.001	108 (1.7)	77 (0.7)	<0.001	50 (7.7)	35 (1.4)	100 (0.7)	<0.001
Fear of mandatory reporting	160 (1.0)	27 (1.0)	133 (1.0)	0.912	114 (1.8)	46 (0.4)	<0.001	8 (1.2)	23 (0.9)	129 (1.0)	0.766
Threats from the assailant	147 (0.9)	45 (1.6)	102 (0.7)	<0.001	60 (0.9)	87 (0.8)	0.523	20 (3.1)	23 (0.9)	104 (0.8)	<0.001
Cost of transport	70 (0.4)	29 (1.0)	41 (0.3)	<0.001	34 (0.5)	36 (0.3)	0.075	17 (2.6)	10 (0.4)	43 (0.3)	<0.001
Other	808 (4.8)	31 (1.1)	777 (5.6)	<0.001	317 (5.0)	491 (4.8)	0.562	5 (0.8)	13 (0.5)	790 (5.8)	<0.001
*Among all survivors of sexual violence. †Among resident survivors. ‡Among displaced survivors. §Pearson's χ^2 . ¶Among survivors accessing care in 2023. **Among survivors accessing care in 2024. ††Among survivors accessing care in Walikale. ‡‡Among survivors accessing care in Mweso. \$\$\$Among survivors accessing care in Goma. DRC, Democratic Republic of the Congo; MSF, Médecins Sans Frontières.											

Table 3 Fully adjusted multivariable logistic regression models of factors associated with accessing care within 72 hours, among survivors of sexual violence accessing care in MSF supported programmes in North Kivu, DRC 2023–2024. Models including all pooled data and separated by year and programme site

	Adjusted* multivariable logistic regression models									
	Full data set					2024				
	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value
Residential status (Ref=Resident)										
Displaced	0.64 (0.57 to 0.71)	<0.001	0.61 (0.52 to 0.71)	<0.001	0.66 (0.56 to 0.76)	<0.001	0.05 (0.01 to 0.39)	0.005	1.04 (0.78 to 1.39)	0.804
Age group (in years) (Ref=20–29 years)										
0–9	0.64 (0.43 to 0.95)	0.029	0.80 (0.44 to 1.44)	0.456	0.60 (0.35 to 1.03)	0.064	1.43 (0.45 to 4.57)	0.543	1.86 (0.43 to 8.13)	0.41
10–19	0.62 (0.56 to 0.68)	<0.001	0.66 (0.57 to 0.78)	<0.001	0.58 (0.52 to 0.65)	<0.001	0.82 (0.52 to 1.29)	0.386	0.58 (0.42 to 0.78)	<0.001
30–39	1.14 (1.04 to 1.25)	0.004	0.91 (0.79 to 1.06)	0.222	1.35 (1.19 to 1.52)	<0.001	0.48 (0.25 to 0.93)	0.029	0.85 (0.61 to 1.20)	0.352
40–49	0.84 (0.73 to 0.96)	0.01	0.90 (0.74 to 1.09)	0.278	0.96 (0.79 to 1.16)	0.653	0.35 (0.10 to 1.20)	0.095	0.53 (0.34 to 0.83)	0.005
>50	0.45 (0.38 to 0.53)	<0.001	0.50 (0.39 to 0.64)	<0.001	0.52 (0.41 to 0.66)	<0.001	0.49 (0.09 to 2.61)	0.403	0.28 (0.13 to 0.61)	0.001
Sex (Ref=Male)										
Female	0.88 (0.74 to 1.04)	0.134	0.69 (0.51 to 0.94)	0.018	0.97 (0.79 to 1.21)	0.815	0.98 (0.26 to 3.78)	0.982	0.85 (0.43 to 1.70)	0.653
Assailant type (Ref=Non-civilian)										
Intimate partner	0.66 (0.57 to 0.76)	<0.001	1.04 (0.80 to 1.36)	0.769	0.61 (0.51 to 0.74)	<0.001	1.40 (0.53 to 3.72)	0.498	1.28 (0.63 to 2.61)	0.503
Civilian (non-partner)	1.02 (0.93 to 1.11)	0.709	1.14 (1.00 to 1.31)	0.049	1.09 (0.97 to 1.23)	0.128	1.65 (0.79 to 3.46)	0.183	0.96 (0.67 to 1.39)	0.845
Other or multiple types	0.88 (0.44 to 1.75)	0.719	0.55 (0.20 to 1.56)	0.263	1.19 (0.43 to 3.30)	0.745	0.76 (0.10 to 5.94)	0.798	†	†
Number of assailants (Ref=Single)										
Multiple	0.97 (0.90 to 1.06)	0.551	0.77 (0.68 to 0.87)	<0.001	1.30 (1.16 to 1.46)	<0.001	1.61 (0.80 to 3.22)	0.182	1.01 (0.70 to 1.46)	0.962
Armed assailant (Ref=No)										
Yes	1.49 (1.36 to 1.64)	<0.001	1.49 (1.26 to 1.76)	<0.001	1.60 (1.42 to 1.80)	<0.001	3.09 (1.76 to 5.40)	<0.001	1.05 (0.68 to 1.63)	0.824
Place/context of the sexual violence (Ref=Private/domestic setting)										
Movement-related/public space	0.69 (0.61 to 0.78)	<0.001	0.76 (0.63 to 0.92)	0.004	0.76 (0.65 to 0.90)	0.001	1.10 (0.62 to 1.96)	0.747	0.92 (0.66 to 1.29)	0.642
Livelihood/essential activity	1.04 (0.94 to 1.15)	0.42	0.99 (0.84 to 1.17)	0.934	1.11 (0.98 to 1.26)	0.088	1.30 (0.72 to 2.35)	0.379	1.34 (0.92 to 1.96)	0.129
Other and not disclosed	0.81 (0.67 to 0.98)	0.03	1.09 (0.78 to 1.53)	0.611	0.71 (0.56 to 0.89)	0.004	2.30 (0.98 to 5.38)	0.055	1.83 (0.87 to 3.82)	0.11
Referred by (Ref=Self-referred)										
Informal referral	0.66 (0.59 to 0.73)	<0.001	0.61 (0.51 to 0.72)	<0.001	0.69 (0.60 to 0.79)	<0.001	0.39 (0.22 to 0.67)	0.001	0.63 (0.46 to 0.86)	0.004
Trained community focal point	0.72 (0.66 to 0.79)	<0.001	0.42 (0.37 to 0.49)	<0.001	0.92 (0.82 to 1.04)	0.197	0.18 (0.09 to 0.34)	<0.001	1.49 (0.70 to 3.16)	0.296
Formal/institutional referral	0.72 (0.64 to 0.81)	<0.001	0.56 (0.46 to 0.67)	<0.001	0.82 (0.69 to 0.97)	0.02	0.31 (0.15 to 0.65)	0.002	0.52 (0.38 to 0.71)	<0.001
Other	0.36 (0.16 to 0.84)	0.019	0.28 (0.10 to 0.77)	0.014	0.48 (0.10 to 2.25)	0.355	†	†	†	†
Mean VIF for the model	2.62		2.61			2.71		2.80	2.71	

*All variables in the multivariable model were mutually adjusted. †Insufficient observations for reliable model estimation. aOR, adjusted OR; DRC, Democratic Republic of the Congo; MSF, Médecins Sans Frontières; Ref, reference value; VIF, variance inflation factor.

and Walikale (aOR 1.40 (95% CI 0.53 to 3.72), survivors of intimate partner violence had higher odds of accessing care within 72 hours although these results were non-significant.

To further understand the association between resident status and timely access to care, we added the variable 'perceived any barrier' to the fully adjusted model. This attenuated the association between residential status and timely access to care (aOR 1.08 (95% CI 0.95 to 1.22)), suggesting that perceived barriers may partially mediate this relationship (data not shown in table).

Factors associated with the main perceived barriers to accessing care

Tables 4 and 5 present the results from the fully adjusted multivariable logistic regression models for the dependent variables 'lack of information' and 'fear of social consequences', with aOR, 95% CI and p values. Mean VIF for the models ranged between 2.61 and 3.89, indicating that there are no significant issues with multicollinearity in the models.

As shown in table 4, displaced survivors had 3.9 times higher odds of reporting lack of information as a barrier compared with resident survivors (aOR 3.90 (95% CI 3.45 to 4.40)). The same direction is seen also for each year and programme site, although non-significant in the model for Mweso.

Survivors of violence perpetrated by an intimate partner had 1.26 times higher odds of reporting lack of information as a barrier compared with those who reported a non-civilian (aOR 1.26 (95% CI 1.08 to 1.47)), the same direction is also seen in the analysis for each year and programme site, except in Mweso.

As shown in table 5, women had 56% higher odds than men to perceive social consequences as a barrier (aOR 1.56 (95% CI 1.29 to 1.90)), however in both models for Walikale and Mweso women were less likely to report this barrier (significant for Walikale, non-significant for Mweso). Displaced survivors had 3.4 times higher odds of reporting fear of social consequences as a barrier compared with resident survivors (aOR 3.40 (95% CI 2.97 to 3.88)). This result varied between programme sites; in both Mweso and Walikale displaced survivors were less likely to report this barrier (non-significant).

Survivors of violence perpetrated by a civilian (not intimate partner) had significantly higher odds of reporting fear of social consequences as a barrier compared with those who reported the assailant to be a non-civilian (aOR 1.16 (95% CI 1.06 to 1.26)).

DISCUSSION

This study of 16 712 survivors of sexual violence accessing care in North Kivu shows that there are significant differences between displaced and non-displaced survivors in terms of the sexual violence they report and their access to care, as well as some local differences between programme sites. It also identifies factors associated with

timely access to care and perceived barriers operating at different socio-ecological levels.

The distribution of age and sex among survivors accessing care, with the largest age group being 20–29, is congruent with previous studies from North Kivu,^{14 26} indicating little change in age distribution among survivors accessing care over the years, despite contextual changes. However, the proportion of both adolescent and child survivors was lower in the current study compared with our previous study²⁶ and lower among displaced survivors, suggesting that they lack access to care.

Most of the reported violence was perpetrated by non-civilians (53.2%), by armed assailants (71.4%) and during livelihood/essential activities (50.2%) and 28.5% reported multiple assailants. In a study examining data from survivors of sexual violence accessing care in a hospital in Bukavu, South Kivu, during 2014–2019, 43.2% of the survivors reported an armed assailant and 50.0% multiple assailants¹¹ whereas in a study examining data from survivors accessing a hospital in Goma, during 2013–2017 only 13.8% of survivors reported a military assailant.¹² In a more recent study from Goma, including survivors who accessed care during 2019–2020, 38.6% of the survivors reported the assailant to be military or police.¹⁴ The differences seen between studies indicate that violence characteristics change over time and are likely linked to contextual factors. The high level of violence perpetrated by non-civilians and armed assailants indicate high levels of militarised and/or opportunistic violence by armed actors even though our sample does not represent the general population. The high proportion of violence reported to be linked to livelihood/essential activities and the large percentage of female survivors accessing care illustrates the gendered aspect of conflict and displacement which needs to be recognised and addressed.

The large number of displaced survivors accessing care can be explained by the physical setup of the care model in Goma, allowing for a large displaced population to have geographical access to care within the camps. The model of care, the Tumaini, might also have been a suitable model for this context, even though this study does not allow for a comparison with other models. Displaced populations are exposed to violence before and during displacement as shown in other humanitarian contexts^{25 32} and may be exposed to unsafe situations linked to livelihood activities in the camps, such as seeking food or water in unsafe areas. Their dependency on humanitarian responses further increases risk for sexual abuse and exploitation.

Displaced survivors more frequently reported non-civilians, armed and multiple assailants which indicates that those who were displaced were more exposed to conflict-related violence. However, displaced survivors were also more likely to report intimate partner violence which likely links to the disruption of social networks, destabilisation of traditional power balances and gender roles and the impact of stress on families within

Table 4 Fully adjusted multivariable logistic regression models for factors associated with the perceived barrier lack of information, among survivors of sexual violence accessing care in MSF supported programmes in North Kivu, DRC 2023–2024. Models including pooled data and separated by year and programme site

Adjusted* multivariable logistic regression model																	
Full data set			2023			2024			Waikale			Mweso			Goma		
aOR (95% CI)	P value		aOR (95% CI)	P value		aOR (95% CI)	P value		aOR (95% CI)	P value		aOR (95% CI)	P value		aOR (95% CI)	P value	
Residential status (Ref=Resident)																	
Displaced	3.90 (3.45 to 4.40)	<0.001	4.59 (3.80 to 5.54)	<0.001		3.30 (2.81 to 3.88)	<0.001		3.20 (1.25 to 8.22)	0.015		1.18 (0.81 to 1.70)	0.390		1.56 (1.17 to 2.07)	0.002	
Age group (in years) (Ref=20–29 years)																	
0–9	0.69 (0.46 to 1.05)	0.084	0.72 (0.38 to 1.36)	0.314		0.67 (0.38 to 1.18)	0.168		0.33 (0.08 to 1.29)	0.111		1.76 (0.56 to 5.48)	0.330		0.77 (0.47 to 1.26)	0.295	
10–19	1.05 (0.96 to 1.16)	0.264	1.14 (0.96 to 1.34)	0.129		1.02 (0.91 to 1.14)	0.729		1.24 (0.79 to 1.96)	0.347		0.87 (0.58 to 1.31)	0.508		1.06 (0.96 to 1.17)	0.273	
30–39	0.89 (0.82 to 0.97)	0.007	0.97 (0.84 to 1.13)	0.721		0.85 (0.77 to 0.95)	0.003		2.21 (1.19 to 4.10)	0.012		0.97 (0.64 to 1.47)	0.874		0.88 (0.80 to 0.96)	0.004	
40–49	0.79 (0.70 to 0.90)	<0.001	0.95 (0.78 to 1.16)	0.598		0.67 (0.56 to 0.79)	<0.001		1.71 (0.62 to 4.70)	0.297		0.59 (0.29 to 1.23)	0.161		0.80 (0.70 to 0.92)	0.002	
≥50	1.22 (1.02 to 1.45)	0.027	1.36 (1.05 to 1.76)	0.018		1.08 (0.84 to 1.38)	0.559		2.04 (0.52 to 8.03)	0.309		1.18 (0.34 to 4.15)	0.792		1.16 (0.97 to 1.39)	0.111	
Sex (Ref=Male)																	
Female	0.96 (0.81 to 1.14)	0.672	1.28 (0.94 to 1.73)	0.117		0.84 (0.68 to 1.03)	0.091		3.78 (0.74 to 19.22)	0.109		0.40 (0.19 to 0.83)	0.014		0.91 (0.76 to 1.09)	0.288	
Assailant type (Ref=Non-civilian)																	
Intimate partner	1.26 (1.08 to 1.47)	0.003	1.00 (0.76 to 1.32)	1.000		1.37 (1.14 to 1.66)	0.001		1.61 (0.62 to 4.18)	0.325		0.99 (0.43 to 2.27)	0.985		1.18 (1.00 to 1.39)	0.045	
Civilian (non-partner)	0.96 (0.89 to 1.04)	0.358	1.01 (0.88 to 1.16)	0.870		0.93 (0.84 to 1.03)	0.166		1.38 (0.64 to 2.94)	0.408		0.78 (0.47 to 1.30)	0.343		0.86 (0.79 to 0.94)	0.001	
Other or multiple types	1.14 (0.57 to 2.30)	0.713	1.40 (0.45 to 4.41)	0.564		1.00 (0.41 to 2.44)	0.991		1.53 (0.22 to 10.73)	0.670	†	†	†		1.14 (0.50 to 2.59)	0.756	
Number of assailants (Ref=Single)																	
Multiple	1.26 (1.17 to 1.37)	<0.001	1.54 (1.35 to 1.75)	<0.001		1.12 (1.01 to 1.25)	0.026		0.78 (0.39 to 1.58)	0.499		1.43 (0.92 to 2.24)	0.112		1.12 (1.03 to 1.21)	0.011	
Armed assailant (Ref=No)																	
Yes	0.74 (0.67 to 0.81)	<0.001	0.67 (0.56 to 0.80)	<0.001		0.78 (0.69 to 0.87)	<0.001		0.82 (0.47 to 1.44)	0.500		0.70 (0.38 to 1.29)	0.256		0.84 (0.76 to 0.93)	0.001	
Place/context of the sexual violence (Ref=Private/domestic setting)																	
Movement-related/public space	0.92 (0.82 to 1.04)	0.202	0.88 (0.72 to 1.08)	0.228		0.95 (0.81 to 1.12)	0.551		0.66 (0.37 to 1.18)	0.164		1.53 (0.93 to 2.54)	0.097		1.28 (1.11 to 1.47)	0.001	

Continued

Table 4 Continued

Adjusted* multivariable logistic regression model												
	Full data set		2023		2024		Walikale		Mweso		Goma	
	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value
Livelihood/essential activity	1.11 (1.01 to 1.22)	0.027	1.11 (0.93 to 1.32)	0.242	1.12 (1.00 to 1.26)	0.051	0.73 (0.41 to 1.30)	0.287	1.96 (1.15 to 3.34)	0.013	1.13 (1.03 to 1.25)	0.015
Other and not disclosed	0.84 (0.70 to 1.03)	0.088	0.90 (0.63 to 1.28)	0.558	0.84 (0.66 to 1.05)	0.131	0.56 (0.24 to 1.33)	0.192	0.52 (0.15 to 1.78)	0.296	0.94 (0.77 to 1.16)	0.591
Referred by (Ref=Self-referred)												
Informal referral	4.12 (3.70 to 4.59)	<0.001	3.84 (3.22 to 4.59)	<0.001	4.21 (3.67 to 4.83)	<0.001	1.83 (1.09 to 3.08)	0.022	3.85 (2.55 to 5.83)	<0.001	4.12 (3.65 to 4.65)	<0.001
Trained community focal point	4.27 (3.90 to 4.67)	<0.001	5.70 (4.90 to 6.62)	<0.001	3.71 (3.30 to 4.16)	<0.001	2.72 (1.65 to 4.47)	<0.001	2.50 (1.18 to 5.30)	0.017	3.83 (3.48 to 4.22)	<0.001
Formal/institutional referral	3.38 (3.00 to 3.82)	<0.001	2.82 (2.32 to 3.42)	<0.001	3.84 (3.28 to 4.49)	<0.001	1.59 (0.82 to 3.10)	0.168	4.95 (3.28 to 7.48)	<0.001	3.50 (3.06 to 4.02)	<0.001
Other	4.63 (1.92 to 11.12)	0.001	4.86 (1.67 to 14.16)	0.004	5.08 (1.03 to 25.09)	0.046	7.23 (0.56 to 94.04)	0.131	6.14 (0.67 to 56.62)	0.109	4.31 (1.43 to 13.03)	0.010
Mean VIF for the model		2.64		2.65		2.71		2.71		2.61		3.89
*All variables in the multivariable model were mutually adjusted.												
†Insufficient observations for reliable model estimation.												
aOR, adjusted OR; DRC, Democratic Republic of the Congo; MSF, Médecins Sans Frontières; Ref, reference value; VIF, variance inflation factor.												

Table 5 Fully adjusted multivariable logistic regression models for factors associated with the perceived barrier fear of social consequences, among survivors of sexual violence accessing care in MSF supported programmes in North Kivu, DRC 2023–2024. Models including pooled data and separated by year and programme site

Adjusted* multivariable logistic regression model														
Full data set			2023		2024		Walikale		Mweso		Goma			
	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value		
Residential status (Ref=Resident)														
Displaced	3.40 (2.97 to 3.88)	<0.001	7.67 (5.84 to 10.08)	<0.001	2.11 (1.80 to 2.48)	<0.001	0.62 (0.08 to 5.04)	0.651	0.84 (0.61 to 1.17)	0.313	1.19 (0.86 to 1.65)	0.288		
Age group (in years) (Ref=20–29 years)														
0–9	0.62 (0.36 to 1.08)	0.093	0.63 (0.26 to 1.53)	0.302	0.67 (0.33 to 1.34)	0.256	0.79 (0.08 to 7.57)	0.842	0.75 (0.17 to 3.27)	0.699	0.63 (0.34 to 1.17)	0.140		
10–19	1.03 (0.93 to 1.14)	0.545	0.84 (0.70 to 1.02)	0.081	1.11 (0.98 to 1.24)	0.089	1.81 (0.81 to 4.06)	0.151	1.28 (0.91 to 1.80)	0.149	1.01 (0.91 to 1.13)	0.789		
30–39	1.10 (1.00 to 1.20)	0.042	1.02 (0.87 to 1.20)	0.783	1.13 (1.01 to 1.26)	0.028	0.25 (0.03 to 2.07)	0.200	1.43 (1.03 to 1.99)	0.034	1.08 (0.98 to 1.19)	0.103		
40–49	1.02 (0.89 to 1.17)	0.810	0.94 (0.75 to 1.17)	0.557	1.12 (0.94 to 1.34)	0.197	2.78 (0.52 to 14.86)	0.233	1.11 (0.67 to 1.86)	0.681	1.02 (0.88 to 1.18)	0.782		
≥50	0.79 (0.65 to 0.96)	0.018	0.87 (0.65 to 1.16)	0.345	0.80 (0.61 to 1.05)	0.102	1.42 (0.12 to 16.41)	0.778	0.94 (0.28 to 3.19)	0.924	0.77 (0.63 to 0.94)	0.012		
Sex (Ref=Male)														
Female	1.56 (1.29 to 1.90)	<0.001	1.05 (0.75 to 1.47)	0.780	1.90 (1.49 to 2.42)	<0.001	0.16 (0.03 to 0.75)	0.020	0.78 (0.40 to 1.53)	0.465	1.78 (1.45 to 2.19)	<0.001		
Assailant type (Ref=Non-civilian)														
Intimate partner	1.06 (0.91 to 1.25)	0.454	1.26 (0.93 to 1.69)	0.133	1.02 (0.84 to 1.24)	0.826	0.59 (0.10 to 3.60)	0.566	1.72 (1.02 to 2.91)	0.043	0.98 (0.82 to 1.16)	0.789		
Civilian (non-partner)	1.16 (1.06 to 1.26)	<0.001	1.31 (1.12 to 1.52)	0.001	1.15 (1.04 to 1.28)	0.009	0.86 (0.23 to 3.15)	0.816	0.91 (0.63 to 1.32)	0.628	1.13 (1.04 to 1.24)	0.007		
Other or multiple types	0.63 (0.26 to 1.52)	0.302	†	†	0.91 (0.35 to 2.35)	0.839	†	†	0.64 (0.085,33)	0.681	0.63 (0.23 to 1.70)	0.361		
Number of assailants (Ref=Single)														
Multiple	1.01 (0.93 to 1.10)	0.735	1.02 (0.88 to 1.18)	0.791	1.06 (0.95 to 1.18)	0.281	0.71 (0.18 to 2.87)	0.635	1.14 (0.78 to 1.68)	0.503	0.96 (0.88 to 1.05)	0.347		
Armed assailant (Ref=No)														
Yes	1.21 (1.10 to 1.34)	<0.001	1.16 (0.95 to 1.40)	0.144	1.26 (1.12 to 1.42)	<0.001	1.85 (0.67 to 5.08)	0.232	0.93 (0.58 to 1.49)	0.750	1.26 (1.14 to 1.40)	<0.001		
Place/context of the sexual violence (Ref=private/domestic setting)														
Movement-related/ Public space	0.48 (0.41 to 0.55)	<0.001	0.46 (0.36 to 0.60)	<0.001	0.54 (0.45 to 0.64)	<0.001	0.38 (0.12 to 1.20)	0.100	0.64 (0.43 to 0.94)	0.025	0.56 (0.47 to 0.65)	<0.001		

Continued

Table 5 Continued

Adjusted* multivariable logistic regression model												
	Full data set		2023		2024		Walikale		Mweso		Goma	
	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value
Livelihood/essential activity	1.07 (0.97 to 1.18)	0.180	1.20 (0.99 to 1.46)	0.057	1.04 (0.92 to 1.17)	0.524	0.42 (0.13 to 1.30)	0.133	1.84 (1.26 to 2.68)	0.002	1.04 (0.94 to 1.16)	0.423
Other and not disclosed	0.78 (0.63 to 0.96)	0.022	0.58 (0.37 to 0.92)	0.020	0.89 (0.69 to 1.13)	0.341	0.69 (0.17 to 2.82)	0.604	0.42 (0.18 to 1.02)	0.054	0.90 (0.72 to 1.14)	0.390
Referred by (Ref=Self-referred)												
Informal referral	0.50 (0.45 to 0.56)	<0.001	0.59 (0.48 to 0.72)	<0.001	0.44 (0.38 to 0.50)	<0.001	1.20 (0.54 to 2.68)	0.653	0.90 (0.63 to 1.29)	0.571	0.40 (0.35 to 0.45)	<0.001
Trained community focal point	0.56 (0.51 to 0.61)	<0.001	0.48 (0.41 to 0.56)	<0.001	0.56 (0.50 to 0.62)	<0.001	0.28 (0.08 to 1.02)	0.053	0.85 (0.45 to 1.58)	0.598	0.46 (0.42 to 0.51)	<0.001
Formal/institutional referral	0.54 (0.48 to 0.62)	<0.001	0.69 (0.55 to 0.85)	<0.001	0.46 (0.39 to 0.54)	<0.001	0.43 (0.10 to 1.93)	0.270	1.27 (0.88 to 1.84)	0.197	0.45 (0.39 to 0.52)	<0.001
Other	0.46 (0.15 to 1.41)	0.176	0.41 (0.09 to 1.93)	0.261	0.83 (0.15 to 4.49)	0.831	3.19 (0.22 to 46.29)	0.396	†	†	0.35 (0.10 to 1.27)	0.111
Mean VIF for the model	2.64		2.75		2.71		2.80		2.62		3.89	
*All variables in the multivariable model were mutually adjusted,												
†Insufficient observations for reliable model estimation.												
aOR, adjusted OR; DRC, Democratic Republic of the Congo; MSF, Médecins Sans Frontières; Ref, reference value; VIF, variance inflation factor.												

*All variables in the multivariable model were mutually adjusted.

†Insufficient observations for reliable model estimation.

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displacement settings as also shown in a qualitative study from refugee camp settings in South Sudan, Kenya and Iraq.³³ It is therefore important to look beyond militarised violence within displacement settings to ensure that survivors of all forms of gender-based violence have access to care and support.

The perceived barriers to access care are influenced by intersections between factors at different socio-ecological levels. The main perceived barrier, lack of information, is situated at the individual level but is highly influenced by interpersonal relations and the information and knowledge levels of peers. In addition, the responsibility to share information lies at the organisational level and that lack of information is perceived as a barrier does reflect an organisational shortcoming. Our data does not specify what type of information is lacking, however, our previous qualitative study shows that information around the services available, the possibility to seek care at any moment after the incident and information around the need for care for male survivors and survivors of intimate partner violence were lacking.¹⁶

Displaced survivors were more likely to be referred by a trained community focal point and less frequently self-referred which might be linked to displaced survivors being more likely to report lack of information as a barrier. When survivors lack information, seeking help through a trusted community focal point might be a key pathway to access care, which illustrates how solutions at an organisational and/or interpersonal level of the socio-ecological model can address barriers found at an individual level. Creative ways of widely sharing information to newly displaced populations are needed and using trusted community focal points who can both share information and support survivors can be a suitable model. The influence of the interpersonal level is represented by the negative social consequences and harmful actions which have been described in the literature as common and severe among survivors in eastern DRC^{8 18 34} and which can explain our current finding of fear of social consequences being a major barrier to access care. Extensive norm-changing work is needed to address this, which will need strong commitments and actions involving both organisational and policy level stakeholders. Transforming social norms, and especially gender norms has been shown in a scoping review to have a positive impact on gender-based violence reduction and access to sexual and reproductive healthcare services³⁵ and has potential to also positively impact care-seeking behaviours among survivors of sexual violence.

Even though access to care at any point in time is important, having access to care as soon as possible, and preferably within 72 hours, is key to be able to receive the full medical care package. Displaced survivors were less likely to access care within 72 hours which may, in part, be explained by survivors experiencing violence prior to displacement when they did not have geographical access to care. This aligns with evidence from eastern DRC demonstrating that distance and isolation significantly

reduce timely access to care.¹¹ However, our findings show that displaced survivors had higher odds of experiencing barriers which may further contribute to delayed care-seeking. As displaced survivors were also more likely to report fear of social consequences, specific actions need to be taken to ensure that responses to displaced populations address negative attitudes and harmful norms and enable discrete pathways to care, ensuring survivors can access care while limiting risk of exposure.

Survivors who experienced violence by an intimate partner were less likely to access timely care and more likely to report lack of information as a barrier. This is congruent with findings from a previous study from South Kivu¹¹ and might be explained by the strong narrative around conflict-related violence in DRC, commonly describing sexual violence as perpetrated by unknown armed men which might impact perceptions around violence and limit access to care for survivors of violence that does not fit that narrative. At an individual level, internal stigma and shame are likely impacted by such narratives. It might be less harmful for a survivor to disclose a rape by an armed actor in the context of war rather than exposure to sexual violence by a partner or other known civilian, which mainly relates to interpersonal level barriers.

Referral pathways as compared with being self-referred were negatively associated with timely access to care, which confirms previous findings from North and South Kivu^{11 26} and indicates organisational and community level barriers which need to be addressed in humanitarian responses.

The associations between residential status and the main outcomes were observed in both 2023 and 2024 and remained in the same direction as those observed in the pooled analyses, although some variation in the magnitude of the associations was noted, suggesting that the overall results are not driven by a single year of data collection.

The site-specific analyses suggested variation in the associations between residential status, as well as of other factors, and study outcomes across programme sites. While some associations showed broadly similar directions across sites, differences in the magnitude and precision of estimates indicate that local contextual factors may influence the relationship between displacement and care-seeking behaviours, highlighting the importance of contextual influences and calls for locally conducted assessments and adaptations of programmes.

Policy and research implications

Based on the findings from this study, context-specific assessments are needed and should be used to guide interventions. Awareness-raising activities need to be adapted to the different demographic groups and the specific barriers identified, with clear, inclusive and concrete messaging. Models of care, entry points and referral pathways need to be established in a way which allows for all survivors to access care in an acceptable

and safe way. More decentralised and community-based models should be considered, but decisions should be made together with the intended target population. Activities addressing harmful social norms are needed to reduce stigmatisation of survivors.

Further research is needed to better understand barriers specific to populations including displaced populations, children and adolescents and more importantly how these can be addressed. Further research is also needed to explore intersectional vulnerabilities such as disabilities and diverse sexual orientation and gender identities. How violence perpetrated by specific perpetrators can impact care-seeking and how violence perpetrated during livelihood activities can be mitigated also requires further research. Research comparing the impact of different models of care, concerning both access and quality of care, would also be useful, ideally designed and conducted in collaboration with survivors themselves.

Methodological considerations

This study presents a uniquely large set of data from survivors accessing care in an ongoing humanitarian crisis. The main limitation of this study is that data solely concerns survivors who accessed care in MSF-supported healthcare facilities rather than all survivors of sexual violence in the population. It introduces a selection bias and poses a challenge for understanding violence patterns, care-seeking and access to care among the general population. There is a possibility that the nature of the included healthcare facilities might have impacted who accessed care, which needs to be considered when interpreting the results. All data collected were self-reported by survivors when accessing care, which may introduce recall bias, social desirability bias and post-hoc rationalisation. Although we consider this risk to be low given the nature of the questions asked during the consultation, it should be taken into consideration when interpreting the findings. The data were collected before the research study began, which prevented the research team from conducting on-site data quality checks or including certain variables, such as survivors' socioeconomic status, marital status, education level, distance to healthcare facilities, sexual orientation, gender identity and the specific affiliations of non-civilian assailants. This limited the scope of the analyses and may have resulted in residual confounding, as we were unable to adjust for these factors. Several potentially relevant contextual factors, such as site-specific characteristics, changes in security conditions, population movements, service availability, community awareness of services and other contextual or temporal influences that may have affected care-seeking behaviour and perceived barriers to care, are also missing from the analysis. While year-specific and site-specific sensitivity analyses were conducted, residual confounding from unmeasured contextual factors cannot be excluded. The data on perceived barriers were based on a pre-defined list, defined by MSF sexual violence experts which limit

the range of possible responses and might have led to different additional barriers being overlooked in our analysis. In addition, the barrier 'lack of information' does not allow for further detail on what information is lacking, which further limits interpretation. Considering that both violence characteristics and access to care are dependent on context and contextual changes, the generalisability of these findings, collected in three sites in North Kivu, to other humanitarian settings might be limited.

CONCLUSION

Increased violence and displacement might impact sexual violence characteristics and care-seeking. Lack of information has been highlighted as one key barrier to access care, which implies that different forms of awareness raising activities are necessary. Fear of negative social consequences, another main barrier reported by survivors, calls for more transformative norm changing work to reduce stigma and harmful attitudes towards survivors. Humanitarian actors need to acknowledge the differences in care-seeking, access and perceived barriers among different contexts and groups of survivors. Ensuring flexible and responsive interventions can improve services for survivors of sexual violence and specifically their access to care.

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Contributors All authors have substantially contributed to the conception and design of the study. HR performed the data analysis, BOA contributed to the data analysis, whereas all authors contributed to the interpretation of the results. HR drafted the manuscript and all other authors provided feedback and critical review. All authors have approved the final version to be published and agreed to be accountable for all aspects of the work. The guarantor for the work is BOA.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved. This study has been granted ethical approval from the ethical committees Comité National d'Ethique de la Santé, Direction Provinciale de North Kivu, DRC (CNES 030/DPNK/130PM/2025) and Swedish Ethical Review Authority, Sweden (Dnr 025-07853-01). This research fulfilled the exemption criteria set by the MSF Ethics Review Board (ERB) for a posteriori analyses of routinely-collected clinical data and thus did not require MSF ERB review. It was conducted with permission from the Medical Director, Operational Centre Amsterdam, MSF. Secondary register-based data was used for this study. Data had been collected as part of routine medical activities and data collection within Médecins Sans Frontières programmes. No data used for the current analysis could be linked back to any individual.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. MSF has a managed access system for data sharing that respects MSF's legal and ethical obligations to its patients to collect, manage and protect their data responsibly. Ethical risks include, but are not limited to, the nature of MSF operations and target populations being such that data collected are often highly sensitive. Data are available on request in accordance with MSF's data sharing policy.

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Author note The reflexivity statement for this paper is linked as an online supplemental file 2.

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