



# Worldwide prevalence of non-partner sexual violence: a systematic review

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## Summary

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**Background** Several highly publicised rapes and murders of young women in India and South Africa have focused international attention on sexual violence. These cases are extremes of the wider phenomenon of sexual violence against women, but the true extent is poorly quantified. We did a systematic review to estimate prevalence.

**Methods** We searched for articles published from Jan 1, 1998, to Dec 31, 2011, and manually search reference lists and contacted experts to identify population-based data on the prevalence of women's reported experiences of sexual violence from age 15 years onwards, by anyone except intimate partners. We used random effects meta-regression to calculate adjusted and unadjusted prevalence for regions, which we weighted by population size to calculate the worldwide estimate.

**Findings** We identified 7231 studies from which we obtained 412 estimates covering 56 countries. In 2010 7·2% (95% CI 5·2–9·1) of women worldwide had ever experienced non-partner sexual violence. The highest estimates were in sub-Saharan Africa, central (21%, 95% CI 4·5–37·5) and sub-Saharan Africa, southern (17·4%, 11·4–23·3). The lowest prevalence was for Asia, south (3·3%, 0–8·3). Limited data were available from sub-Saharan Africa, central, North Africa/Middle East, Europe, eastern, and Asia Pacific, high income.

**Interpretation** Sexual violence against women is common worldwide, with endemic levels seen in some areas, although large variations between settings need to be interpreted with caution because of differences in data availability and levels of disclosure. Nevertheless, our findings indicate a pressing health and human rights concern.

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## Introduction

Reports of rapes and murders of young women in India and South Africa have focused international attention on the horror of sexual violence. Although it is tempting to view these events as isolated, they should be seen as part of a larger, daily reality of sexual violence against women.

The terms rape, sexual violence, and sexual abuse encompass many forms of violence, including sexual harassment and sexual trafficking.<sup>1</sup> An important issue in sexual violence is the relationship between the victim and perpetrator. Historically and in the popular media, sexual assault has commonly been viewed as an act between strangers and, therefore, a crime, as supported by sexual-assault laws.<sup>2</sup> Research into intimate-partner violence in the past decade, however, has shown that a substantial proportion of sexual violence occurs within marriage and other intimate partnerships.<sup>3,4</sup> Sexual violence perpetrated by people, such as strangers, acquaintances, friends, colleagues, peers, teachers, neighbours, and family members is referred to as non-partner sexual violence. Irrespective of whether sexual violence is perpetrated by partners or non-partners, it is generally traumatic for the victim, although the pattern, degree, and effect of violence might differ dependent on the perpetrator.<sup>5–8</sup> Intimate-partner sexual violence frequently occurs over long periods of time and is accompanied by controlling behaviour, whereas such a pattern might not be present in non-partner sexual violence.<sup>4</sup>

Despite the focus on violence within intimate partnerships,<sup>3,9</sup> research on non-partner sexual violence has increased less,<sup>1,4</sup> and the development of common definitions and measuring tools have not received the same attention. Where comparisons have been done, non-partner sexual violence has shown similarities with intimate-partner violence in terms of risk factors and the broad range of effects on health.<sup>5,6</sup> Nevertheless, there are also some important differences, including in prevalence, as reported in the WHO Multi-country Study on Women's Health and Domestic Violence against Women (WHO-MCS)<sup>9</sup> and studies of population-based rape in South Africa and Asia.<sup>10,11</sup> Findings indicated that rapes by strangers are more violent and have higher risk of involvement of weapons and injury than those by known perpetrators, but with the latter the betrayal of trust might greatly affect post-assault outcomes, including psychological functioning.<sup>5,6,12</sup>

A fundamental first step in the development of effective responses to non-partner sexual violence is improved understanding of prevalence in the general populations of different countries and regions. We did a systematic review of data on the prevalence of non-partner sexual violence worldwide in women aged 15 years and older. This study was done as part of the work for the Global Burden of Disease 2010 study<sup>13</sup> to contribute to the quantification of the burden of disease and injury attributed to interpersonal violence.

## Methods

### Literature search

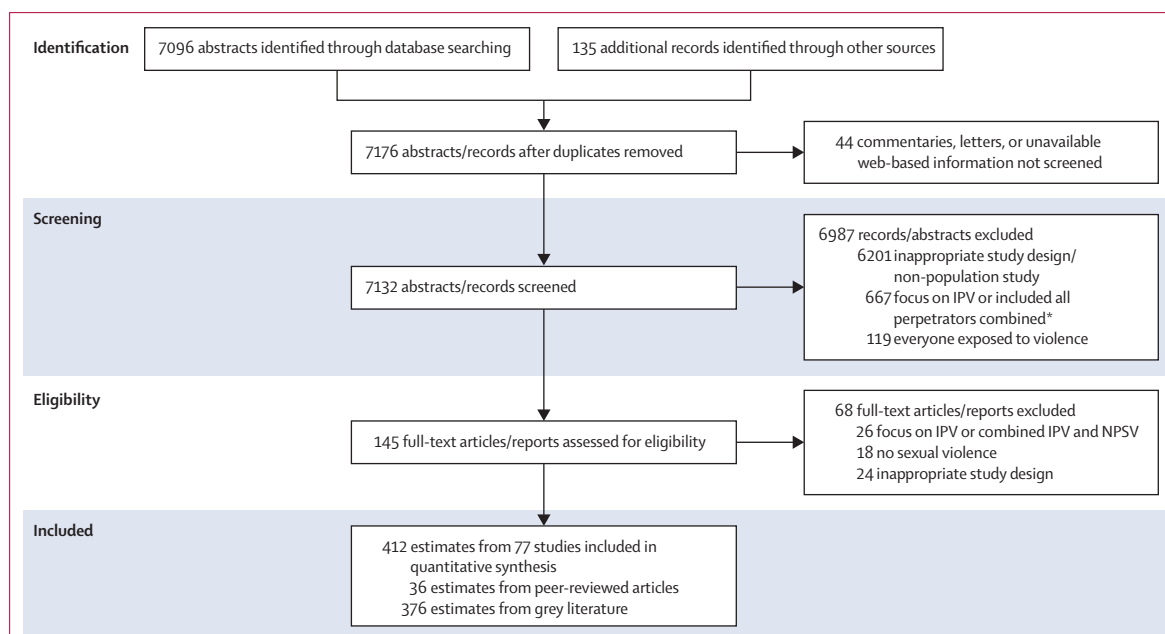
We did a review of population-based prevalence estimates of non-partner sexual violence worldwide that involved peer-reviewed and grey literature. We searched for articles published from Jan 1, 1998, to Dec 31, 2011. We also manually searched for citations in reference lists of retrieved articles and made contact with experts. We included studies published in languages other than English, and obtained full-text translation as required. The databases and search terms used are presented in the appendix (pp 1–2). Additionally, we requested disaggregated data for age and sex on non-partner sexual violence from the authors of the International Violence against Women Survey ([VAWS] eight countries);<sup>14</sup> WHO-MCS (ten countries);<sup>9</sup> Demographic and Health Surveys (eight countries);<sup>15</sup> Gender Alcohol and Culture International Study ([GENACIS] 16 countries);<sup>16</sup> Centres for Disease Control Reproductive Health Surveys (two countries);<sup>17</sup> and Crime Victimization Surveys across the globe (none included).<sup>18</sup>

We included representative population-based studies that gave estimates of non-partner sexual violence. We considered including non-population-based studies in regions where data were limited, but found none. Data on women aged 15 years and older were included for lifetime and current (within the past year) exposure to non-partner sexual violence. We recognise that sexual violence against women aged 15–18 years is also considered child sexual abuse, but this lower age range is frequently used in estimates of intimate-partner violence and, therefore, we matched it for this analysis.

Because we were interested in sexual violence perpetrated by anyone other than intimate partners, we excluded studies where the analysis combined intimate-partner and non-partner perpetrators. We accepted any author definition of sexual violence (ie, rape and any other form of sexual violence) but excluded studies that combined sexual and non-sexual violence in the analysis (eg, combined sexual and physical). We took into account the type of questions used to ask women about their experiences of non-partner sexual violence, for instance whether the questions were broad or used narrow definitions. We also looked at whether prevalence estimates were based on assessments of individual perpetrators or all perpetrators combined, and included the estimate for combined perpetrators if available to ensure consistency. We checked estimates repeated from the same study or author and included the most relevant paper or estimates.

Two authors (NA and SS) screened the abstracts and extracted the required prevalence and uncertainty estimates for our meta-analysis into a database (EpiData). Additionally, we extracted numerator, denominator and design effect data for studies with clustered sampling, if reported. We extracted the following information on methodological variables that could assist in the identification of potential biases and assessment of the quality of the studies: whether perpetrators were analysed as individual or combined perpetrators, how sexual violence was defined, the exposure period (ie, ever or past year), whether the findings were from a study dedicated to violence against women, study sites (national, regional, urban, rural), whether the study was part of a larger dataset, whether the questionnaire was derived from that

See Online for appendix



**Figure 1: Flowchart of review of prevalence studies on non-partner sexual violence**

IPV=intimate-partner violence. NPSV=non-partner sexual violence. \*Perpetrators were not identified in most Demographic and Health Surveys, European Crime and Safety Surveys, and Crime Victimization Surveys.

Region	Number of estimates	Proportion of estimates (%)	Proportion of worldwide population (%)	Countries
Asia Pacific, high income	5	1.21%	2.31%	Japan
Asia, central	9	2.18%	1.27%	Kazakhstan
Asia, east	14	3.40%	21.29%	Hong Kong
Asia, south	20	4.85%	23.33%	India, Bangladesh
Asia, southeast	36	8.74%	9.48%	Philippines, Timor-Leste, Maldives, Thailand, Sri Lanka,
Australasia	25	6.07%	0.36%	New Zealand, Australia
Caribbean	9	2.18%	0.61%	Belize
Europe, central	38	9.22%	1.65%	Czech Republic, Poland, Serbia and Montenegro, Kosovo,
Europe, eastern	5	1.21%	3.06%	Lithuania, Ukraine, Azerbaijan
Europe, western	58	14.08%	5.48%	Switzerland, Spain, Isle of Man, Sweden, UK, Denmark, Finland, Germany,
Latin America, Andean	16	3.88%	0.78%	Peru
Latin America, central	32	7.77%	3.49%	Costa Rica, Nicaragua, Jamaica
Latin America, southern	14	3.40%	0.87%	Uruguay, Argentina
Latin America, tropical	19	4.61%	3.11%	Brazil
North Africa/Middle East	4	0.97%	6.75%	Turkey
North America, high income	26	6.31%	4.59%	USA, Canada
Oceania	6	1.46%	0.12%	Samoa, Kiribati
Sub-Saharan Africa, central	1	0.24%	1.22%	Democratic Republic of the Congo
Sub-Saharan Africa, east	43	10.44%	4.69%	Uganda, Ethiopia, Mozambique, Tanzania, Kenya, Malawi, Zambia
Sub-Saharan Africa, southern	12	2.91%	1.04%	Namibia, South Africa, Zimbabwe,
Sub-Saharan Africa, west	20	4.85%	4.39%	Liberia, Sierra Leone, Burkina Faso, Ghana
<b>Study characteristics</b>				
Conflict settings	36	8.74%		Liberia, Timor-Leste, Democratic Republic of the Congo, Kosovo, Philippines, Sri Lanka
Representativeness				
National study	222	53.88%	..	..
Definition used				
Broad definition of NPSV	377	91.5%	..	..
Type of prevalence				
Lifetime NPSV	337	81.8%	..	..
Perpetrators				
Combined perpetrators	386	93.69%	..	..
Data from GBV study	246	59.71%	..	..
Data from large multicountry study	345	83.74%	..	..

NPSV=non-partner sexual violence. GBV=gender-based violence.

**Table 1: Regions and characteristics of the 412 prevalence estimates of non-partner sexual violence**

used in WHO-MCS, and whether fieldworkers received special training in how to ask about violence sensitively and how to respond appropriately if respondents became distressed.

### Statistical analysis

We used random-effects meta-regression to produce adjusted and unadjusted prevalence models and summary prevalence estimates for the regions used in the Global Burden of Disease 2010 study.<sup>13</sup> We did not calculate estimates by age group because of the lack of data. We used Stata (version 12.1) with residual maximum likelihood and variance of estimated

coefficient modifications.<sup>19,20</sup> In some studies no prevalence was reported, such as age categories for women in the IVAWS<sup>14</sup> and the GENCACIS<sup>16</sup> datasets, and some individual studies gave no SDs or CIs. In these cases we used the Wilson method to estimate the upper 95% CI value because it provides coverage probability closer to the nominal value for extreme probabilities of an event.<sup>21</sup> The SD of the prevalence was calculated as the value of the upper CI divided by 1.96.

The covariates selected for inclusion in the models were based on our knowledge. Covariates were checked for correlation to avoid multicollinearity before model fitting.

The covariate-adjusted model included whether fieldworkers were trained (known to increase disclosure), whether the study was a national study, and whether the estimate was based on individual or combined perpetrators. To obtain a global estimate, we weighted estimates by regional population sizes of women aged 15–49 years for the year 2010.<sup>19</sup>

### Role of the funding source

The sponsors of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

### Results

We identified 7231 abstracts or records for screening. The main reasons for exclusion were incorrect study design (non-population-based studies), focus on intimate-partner violence, and analysis of combined perpetrators or types of violence (figure 1). We identified 44 potential records in the additional search that were not included because none was a journal article, and seemed instead to be commentaries, letters, or web-based information that was no longer available. 145 records or abstracts were identified as suitable for full-text screening. After assessment, 77 studies covering 56 countries were included and provided 412 estimates of violence (table 1). Estimates from the three largest datasets (IVAWS, GENACIS, and WHO-MCS) constituted 87% of data and provided age-specific estimates for perpetration by any non-partner. Only 17 studies provided estimates for separate perpetrators.

Data were available for all Global Burden of Disease 2010 study regions (appendix pp 3–4). Four (Asia Pacific, high income, North Africa/Middle-East, Europe, eastern, and sub-Saharan Africa, central) had fewer than six estimates each and eight regions, including sub-Saharan Africa, central, had estimates from only one country each. The regions with the largest proportions of estimates were Europe, western (58 estimates) and sub-Saharan Africa, east (43 estimates). Six countries with conflicts at the time of study contributed population estimates (Liberia, Timor-Leste, Democratic Republic of the Congo, Kosovo, Philippines, and Sri Lanka).

More than half of the estimates (59.7%) were derived from dedicated studies of violence against women, and a similar proportion was from nationally representative samples (53.8%). Most estimates were based on lifetime non-partner sexual violence (81.8%) and combined perpetrators (93.7%), and used one question to capture data on any forced sexual act (91.5%). Unlike the measurement of intimate-partner violence, most studies used one broad question to ask women about their experiences of non-partner sexual violence, for instance “Were you ever forced to have sex or to perform a sexual

act when you did not want to with someone other than your partner”. Narrower definitions were used by only a few individual studies that measured rates of specific acts, such as “...ever touched sexually against your wishes”.<sup>22</sup>

Worldwide, 7.2% (95% CI 5.2–9.1) of women aged 15 years or older reported non-partner sexual violence during their lifetimes (table 2). Substantial variation in prevalence was seen across regions, ranging from 3.3% (95% CI 0–8.3) in Asia, south, to 21.0% (4.5–37.5) in sub-Saharan Africa, central. Regions with high prevalence were sub-Saharan Africa, central, sub-Saharan Africa, southern, and Australasia. The wide CI in the sub-Saharan Africa, central region is probably caused by it being based on a single estimate. Regions with lower estimates were Asia south, Asia southeast and north Africa/Middle East.

The estimate for the Asia Pacific, high income region was notably higher than those for the other four Asian regions, whereas Europe, eastern had a much lower prevalence than the other two European regions. Similarly, among the Latin American regions and sub-Saharan Africa regions, one in each group of regions (Latin America, south and sub-Saharan Africa, western) had much lower prevalence than the others.

The unadjusted estimates produced similar results and all CIs overlapped with the adjusted estimates (figure 2).

	Unadjusted prevalence (% [95% CI])	Adjusted prevalence (% [95% CI])
Global	8.9% (7.9–9.8)	7.2% (5.3–9.1)
Asia Pacific, high income	16.7% (9.1–24.4)	12.2% (4.2–20.2)
Asia, central	2.5% (0–8.6)	6.4% (0–13.0)
Asia, east	5.3% (0.9–9.6)	5.8% (0.1–11.6)
Asia, south	4.4% (0.5–8.2)	3.3% (0–8.3)
Asia, southeast	6.0% (3.2–8.8)	5.2% (0.9–9.6)
Australasia	13.5% (10.2–16.9)	16.4% (11.5–21.4)
Caribbean	1.2% (0–6.8)	10.3% (3.7–16.9)
Europe, central	9.6% (6.7–12.0)	10.7% (6.1–15.3)
Europe, eastern	1.1% (0–8.3)	6.9% (0–14.1)
Europe, western	7.8% (5.6–10.0)	11.5% (7.2–15.7)
Latin America, Andean	16.6% (12.5–20.7)	15.3% (10.1–20.5)
Latin America, central	9.3% (6.3–12.4)	11.8% (7.3–16.4)
Latin America, southern	1.9% (0–6.6)	5.8% (0.3–11.4)
Latin America, tropical	8.3% (4.5–12.1)	7.6% (2.6–12.7)
North Africa/Middle East	4.0% (0–11.0)	4.5% (0–12.7)
North America, high income	8.1% (5.0–11.4)	13.0% (9.0–16.9)
Oceania	14.2% (7.5–20.9)	14.8% (7.4–22.2)
Sub-Saharan Africa, central	29.5% (11.9–47.1)	21.0% (4.5–37.5)
Sub-Saharan Africa, east	12.0% (9.4–14.6)	11.4% (7.3–15.6)
Sub-Saharan Africa, southern	21.0% (16.0–25.9)	17.4% (11.4–23.3)
Sub-Saharan Africa, west	6.0% (2.2–9.8)	9.1% (4.8–13.2)

\*Adjustment made for national-level studies, combined perpetrators, and training of fieldworkers.

**Table 2: Unadjusted and adjusted prevalence estimates for non-partner sexual violence, by region\***

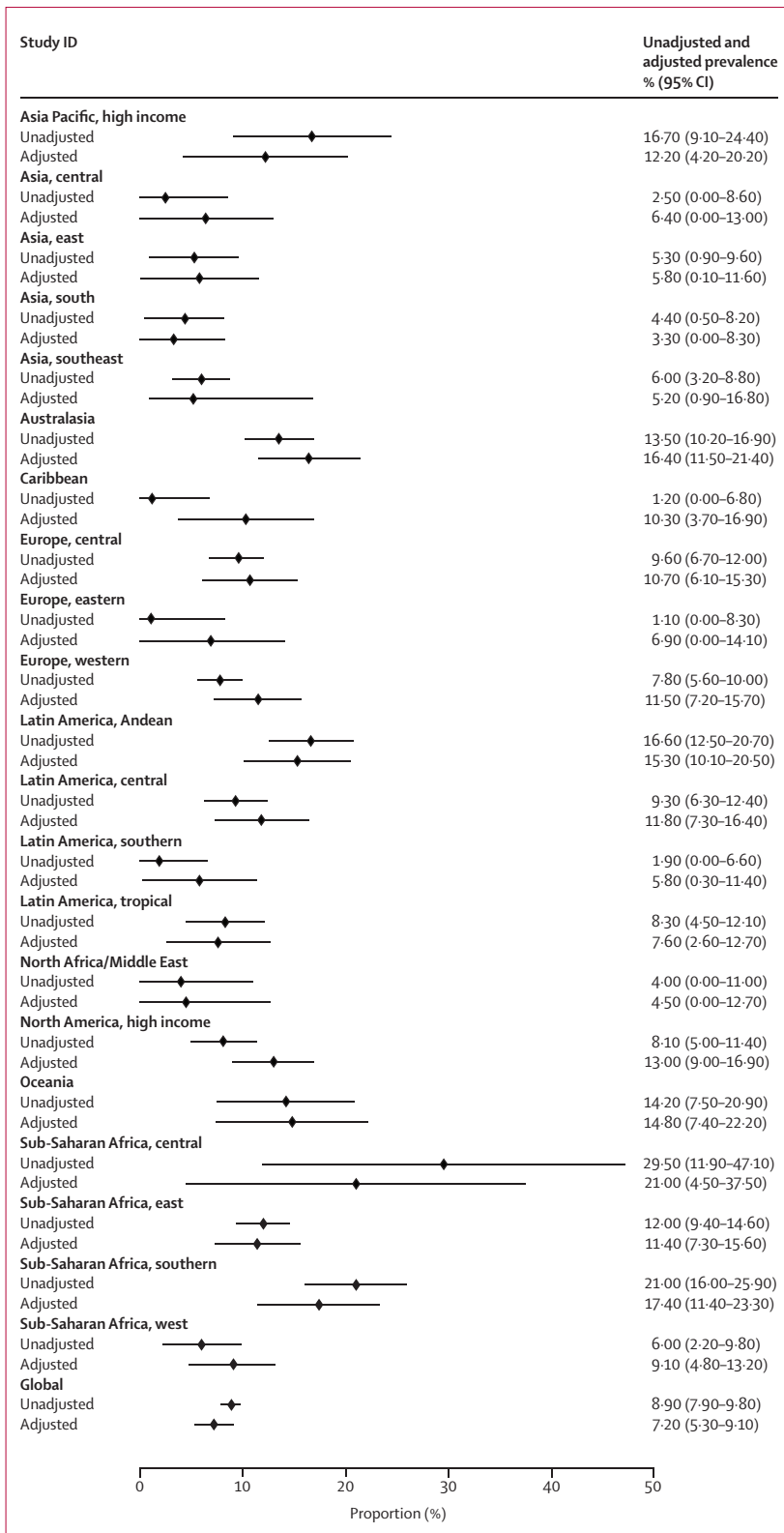


Figure 2: Forest plot of adjusted and unadjusted estimates of non-partner sexual violence, by region\* Regions are those used in the Global Burden of Disease 2010 study.<sup>13</sup> Weights are from random effects analysis. \*Adjusted for national study, combination of perpetrators and training of fieldworkers.

### Discussion

We estimated that worldwide in 2010, 7.2% of women older than 15 years had reported ever having experienced non-partner sexual violence. Thus, non-partner sexual violence is widespread and in some regions is endemic, reaching more than 15% in four regions. Generally, prevalence was highest in regions with the most datapoints. The regional variations were wide. Thus, although they might reflect true variations, differences could be linked to levels of disclosure. Sexual violence is highly stigmatised in most settings. The fear of being blamed and a perceived lack of support from families, friends, and services<sup>23</sup> leads to under-reporting<sup>24</sup> and affects help-seeking behaviour. We controlled for fieldworker training in our analysis because it yields higher levels of disclosure<sup>14,25</sup> and, therefore, was deemed a proxy for increased quality of studies. Despite this approach, though, our calculated values are most likely underestimates.

The study had several limitations. It was largely constrained by the limited availability of good-quality population-based data. Eight regions had data from only one country, and many countries had no population-based data at all. These features are reflected in wide uncertainty bounds. The highest prevalence was seen in the sub-Saharan Africa, central region (21%). Intimate-partner violence also has a higher prevalence in this region than in other regions.<sup>3</sup> In regions affected by conflict there are major challenges to the execution of population-based surveys.<sup>26</sup> To obtain a representative sample might be difficult because of logistical and security issues. Additionally, many conflicts (and the perpetration of sexual violence) are localised within a country and, therefore, data from national studies might not fully reflect the situation in specific, conflict-affected areas.<sup>26</sup>

Although more than 50% of the 412 estimates were derived from dedicated studies of violence against women, the focus in most was on intimate-partner violence and data on non-partner sexual violence were frequently derived from responses to one broad question. This approach is not in line with current recommendations for violence-related surveys. Rather, it is recommended that questions relate to experiences of behaviourally specific acts. Recommendations on the use of standard indicators to measure exposure to non-partner sexual violence have been made<sup>27</sup> but have not been widely used. Differences in definitions lead to difficulties, and identification of all forms of sexual violence remains challenging, as does identification of the wide range of perpetrators. Most studies we included did not ask questions to identify perpetrators. In the more detailed analysis of the WHO-MCS, the perpetrators were identified,<sup>25</sup> although we used the combined estimate for consistency. The WHO-MCS findings showed that acquaintances were the most common assailants across the ten countries assessed, with the exception of Ethiopia and Japan, where

strangers were the most common perpetrators.<sup>25</sup> The lack of information on the range of perpetrators of sexual violence is an important limitation in most studies because such information is critical for the development of prevention interventions.

Other study limitations include the inability to conduct age-disaggregated analysis. Additionally, we included studies in which the experiences of sexual violence were reported from age 15 years and upwards. We included experiences from this age to distinguish between sexual violence and child sexual abuse, although by some legal definitions sexual violence at age 15–18 years would be classified only as child sexual abuse. Thus these two categories are not mutually exclusive. We did not include men as victims, although this issue is increasingly being recognised as needing attention.<sup>28</sup>

Despite the limitations of the existing data, we found that sexual violence is a common experience for women. Sexual violence, irrespective of the perpetrator, violates the human rights of victims and has a profound and enduring effect on their lives. Systematic reviews on the health effects have shown that non-partner sexual violence can lead to short-term and long-term health consequences similar to those for intimate-partner violence, particularly mental health disorders, such as depression, anxiety, and alcohol abuse.<sup>29</sup> Furthermore, exposure to any form of sexual violence increases the risk of exposure to other forms of violence. Many studies of child sexual abuse studies show an increased risk of later victimisation.<sup>30,31</sup>

For victims of rape access to early, comprehensive care is crucial. Survivors need to know the importance of immediate care for their long-term health and where it can be sought. Comprehensive care includes supportive and non-judgmental first-line response, emergency contraception to prevent pregnancy, prophylactic treatment to prevent HIV and other sexually transmitted infections, and short-term and long-term mental health support. Social support is also important because the responses of others affect women's health-seeking behaviour and long-term health outcomes.<sup>32</sup>

Interventions to prevent sexual violence, including legislation and criminal justice interventions, the prevention of child sexual abuse, and other forms of maltreatment need to be researched. Other factors that would be helpful to address are reductions in the harmful use of alcohol and the addressing of social norms on sexual entitlement and masculinity.

Systematic review of the lifetime prevalence of non-partner sexual violence worldwide has shown that one in 14 women aged 15 years or older worldwide has been sexually assaulted by someone other than an intimate partner. For various reasons, including the stigma and blame attached to sexual violence, this value is likely to be an underestimate. The psychological effects of sexual violence and the high prevalence we found confirm that it is a pressing health and human rights concern

requiring serious attention. The data have several important gaps that could be filled by the further standardisation of research tools and methods to improve measurement and monitoring. Our findings highlight the need for countries to have their own population-based data on the levels of sexual violence by different perpetrators to improve understanding of the magnitude of the problem and the main risk factors, and to develop appropriate policies and responses, including primary prevention interventions and comprehensive services to treat victims of sexual assaults. To lessen violence against women and to build sexual equality is an important development goal for governments across the world. The addressing and prevention of non-partner sexual violence is a crucial aspect of achieving this goal.

#### Contributors

NA, KD, CW, and CG-M conceived the study, including the development of the proposal and study methods. NA and SS coordinated the collection and management of data and analysed the data with statistical support from MP. NA led the writing of the paper and all authors contributed to its development and the interpretation of the analysis.

#### Conflicts of interest

We declare that we have no conflicts of interest.

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