BMJ Global Health

A systematic review of the indirect impacts of COVID-19 on sexual and reproductive health services and outcomes in humanitarian settings

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To cite: Singh L, Abbas SM, Roberts B, *et al*. A systematic review of the indirect impacts of COVID-19 on sexual and reproductive health services and outcomes in humanitarian settings. *BMJ Glob Health* 2023;**8**:e013477. doi:10.1136/bmjgh-2023-013477

Handling editor Seye Abimbola

► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/bmjgh-2023-013477).

Received 20 July 2023
Accepted 21 October 2023

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ABSTRACT

Background Humanitarian settings, particularly those in low-income and middle-income countries (LMICs), present increased sexual and reproductive health (SRH) challenges for individuals and health systems. Previous infectious disease outbreaks in such settings have negatively impacted SRH services and outcomes, as fragmented health systems are further overstretched. The COVID-19 pandemic has magnified the SRH challenges in LMIC humanitarian settings on an unprecedented scale. However, understanding of the impacts of COVID-19 is lacking. This review aimed to understand how the COVID-19 pandemic has impacted SRH service coverage, utilisation and outcomes in LMIC humanitarian settings, to inform current and future humanitarian research, programming and practice.

Methods A systematic review methodology was followed using Preferred Reporting Items for Systematic Reviews and Meta-Analyses reporting standards. Three search fields related to humanitarian settings, SRH and COVID-19 were applied, and limited to LMIC settings only. Three bibliographic databases and nine grey literature sources were searched. Articles meeting inclusion criteria at full-text screening were critically appraised using standardised tools. Data extraction was undertaken on included articles and analysed through narrative synthesis.

Results In total, 7742 citations were screened and 42 were included in the review. All included studies were cross-sectional. The quality was mostly medium to high. Narrative synthesis identified the reduced provision of, and access to, SRH services, and increased morbidity including sexual and gender-based violence and unplanned pregnancies. Impacts on service uptake varied across and within settings. Adaptations to improve SRH service access including telemedicine were reported; however, implementation was hindered by resource constraints.

Conclusions The COVID-19 pandemic has indirectly negatively impacted SRH at the individual and health system levels in LMIC humanitarian settings. Further research on the impacts on service uptake is required. SRH programmers should target interventions to meet the increased SRH needs identified. Policy-makers must incorporate SRH into emergency preparedness and response planning to mitigate indirect impacts on SRH in future outbreaks.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Previous infectious disease outbreaks in humanitarian settings have negatively impacted sexual and reproductive health (SRH) services and outcomes, as fragmented health systems are overstretched.

⇒ No systematic review to date has assessed the indirect impacts of COVID-19 in humanitarian settings.

WHAT THIS STUDY ADDS

⇒ This systematic review demonstrates negative indirect impacts of COVID-19 including reduced provision of and access to SRH services, and increased morbidity such as sexual-based and gender-based violence and unplanned pregnancies.

⇒ Several positive adaptations to improve SRH service access in the face of the COVID-19 pandemic were reported including telemedicine; however, implementation was hindered by resource constraints.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study highlights the need for context-specific targeted interventions to meet the increased SRH needs identified due to COVID-19, alongside improved integration of SRH into emergency preparedness and response planning in future outbreaks.

INTRODUCTION

The COVID-19 pandemic has negatively impacted health outcomes at an unprecedented scale, including in the domain of sexual and reproductive health (SRH). Global estimations of impacts on SRH range from 1.3 million additional unintended pregnancies with 1.2 million unsafe abortions and 5000 pregnancy-related deaths to 56 700 additional maternal deaths across 118 low-income and middle-income countries (LMICs).[1 2] These impacts occur through indirect mechanisms including supply chains disruptions,

reductions or suspensions in service provision and reduced service uptake.[1]

Humanitarian settings are particularly vulnerable to these indirect impacts. Humanitarian settings refer to a natural or man-made event or series of events (eg, armed conflict, natural disaster or disease outbreak) resulting in a critical threat to the health, safety, security or well-being of a community or other large group of people—often with associated mass population displacement.[3] The majority occur in LMICs where resources available to manage the effects of a crisis are limited compared with high-income countries (HICs).[4] Existing literature demonstrates poorer baseline SRH outcomes within populations affected by humanitarian crises.[5] Sexual and gender-based violence (SGBV) is reported to increase in crises, with SGBV subsequently heightening the risk of STIs, HIV and unintended pregnancy.[6–8] Unsafe abortion and postabortion complications are more common in humanitarian settings. Increased maternal and newborn morbidity and mortality are also well described, although accurate estimates of the burden are lacking.[6 9 10] These outcomes are linked to crises worsening workforce constraints, financing and limited access to healthcare supplies, leading to poorer coverage and quality in the context of increased SRH needs.[11]

Previous epidemics demonstrate the negative indirect impacts on SRH in humanitarian settings.[12] The 2013–2016 Ebola epidemic in Sierra Leone demonstrated reductions in antenatal care (ANC), family planning, facility delivery and postnatal care (PNC) coverage, with an estimated 3600 additional maternal and perinatal deaths.[13] Resource diversions away from maternal health services, closure of services and fear/stigma resulted in reduced service uptake.[14] This highlights the failure to prioritise essential SRH services during epidemics alongside the difficulties of responding to additional crises in already fragile, under-resourced health systems.

Considering the previous impacts of outbreaks in crisis settings on SRH, it is possible that SRH coverage in LMIC humanitarian settings is being compromised by the COVID-19 pandemic. Understanding any potential indirect impacts of COVID-19 on SRH coverage in these settings is vital to enable appropriate policy and public health responses to safeguard gains in SRH globally, and ensure provision of appropriate targeted, high-quality SRH services. However, no systematic review assessing the indirect impacts of COVID-19 on SRH services and outcomes in humanitarian settings has been conducted to date. This review aimed to understand how the COVID-19 pandemic has impacted SRH service provision, utilisation, and outcomes in LMIC humanitarian settings, to inform current and future humanitarian research, programming and practice.

METHODS

Search strategy

A systematic review methodology following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement guidelines was used (figure 1).[15] Inclusion and exclusion criteria used are detailed in table 1. Qualitative and quantitative peer-reviewed and grey literature were included. Grey literature sources included webinars and research briefs. Humanitarian settings were defined as those where an event or series of events such as armed conflict, natural disaster or disease outbreak has resulted in a critical threat to the health, safety, security or well-being of a community or other large group of people including refugee and internally displaced person settings.[3] The search was limited to LMICs as classified by the World Bank.[16] The search was restricted by the publication date of January 2020 to capture the period from which COVID-19 was declared a Public Health Emergency of International Concern.[17] SRH services and outcomes were defined according to the Minimum Initial Service Package (MISP) pillars focusing on preventing or reducing morbidity and/or mortality related to SGBV, MNH, HIV/STIs, contraception, abortion or including both priority and comprehensive SRH services.[3]

The search was divided into three concepts related to the study question: (1) humanitarian settings, (2) SRH and (3) COVID-19. Search terms were finalised with the help of a librarian with expertise in systematic review methodology. The full search strategy is detailed in online supplemental appendix A. The search was conducted on Medline, Embase and Global Health databases to retrieve peer-reviewed literature on 13 July 2022. The grey literature search was conducted between 8 July 2022 and 12 July 2022 on the Active Learning Network for Accountability and Performance (ALNAP), Google Scholar, Interagency Working Group for Reproductive Health in Crises (IAWG), International Committee of the Red Cross (ICRC), International Rescue Committee (IRC) Research, Médecins sans Frontiers (MSF) Science Portal, Open Grey, ReliefWeb websites and the YouTube sites of Johns Hopkins, Geneva Centre of Humanitarian Studies, LSHTM, MSF Science, IAWG, IRC, ALNAP, ICRC. Forward and backward citation searching of all articles included for full-text screening was undertaken to capture additional relevant sources not identified in the searches.

Study selection and data extraction

Returned citations were imported into Endnote software for deduplication and uploaded to Rayyan software for screening by two reviewers independently (LS and NSS).[18 19] Citations were first screened by title and abstract for relevance. Those included at this stage were sought for full-text screening to assess for eligibility against the inclusion criteria. Where webinars were identified, their transcripts were downloaded to assess eligibility for inclusion.

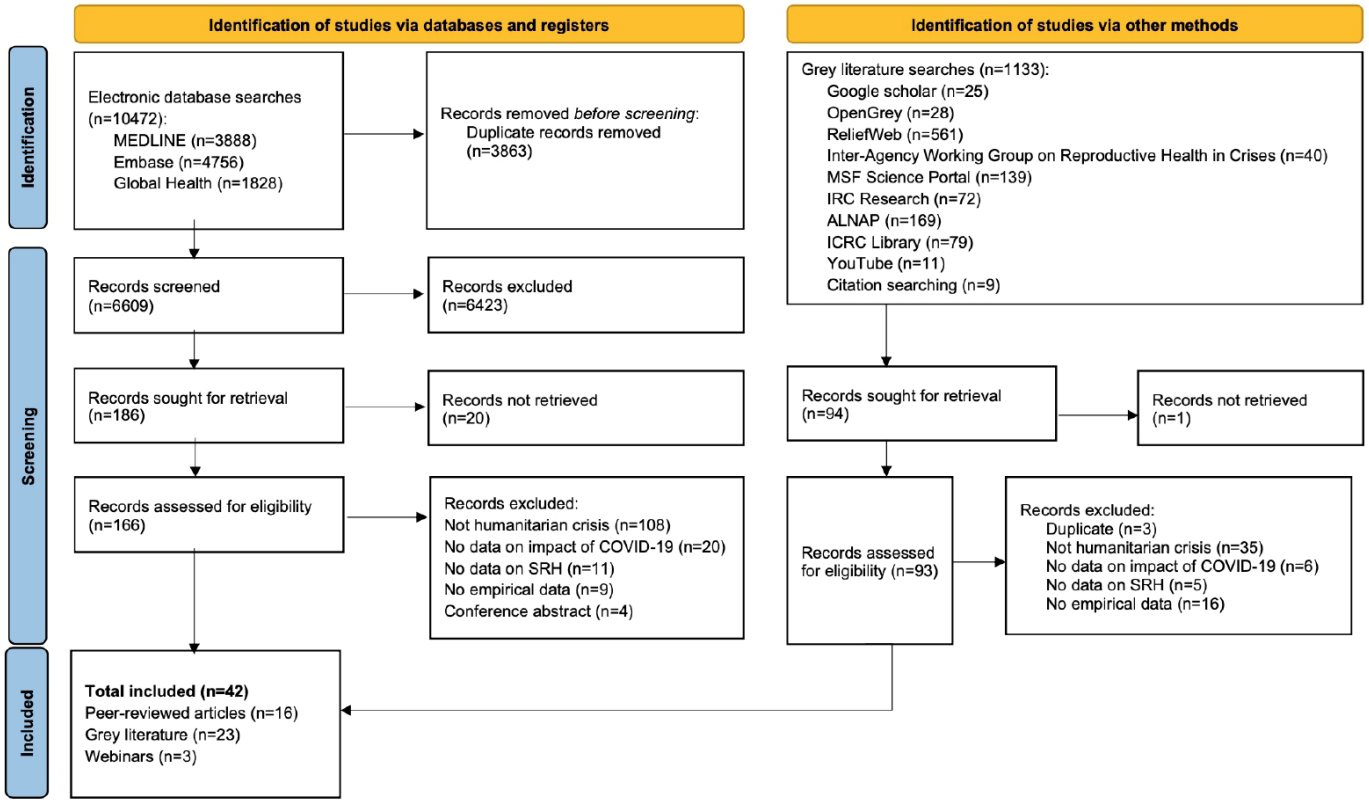

Figure 1 Modified PRISMA flow diagram. ALNAP, Active Learning Network for Accountability and Performance; ICRC, International Committee of the Red Cross; MSF, Médecins sans Frontiers; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SRH, sexual and reproductive health.

Articles meeting the inclusion criteria were critically appraised and assessed for risk of bias using the Critical Appraisal Skills Tool for qualitative peer-reviewed studies, the Newcastle-Ottawa Quality Assessment Scale for quantitative peer-reviewed studies, and the Authority, Accuracy, Coverage, Objectivity, Date, Significance checklist for grey literature.[20–22] Quality scores were created for each article based on methods and thresholds used in previous reviews of SRH in humanitarian settings,[23 24] whereby the percentage of total achievable score from the assessment tool used was calculated, then used to designate a rating of low (score 0%–33%), medium (score 34%–66%) or high quality (score ≥67%).[23 24] Due to the primary purpose of this review being descriptive,

Table 1 Inclusion and exclusion criteria

	Inclusion	Exclusion
Population	Individuals (all genders) affected by a humanitarian crisis in LMICs co-occurring with the COVID-19 pandemic	Studies conducted before a crisis and/or the COVID-19 pandemic occurred Studies conducted where COVID-19 was the only crisis occurring
Intervention	Services aimed at improving SRH outcomes as defined in the MISP	
Outcomes	Indirect impact of COVID-19 on SRH services and/or outcomes	Articles describing SRH outcomes following COVID-19 infection Articles only describing needs or risk factors
Article type	Any peer-reviewed or grey quantitative or qualitative article, report or webinar reporting empirical data on SRH services and/or outcomes	Articles without empirical data Literature reviews, conference abstracts, news articles, opinion pieces, policy reports or advocacy articles
Publication date	January 2020–present	
Language	English, French	Other languages

LMICs, low-income and middle-income countries; MISP, Minimum Initial Service Package; SRH, sexual and reproductive health.

low-quality articles were not excluded from analysis in keeping with previous similar reviews.[23 24]

Data were extracted on author, year, title, country and setting, study design, study period, data source, population/target group, age range, area of MISP, focus (services/outcomes/both), outcome assessed, outcome ascertainment, analysis method, results, adaptations described, whether adaptations described were evaluated, conclusion and/or recommendations, limitations mentioned by authors and limitations observed by the extractor. Where research was conducted in several settings including non-humanitarian settings, only data from humanitarian settings was extracted.

Data analysis

Data were analysed using narrative synthesis.[25] Quantitative studies were not suitable for meta-analysis due to heterogeneity in settings and outcome measurement. Preliminary synthesis to organise results was undertaken using the information obtained in the data extraction. Following this, an inductive approach was taken to explore relationships between and within included articles. This process was iterative, with data revisited and the synthesis refined until saturation was reached.

Patient and public involvement

There was no involvement of patients or the public in the design or conduct of this systematic review.

RESULTS

Overview of studies

In total, 7742 records were screened by title and abstract across the peer-reviewed and grey literature searches, with 259 assessed for eligibility at the full-text screening stage (figure 1). Additionally, reference lists of 21 literature reviews identified after title and abstract screening were reviewed. A total of 42 articles met the inclusion criteria, consisting of 16 peer-reviewed and 26 grey literature articles. The grey literature sources included 22 research reports, 1 situational brief and 3 webinars. Table 2 summarises the findings across papers.

Study design and quality

The included articles contained 19 mixed-methods studies, 13 qualitative studies and 10 quantitative studies across peer-reviewed and grey literature. All studies were observational (cross-sectional). Of the nine quantitative peer-reviewed studies, three were low quality,[26–28] three were medium quality[29–31] and three were high quality.[32–34] The qualitative peer-reviewed studies were mostly high-quality studies (n=6),[35–40] with two medium-quality studies.[30 41] The grey literature was mostly medium-quality (n=14)[42–55] and high-quality (n=10),[56–64] with three low-quality studies.[65–67] Common areas of weakness identified in quality appraisal across studies were lack of objectivity within grey literature, poor recruitment strategy and data collection methods within qualitative studies, and poor comparability within quantitative studies.

Study setting

Most studies involved populations affected by acute or protracted conflict, with only one study including populations affected by natural disasters.[47] Eight studies were conducted solely in displacement camps/settlements,[32 35 38 48 56 58–60] while the remainder involved crises-affected populations living in the wider community. The most common country setting was Bangladesh (specifically settlements in Cox's Bazar for Rohingya refugees), although the majority of research was in sub-Saharan Africa, followed by the Middle East and North Africa.

Target group

The majority of studies focused on adult women (33.3%, n=14) or women and girls (35.7%, n=15). One study focused on men who have sex with men (MSM).[27] Three studies focused solely on adolescents.[38 51 67] Only one study specifically included non-binary individuals; gender minorities were not reported to be included in any other studies.[38]

Outcome measurement

The majority of included studies focused on SRH services (59.5%, n=25), while nine articles (21.4%) looked at SRH outcomes and the remaining eight articles (19.0%) looked at both services and outcomes. The most commonly studied area of SRH was SGBV, which was included in 63.3% (n=27) of studies, while abortion and HIV/STIs were each only included in six studies (14.3% each) (table 3). Outcome ascertainment was most commonly via self-reporting by individuals in the target population, healthcare providers and/or humanitarian practitioners. Six studies used District Health Information Software data,[29–33 54] one study used Health Management Information Systems data[34] and three articles used other sources of empirical local health service coverage data.[48 60 62]

Narrative synthesis

Three main themes were identified during analysis: impacts on health systems related to the supply of SRH services, impacts at the individual level relating to the demand for SRH services, and SRH service adaptations made in response to COVID-19. Figure 2 summarises the findings from the narrative synthesis.

Impacts on health systems related to the supply of SRH services

Service provision

Disruptions in SRH service provision were widely reported.[26 36 38 39 45 63 64] Reduced facility opening hours were reported in Makana Refugee Camp (Rwanda), Myanmar, North-East Nigeria and sub-Saharan Africa.[38 42 45 62] One interview respondent in the study in North-East Nigeria reported the death of a pregnant woman when unable to access care for complications due to the facility closing overnight.[62] In one multi-country study, key informant interviews with humanitarian actors revealed reductions in service provision of

Table 2 Summary of key findings from included studies

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Abwola, 2020[42]	Displaced/refugee women in Burundi, Democratic Republic of Congo, Tanzania, Cameroon, Chad, Côte d'Ivoire, Liberia, Niger, Nigeria, Sierra Leone, Ethiopia, Kenya, Somalia, South Sudan, Uganda	Qualitative. Cross-sectional (survey, case studies)	SGBV Women and girls	Increased SGBV (including early/forced marriage), adolescent pregnancies, transactional sex. SRH services reduced or closed; individuals forced to travel further for emergency SRH services.	Medium (8/12)
Altare, 2022[32]	Jordan (Azraq and Zaatari refugee camps)	Quantitative. Repeated cross-sectional (HIS data)	Cross-cutting Women	Reduction in all family planning consultations in Azraq (IRR 0.526 (95% CI 0.376 to 0.736), p<0.001) and Zaatari (0.524 (95% CI 0.312 to 0.878), p=0.014) Reduction in new family planning consultations in Azraq (0.532 (95% CI 0.329 to 0.861), p=0.010), no change in Zaatari (0.595 (95% CI 0.305 to 1.162), p=0.128) No change in ANC in Azraq (0.793 (95% CI 0.55 to 1.127), p=0.20) or Zaatari (0.659 (95% CI 0.336 to 1.294), p=0.23) No change in live birth coverage in Azraq (1.032 (95% CI 0.822 to 1.295, p=0.79) or Zaatari (1.090 (95% CI 0.875 to 1.358), p=0.44)	High (8/10)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Amouzou, 2022[33]	Mali, Niger	Quantitative. Repeated cross-sectional (DHIS data)	Maternal and newborn health (MNH) Women	Compared with expected: Mali—significant reductions in uptake across all services. Rural more impacted: ANC1 rural (–3.9% (95% CI –6.3% to –1.4%)); urban (–1.9%, 95% CI (–3.1% to –0.7%)) ANC4 rural (–21.2% (95% CI –26.2% to –16.2%)); urban (–9.8% (95% CI –11.9% to –7.7%)) Facility deliveries rural (–4.7% (95% CI –7.6% to –1.7%)); urban (–1.9% (95% CI –3.1% to –0.7%)) Caesarean sections rural (–7.7% (95% CI –14.6% to –0.7%)); urban (–2.7% (95% CI –5.2% to 0.3%)) Niger—significant reductions in facility deliveries with rural more impacted, no change in other services: ANC1 rural (0.1% (95% CI –4.0% to +4.1%)); urban (0.0% (95% CI –1.8% to +1.8%)) ANC4 (1.0% (95% CI –3.8% to +5.7%)); urban (0.4% (95% CI –1.7% to +2.5%)) Facility deliveries (–11.6% (95% CI –17.7% to –5.4%)); urban (–4.5% (95% CI –6.4% to –2.5%)) Caesarean sections –10.6% (95% CI –25.6% to +4.3%) (national data only)	High (8/10)
Anderson, 2020[56]	Jordan (including Azraq and Zaatari refugee camps)	Mixed-methods. Cross-sectional (quantitative survey, qualitative interviews and FDGs)	Cross-cutting Women and girls	Increased SGBV reported by 69% of respondents, driven by lockdowns and economic hardship. Reduced access to SGBV services reported by 73%. 10%–20% increase in women unable to access family planning. During lockdown, >50% reported no access to safe maternity facilities.	High (10/12)
Bahamondes, 2022[26]	Brazil (Venezuelan refugees/migrants)	Quantitative. Cross-sectional (survey)	Cross-cutting Women	SRH service interruption (including contraception) in 76.5% of health posts assessed. 44.4% of providers reported users had access difficulties due to transport issues or fear of COVID.	Low (3/10)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Yemen, 2021[43]	Yemen	Mixed-methods. Cross-sectional (quantitative survey, qualitative interviews, focus group discussions (FGDs) and case studies)	MNH Adult males and females	Reduced access to SRH services reported by 49% of respondents, more marked in rural (66%) than urban (33%) populations. Barriers: fear of infection at facilities (46%), service/transportation costs (33%), staff shortages (26%), lack of SRH supplies (17%), fear of staff (10%).	Medium (5/12)
CARE, 2021[44]	Afghanistan, Ecuador (Venezuelan refugees/ migrants), Turkey (Syrian refugees)	Mixed-methods. Cross-sectional (quantitative surveys, qualitative interviews and FDGs)	Cross-cutting Women and girls	Reduced or no access to MNH services reported by 51% of respondents in Afghanistan, 31% in Ecuador and 17% in Turkey. Reduced or no access to family planning reported by 46% of women in Afghanistan, 21% in Ecuador, and 4% in Turkey. Increased SGBV reported in Turkey and Afghanistan (no data for Ecuador), and increased child marriage in Afghanistan reported. Staff reported reduced utilisation of SGBV services. Access by staff was difficult due to COVID movement restrictions.	Medium (5/12)
Chowdhury, 2022[35]	Cox's Bazar	Qualitative. Cross-sectional (interviews)	SGBV Women	Increased SGBV, driven by lockdowns and unemployment. SGBV service provision and uptake reduced due to reduced staffing, lockdowns, misinformation, deprioritisation	High (17/20)
Desta, 2021[29]	Ethiopia	Quantitative. Retrospective comparative cross-sectional (DHIS data)	Cross-cutting Women	Compared with the same period in 2019: Family planning new acceptors reduced (–4.81%, p=0.04). Increases in family planning repeat acceptors (+6.10%, p=0.02), skilled delivery (+8.57%, p<0.001), PNC (+13.99%, p<0.001), caesarean section deliveries (+28.05%, p=0.004) and stillbirths (+18.57%, p<0.001). No change in ANC1 (+5.05%, p=0.10), ANC4 (–2.83%, p=0.58) or comprehensive abortion care (–12.30%, p=0.31) uptake, or in institutional maternal deaths (–17.39%, p=0.32)	Medium (5/10)
GBV Information Management Syste, 2020[57]	Iraq	Mixed-methods. Cross-sectional (routine programmatic data)	SGBV Adults and young people	Increased SGBV reported by 65%, but incident reporting 25% lower than 2019. Service suspensions and lockdowns made reporting difficult.	High (9/12)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
GBV Sub-Working Group Jordan, 2021[58]	Jordan (Emirati-Jordan refugee camp)	Qualitative. Cross-sectional (interviews, FDGs)	SGBV Women and girls	Increased SGBV including early marriage. Drivers were lockdowns and economic strain. Some services stopped, others switched to online modalities. Misinformation reduced uptake.	High (10/12)
GBV Working Group, 2021[59]	Jordan (Azraq refugee camp)	Qualitative. Cross-sectional (interviews, FDGs)	SGBV Adults and young people	Increased interpartner violence (IPV) and early marriage driven by lockdowns and economic strain, however no increase in reporting.	High (9/12)
Gerhardt, 2021[60]	Cox's Bazar	Mixed-methods. Cross-sectional (quantitative routine programmatic data, qualitative interviews)	SGBV Women and girls	Increased IPV reported by 90% of interviewees. Drivers were lockdown and economic strain. Increased sexual violence and harassment when accessing basic amenities reported by 60%. Lockdowns prevented discrete SGBV service access.	High (9/12)
Global Protection Cluster, 2020[65]	Multicountry including Zimbabwe, Colombia, DRC, Central African Republic (CAR)	Mixed-methods. Cross-sectional (routine programmatic data)	SGBV Adults and young people	Increased SGBV reported by 92.3% (n=24) of Protection Clusters. Increased transactional sex reported by 76.9% (n=20). Increased SGBV helpline calls by 70% in Zimbabwe and 153% in Colombia. Increased sexual violence associated with lockdowns (CAR). Increased adolescent transactional sex in associated with parental job loss (DRC).	Low (4/12)
Hall, 2020[45]	Myanmar	Qualitative. Cross-sectional (interviews)	Cross-cutting Women and girls	Suspensions or reductions in ANC reported. Movement restrictions made access to women difficult for midwives and caused delays for hospital transfers. SGBV services remained open but with some adaptations (eg, phone hotlines).	Medium (8/12)
Health Cluster Occupied Palestine Territories, 2020[46]	Palestine	Mixed-methods. Cross-sectional (routine programmatic data)	Cross-cutting Women	Routine ANC, PNC, preconception care, IUD insertion and maternity clinics stopped. Facility delivery and ANC/PNC for high-risk pregnancies continued. GBV service providers reported increased demand. Shortages of SRH supplies occurred with a 59% stock-out of essential MNH drugs (Gaza).	Medium (5/12)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Hersh, 2021[61]	Cameroon, Yemen, South Sudan	Mixed-methods. Cross-sectional (quantitative: secondary analysis of routine financial data; qualitative: interviews, FDGs)	SGBV Women and girls	Increased SGBV (unquantified) driven by economic hardship and lockdowns. Increased unplanned pregnancies and forced marriage driven by school closures (unquantified). Financial hardship also contributed to forced marriages (South Sudan). Reduced SGBV service provision and uptake (unquantified).	High (9/12)
Ho, 2022[30]	DRC	Mixed-methods. Cross-sectional (literature review, qualitative interviews, retrospective quantitative case studies)†	Cross-cutting Women	Reduced SRH service use in early pandemic driven by lockdowns, fear and financial barriers. Later increases in family planning and abortion uptake. Increased transactional sex, unintended pregnancies and sexually transmitted infections (STIs). SRH funding redirected to COVID-19, leading to stock-outs of SRH supplies.	Medium (5/10; 13/20)
IAWG, 2020[47]	Vanuatu, India, Lebanon, Sudan, Nigeria	Mixed-methods. Cross-sectional (case studies, routine programmatic data)	Cross-cutting Women and girls	Difficulty procuring SRH commodities in Vanuatu, DRC and Nigeria. Reduced SRH service uptake in Cox's Bazar and DRC. SRH services worldwide faced restrictions in provision as not deemed 'essential'.	Medium (6/12)
IMPACT Initiatives, 2022[66]	Multicountry including Afghanistan, Nigeria, Iraq, Cox's Bazar	Quantitative. Cross-sectional (longitudinal survey)	SGBV Target population not reported	Afghanistan: SGBV increased by 35%. Nigeria: increased early/forced marriage driven by economic strain (unquantified). Iraq: increased reports of SGBV, associated with loss of livelihoods (unquantified).	Low (4/12)
International Rescue Committee, 2022[48]	Cox's Bazar	Mixed-methods. Cross-sectional (quantitative: survey, routine programmatic data; qualitative: interviews, FDGs)	Cross-cutting Adults and young people	No services stopped during COVID. Decreased access to SRH services, contraception, and SGBV support services. Access barriers were transport and lockdown, lack of service/medicine availability, queues at clinics, staff shortages at clinics, financial difficulties in accessing services/products. Reduced postabortion care uptake.	Medium (7/12)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
International Rescue Committee, 2022[62]	North-East Nigeria	Mixed-methods. Cross-sectional (quantitative routine programmatic data, qualitative interviews and FDGs)	Cross-cutting Women and girls	SRH service uptake in urban areas increased by 8% but reduced by 25% in rural areas. Rural areas more affected by pandemic-driven stock-outs. SRH services reduced opening hours and faced reduced staffing. Access barriers included transport costs, lockdowns and fear. Lack of access to contraception led to unplanned pregnancies. Increased transactional sex reported, particularly in urban areas.	High (10/12)
Jacobi, 2020[63]	Global*	Qualitative. Cross-sectional (interviews)	Contraception Women and girls	Reduced contraceptive provision due to lockdowns and resource diversion to COVID-19. Cessation of some services. Reduced service uptake due to lockdowns and financial barriers.	High (9/12)
Johns Hopkins CCP, 2020[49]	Cox's Bazar, Colombia (Venezuelan refugees/ migrants)	Quantitative. Cross-sectional (case studies, routine programmatic data)	MNH Adult women	Cox's Bazar: reduced facility deliveries in April 2020 (n=711) compared with 2019 monthly average (n=1500)	Medium (6/12)
Johns Hopkins CCP, 2020[50]	Iraq, Cox's Bazar, North-East Nigeria	Mixed-methods. Cross-sectional (case studies, routine programmatic data)	SGBV Adult women	SGBV services reduced or suspended due to diversion of staff and funding. Lockdowns, fear of infection and misinformation prevented service access.	Medium (5/12)
Jones, 2020[51]	Gaza and Jordan (urban and refugee camps)	Qualitative. Cross-sectional (interviews, FGDs)	Cross-cutting Adolescents	Increased SGBV in Gaza driven by lockdown. Reduced access to abortion services (Gaza) and MNH services (Jordan).	Medium (7/12)
Kotiso, 2022[31]	Yemen	Quantitative. Repeated cross-sectional (DHIS data).	MNH Women and girls	Compared with 2019: Facility deliveries: No change across February (B=–3.05 (95% CI –10.67 to +4.58), p=0.434), March (B=–2.95 (95% CI –11.72 to +5.81), p=0.509), April (B=–8.44 (95% CI –17.06 to +0.17), p=0.055), May (B=2.61 (95% CI -5.90 to +11.11), p=0.548), June (B=–1.38 (95% CI -10.08 to +7.32), p=0.755) 2020 Caesarean sections: No change across February (B=–0.02 (95% CI -3.60 to +3.57), p=0.993), March (B=–0.25 (95% CI –4.96 to +4.47), p=0.919), April (B=–1.37 (95% CI –6.51 to +3.78), p=0.603), May (B=–0.30 (-4.70,+4.10), p=0.893), June (B=–2.53 (95% CI -7.58 to +2.51), p=0.325) 2020	Medium (6/10)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Landis, 2020[67]	Global*	Mixed-methods. Cross-sectional (literature review, case studies)†	Cross-cutting Adolescent girls	Mobile outreach services for SRH delivery to adolescents stopped (DRC, Chad). Reduced access to contraceptive services as staff diverted to COVID (Niger). Fall in family planning (–62%) and ANC (–65%) use (Cox's Bazar)	Low (4/12)
Lusambili, 2020[36]	Kenya (urban refugees)	Qualitative. Cross-sectional (interviews)	Cross-cutting Women	Facility attendance decreased. Increases in delayed ANC/PNC uptake. Driven by fear of COVID-19, lockdowns and financial barriers. HIV 6-monthly scheduled follow-up for mothers with HIV disrupted, and infant PCR and maternal viral load testing postponed.	High (14/20)
Maatouk, 2021[27]	Lebanon (refugees)	Quantitative. Cross-sectional (routine programmatic data)	HIV/STIs MSM	Cessation of in-person HIV services. Distribution of HIV self-tests increased. Increased demand for HIV self-testing (HIVST) (242 beneficiaries pre-COVID period vs 383 beneficiaries during COVID-19 period) (HIVST).	Low (2/10)
Mahamid, 2022[37]	Palestine	Qualitative. Cross-sectional (interviews)	SGBV Women and girls	Increased SGBV driven by lockdown and economic strain. Young uneducated women and housewives most impacted.	High (15/20)
Meyer, 2022[38]	Rwanda (Makana Refugee Camp)	Qualitative. Cross-sectional (interviews)	Cross-cutting Adolescents (all genders)	Increased SGBV, transactional sex, unplanned pregnancies and STIs. Reduction in availability and quality of youth programming and SRH services with stock-outs and staff shortages. Delays in accessing routine and urgent SRH services.	High (16/20)
Phillimore, 2022[41]	Multi-country including Tunisia, Turkey (forced migrants)	Qualitative. Cross-sectional (interviews)	SGBV Adult males and females	Increased SGBV (both settings). Turkey: SGBV driven by COVID-19-related economic hardship. Tunisia: increased sexual exploitation, especially of adolescent girls.	Medium (13/20)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Rodo, 2022[39]	Multi-country including Afghanistan, DRC, Iraq, Nigeria, Somalia, South Sudan, Syria, Yemen, Cox's Bazar	Mixed-methods. Cross-sectional (literature review, interviews)†	MNH Women	Reduced ANC and facility deliveries (South Sudan, Nigeria, Cox's Bazar, Afghanistan, Somalia, Iraq, Syria, Yemen, DRC), and PNC (South Sudan, Cox's Bazar, Afghanistan) provision Suspended outreach services (Cox's Bazar) Reduced ANC uptake (South Sudan, Afghanistan, Iraq, Syria) Increased maternal and newborn morbidity (Cox's Bazar, Syria, Yemen, South Sudan) Increased maternal mortality (Bangladesh, Syria, Yemen)	High (16/20)
Shapira, 2021[34]	Cameroon, DRC, Mali, Somalia	Quantitative. Repeated cross-sectional (HMIS data)	Cross-cutting Women	Uptake compared with expected for March–July 2020: Cameroon: No significant change in ANC1 (±0.0% (95% CI –2.7% to +2.8%)) or ANC4 (–2.4% (95% CI -7.9% to +3.1%)). Increased PNC (+6.8% (95% CI +2.4% to +11.3%)) and facility deliveries (+3.3% (95% CI +1.1% to +5.5)%). DRC: Increases in family planning (+11.0% (95% CI +4.9% to +17.2%)), ANC1 (+2.0% (95% CI +1.1% to +3.0%)) and ANC4 (+2.3% (95% CI +1.0% to +3.5%)). No change in facility deliveries (+0.2% (95% CI -0.9% to +1.3%)) or PNC (–0.2% (95% CI –1.3% to +0.9%)). Mali: Decreases across family planning (–16.5% (95% CI -6.6% to –26.4%)), facility deliveries (–8.3% (95% CI -3.9% to –12.8%)) ANC4 (–5.6% (95% CI –10.3% to –1.0%)) and PNC (–3.7% (95% CI -6.8% to –0.7%)). Somalia: No significant change in facility deliveries (+2.3% (95% CI -3.1% to +7.7%)), ANC1 (–3.8% (95% CI -8.9% to +1.3%)) or ANC4 uptake (+6.2% (95% CI –3.1% to +15.4%)) or PNC visits (+2.6% (95% CI –7.8% to +13.0%)).	High (8/10)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Sharma 2021[28]	Global*	Quantitative. Cross-sectional (survey)	SGBV Humanitarian practitioners	Increased SGBV risks according to 84.7% of respondents. 65% reported moderate or great reduction to SGBV services. 52.7% reported COVID-19 restrictions as a barrier to implementing GBV risk mitigation interventions.	Low (2/10)
UN Women 2020[52]	Multicountry including Somalia, Afghanistan	Mixed-methods. Cross-sectional (survey)	SGBV Women and girls	Somalia: 50% increase in SGBV helpline calls. Afghanistan: reduced access to SGBV services due to closures, resource shortage and fear of COVID-19.	Medium (6/12)
UN Women Palestine Country Office 2020[64]	Palestine	Mixed-methods. Cross-sectional (survey)	SGBV Women	Increased SGBV according to 53% of respondents, driven by lockdowns and pandemic-related economic hardship. 33% reported increased reporting, but 28% reported a decrease driven by lockdowns and lack of privacy. 43% of organisations had to stop some services, 33% reduced staffing, and 7% shut down completely.	High (9/12)
UNFPA 2021[53]	Sudan	Qualitative. Cross-sectional (FDGs)	SGBV Adults and young people	Increased SGBV driven by lockdowns and economic hardship. Increased early marriage driven by economic hardship.	Medium (8/12)
UNICEF 2020[54]	DRC	Mixed-methods. Cross-sectional (quantitative routine programmatic data, qualitative interviews)	Cross-cutting Women and girls	Normal ANC uptake but reduction in contraception service uptake (March 2020). In November 2020, increased use of contraceptive services, emergency contraception, abortion and postabortion care. Reduced ANC service uptake in November 2020. Increased unplanned pregnancies, adolescent pregnancy, SGBV and transactional sex seen in November 2020. Increase of 74% in adolescents seeking family planning services.	Medium (7/12)
Wood 2020[55]	Multicountry including Palestine, Afghanistan, South Sudan	Mixed-methods. Cross-sectional (case studies)	SGBV Women and girls	Increased SGBV in (Palestine and Afghanistan (unquantified)). Increased survival sex in (South Sudan (unquantified)).	Medium (8/12)

Continued

Table 2 Continued

Author, year	Study setting	Study design	Focus	Key findings	Quality (actual score)
Yoosefi Lebni 2022[40]	Iran (urban Afghan refugees)	Qualitative. Cross-sectional (interviews)	Cross-cutting Women	Increased domestic violence driven by lockdowns and economic strain. Increased unintended pregnancies from lack of contraceptive access. Increased pregnancy-related complications from reduced ANC access.	High (17/20

*Only data from LMIC humanitarian settings included.
†Literature review data not included.
ANC, antenatal care; DHIS, District Health Information Software; HIC, high-income country; HMIS, Health Management Information Systems; LMIC, low-income and middle-income country; MSM, who have sex with me; PNC, postnatal care; SGBV, sexual and gender-based violence.

ANC and facility delivery in South Sudan, Nigeria, Cox's Bazar, Afghanistan, Somalia, Iraq, Syria, Yemen and DRC, and in PNC provision in South Sudan, Cox's Bazar and Afghanistan.[39] Interview respondents in another study in Kenya reported maternal HIV 6-monthly follow-up disrupted, and infant and maternal HIV testing postponed.[36] Interview respondents in studies across Makana Refugee Camp, Chad and North-East Nigeria reported delays in accessing SRH services affecting routine treatments including STIs and contraception, and also in accessing urgent, time-critical emergency contraception and postexposure prophylaxis.[38 42 62]

Complete cessation of certain SRH services was reported in 12 studies. In Cox's Bazar, North-East Nigeria, Iraq and South Sudan, SGBV services including women-only spaces closed as an infection prevention and control (IPC) measure according to qualitative interview respondents.[35 50 57 61 62] One study in Palestine reported that 43% of SGBV organisations surveyed stopped some services, and 7% of organisations shut down completely.[64] Critical SRH services were reported as suspended in Chad, Ecuador and Palestine, including emergency contraceptive services in Chad.[42 44 46] One study in Palestine reported suspensions to routine ANC, PNC and maternity clinics by the Ministry of Health (MoH), UNWRA and non-governmental organisations (NGOs), with the normal continuation of facility deliveries and ANC/PNC for high-risk pregnancies.[46] In Cox's Bazar and Somalia, complete suspension of the provision of newborn care was reported in key informant interviews.[39] Interview respondents across three studies in Cox's Bazar reported community outreach activities for SRH suspended.[35 39 48] One study reported cessation of outreach services specifically for adolescent SRH in DRC and Chad, although this study was of low quality.[67] One low-quality study in Lebanon reported on HIV/STI service cessation, reporting that voluntary HIV counselling and testing stopped.[27]

Resource availability

Stock-outs of SRH commodities including contraception were reported across six studies in Cox's Bazar, DRC, Makana Refugee camp, North-East Nigeria, Palestine and Venezuela.[26 30 38 46 47 62] At MoH facilities in Gaza, this was quantified as a 59% stock-out of essential MNH drugs.[46] Contributors to stock-outs were COVID-19-driven funding diversions and international supply chain problems.[47 62] Increased costs to maintain the same MNH activities were reported by interview respondents in Somalia, Iraq and Sudan,[39] and increased prices of SRH commodities were reported in a study in Vanuatu.[47] These financial impacts were attributed to COVID-19, although no economic evaluation was undertaken in either study.

Qualitative data across seven studies highlighted negative impacts on the SRH workforce. COVID-19 travel restrictions were reported as hindering the ability of local staff to get to work in six studies across Palestine, North-East Nigeria, Myanmar, Afghanistan, Ecuador, Turkey

Table 3 Summary of reported indirect impacts of COVID-19 on SRH service provision, utilisation and outcomes by SRH domain (studies in parenthesis)

	Service provision	Service utilisation	Health outcomes
Abortion	Reduced[51]	Reduced[48 62] Increased[30 54] No change[29]	
Contraception	Reduced[26 40 44 46 56 63 67]	Reduced[29 32 34 48 54 63 67] Increased[29 30 34 54] No change[32]	Worsened[30 38 40 54 61 62]
HIV/sexually transmitted infections (STIs)	Reduced[27 29 36 45]	Reduced[62] Increased[27]	Worsened[30 38]
Maternal and newborn health (MNH)	Reduced[39 43 45 46 51]	Reduced[33 34 36 39 49 54 67] No change[31 32 34 54] Increased[29 34]	Worsened[29 39 40] No change[29]
SGBV	Reduced[28 42 46 50 56 61 64]	Reduced[35 44 45 48 50 52 57 61 64] Increased[46 52 64 65] No change[59]	Worsened[28 35 37 38 40–42 44 51 53–61 64–66]
Non-differentiated SRH	Reduced[26 38 47 67] No change[48]	Reduced[30 43 47 48 62] Increased[62]	

SGBV, sexual and gender-based violence; SRH, sexual and reproductive health.

and Iraq.[39 44 45 50 52 58] Furthermore, one study reported international staff were unable to return to work in Cameroon, Yemen and South Sudan due to travel restrictions.[61] No studies provided quantitative data on healthcare workforce impacts.

Prioritisation of SRH

Qualitative data across 10 studies highlighted the de-prioritisation of SRH in the face of COVID-19. Four studies reported that SRH services were not classed as 'essential' within guidance for maintaining services. One study across Cox's Bazar, North-East Nigeria and Iraq reported this specifically for SGBV services,[50] while this applied to general SRH services in studies in DRC and Venezuela.[26 30 54] Staff diversions to COVID-19 with resulting staff shortages for SRH services were reported in Makana Refugee Camp and Cox's Bazar.[35 38 48] Humanitarian actors in two studies (countries of respondents not specified) noted that SRH facilities were commonly converted to COVID-19 facilities.[39 63] Across DRC, Kenya, Chad, Burundi, Nigeria, Somalia, Afghanistan, Yemen, Cox's Bazar, Iraq and South Sudan, SRH funding was diverted to COVID-19 activities.[30 39 42 50]

Impacts at the individual level related to the demand for SRH services

The impacts on SRH service uptake varied between and within settings, and across the continuum of care. There was no clear pattern on the degree or direction of impact, although two high-quality studies across Niger, Mali and

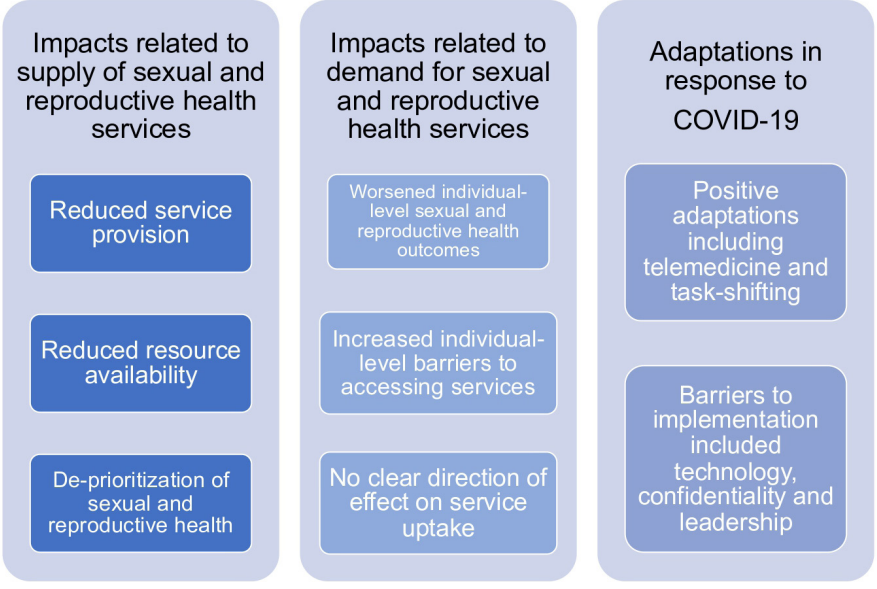

Figure 2 Summary of narrative synthesis.

North-East Nigeria reported negative impacts on service uptake to disproportionately affect rural populations.[33 62]

SGBV

Five studies reported on SGBV service uptake, however, their comparability is limited by the range of outcome measures used. One study in North-East Nigeria measured SGBV care uptake using GBVIMS data, demonstrating a slight reduction in SGBV care uptake in 2020 but no significant change compared with 2019 (figures not reported).[62] Calls to SGBV helplines were reported to have increased by 70% in Zimbabwe and 153% in Colombia one low-quality study,[65] while a medium-quality study in Somalia reported a lesser but still marked increase of 50%.[52] In Palestine, of SGBV service providers (n=59) surveyed, 33% stated an increase in reporting while 28% reported a decrease.[64] Respondents reporting a decrease highlighted that this was more likely to reflect difficulty seeking support due to lockdown measures rather than a reduction in need. This was also reported in Iraq with a 25% decrease in incidents reported during 2020 compared with the same periods of 2019 despite 65% of assessed service delivery points reporting an increase in SGBV, with interview respondents citing lockdown measures as preventing reporting.[57]

Contraception and abortion

Reductions in the uptake of family planning services were reported in studies in Mali and Jordan, and specifically of new users in one study in Ethiopia.[29 32 34 56] In Mali, Shapira *et al* reported a 16.5% reduction (95% CI −6.6% to −26.4%) over March–July 2020 compared with expected.[34] Altare *et al* report larger reductions of 47% (IRR=0.526 (95% CI 0.376,0.736), p<0.001) in Azraq and 48% in Zaatari (IRR=0.524 (95% CI 0.312 to 0.878), p=0.01) refugee camps (Jordan) in family planning services at the beginning of the pandemic.[32] Separately, an increase of 10%–20% in women who could not access family planning during COVID-19 lockdowns was reported in remote surveys and interviews conducted in Irbid, Karak and Amman governorates, and Azraq and Zaatari refugee camps.[56] In Ethiopia, Desta *et al* report borderline evidence of a 4.81% reduction (p=0.04) in family planning service uptake by new users in the second quarter of 2020 compared with a similar period in 2019.[29] Elsewhere, increases in family planning service uptake were reported. Despite the reduction in uptake of new acceptors in Ethiopia, Desta *et al* reported a 6.10% increase (p=0.02) in uptake by repeat users.[29] In DRC, Shapira *et al* reported a significant increase in family planning consultations of 18.2% (8.6%, 27.7%) and 16.5% (8.9%, 24.2%) compared with expected in June and July 2020 respectively.[34] Interview respondents in two studies also reported increased family planning service usage including emergency contraceptive use in the later months of 2020.[30 54] Increases in contraceptive service uptake were notably high among adolescent new users in North Kivu, with a 74% increase in the period between March-October 2020 reported.[54] Qualitative interview data across both mixed-methods studies attributed the increased SRH service uptake to avoidance of pregnancy secondary to economic hardship, increased transactional sex for survival, and increased sexual activity among adolescents during school closures.[30 54]

Abortion care uptake was reported on in three studies.[29 54 62] In DRC, abortion care uptake increased, with visits to one NGO-run free mobile clinic increasing by 350% between April and July 2020, and by 44% between March and October 2020 to another NGO-supported health facility clinic.[54] In Ethiopia, women receiving comprehensive abortion care fell by 12.30% compared with a similar period in 2019, however, this was not statistically significant (p=0.31).[29] In North-East Nigeria, urban/rural variations were reported.[62] SRH service use declined by 25% in rural areas but increased by 8% in urban areas, which interview participants attributed to rural areas being more impacted by stockouts while demand for services in urban areas increased with rising transactional sex and GBV. However, this finding is limited as it includes MNH, contraception, STIs/HIV and abortion services, thus the impact on abortion specifically is not known.

MNH

Reduced ANC uptake was reported four studies across Mali, Nigeria, Cox's Bazar, Somalia, South Sudan, Afghanistan, Iraq, Syria DRC and Yemen.[33 34 39 67] In Mali, Shapira *et al* reported a 5.6% reduction (95% CI −10.3% to −1.0%) in ANC4 uptake over the period of March–July 2020.[34] Amouzou *et al* reported larger reductions in uptake of ANC4 of 21.2% (95% CI −26.2 to −16.2%) in rural areas, and 9.8% (95% CI −11.9% to −7.7%) in urban areas.[33] Amouzou *et al* also reported on ANC1, with smaller but still significant reductions in uptake in rural (−3.9% (95% CI −6.3% to −1.4%)) and urban (−1.9% (95% CI −3.1% to −0.7%)) areas. However, findings by Shapira *et al* contradicted findings of reduced ANC uptake cited by interviewees in DRC and Somalia, with no change in uptake reported in Somalia (ANC1 −3.8% (95% CI −8.9% to +1.3%); ANC4+6.2% (95% CI −3.1% to +15.4%)) and increased uptake in DRC (ANC1+2.0% (95% CI +1.1% to +3.0%); ANC4+2.3% (95% CI +1.0% to +3.5%)) compared with expected.[34 39] Additionally, no change in ANC1 or ANC4 uptake was reported in high-quality (n=3)[32–34] and medium-quality (n=1)[29] quantitative studies across Cameroon, Ethiopia, Jordan or Niger.

There was no change in facility deliveries reported in DRC, Somalia or Yemen,[31 32 34] of live birth coverage in Jordan,[32] or in caesarean sections (c-sections) in Niger or Yemen.[31 33] However, high-quality qualitative studies in Jordan and DRC contradicted this, reporting reductions in facility deliveries.[39 56] In addition, reductions in facility deliveries were reported across studies in Mali (n=2),[33 34] Niger (n=1)[33] and Cox's Bazar (n=1).[49] Reductions reported were larger in rural areas in both Niger (rural −11.6% (95% CI −17.7% to −5.4%); urban (−4.5%

(95% CI −6.4% to −2.5%)) and Mali (rural −4.7% (95% CI −7.6% to −1.7%)); urban (−1.9% (95% CI −3.1% to −0.7%))).[33] Reductions in c-sections were also reported in Mali by Amouzou *et al*, with rural areas again more affected (rural −7.7% (95% CI −14.6% to 0.7%); urban −2.7% (95% CI −5.2% to −0.3%)).[33] However, 8.56% (p<0.001) and 28.05% (p=0.004) increases in skilled and c-section deliveries, respectively, were reported in Ethiopia,[29] while in Cameroon a small increase (+3.3% (95% CI +1.1% to +5.5%)) in facility deliveries was reported.[34] No study reported on indication (ie, emergency/routine) for c-sections which could be a confounder or effect modifier, limiting interpretation.

PNC uptake in Mali was 3.7% (95% CI −6.8% to −0.7%) lower than expected, as reported by Shapira *et al*.[34] Conversely, PNC visits were reported as having increased by 13.99% (p<0.001) by Desta *et al* in Ethiopia,[29] and were 6.8% higher (95% CI +2.4% to +11.3%) than expected by Shapira *et al* in Cameroon.[34] In Somalia, there was no change (+2.6%, 95% CI −7.8% to +13.0%).[34]

Access barriers

Barriers to accessing SRH services were identified across 18 studies.[30 35 36 38–40 42–44 46–48 50 52 58 60 62 63] Fear of COVID-19 infection was identified as a deterrent to accessing services across Iran, DRC, Kenya, North-East Nigeria, Palestine, Yemen and Afghanistan.[30 36 39 40 42 43 46 47 52 62 63] Interviewees across Cox's Bazar, Kenya, DRC, Palestine, Yemen and sub-Saharan Africa (countries not specified) described exacerbation of pre-existing financial barriers to SRH service access, with difficulty affording user and/or transport to services.[36 42 46 48 50] Additionally, new financial barriers emerged, with refugees in Kenya, Afghanistan, Ecuador and Turkey unable to afford IPC materials (eg, masks) required to access services.[36 44] Implementation of lockdowns presented difficulties in travelling to SRH services for respondents in Kenya, Palestine, North-East Nigeria and across sub-Saharan Africa (countries not specified).[42 46 48 62] In Cox's Bazar, 33% of individuals surveyed could not access any SRH service due to movement restrictions. Movement restrictions also prevented discrete access to SRH services in North-East Nigeria,[62] and specifically to SGBV services in Chad, Cox's Bazar and the Emirati-Jordanian refugee camp.[44 47 50 65 66] Poor communication on SRH service availability caused confusion and misinformation, resulting in reduced care seeking for SGBV in refugee camps in Cox's Bazar and Jordan and for MNH in South Sudan.[35 42 50 58 60] In Makana Refugee Camp, misinformation on facility policies at the provider level led to refusal of SRH services to adolescents.[38]

Individual-level SRH outcomes

Negative impacts on SRH outcomes were reported across 22 studies.[29 35 37–42 44 51–61 65 66] Only two studies contained quantitative data on outcomes.[29 66]

Increased SGBV was the most widely reported outcome, included in 18 studies across Iran, Palestine, Jordan, Cox's Bazar, Iraq, Afghanistan, Yemen, South Sudan, Sudan, DRC, Somalia, Cameroon, Turkey, Kenya, Chad, Tanzania, Tunisia, Côte d'Ivoire, Liberia, Niger, Nigeria, Sierra Leone, Ethiopia, Uganda and Burundi.[35 37 40–42 44 51–57 59–61 65 66] One low-quality reported a 35% increase in SGBV in Afghanistan.[66] The predominant subtypes of SGBV comprising these increases were domestic or intimate partner violence directed towards women, driven by lockdowns trapping survivors with perpetrators alongside COVID-19-driven economic downturns resulting in male unemployment and stress.[35 37 40 44 51–53 56 58–61] Early and forced marriage also increased in Cameroon, Nigeria, South Sudan, Sudan, Jordan, Yemen and Afghanistan, attributed to economic downturns and school closures,[42–44 53 58 59 61 66] while women and girls in Cox's Bazar and South Sudan reported increases in sexual violence when accessing basic amenities.[60 61]

Increased unintended pregnancies were reported in four studies across North-East Nigeria, Iran, Cameroon, South Sudan, Yemen and Makana Refugee Camp, driven by lack of contraceptive access.[38 40 61 62] Negative outcomes among adolescents in particular were evident. Increased adolescent pregnancy rates attributed to closure of schools/youth centres were reported in Cameroon, South Sudan, Yemen, Makana Refugee Camp, DRC and in refugee/displaced girls across sub-Saharan Africa (countries not specified),[42 54 61] while economic hardship led to increased transactional sex in DRC, Makana Refugee Camp, North-East Nigeria, Yemen, Cameroon, South Sudan, and refugee/displaced women across sub-Saharan Africa (countries unspecified).[30 38 42 54 55 61 62 65] Focus groups with young people in Makana Refugee Camp reported that transactional sex had increased among young men as well as women.[38] Increases in STIs including HIV were also reported in Makana Refugee Camp and DRC, although neither study reported gender-disaggregated data.[30 38]

Two qualitative studies using key-informant interviews, one with Afghan refugees in Iran and the other with humanitarian actors in Cox's Bazar, reported increases in pregnancy complications with lack of ANC access during the pandemic being a major contributor.[39 40] Increased maternal and newborn morbidity due to delayed presentation were reported in key informant interviews conducted with humanitarian actors in Cox's Bazar, Syria, Yemen and South Sudan, and respondents in Cox's Bazar, Syria and Yemen also described increases in maternal mortality although no quantitative data was included.[39] No evidence of a change in institutional maternal deaths (p=0.32) was found by Desta *et al* in their quantitative study in Ethiopia, however, stillbirths increased by 18.57% (p<0.001) in 2020 compared with 2019.[29]

Service adaptations made in response to COVID-19

Common adaptations

Several adaptations intended to overcome challenges posed by COVID-19 to SRH services were reported. Telemedicine, including using phones or online platforms, was described in 14 studies across Afghanistan, Yemen, Cox's Bazar, Jordan, DRC, North-East Nigeria, Chad, Myanmar, Palestine, India, Lebanon, Sudan and Kenya.[30 32 35 39 42 45–47 50 53 56 58 61 62] Task-shifting was reported in nine studies across Cox's Bazar, Kenya, DRC, Jordan, Lebanon, Palestine, Cox's Bazar, Yemen, Somalia, South Sudan, Sudan, Afghanistan and Syria.[27 35 39 47–50 55 56] Examples of task-shifting included using pharmacies to provide self-managed medication abortion in DRC,[47] and expanding community health worker roles for SGBV provision in Cox's Bazar and Kenya.[35 49 50 55] Other less common adaptations included provision of extended contraceptive prescriptions in Jordan and DRC,[30 32 56] and provision of financial or voucher assistance to overcome financial barriers associated with SRH services in Burundi, Cox's Bazar and Ecuador.[42 44 47 48]

Barriers and facilitators to adaptations

No adaptations were formally evaluated, however, seven studies provided reflections on their implementation. Technological barriers were cited in six studies across North-East Nigeria, Cox's Bazar, Chad, Myanmar and Jordan including unreliable internet connectivity and lack of mobile phone access, which tended to affect women and girls more.[35 42 45 48 58 62] Confidentiality was a challenge with the shift to telemedicine during lockdown according to respondents in three studies in Jordan, North-East Nigeria and Cox's Bazar, especially in the provision of online SGBV services.[35 58 62] In DRC, interviews with service providers and humanitarian actors highlighted that locally designed adaptations were effective but poor leadership at the central/provincial level was hindering.[30]

DISCUSSION

This review demonstrates the wide-ranging indirect impacts of COVID-19 on SRH services and outcomes across a variety of LMIC humanitarian contexts. At the health systems level, reduction or cessation of SRH service provision, diversion of resources to COVID-19, and procurement issues were reported. The impacts on SRH service uptake are complex and context-specific. Nonetheless, for individuals, pre-existing financial and geographical access barriers were magnified, while new barriers emerged from COVID-19 mitigation measures. Increases in poor outcomes, notably SGBV and unplanned pregnancy, occurred. While several positive adaptions were reported, including the use of telemedicine and task-shifting, implementation was limited by resource scarcity.

Several findings from this review are in keeping with the previous literature on indirect impacts of outbreaks on SRH in humanitarian settings. Increased SGBV and transactional sex driven by economic instability were also reported in the Ebola outbreaks in West Africa (2013) and the DRC (2018).[68 69] Closure of women-only safe spaces was reported as a driver of SGBV in the 2018 outbreak.[70] Increased maternal and newborn mortality reported in qualitative interviews and increased stillbirth rates reported by Desta *et al* are in keeping with increased maternal, newborn and stillbirth deaths following reduced MNH service coverage during Ebola in West Africa in 2013.[13] Several of the access barriers to SRH in the context of COVID-19 have also been reported in previous outbreaks, including fear of infection and financial difficulties.[71 72]

A range of positive adaptations to SRH services in response to COVID-19 were identified in this review. This is a new finding in contrast to previous literature on SRH service provision in humanitarian settings during co-occurring epidemics, where adaptations were not widely reported. Interestingly, many adaptations identified in this review are in keeping with other innovations in SRH delivery during COVID-19 in both LMIC and HIC non-humanitarian settings including use of telemedicine for SRH in the UK, Australia, Albania and Uganda as well as self-managed medical abortion in the UK, France and Ireland.[73–75] In this review, commonly identified barriers to the successful implementation of adaptations were technology access and confidentiality in the context of lockdowns. These are likely to reflect both poor infrastructure in many humanitarian settings (eg, limited phone network coverage, crowded housing/shelter), as well as gender inequalities experienced by women and girls. These inequalities are often exacerbated in humanitarian settings with a resulting lack of technological access, or reduced decision-making power around their SRH health.[12] Considering these barriers and enablers is imperative for future pandemic preparedness planning.

The identification of many studies focused on MNH, comparatively less on contraception, and only six including abortion, is reflective of the prioritisation of MNH and neglect of contraception and abortion within MISP interventions.[76] However, it is surprising that SGBV was the most common domain identified, as SGBV is generally neglected within MISP interventions. This may reflect the multisectoral nature of SGBV programming, with SGBV coordination in humanitarian settings led by the protection cluster within the United Nations international humanitarian cluster system.[77] This multisector input may translate to more resources for SGBV, such as the Gender-Based Violence Information Management System (GBVIMS). There were limited studies focussing on adolescents, sexual and gender minorities, and individuals with disabilities. These important population groups have specific needs and challenges related to their SRH. Including these specific subgroups in future research can identify specific interventions and support systems required to ensure their SRH needs are adequately addressed during crises and emergencies.

The varied impacts on service uptake across and within settings as found in this review merits further research. Variation in uptake of MNH and family planning services across different settings was reported in previous Ebola outbreaks, attributed to different health systems' resilience, mitigation measures and health-seeking behaviours.[72 78] These factors are also likely to contribute to the variations found in this review. The increased impact of COVID-19 on SRH coverage in rural areas compared with urban as reported in North-East Nigeria, Niger and Mali is in keeping with urban/rural SRH disparities in the literature and emphasises the need to close this divide.[79] The SRH needs of host communities were not adequately addressed in studies conducted with displaced persons or in refugee camp settings. Including host communities in future studies is essential, as they are part of the humanitarian setting and have distinct SRH requiring consideration in service planning and delivery.

The major strength of this review is the comprehensive design and conduct, using three electronic databases and nine grey literature sources. The novel use of webinars as a source captured experiences of humanitarian practitioners which may otherwise be missed, as time and resource constraints faced in emergency contexts limit the ability to publish these experiences. However, restriction of languages to English and French may have missed relevant sources in other languages. The findings of the review are limited by all included studies being cross-sectional, with those including quantitative data mostly using facility-level rather than individual data. While use of grey literature is an important source of data for humanitarian contexts, the quantitative data reported in some grey sources was less robust than in peer-reviewed studies—likely reflective of the challenges humanitarian practitioners face in conducting research in a time and resource-constrained setting. The heterogeneity of contexts and outcomes measured across this review limits generalisability, and therefore, findings should be interpreted cautiously.

CONCLUSION

This review demonstrates negative impacts of the COVID-19 pandemic on SRH service provision and outcomes at the health system and individual level, with SRH deprioritised in the face of COVID-19. Further research should focus on neglected aspects of SRH, including the assessment of the indirect impacts of COVID-19 on abortion in humanitarian settings. Research should prioritise neglected groups such as adolescents, men/boys, and sexual and gender minorities, and overlooked settings (such as non-conflict crises). At the policy and programming level, the increased burden of the poor outcomes identified must be addressed, particularly increased SGBV and unintended pregnancies. Targeted preventative interventions in these areas for future compounded crises is recommended. Emergency response preparedness in humanitarian settings must integrate and maintain SRH services as essential during compounded crises such as pandemics.

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Contributors NSS and LS conceived the analysis and all authors contributed to the final structure and content of the paper. LS led the overall data analysis with inputs from NSS. LS wrote the first draft of the paper with inputs from NSS, and all authors contributed to critical interpretation of the results and development of the paper. All authors saw and approved the final version. LS is responsible for overall content as the guarantor.

Funding Salary support for NSS was provided by the Centers for Disease Control and Prevention of the US Department of Health and Human Services (HHS) as part of financial assistance award U01GH002319.

Disclaimer The contents are those of NSS and do not necessarily represent the official views of, nor an endorsement, by CDC/HHS, or the US Government.

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.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data sharing not applicable as no datasets generated and/or analysed for this study.

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