Accounting for Context: Using Qualitative Methods to Model the Effects of Adaptations to Family Planning Services During COVID-19

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Abstract

**Background** – During the first six months of the global response to Coronavirus Disease-2019 (COVID-19), multiple service delivery adaptations were suggested to maintain access to modern contraceptive methods (MCMs) and family planning (FP) services. Though these adaptations may help maintain services during COVID-19, they may also trigger mechanisms capable of fundamentally shifting MCM use and community perceptions of FP long after routine services are restored if they fail to take into account the contexts in which they are implemented. This study aimed to model the context-specific effects of suggested adaptations to FP service delivery.

**Methods** – A multi-step approach to modelling using qualitative methods was employed. Methods involved a targeted review of relevant literature on adaptations to FP service delivery, the development of context categories using empirical findings from five countries, and the construction of a model based on realist concepts to predict the mechanisms and outcomes likely to be triggered by adaptations to FP service delivery in specific contexts.

**Results** – Eleven key adaptations to FP service delivery were identified, and 19 mechanisms and their associated outcomes were predicted. The model revealed 8 negative and 11 positive effects of suggested adaptations when implemented in contexts where women’s decisions around MCM use are influenced by: 1) stigma surrounding FP; 2) male control of reproductive decisions; 3) covert use of MCMs; 4) fear of MCM side effects; and 5) concerns about long-acting reversible contraceptives. These effects were predicted to drive changes in MCM use, community perceptions of FP, and women’s trust in health services. The model also demonstrated that suggested adaptations are likely to have important long-term effects and result in changes to the prevailing contexts.

**Conclusions** – Though adaptations to FP service delivery are needed in response to COVID-19, the contexts in which these are implemented should be carefully considered by national and sub-national decision-makers to minimise unwanted outcomes. The model constructed in this study can be leveraged as a theorising tool to facilitate this process in different settings.

1. Background

Drawing on lessons from recent public health emergencies, many in the global health community have called for Coronavirus Disease-2019 (COVID-19) responses to incorporate innovative strategies to minimise the impact of health systems disruptions on maternal and neonatal health services (1–7). Early global estimates indicate that excess maternal deaths could significantly increase during the current COVID-19 pandemic (8). The Guttmacher Institute suggests that a 10% decline in global modern contraceptive method (MCM) use over a 12 month period due to disruptions caused by COVID-19 could result in an additional 15.4 million unplanned pregnancies, 3.3 million unsafe abortions and 28,000 maternal deaths (9). This is in part due to reduced MCM use resulting in unwanted or mis-timed pregnancies. In fact, the United Nations Population Fund projects that “for every 3 months the lockdown
continues, assuming high levels of disruption, up to 2 million additional women may be unable to use modern contraceptives” (10).

Prior to COVID-19, 218 million women in low- and middle-income countries had an unmet need for MCMs (9). Since the onset of the pandemic, this need has been exacerbated by service provision challenges and changes in women's health seeking behaviours (11). On the supply-side, challenges have been linked to disruptions to supply chains and stock-outs of family planning (FP) commodities, mandated health facility closures, and FP staff shortages due to the diversion of personnel to the COVID-19 response (3, 10, 12–14). On the demand-side, changes have included delays in seeking and accessing care due to fear of exposure to COVID-19 during health facility visits and due to movement restrictions during community or national lockdowns (10, 12–16).

Maintaining access to MCMs and FP services during the COVID-19 pandemic represents an unprecedented challenge. During the first months of COVID-19, a wide range of adaptations to FP service delivery were suggested in response to this challenge. These adaptations broadly centred on strategies to postpone pregnancies, minimise client-provider interactions, and limit the use of formal health facilities for services considered non-essential or non-emergent (17–19). Though these adaptations may help maintain access to MCMs and FP services during the COVID-19 pandemic, they may also trigger mechanisms capable of fundamentally shifting community perceptions of FP and MCM use long after routine services are restored if they fail to account for the contexts in which they are implemented.

Here, context is taken to refer to “any feature of the circumstances in which an intervention is implemented that may interact with the intervention to produce variation in outcomes” (20), which can transcend geographical boundaries and exist in multiple settings. Though not every aspect of context is relevant to every intervention, evidence from programme evaluations pre-dating COVID-19 highlight that an underestimation of the importance of socio-cultural and economic factors specific to the context in which interventions are implemented can result in intervention failures (20). This is particularly relevant to the delivery of FP services given the important influence of community-level contextual factors on women's decisions around MCM use (21). For instance, evidence suggests that the unmet need for MCMs in low- and middle-income countries results not only from a lack of access to FP services, but is also from the influence of context on women's decisions (9). Specifically, women who wish to avoid pregnancies report not using MCMs due to fears of side effects and ill health, misconceptions about MCMs causing infertility and a lack of support from their families (9).

We propose that decision-making at the national and sub-national levels should carefully consider the contexts in which adaptations to FP service delivery are implemented within COVID-19 response strategies. However, there is a paucity of COVID-19-related frameworks or models for decision-makers to use that account for context and that provide insight into the potential effects of the suggested adaptations to service delivery. This study aimed to model the context-specific effects of FP service delivery adaptations suggested during the first six months of the global response to COVID-19.
2. Methods

Study design

An interpretivist approach to modelling of empirical qualitative data was used to predict the context-specific effects of suggested adaptations to FP service delivery. Modelling is commonly used in qualitative research to represent concepts and formulate theories. For example, logic models and conceptual models or frameworks are frequently used in qualitative studies to provide insight into health programmes or systems. The use of a ‘theory of change’ in the design and evaluation of interventions is an example of modelling employed to qualitatively forecast and test causal pathways between interventions and desired outcomes (22). However, empirically driven models based on qualitative data are rarely used to predict the effect of changes to a system or sub-system. In 2007, Briggs argued for the role of modelling in qualitative research as a tool for theory building and decision-making around complex and fluid systems (23). Briggs also outlined an interpretivist approach to modelling based on the analysis of qualitative empirical data, which could be replicated in different settings or fields. More recently, Husbands et al. highlighted the value of qualitative methods in constructing models that inform healthcare resource allocation decisions (24) and Frempong et al. emphasised the use of qualitative approaches, such as framework analyses, in enhancing the development of models (25).

Building on this, a multi-step approach to modelling based on qualitative methods (Fig. 1) was employed to answer three questions: 1) what adaptations to FP service delivery were suggested in the first six months of the global response to COVID-19; 2) what mechanisms are likely to be triggered by these adaptations in specific contexts; and 3) what are the potential effects of these mechanisms on community perceptions of FP and on women’s decisions around MCM use.

The model was anchored in realist concepts, with mechanisms as its central component. Mechanisms refer to how people interpret, and act in response to, an intervention or other available resources that may be present within the prevailing context (26). Mechanisms drive outcomes and are influenced or triggered by a particular context. By explaining the relationships between contexts, interventions, mechanisms and outcomes, realist concepts provided an appropriate framework for modelling the complex interaction between the contexts and service delivery adaptations studied here, and for predicting the mechanisms and outcomes they are likely to trigger. The standards for reporting qualitative research (SRQR) were used to ensure rigorous reporting of the study (Table 1 in Supplemental Materials) (27).

Step 1

The first step in modelling the context-specific effects of suggested adaptations to FP service delivery involved reviewing the literature on relevant adaptations. A targeted review of peer-reviewed journals and grey literature published between January and June 2020 on COVID-19-related adaptations to FP service delivery was performed. A search for relevant sources was conducted using Medline, Pubmed and Google Scholar. Search terms included: covid OR coronavirus AND family planning OR contracept*. A snowball approach was used to search for additional technical guidance documents from normative bodies, global
initiatives and organisations operating in the sexual and reproductive health (SRH) sphere. Sources were retained based on the relevance of their titles and abstracts. Where abstracts were not available, the entire manuscript or document was consulted prior to deciding on its inclusion. Reports on webinars and country-specific guidelines were excluded and only guidance documents, commentaries and research articles that discussed contraception and/or FP and COVID-19 were retained. Documents covering SRH in general but not FP or contraception specifically were also excluded, as were manuscripts presenting findings from literature reviews.

Evidence from included sources was scrutinized in light of the following question: what adaptations to FP service delivery were suggested in the first six months of the COVID-19 response? Suggested adaptations to FP services delivery were extracted from each source and imported into Nvivo 12. Inductive coding and content analysis were then performed to identify commonalities and differences among the suggested adaptations. A narrative summary of key adaptations was produced, and these were included in the study's model. A quality assessment tool was not utilised in this review as the majority of relevant sources at the intersection of FP service delivery and the COVID-19 response published between January and June 2020 were founded on expert opinion and limited empirical evidence.

Step 2

The second step entailed defining contexts for inclusion in the model. Factors influencing women's decisions around MCM use pre-COVID-19 presented in Hoyt et al. (under review) were used as the basis for developing cross-setting context categories. In brief, in Hoyt et al.'s study, data from 94 semi-structured interviews (SSIs) and 21 focus group discussions (FGDs) with women, health providers, and community members (N = 253) across 5 study sites were analysed. Purposive sampling using a maximum variation approach was employed to select key stakeholders with a range of perspectives. Study sites varied in size (14–114 health facilities and outreach clinics) and were located in Adjohoun-Bonou-Dangbo district in Benin; Assosa and Bambasi woredas in Ethiopia; Isiolo and West Pokot counties in Kenya; Blantyre and Thyolo districts in Malawi; and Karamoja sub-region in Uganda. The primary analysis of the empirical data by Hoyt et al. used a structured framework to: explore stakeholders' views of an intervention integrating FP with childhood immunisation services; document stakeholders' perceptions of FP in general; and summarise the factors influencing women's decisions around MCM use across all study sites. Though the intervention varied across countries, its objectives and key components were similar across sites, which provided a unique entry point to define the contexts influencing women decisions around MCM use for inclusion in the model. Factors found to influence women's decisions in the majority of sites were carefully examined and grouped into thematic categories. A description of each context category was generated, and the categories were added to the model.

Subsequently, relationships between the defined contexts and the service delivery adaptations were identified. Each context was systematically considered alongside every service delivery adaptation identified through the literature review. Likely associations among every possible pair were noted and
added to the model. Where no association was thought to be probable between a given context and service delivery adaptation the pairing was excluded from the model.

Step 3

In the third step, the mechanisms likely to be triggered by the interaction between the contexts and adaptations in the model were determined. These mechanisms, and the outcomes they drive, were extracted from realist evaluation findings by Hamon et al (28), Krishnaratne et al (29) and Webster et al. (submitted), using the same empirical data as in Step 2. The mechanisms and outcomes first generated through the realist evaluation thus corresponded to the contexts included in the model. These mechanisms and outcomes were scrutinised to determine their relevance to the study’s model in terms of their potential for being triggered by the modelled context and adaptations. Mechanisms and outcomes considered relevant were adapted to fit the model and added to demonstrate the predicted effect of suggested FP service delivery adaptations in the modelled contexts.

The model was then refined using an iterative process. This was carried out through multiple rounds of discussions amongst the study team about the relationships between the contexts, adaptations, mechanisms and outcomes included in the model until a consensus was reached where ideas and opinions differed. This process enabled the study team to discuss and address assumptions and presuppositions that could influence how the model was assembled. Once the final model was constructed, patterns relating to the positive/negative and short/long-term nature of the modelled effects were examined, including changes to the prevailing context. Here, short-term is defined as an effect (on context, mechanisms and/or outcomes) lasting as long as the adaptation to service delivery is in place, whereas long-term denotes an effect expected to outlast the adaptation’s implementation.

3. Results

3.1. FP service delivery adaptations suggested in the first six months of the global COVID-19 response

The Medline, Pubmed and Google Scholar searches produced 30, 56 and 1,090 results respectively, and the snowball approach produced 15 additional documents for initial review. From these, 40 were retained based on relevance, from which 15 duplicates were removed. Ultimately, 25 documents were included in the final review, with 12 taken from the snowball approach, 9 from Medline/Publicmed and 4 from Google Scholar. A total of 11 key adaptations to FP service delivery in response to COVID-19 were identified through the targeted literature review. These are summarised below.

Adaptation 1: Advocate for the full range of FP services to be recognised as essential (2–4, 14, 30–34). Nine sources highlighted the need to recognise SRH in general, and FP specifically, as essential services to ensure their availability was prioritised within COVID-19 response efforts and to enable the removal of
movement restrictions limiting women’s access to these services during community or national lockdowns.

Adaptation 2: Anticipate and address supply chain needs and challenges (2, 5, 15, 33, 35, 36). Examples of ways to address supply-chain disruptions were mentioned in six sources and included: expanding mail-based or doorstep distribution of MCMs and medical abortion products where possible; facilitating appropriate supply availability in dispensing sites; and ensuring the availability of alternative MCMs in the absence of routinely used methods.

Adaptation 3: Modify legislation to retain or improve accessibility of MCMs (2, 3, 36–39). Amendments to existing legislation and the introduction of new legislation were suggested in six sources to: enable home-based medical abortion; extend emergency supply of oral contraceptives to cover multi-month periods; and make oral contraception and self-administered injectables prescription-free and widely available in pharmacies. Additionally, reversal of legislation restricting access to MCMs was recommended based on harm-reduction principles.

Adaptation 4: Integrate FP services and MCM dispensing into all relevant health system contacts (5, 13, 15, 31, 33, 35, 37, 39, 40). The integration of FP counselling and messages, and of MCM dispensing into essential services such as childhood immunisations, maternity and post-partum care, and post-abortion care was highlighted in nine sources. In particular, immediate post-partum care was emphasised as an important opportunity to encourage long-acting reversible contraceptive (LARC) uptake prior to discharging women from maternity services.

Adaptation 5: Leverage community systems to optimise FP service accessibility (2, 6, 11, 15, 32, 35, 37, 41, 42). Switching facility-based FP services to community-based delivery systems where possible was suggested in nine sources to reduce women’s contact with health providers and to limit their time spent in health facilities. Examples included: task shifting to enable community health worker-led dispensing of MCMs; facilitating community programmes targeting increased access to MCMs for vulnerable groups; and repurposing community sensitisation programmes to provide both COVID-19 and FP information to communities.

Adaptation 6: Scale-up and use telemedicine systems for remote FP counselling and consultations (2, 3, 6, 11, 13, 15, 30, 31, 34, 35, 37, 39, 41). Telemedicine and the use of social media platforms to provide FP counselling for a variety of MCM-related issues was suggested in 13 sources. In particular, the use of telemedicine systems was suggested for the management of non-complex cases and of MCM side effects to encourage continued use among current MCM users, as well as to support home-based medical abortions, emergency contraception use and self-administration of short-term MCMs.

Adaptation 7: Shift to self-care models to minimise clients’ contact with providers and time in health facilities (4–6, 13, 15, 16, 32, 34, 35, 37, 39, 42). Eleven sources highlighted the benefits of encouraging the use of self-administered or user-controlled MCMs (e.g. self-administered injectables, condoms and oral contraception pills), and shifting away from provider-administered MCMs. This suggestion was, in some
sources, made alongside an acknowledgment that this shift would require engaging communities to build acceptance of self-care models.

Adaptation 8: Promote the uptake of LARCs and permanent methods (PMs) and the extended use of LARCs beyond their labelled duration (4, 13, 30–32, 34–40, 43, 44). Maintaining the provision of LARC insertions and postponing routine LARC removals were suggested in 14 sources. Some examples focused on counselling new and existing clients about the benefits of LARCs and encouraging the continued provision of PM and LARC insertions. However, several proposed discouraging the routine removal of LARCs, such as implants and intra-uterine devices (IUDs), and recommended counselling women to extend the use of LARCs beyond their labelled duration as a safe and effective option supported by clinical evidence. Some of these sources specified that, when necessary, exceptions should be made to facilitate removals, particularly for adolescents and for women experiencing severe side effects, nearing the end of their reproductive window or wishing to become pregnant.

Adaptation 9: Amend prescribing practices to improve the accessibility of MCMs (2, 13, 30–32, 34–37, 43). Changes to prescribing practices to improve MCM accessibility were suggested in ten sources. Examples of such changes included: facilitating multi-month prescriptions and provision of short-term MCMs following remote eligibility screening to minimise trips to refill sites; providing advance prescriptions of emergency contraception when possible; and prescribing progestogen-only pills when complete medical evaluations aren’t possible given their limited contraindications.

Adaptation 10: Reinforce counselling to ensure appropriate and maintained MCM use (30, 31, 36). The importance of ensuring the provision of quality counselling to prevent MCM discontinuation among women opting to start or switch MCMs and for women experiencing side effects was discussed in three sources. Additional counselling to promote correct and consistent condom use in the event of supply chain disruptions was also suggested, as was making counselling available for women using emergency contraception at home.

Adaptation 11: Adopt a rights-based and patient-centred response strategy (3, 4, 6, 13, 31, 33, 38). Seven sources highlighted the need for rights-based and patient-centred strategies to safeguard women's decision-making autonomy and to ensure FP services are high quality and remain responsive to people's needs. In particular, the role of engaging with communities to understand their needs and uphold women's decision-making capacity, autonomy and dignity was highlighted. Adapting FP counselling to help set realistic expectations about FP services during COVID-19 outbreaks in order to avoid undermining voluntarism and choice was also mentioned. And, one source emphasised the need for transparency around service prioritisation to help women make informed decisions around their reproductive plans and MCM use in light of COVID-19.

3.2. Contexts influencing women’s decisions around MCM use
Five context categories were derived from the factors influencing women's decisions around MCM use pre-COVID-19 based on empirical findings from five study sites presented in Hoyt et al. (under review). These context categories were: 1) stigmatisation surrounding MCM use and FP; 2) male control of reproductive decisions; 3) covert use of MCMs; 4) fear of MCM side effects; and 5) concerns about LARC removals. Table 2 in Supplemental Materials presents examples through illustrative quotes of how each of these contexts manifested in the different study sites.

First, stigmatisation of MCM use and FP was perceived to influence women's decisions around MCM use among study sites in Benin, Kenya and Uganda. For instance, in Kenya and Uganda, FP was stigmatised because it was perceived to limit births in a context where having many children was highly valued due to the risk of losing children from disease, famine and/or warfare. In Benin, stigma was linked to prevailing myths about FP and a lack of male partner support for MCM use.

Second, male control of reproductive decisions was found to influence women's MCM use, with male partners seen as the decision makers in all five study sites. Their decisions about the number and timing of pregnancies were perceived to be largely respected by women. In some cases, women reportedly feared the domestic tensions that would ensue from not meeting their male partners’ reproductive expectations. For this reason, many women favoured short-term MCMs over LARCs as they considered these more responsive to their changing reproductive needs.

Third, covert MCM use was a key context present across study sites in Benin, Kenya, Malawi and Uganda. For many women, the fear of experiencing the stigma associated with FP in their community and/or the lack of support from their male partner prevented MCM use unless covert access to FP services was possible and discreet MCMs (e.g. injectables) were available. In these cases, elements of service delivery that hindered covert MCM use were seen as undermining women's autonomy. For example, in Benin where some men perceived MCM use as enabling women to engage in prostitution, women accessed FP services at night when they were less likely to be seen seeking services. In this case, women opted not to utilise integrated FP services provided during the day.

Fourth, experiences of, and beliefs about, MCM side effects were also identified as a key context influencing women's use of MCMs in all five study sites. In particular, irregular bleeding linked to MCM use was considered problematic given the negative connotations and the interference with domestic tasks associated with blood loss in many communities. Women who experienced or heard about irregular bleeding were perceived to be less likely to start or continue using MCMs. Several respondents in each of the study sites highlighted the importance of awareness campaigns, quality counselling on side effect management, accessible follow-up services and opportunities to switch MCMs in promoting new and continued MCM use in light of side effect-related fears.

Fifth, concerns about LARC removal issues was identified as an important context in Benin, Ethiopia, Kenya and Uganda's study sites. In Benin and Ethiopia women's wariness towards implants was linked to a lack of access to removals, whereas in Kenya and Uganda women reportedly rejected implants because of rumours circulating in their communities about women who had experienced conflicts with their male
partner due to implants and needed them removed swiftly. Removal-related issues were not commonly reported by respondents in the Malawi study site as almost all used provider-administered injectables.

### 3.3. Modelled effects of FP service delivery adaptations in specific contexts

The final model included 5 context categories, 11 FP service delivery adaptations and 19 potential mechanisms (Fig. 2), which were predicted to drive 11 positive outcomes (white cells in Fig. 2) and 8 negative outcomes (orange cells in Fig. 2). These predictions were based on the assumption that FP service delivery adaptations are appropriately designed and effectively implemented.

Mechanisms driving negative outcomes were predicted to be triggered by the interaction between the modelled contexts and: the shift towards self-care models (Adaptation 7); the integration of FP services and MCM dispensing into all relevant health system contacts (Adaptation 4); the leveraging of community systems to optimise FP service accessibility (Adaptation 5); and the promotion of LARC and PM uptake and the extended use of LARCs beyond their labelled duration (Adaptation 8). In particular, Adaptation 7, was found to have a negative effect in 4 of the 5 modelled contexts and no positive effect of this adaptation was predicted in these contexts. For example, in a context where women use MCMs covertly, shifting toward self-administered MCMs was predicted to result in women feeling unable to use MCMs covertly and ultimately preventing their use altogether.

The mechanisms included in the model were also found to have the potential for generating short- and long-term effects (S and L in Fig. 2) on women's use of MCMs, community perceptions of FP, and women's trust in health services depending on the context. Several adaptations were found to have the potential for creating a mix of short- and long-term changes in the modelled contexts. However, two adaptations were found to generate only short-term effects: integrating FP services and MCM dispensing into all relevant health system contacts (Adaptation 4) and amending prescribing practices to improve the accessibility of MCMs (Adaptation 9). Whereas, adaptations expected to trigger solely long-term mechanisms were: leveraging community systems to optimise FP service accessibility (Adaptation 5); advocating for the full range of FP services to be recognised as essential (Adaptation 1); and promoting LARC and PM uptake and the extended use of LARCs beyond their labelled duration (Adaptation 8). For example, in a context where women's decisions around MCM use are influenced by the fear of MCM side effects, and in particular concerns about irregular bleeding, scaling-up telemedicine systems to provide remote counselling was expected to have the long-term effect of empowering women to manage MCM side effects at home, thus minimising their reluctance to use MCMs. Conversely, in this same context, the suggestion to shift to self-care models was predicted to result in women feeling unable to manage side effects effectively, ultimately driving them to opt out of using MCMs. This effect was predicted to outlast the implementation of the service delivery adaptation.

Additionally, two changes to the prevailing context were identified. That is, in a context where stigma surrounds FP and MCM use, adaptations that trigger communities to recognise FP as essential and worth prioritising or that trigger communities to feel ownership of FP services were predicted to reduce the
stigma surrounding FP and MCM use, thereby altering the prevailing context during and following the implementation of the adaptation. Similarly, in a context where the fear of MCM side effects influences women's decisions around MCM use, adaptations that trigger women to feel supported or empowered to manage MCM side effects were predicted to minimise fears, thus changing the prevailing context.

4. Discussion

This study revealed that suggested adaptations to FP service delivery in the first six months of the global response to COVID-19 seldom acknowledged the importance of context and its influence on women's decisions around MCM use and on community perceptions of FP. Though a few sources mentioned the importance of adopting a rights-based and patient-centred response to adapting FP service delivery during the pandemic (3, 4, 6, 13, 31, 33, 38), most adaptations centred on optimising limited resources to ensure continuous provision of FP services and failed to recognise the interaction between the proposed adaptations and the contexts in which they are implemented. It is possible that contexts, such as covert MCM use or FP stigma were implicitly considered when the suggested adaptations were defined; however, the lack of their explicit acknowledgement in the literature targeting the global community is problematic – particularly as these are often used to inform national and sub-national strategies.

Models that account for the likely interaction between context and service delivery adaptations are needed to help inform decision-making about FP services during the COVID-19 pandemic. Gross et al.’s triage framework for the prioritisation of procedures relating to women’s reproductive health in light of COVID-19 begins to move beyond an exclusive focus on economic or operational considerations and enables a more patient-centred approach to decision-making by taking into account the non-physical well-being of women (38). For instance, it suggests considering how a woman's future access to FP services, and therefore her reproductive options, may be jeopardized by the pandemic when looking at whether adaptations such as delayed LARC removals should be prioritised. However, this framework does not explicitly discuss the effects of the interaction between contexts and service delivery adaptations. This study set out to construct a model that would account for this interaction and provide insight into the likely effects of suggested adaptations to FP service delivery. By constructing a model centred on the relationships between context, service delivery adaptations, mechanisms and outcomes, this study not only demonstrates the applicability of using realist concepts to predict the effect of service delivery adaptations, it also offers a tool that can be used by decision-makers in different settings to examine the impact of changes to complex systems (23, 26). Furthermore, the model presented in this study can serve as a springboard towards the development of a more comprehensive model using empirical data collected during the COVID-19 pandemic.

Ultimately, the modelled effects were context-specific and in some cases were predicted to result in unfavourable outcomes and changes to the prevailing contexts. For instance, in a context where women are concerned about LARC removals, the implementation of Adaptation 8 (promote the uptake of LARCs and PMs and the extended use of LARCs beyond their labelled duration) was predicted to trigger mechanisms that reinforce concerns and fears about LARC removals. This reinforced fear could last well
beyond the end of the current COVID-19 crisis as women lose trust in health services and concerns about future outbreaks and service disruptions grow. This finding is particularly concerning given the frequent emphasis of Adaptation 8 in the literature. The predictions made in the model also suggest that in some contexts two or more adaptations should be combined to produce the desired outcome and to minimise unintended or unfavourable outcomes. For instance, in a context where women are concerned about LARC removals, extending the use of LARCs beyond their labelled duration should be combined with complementary interventions aimed at triggering mechanisms of acceptability. Enhanced counselling, perhaps through the use of telemedicine, or through community outreach, to ensure that women receive the necessary information regarding LARC removals and understand why these are discouraged during the COVID-19 pandemic may partly address this.

Lessons from the 2013–2016 Ebola outbreak in West Africa demonstrate the effects that outbreaks like COVID-19 can have on SRH gains in low- and middle-income countries (1, 2). If adaptations to FP service delivery fail to account for the contexts in which they are implemented, response efforts have the potential to result in long-term negative effects like the ones predicted in this study’s model. As such, contexts must be further examined and taken into account in the delivery of FP services in the time of COVID-19 to prevent the loss of important gains made during the last two decades around MCM use and community perceptions of FP in low- and middle-income countries.

5. Limitations

A systematic review of the literature may have identified additional sources that contained suggested adaptations to FP service delivery in the time of COVID-19; however, a targeted approach lent itself well to the aims of this study and facilitated the necessary rapid review process. Additionally, several of the sources included in the review have yet to complete peer-review given the current need for rapid knowledge sharing, which represents a potential limitation.

Though the model developed in this study serves to formulate predictions about the effects of suggested FP service delivery adaptations in response to COVID-19, theoretical models fundamentally offer “a simplification of reality by showing relationships between key variables, factors or phenomena”(23). As such, the model presented in this manuscript naturally does not capture the full complexity of the dynamics between the contexts and adaptations to FP service delivery studied here. However, this potential limitation is somewhat mitigated through the use of a qualitative approach to modelling, which provides insight into the ‘how’ and ‘why’ of the modelled effects whilst conserving the context and detail of the elements examined (24, 45). Furthermore, though the contexts are presented separately from one another in the study’s model, in reality several contexts may coexist. A model that captures the interaction between two or more contexts would be beneficial.

Additionally, the empirical data from the realist evaluation used to develop the model predates COVID-19 and therefore does not account for possible changes in the views of women and their communities brought on by the crisis. This limitation is, however, less concerning given that the aim of this study was
to develop a model that could serve as a theorising tool to understand and predict the effects of suggested FP service delivery adaptations and that could be leveraged to inform decision-making.

6. Conclusions

During the first six months of the global response to COVID-19, multiple service delivery adaptations were suggested to maintain access to MCMs and FP services. However, the full effect of these adaptations is unlikely to be known for some time, particularly in terms of changes to community perceptions of FP and women’s decisions around MCM use. The purpose of this study was to construct a model capable of providing context-specific insight into the probable effects of suggested adaptations to FP service delivery and that could serve as a tool to facilitate decision-making. Findings revealed 8 negative and 11 positive effects of suggested adaptations when implemented in contexts where women’s decisions around MCM use are influenced by: 1) stigma surrounding FP; 2) male control of reproductive decisions; 3) covert use of MCMs; 4) fear of MCM side effects; and 5) concerns about LARCs. These effects were predicted to drive changes in MCM use, community perceptions of FP, and women’s trust in health services. The model also demonstrated that suggested adaptations are likely to have important long-term effects and result in changes to the prevailing contexts. Though adaptations to FP service delivery are necessary in response to COVID-19, the contexts in which these are implemented should be carefully considered by national and sub-national decision-makers to minimise unfavourable outcomes. Further empirical research is needed to refine the model presented here in order to aid decision-making.

Abbreviations

FGD: focus group discussion; FP: family planning; IUD: intra-uterine device; L: long-term; LARC: long-acting reversible contraceptive; MCM: modern contraceptive method; PM: permanent method; S: short-term; SRH: sexual and reproductive health; SSI: semi-structured interview.

Declarations

Ethics approval and consent to participate:

Ethics approval was obtained from the: Comité d’Éthique de l’Institut des Sciences Biomédicales Appliquées, Benin; Benishangul-Gumuz Regional Ethical Review Board, Ethiopia; African Medical and Research Foundation, Kenya; Committee on Research in the Social Sciences and Technology, Malawi; Mildmay Uganda Research Ethics Committee, Uganda; and the ethics committee of the London School of Hygiene & Tropical Medicine. Written informed consent was obtained from all respondents prior to their participation.

Consent for publication:

Not applicable.
Availability of data and materials:

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

Competing interests:

The authors declare that they have no competing interests.

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Authors’ contributions:

JKH conceived the idea for this study with input from JH and JW. JKH carried out the data analysis with input from JH, SK and JW. JKH drafted the manuscript. All authors made substantial and important contributions to interpreting data and revising the manuscript, and all authors provided final approval of the version to be published. Empirical data used in this study was collected by SK in collaboration with MG, DC, SDD, MM, EM and MK with advice from JW and JKH.

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References

1. Nagai M, Oikawa M, Tamura T, Egami Y, Fujita N. Can we apply lessons learned from Ebola experience in West Africa for COVID-19 in lower income countries? Glob Heal Med. 2020;2(2):140–1.
2. Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the Potential Impact of the COVID-19 Pandemic on Sexual and Reproductive Health In Low- and Middle-Income Countries. Int Perspect Sex Reprod Health. 2020;46:73–6.
3. Hall KS, Samari G, Garbers S, Casey SE, Diallo DD, Orcutt M, et al. Centring sexual and reproductive health and justice in the global COVID-19 response. Lancet. 2020;395:1175–7.
4. Townsend JW, Hoope-Bender P ten, Sheffield J, for the FIGO Contraception and Family Planning Committee. In the response to COVID-19, we can’t forget health system commitments to contraception and family planning. Int J Gynecol Obstet. 2020;150:273–4.

5. Makins A, Arulkumaran S, for the FIGO Contraception and Family Planning Committee. The negative impact of COVID-19 on contraception and sexual and reproductive health: Could immediate postpartum LARCs be the solution? Int J Gynecol Obstet. 2020;150:141–3.

6. Kumar M, Daly M, Plecker E De, Jamet C, Mcrae M, Markham A, et al. Now is the time: a call for increased access to contraception and safe abortion care during the COVID-19 pandemic. BMJ Glob Heal. 2020;5:1–4.

7. Tang K, Gaoshan J, Ahonsi B, Ali M, Bonet M, Broutet N, et al. Sexual and reproductive health (SRH): a key issue in the emergency response to the coronavirus disease (COVID-19) outbreak. BMC Reprod Heal. 2020;17(59).

8. Roberton T, Carter ED, Chou VB, Stegmuller AR, Jackson BD, Tam Y, et al. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. Lancet Glob Heal [Internet]. 2020;8(7):e901–8. Available from: http://dx.doi.org/10.1016/S2214-109X(20)30229-1

9. Sully EA, Biddlecom A, Darroch JE, Riley T, Ashford LS, Lince-Deroche N, et al. Adding it up: Investing in Sexual and Reproductive Health 2019. New York; 2020.

10. UNFPA. Impact of the COVID-19 Pandemic on Family Planning and Ending Gender-based Violence, Female Genital Mutilation and Child Marriage. 2020.

11. Church K, Gassner J, Elliott M. Reproductive health under COVID-19 – challenges of responding in a global crisis in a global crisis. Sex Reprod Heal Matters. 2020;28(1):1–3.

12. Kumar N. COVID 19 era: a beginning of upsurge in unwanted pregnancies, unmet need for contraception and other women related issues. Eur J Contracept Reprod Heal Care [Internet]. 2020;1–3. Available from: https://doi.org/10.1080/13625187.2020.1777398

13. USAID. Guidance on Social and Behavior Change for Family Planning during COVID-19. 2020;

14. Schaaf M, Boydell V, Belle S Van, Brinkerhoff DW, George A. Accountability for SRHR in the context of the COVID-19 pandemic. Sex Reprod Heal Matters. 2020;28(1).

15. International Federation Gynecology and Obstetrics (FIGO). COVID-19 Contraception and Family Planning. Statement 13th April 2020. 2020;

16. Weinberger M, Hayes B, White J, Skibiak J. Doing Things Differently: What It Would Take to Ensure Continued Access to Contraception During COVID-19. Glob Heal Sci Pract. 2020;8(2):1–7.

17. Nanda K, Lebetkin E, Steiner MJ, Yacobson I, Dorflinger J. Contraception in the Era of COVID-19. Glob Heal Sci Pract. 2020;8(2):8–10.

18. Tolu LB, Gudu Jeldu W. Guidelines and best practice recommendations on reproductive health services provision amid COVID-19 pandemic: Scoping review. Res Sq. 2020;1–20.
19. Tolu LB, Feyissa GT. Guidelines and best practice recommendations on contraception and safe abortion care service provision amid COVID-19 pandemic: Scoping review. Res Sq. 2020;1–16.
20. Craig P, Ruggiero E Di, Frohlich KL, Mykhalovskiy E, White M, Group. Taking account of context in population health intervention research: guidance for producers, users and funders of research. Southampton: NIHR Evaluation, Trials and Studies Coordinating Centre; 2018.
21. Stephenson R, Baschieri A, Clements S, Hennink M, Madise N. Contextual Influences on Modern Contraceptive Use in Sub-Saharan Africa. Am J Public Health. 2007;97(7):1233–40.
22. Weiss CH. Nothing as Practical as Good Theory: Exploring Theory-Based Evaluation for Comprehensive Community Initiatives for Children and Families. In: Connell J, Kubisch A, Schorr L, Weiss C, editors. New Approaches to Evaluating Community Initiatives. Washington, DC: Aspen Institute.; 1995.
23. Briggs ARJ. The use of modelling for theory building in qualitative analysis. Br Educ Res J. 2007;33(4):589–603.
24. Husbands S, Jowett S, Barton P, Coast J. How Qualitative Methods Can be Used to Inform Model Development. Pharmacoeconomics. 2017;35:607–12.
25. Frempong SN, Davenport C, Sutton AJ, Nonvignon J, Barton P. Integrating Qualitative Techniques in Model Development: A Case Study Using the Framework Approach. Appl Health Econ Health Policy [Internet]. 2018;16:723–33. Available from: https://doi.org/10.1007/s40258-018-0411-9
26. Pawson R, Tilley N. Realistic Evaluation. SAGE Publications, Sage UK: London, England; 1997.
27. O’Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting Qualitative Research: A synthesis of Recommendations. Acad Med. 2014;89(9):1245–51.
28. Hamon JK, Krishnaratne S, Hoyt J, Kambanje M, Pryor S, Webster J. Integrated delivery of family planning and childhood immunisation services in routine outreach clinics: findings from a realist evaluation in Malawi. BMC Health Serv Res. 2020;20:1–11.
29. Krishnaratne S, Hamon JK, Hoyt J, Chantler T, Landegger J, Spilotros N, et al. What mechanisms drive uptake of family planning when integrated with childhood immunisation in Ethiopia? A realist evaluation. BMC Public Health. Preprint. Available from: https://doi.org/10.21203/rs.3.rs-31442/v1.
30. American College of Obstetricians and Gynecologists. COVID-19 FAQs for Obstetrician – Gynecologists, Gynecology [Internet]. 2020. p. 1–21. Available from: https://www.acog.org/clinical-information/physician-faqs/covid-19-faqs-for-ob-gyns-gynecology
31. Bahamondes L, Makuch MY. Family planning an essential health activity in the pandemic of SARS-CoV-2. Eur J Contracept Reprod Heal Care [Internet]. 2020; Available from: https://doi.org/10.1080/13625187.2020.1768368
32. Inter-agency Working Group on Reproductive Health in Crises. Programmatic guidance for sexual and reproductive health in humanitarian and fragile settings during the Covid-19 pandemic. 2020;
33. JHPIEGO. Ensuring Quality Family Planning Services during COVID-19 Pandemic. 2020;1–2.
34. Faculty of Sexual & Reproductive Healthcare Clinical Effectiveness Unit. FSRH CEU clinical advice to support provision of effective contraception during the COVID-19 outbreak 20 March 2020. 2020;
35. International Planned Parenthood Federation (IPPF). IMAP Statement on COVID-19 and Sexual and Reproductive Health and Rights. 2020;(April):1–8.
36. World Health Organization (WHO). Maintaining essential health services: operational guidance for the COVID-19 context. 2020.
37. Faculty of Sexual & Reproductive Healthcare (FSRH). Essential Services in Sexual and Reproductive Healthcare. 2020;(March):1–3.
38. Gross MS, Harrington BJ, Sufrin CB, Faden RR. Rethinking “Elective” Procedures for Women’s Reproduction during Covid-19. Hastings Cent Rep. 2020;(May-June):40–3.
39. Robinson EF, Moulder JK, Zerden ML, Miller AM, Zite NB. Preserving and advocating for essential care for women during the coronavirus disease 2019 pandemic. Am J Obstet Gynecol [Internet]. 2020; Available from: https://doi.org/10.1016/j.ajog.2020.05.022
40. Faculty of Sexual & Reproductive Healthcare (FSRH). Provision of contraception by maternity services after childbirth during the Covid-19 pandemic. 2020.
41. UNFPA. Coronavirus Disease (COVID-19) Pandemic UNFPA Global Response Plan: Revised June 2020. 2020.
42. World Health Organization and the United Nations Children’s Fund (UNICEF). Community-based health care, including outreach and campaigns, in the context of the COVID-19 pandemic. 2020.
43. Fruzzetti F, Cagnacci A, Primiero F, De Leo V, Bastianelli C, Bruni V, et al. Contraception during Coronavirus-Covid 19 pandemia. Recommendations of the Board of the Italian Society of Contraception. Eur J Contracept Reprod Heal Care [Internet]. 2020;25(3):231–2. Available from: https://doi.org/10.1080/13625187.2020.1766016
44. Faculty of Sexual & Reproductive Healthcare (FSRH). FSRH CEU: Information to support management of individuals requesting to discontinue contraception to plan a pregnancy during the Covid-19 outbreak. 2020.
45. Bryman A. Social research methods. 3rd ed. Oxford: Oxford University Press; 2008.