HIV and SRH healthcare delivery experiences of South African healthcare workers and adolescents and young people during COVID-19

Jane Kelly, Lesley Gittings, Christina Laurenzi, Charné Dee Glinski, Hlokoma Mangqalaza, Nokubonga Ralayo, Nontokozo Langwenya, Lulama Sidloyi, Amanda Mbiko, Babalwa Taleni, Bongiwe Saliwe and Elona Toska

Centre for Social Science Research, University of Cape Town, Rondebosch, South Africa; Factor-Inwentash Faculty of Social Work, University of Toronto, Toronto, Ontario, Canada; Institute for Life Course Health Research, Faculty of Medicine and Health Sciences, Stellenbosch University, Stellenbosch, South Africa; Oxford Research South Africa, University of Oxford, Oxford, UK

ABSTRACT
While substantial research has emerged from the frontlines of the COVID-19 pandemic, as well as from studies with adolescent populations, there has been a dearth of research focused in South Africa on the context-specific experiences of healthcare workers (HCWs) and the adolescents and young people (AYP) to whom they provide services. This article documents the experiences of provision and receipt of HIV and sexual and reproductive health (SRH) services during the COVID-19 pandemic from the perspective of South African HCWs (n = 13) and AYP (n = 41, ages 17–29). Findings highlight several barriers to accessing comprehensive HIV and SRH services during the pandemic including lockdown-related mobility restrictions (reported by HCWs), prioritisation of COVID-19 above other healthcare needs, longer health facility waiting times, poor treatment by HCWs (reported by AYP), discomfort and perceived stigma from having to queue outside health facilities, and fear of contracting COVID-19 (reported by both groups). While HCWs reported that HIV and SRH services continued to be available during the pandemic, AYP described seeking these services – such as long-acting reversible contraception, check-ups for their babies and medical refills – and being told that because they were not considered emergency cases, they should return on a different date. By capturing diverse experiences and perspectives from both groups, our findings reiterate the growing call for health system investments to strengthen the delivery of adolescent services, including investing in appropriate channels of communication between young people and their healthcare providers (for example, through adolescent peer supporters or community healthcare workers) and differentiated models of service delivery (for example, multi-month ART refills and community pick-ups). Closing the gap between the experiences and needs of adolescents and the healthcare workers who serve them may support young people and HCWs in buffering against changes brought about by the COVID-19 pandemic.

CONTACT Jane Kelly jane.kelly@uct.ac.za

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
Introduction

For adolescents and young people (AYP) in low-resource settings the burden of the COVID-19 pandemic has largely been experienced indirectly – through disruptions in routines, interruptions in future plans, experiences of family loss, broad shifts in health care services, and the consequent health issues, such as increased unintended pregnancies and risk of HIV infection (Govender et al., 2020; van Staden et al., 2022). For young people in South Africa, indirect effects of the pandemic on their lives include economic stress and food insecurity, changes to social service provision, and psychosocial stressors related to uncertainty over education and employment (Duby et al., 2022; Gittings et al., 2021). As AYP navigate the transition to adulthood in these challenging contexts, access to sexual and reproductive health (SRH) services is key, including more specialized services for youth living with HIV (Zungu et al., 2021).

Despite HIV and SRH services being deemed essential during the pandemic (Global HIV Prevention Working Group, 2020; World Health Organization, 2020), reported disruptions include limited access to family planning services (such as contraception and counselling), maternal and child health services, and new barriers to accessing HIV services and support, including access to antiretroviral medication (Afolabi Bolarinwa et al., 2021; Emirie et al., 2020; Mambo et al., 2020; Riley et al., 2020). Estimates from 132 low- and middle-income countries suggest that there was a 10% reduction in SRH service access and uptake due to the pandemic, with some providers estimating reductions of up to 80% (Riley et al., 2020). Evidence from 502 healthcare facilities in sub-Saharan Africa and Asia showed a dramatic decrease between April and September 2020 in HIV testing (which fell by 41%) and HIV referrals (which fell by 37%) when compared to the same period in 2019 (The Global Fund, 2021). In South Africa amongst AYP specifically (15–24-year-olds), HIV-testing and ART initiation declined by 60%, compared to 47.6% across other age groups (Dorward et al., 2021; Siedner et al., 2020).

Because AYP already face higher unmet family planning needs (Bellizzi et al., 2019) particularly in HIV-endemic communities (Toska et al., 2020a), these disruptions are likely to be all the more pronounced for this group and may result in an increase in unintended pregnancies as well as AIDS-related deaths (Govender et al., 2020). Recent modelling suggests that gains made in improving HIV and treatment-related outcomes among AYP will not be sustained, and may even be lost, because of these systemic shifts (Stover et al., 2020).

These shifts have also had tremendous impact on healthcare workers (HCWs) themselves, who are tasked with providing care in a constantly shifting public health environment. HCWs across the world have faced a range of challenges during the pandemic, including high rates of COVID-19 infection, resource shortages (such as inadequate or insufficient personal protective equipment and COVID-19 testing equipment), declining mental health, and occupational concerns related to the risk of COVID-19 transmission to others (Morgan et al., 2022; Shreffler et al., 2020). Findings are similar in the South African context, with HCWs reporting high levels of mental health issues (Dawood et al., 2022; Engelbrecht et al., 2021), as well as not feeling optimally prepared for the pandemic as a result of inadequate training, resource shortages, and a lack of support from managers (Crowley et al., 2021; Engelbrecht et al., 2021; Kelly et al., 2022). While these concerns – especially in
public health facilities – are not uncommon, the pandemic has placed an additional burden and strain on both health systems and HCWs themselves (Dawood et al., 2022; Kelly et al., 2022).

Although substantial research has emerged from the frontlines of the COVID-19 pandemic (Billings et al., 2021), as well as from studies with adolescent populations (Novins et al., 2021), there has been a dearth of research focused in South Africa on the context-specific experiences of HCWs, and the AYP to whom they provide services. Documenting their perspectives is a crucial step in advocating for more effective health sector responses, especially as the COVID-19 pandemic continues to ebb and flow in places with suboptimal vaccine coverage. This article explores and documents the experiences of provision and receipt of adolescent HIV and SRH services during the COVID-19 pandemic from the perspective of South African young people and healthcare workers.

**Methods**

This article draws on data from qualitative and participatory research under the umbrella of the HEY BABY and TAG projects. HEY BABY aims to assess resilience-promoting pathways for adolescent parent families living in adversity, including young parents living in resource-constrained, HIV-affected communities in the Eastern Cape province of South Africa (Toska et al., 2020b). TAG engages qualitative, arts-based, and participatory methods to collect context-specific information and explore the subjective experiences and stories of participants from participatory advisory groups in the Eastern and Western Cape of South Africa (Gittings et al., 2021).

Within the HEY BABY project, qualitative, semi-structured telephone interviews were conducted with n = 13 HCWs (all registered professional nurses) from public health facilities in a mixed urban-rural health district in the Eastern Cape province of South Africa from August-November 2020. Public health facilities included a large public hospital (n = 1), community health care centres (n = 3) and clinics (n = 9). HCWs worked across different departments including HIV treatment units, maternity wards, and Adolescent- and Youth-Friendly Services (AYFS). Interviews were semi-structured and consisted of open-ended questions with probes that aimed to elicit HCWs’ experiences, challenges, and responses in the context of the COVID-19 pandemic, with a sub-focus on providing services to AYP. Interviews were conducted by a team of skilled interviewers in English and isiXhosa. A detailed description of the approach and methods of the HCW research is documented elsewhere (Kelly et al., 2022).

Data were also collected from AYP (n = 41, ages 17–29) from the TAG groups based in urban, rural, and peri-urban areas in the Eastern and Western Cape provinces of South Africa, with whom the research team have built rapport through in-person advisory activities over the course of 4–12 years. Data collection focused on AYP’s COVID-19 experiences, challenges and coping strategies, using two methods: (1) telephone in-depth, semi-structured interviews (n = 41) between April and November 2020 and (2) n = 28 participatory online group activities over a period of 10 months (n = 8 activities in 2020 and n = 20 activities in 2021) with a subset of the same group (n = 28 participants). There were 15 participants from the Eastern Cape (aged 20–24, n = 9 young women, 6 young men) and 26 from the Western Cape (aged 17–29, n = 15 adolescent girls and
young women, n = 11 adolescent boys and young men). Telephonic interviews and Facebook activities were conducted in a mixture of English and isiXhosa by a team of skilled researchers. Specific details of these groups and methods are documented elsewhere (Gittings et al., 2021).

AYP and HCW data were analysed using thematic analysis (Braun & Clarke, 2006). Ethical approvals were provided by the University of Cape Town (HREC 226/2017, version 7.0) and the University of Oxford (IDREC R48876/RE003), and informed consent was obtained from all participants (including parental consent for participants under 18 years of age).

Reflexivity was a central consideration in this work. Within the research team and participants, there are linguistic, racial, nationality, social class and gender differences which inevitably shaped power dynamics. TAG members were mostly isiXhosa-speaking young South Africans living in urban informal settlements, rural and peri-urban areas in the Western and Eastern Cape Provinces. Healthcare workers were isiXhosa-speaking adults living and working in the Amathole and Buffalo City districts of the Eastern Cape Province. The research and author team includes adults of diverse identities in relation to nationality, language, race, social class, sexual orientation and ability. In order to be aware of these inequalities, and minimise harm they may cause, we engaged in a sensitive, participatory research design and pursued reflexivity throughout all phases of data collection, analysis and presentation.

The development of COVID-19 research questions and study design for both TAG and HEY BABY data collection was a consultative process with adolescent advisors. Research assistants trained on navigating unequal power relations and who share similar linguistic identities and live in the same geographies as participants collected data, co-analysed findings and co-authored this work. This reflexive engagement was mirrored within the team itself emerging in purposeful debriefing processes, reflection diaries and well-being sessions. These processes aimed to actively engage and support the team during data collection and were iterative in nature, shifting to the fieldwork teams emerging needs.

**Results**

At large public hospitals, community health centres and clinics, HCWs reported that – with the exception of face-to-face youth clubs – they continued to offer regular adolescent services that were available before the COVID-19 pandemic. This included services such as HIV monitoring, medicines pick-up and contraceptive services.

But what we don’t do is the gathering of the adolescent[s], but all the services are available to the youth (HCW05).

Family planning is still continuing, the STI treatment is still continuing, the ones collecting their medication are still continuing, ones who came for acute illnesses are still continuing, ones who came for antenatal care or bringing their children are still continuing (HCW07).
In addition to regular adolescent services, HCWs also reported providing COVID-19-related services, including screening: ‘It’s those services that we do the everyday services, nhe, on top they added this COVID screening’ (HCW17). However, despite the reported continued availability of regular services, several HCWs also noted a decline in adolescents attending facilities, including a decline in ‘companion attendance’.

I can say adolescent’s services also affected on [in] this way. There are fewer adolescent numbers now . . . if [an] adolescent is coming for check-up date for family planning, she’s coming alone. In the past they used to come maybe 3-4 [to] accompany one person and then we’ll be able now to give services to the others (HCW06).

**Barriers to accessing SRH and HIV services**

Despite HCW’s assertion that service provision continued to be offered as before, several barriers may have contributed to a decline in service uptake. In the early days of the pandemic in South Africa, strict measures were enforced during lockdown, including severe restrictions on mobility as well as curfews which made accessing healthcare facilities more challenging, especially for young people reliant on public transport: ‘And there is this thing of lockdown and that there is no movement. You found out that it is difficult to come to the clinic to get the condoms . . . the rate of STIs just went up’ (HCW07).

AYP also suggested that adolescent health service access declined during COVID-19. However, in contrast to HCWs’ claims that barriers were related to transport and external factors, young people reported barriers with health services and facilities themselves. For example, one participant became pregnant during COVID-19 due to changes in contraception service delivery. She reported that healthcare facilities were prioritising COVID-19 above other health needs, including SRH and HIV: ‘Number(s) of pregnancy went high too because, well, at clinic they didn’t want people who come for contraceptives . . . places, things are not operating the same anymore’ (Female living with HIV, 20 years, Western Cape – AS03WC, Facebook activity).

In addition to changing priorities, several young people noted longer health facility waiting times as another barrier to service access: ‘They said I have to wake up very early in the morning to get a[n] [appointment] date because the queue gets full’ (Female living with HIV, 22 years, Western Cape – AS03WC, Telephone interview).

The suggestion that the COVID-19 pandemic placed an additional burden on already resource-constrained health facilities was corroborated by HCWs who reported shortages of basic resources, rapid depletion and delayed restocking of COVID-19-related equipment, and extra strain due to staff shortages.

Discomfort and perceived stigma from having to queue outside health facilities may have been another barrier for young people:

Yoh it affected certain things we wanted, and certain places were closed and at certain places entrance was forbidden . . . at the clinic I had to wait outside . . . in the scorching sun” (Female, 18 years, Eastern Cape – LNN05EC, Telephone interview).

And the fear even now you can see when they come for treatment. Like today I got a message from one of them that he doesn’t want to be seen just to pick up the treatment (HCW01).
Some young people reported poor treatment by HCWs, including being shouted at and not listened to:

Yhoooo was hard time ... I don't wanna lie ... they shouted at me ... Wow then ... they don't know my problems, and they don't wanna hear (Male living with HIV, 23 years, Eastern Cape – CJ03EC, Telephone interview).

I don’t enjoy being there [at the clinic] ... clinic is not a good friend because to even enter that door makes me sick, I don’t enjoy being there am only there because am fighting [for] my little [one]’s soul (Female living with HIV, 20 years, Western Cape – AN03WC, Telephone interview).

Mistreatment of young people by HCWs, while previously reported in the literature (Cluver et al., 2018), may have been exacerbated by the pandemic, which contributed to high levels of stress among HCWs and conferred a related sense of responsibility and pressure to continue their work, despite heightened risks: ‘So you don’t feel like you rendering your service as the same as before as wanted because you always scared, scared being near the person. You are even scared to touch anything’ (HCW07).

Another barrier to accessing healthcare facilities may have been a fear of contracting COVID-19 as reported by some AYP. This also appeared to have an impact on the quality of service HCWs provided, as they shared these fears:

The service is not provided very well on this time of this COVID. Because you see the thing that we also have fears - we are scared of the person who enters the clinic ... we are scared that we can get infected ourselves (HCW07).

Alongside barriers to accessing HIV and SRH services, HCW data highlights some understanding from the perspective HCWs of what AYP might need when it comes to healthcare, both generally and during the pandemic.

**Addressing adolescents’ healthcare needs**

Many HCWs strongly highlighted the need for dedicated infrastructure and resources for AYP, a well-documented suggestion in the literature (Denno et al., 2021):

If they can have their own place, be outside in the building that have TVs, a place where they can have their groups, charging - we do not have a proper place for them. If you can come and visit you would find them sitting in the passages (HCW26).

They need support. They need information and communication with that sister in the clinic, if there is a person who can avail herself to answer the question they have (HCW27).

Other HCWs reported the need for better educating young people on COVID-19, including within school settings: ‘They need to be equipped in schools and in their communities and given information about this COVID-19 ... So it’s important that we go to school and equip teachers about this COVID-19 thing and they know it’ (HCW03).

One HCW suggested home delivery of medication given the stigma some young people experienced coming to collect their medication. This well-documented suggestion (Huber et al., 2021) became even more pertinent during surges in the pandemic when healthcare facilities needed to prioritise COVID-19 cases:
But if their treatment can be taken home because even this thing of coming here to the clinic with their school uniform, children they don’t come, they dodge. The child first goes home to take off the uniform and come to the clinic with their pants because she does not want to be seen that she is a school kid, you see, and us the attitude is driving them away so I think if we can take that version of home delivery for treatment (HCW17).

AYP’s accounts of their needs for health services during COVID-19 diverged from HCWs’ accounts. Adolescent participants demonstrated strong awareness of COVID-19 prevention and treatment measures, a finding that has been documented elsewhere (Gittings et al., 2021). Young people also described significant changes to availability and provision of services that made it difficult for them to access HIV services and contraception. Although HCWs reported that the same services were available, adolescents described seeking SRH services – such as long-acting reversible contraception, check-ups for their babies and medical refills and associated necessary routine visits – and being told that because they were not considered emergency cases, they should return on a different date. While these services may have been available by appointment, being turned away made accessing such services difficult. For example, one participant described the time and financial implications of being ‘ignored’ at a busy clinic during COVID-19, and told that other patients were priorities. For this reason, they were not able to get their antiretrovirals, describing being forced to ‘skip’ them:

Sometimes they’ll be ignoring us at the clinic. They would tell us to come back on another time…but my treatment is finished…they would say they need to help emergency people, things like that…Yho that’s difficult because clinics sometimes become full and it’s not close…So this means people must skip [their pills]…I would tell them “I need them right now” so they would give…[another appointment date]…of which the fifth date is far. They would give me 5 pills (Female living with HIV, 21 years, Western Cape - NB14WC).

Discussion

Divergences between HCW’s and AYP’s perspectives on and experiences of HIV and SRH services are not unique to COVID-19. The contrasting perspectives on the needs and practices of adolescents living with HIV have been documented elsewhere between young people and their healthcare workers prior to the pandemic (Zungu et al., 2020). Despite this, our findings highlight important health facility considerations for delivering essential services to a group that is highly vulnerable to disengagement from care (Laurenzi et al., 2021).

Firstly, service delivery protocol changes can result in HIV and SRH services being inaccessible on a practical level, even if these services remain technically available. For example, the young person cited above (see above, participant code NB14WC) who was told to return for her HIV medicine and subsequently had to skip pills failed to access appropriate HIV care, despite the apparent availability of these services, under certain circumstances and rules. This deviation between HCW and AYP perspectives on service availability and accessibility illustrates an important area for better modes of feedback. Health systems and individuals involved in service provision and management require stronger mechanisms for understanding adolescent experiences and reasons for changes in facility attendance. Relatedly, while changes to appointment
protocols in overstretched health systems may be inevitable during emergency and pandemic situations, clear communication between patients and health service providers and systems is key. Thus, identifying appropriate channels to communicate these changes and better understand adolescents’ experiences may help to avoid confusion, mistrust and frustration that may further discourage adolescents from engaging with health services and maintaining healthy behaviours during a crucial developmental stage. Peer-delivered treatment and psychosocial support may be able to play an important role here, so long as it is integrated into existing health facility structures, processes and activities, and if the HCWs who work with them are trained and oriented to the value of peer support models (Mark et al., 2019). A South African study with young people living with HIV found that enrolment in a three-session peer support group improved linkage to care compared to youth who chose not to enrol (Snyder et al., 2014). Adolescent peer supporters could serve as a communication channel between AYP and HCWs, sensitizing HCWs to the needs of AYP as well as communicating any shifts in health service provision to AYP (Laurenzi et al., 2022).

Secondly, suggestions to support adolescent-friendly, differentiated service delivery, including through using multi-month ART refills and community pick-ups, may mitigate health system burdens and more adequately meet adolescents’ needs (Abelman et al., 2020). However, it is unclear whether adolescents have been able to benefit from the multi-month ART refills during COVID-19 in South Africa. Closing the gap between the experiences and needs of adolescents and the healthcare workers who serve them may support young people and HCWs in buffering against changes brought about by the COVID-19 pandemic.

Lastly, our findings reaffirm several suggestions that have emerged from the literature on adolescent HIV and SRH care, both prior to and during the pandemic (Denno et al., 2021; Grimsrud & Wilkinson, 2021; Huber et al., 2021; Khan et al., 2021; Toska et al., 2017). While this analysis has enabled us to triangulate data from HCWs and AYP themselves in a specific South African district during a time of uncharacteristic stress, it also reasserts key practical actions that should be taken, at scale, to improve quality of care and promote better adolescent HIV and SRH outcomes. By capturing diverse experiences and perspectives from AYP and HCWs, our findings reiterate the growing call for health system investments to strengthen the delivery of adolescent services, including investing in appropriate channels of communication between AYP and HCWs and differentiated models of service delivery.

Notes
1. Helping Empower Youth brought up in Adversity and their Babies and Young Children.
2. Teen Advisory Groups.
3. Colloquial term in isiXhosa which roughly translates to ‘really’.
4. Colloquial term in isiXhosa which roughly translates to ‘Wow’.
5. Colloquial term in isiXhosa which roughly translates to ‘Wow’.
Acknowledgments

Foremost thanks to the healthcare workers in the Eastern Cape and adolescents and young people of the Eastern and Western Cape Teen Advisory Groups for generously sharing their stories with us.

Special thanks to Prof Lucie Cluver for her vision, leadership, passion, and support of the HEY BABY and TAG studies, and her commitment to improving the lives of adolescents. Thank you to Ms Angelique Thomas, Ms Yusra Price, Ms Natasha Kannemeyer, Mr Nabeel Petersen and Ms Nosiphiwo Lawrence who supported study design and data collection and analysis. We acknowledge and thank Dr Rebecca Hodes, Ms Mildred Thabeng, Dr Jenny Doubt, Dr Inge Wessels, Dr Carine Asnong and Ms Sally Medley, for their long-term involvement and support of the Teen Advisory Groups study on which this work builds. Teen advisors were recruited from the Mzantsi Waho and HEY BABY studies, and we are grateful to the research teams from these research studies.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the UKRI GCRF Accelerating Achievement for Africa’s Adolescents (Accelerate) Hub under Grant ES/S008101/1; the UKRI GCRF/Newton Fund under Grant GCRF NF39: COVID-19 Child Abuse Prevention Emergency Response; the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (n 771468); the UK Medical Research Council (MRC) and the UK Department for International Development (DFID) under the MRC/DFID Concordat agreement; the Department of Health Social Care (DHSC) through its National Institutes of Health Research (NIHR) under Grant MR/R022372/1; the Fogarty International Center, National Institute on Mental Health, National Institutes of Health under Award Number K43TW011434, the content is solely the responsibility of the authors and does not represent the official views of the National Institutes of Health; a CIPHER grant from International AIDS Society under Grant 2018/625-TOS, the views expressed do not necessarily reflect the official policies of the International AIDS society; Research England under Grant 0005218; and UNICEF Eastern and Southern Africa Regional Office (UNICEF-ESARO); the Oak Foundation under Grant OFIL-20-057. LG’s research is also supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) [PEG-511078]. Additional co-funding was received from: Nuffield Foundation [CPF/41513], but the views expressed are those of the authors and not necessarily those of the Foundation; Evidence for HIV Prevention in Southern Africa (EHPSA), a UK aid programme managed by Mott MacDonald; Janssen Pharmaceutica N.V., part of the Janssen Pharmaceutical Companies of Johnson & Johnson and the Regional Inter-Agency Task Team for Children Affected by AIDS – Eastern and Southern Africa (RIATT-ESA), the Leverhulme Trust [PLP-2014-095], the John Fell Fund and the University of Oxford’s ESRC Impact Acceleration Account.

ORCID

Jane Kelly  http://orcid.org/0000-0002-1216-6273
Lesley Gittings  http://orcid.org/0000-0002-0463-0478
Christina Laurenzi  http://orcid.org/0000-0001-9648-4473
Hlokoma Mangqalaza  http://orcid.org/0000-0001-6478-5271
Nontokozo Langwenya  http://orcid.org/0000-0001-7883-621X
Elona Toska  http://orcid.org/0000-0002-3800-3173
References

Abelman, R., Alons, C., Stockman, J., Teri, I., Grimsrud, A., Ombija, M., Makwindi, C., Odionyi, J., Tumbare, E., Longwe, B., Bonou, M., Songoro, J., Mugumya, L., & Cohn, J. (2020). Implementation of differentiated service delivery for paediatric HIV care and treatment: Opportunities, challenges, and experience from seven sub-Saharan African countries. *Family Medicine and Community Health, 8*(3), e000393. https://doi.org/10.1136/FMCH-2020-000393

Afolabi Bolarinwa, O., Opoku Ahinkorah, B., Seidu, -A.-A., Kwabena Ameyaw, E., Qubaisi Saeed, B., Elvis Hagan, J., Jr, & Ijeoma Nwangara, U. (2021). Healthcare mapping evidence of impacts of COVID-19 outbreak on sexual and reproductive health: A scoping review. *Healthcare, 9*(4), 436. https://doi.org/10.3390/healthcare9040436

Bellizzi, S., Pichierrri, G., Menchini, L., Barry, J., Sotgiu, G., Bassat, Q., Health, C., & Switzerland, G. (2019). The impact of underuse of modern methods of contraception among adolescents with unintended pregnancies in 12 low- and middle-income countries. *Journal of Global Health, 9*(2), 020429. https://doi.org/10.7189/jogh.09.020429

Billing, J., Ching, B. C. F., Gkofa, V., Greene, T., & Bloomfield, M. (2021). Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: A systematic review and qualitative meta-synthesis. *BMC Health Services Research, 21*(1), 1–17. https://doi.org/10.1186/S12913-021-06917-Z/Tables/3

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cluver, L., Meinck, F., Toska, E., Orkin, F. M., Hodes, R., & Sherr, L. (2018). Multitype violence exposures and adolescent antiretroviral nonadherence in South Africa. *AIDS (London, England), 32*(8), 975–983. https://doi.org/10.1097/QAD.0000000000001795

Crowley, T., Kitshoff, D., Lange-Cloete, F. D., Baron, J., Lange, S. D., Young, C., Esterhuizen, T., & Couper, I. (2021). Primary care nurses’ preparedness for COVID-19 in the Western Cape Province, South Africa. *African Journal of Primary Health Care & Family Medicine, 13*(1), 1–8. https://doi.org/10.4102/phcfm.v13i1.2879

Dawood, B., Tomita, A., & Ramlall, S. (2022). ‘Unheard’, ‘uncared for’and ‘unsupported’: The mental health impact of Covid-19 on healthcare workers in KwaZulu-Natal Province, South Africa. *PloS one, 17*(5), e0266008. https://doi.org/10.1371/journal.pone.0266008

Denno, D. M., Plesons, M., & Chandra-Mouli, V. (2021). Effective strategies to improve health worker performance in delivering adolescent-friendly sexual and reproductive health services. *International Journal of Adolescent Medicine and Health, 33*(6), 269–297. https://doi.org/10.1515/ijamh-2019-0245

Dorward, J., Khubone, T., Gate, K., Ngobese, H., Sookrajh, Y., Mkhize, S., & Garrett, N. (2021). The impact of the COVID-19 lockdown on HIV care in 65 South African primary care clinics: An interrupted time series analysis. *The Lancet HIV, 8*(3), e158–e165. https://doi.org/10.1016/S2352-3018(20)30359-3

Duby, Z., Bunce, B., Fowler, C., Bergh, K., Jonas, K., Dietrich, J. J., Govindasamy, D., Kuo, C., & Mathews, C. (2022). Intersections between COVID-19 and socio-economic mental health stressors in the lives of South African adolescent girls and young women. *Child and Adolescent Psychiatry and Mental Health, 16*(1), 1–16. https://doi.org/10.1186/s13034-022-00457-y

Emirie, G., Iyasu, A., Gezahegne, K., Jones, N., Presler-Marshall, E., Tilahun, K., Workneh, F., & Yadete, W. (2020). *Experiences of vulnerable urban youth under COVID-19: The case of youth living with HIV*. London: Gender and Adolescence: Global Evidence. https://ethiopia.unfpa.org/sites/default/files/resource-pdf/unfpa_hiv.pdf

Engelbrecht, M. C., Heunis, J. C., & Kigozi, N. G. (2021). Post-Traumatic stress and coping strategies of South African nurses during the second wave of the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 18*(15), 7919. https://doi.org/10.3390/ijerph18157919
Gittings, L., Toska, E., Medley, S., Cluver, L., Logie, C. H., Ralayo, N., Chen, J., & Mbithi-Dikgole, J. (2021). 'Now my life is stuck!': Experiences of adolescents and young people during COVID-19 lockdown in South Africa. *Global Public Health, 16*(6), 947–963. https://doi.org/10.1080/17441692.2021.1899262

The Global Fund (2021). The impact of COVID-19 on HIV, TB and malaria services and systems for health: A snapshot from 502 health facilities across Africa and Asia. https://www.theglobalfund.org/media/10776/covid-19_2020-disruption-impact_report_en.pdf

Global HIV Prevention Working Group (2020). *Maintaining and prioritizing HIV prevention services in the time of COVID-19*. https://www.unaids.org/sites/default/files/media_asset/main_taking-prioritizing-hiv-prevention-services-covid19_en.pdf

Govender, K., Cowden, R. G., Nyamaruze, P., Armstrong, R. M., & Hatane, L. (2020). Beyond the disease: Contextualized implications of the COVID-19 pandemic for children and young people living in Eastern and Southern Africa. *Frontiers in Public Health, 8*(2020), 8. https://doi.org/10.3389/fpubh.2020.00504

Grimsrud, A., & Wilkinson, L. (2021). Acceleration of differentiated service delivery for HIV treatment in sub-Saharan Africa during COVID-19. *Journal of the International AIDS Society, 24*(6), e25704. https://doi.org/10.1002/jia2.25704/full

Huber, A., Pascoe, S., Nichols, B., Long, L., Kuchukhidze, S., Phiri, B., Tchereni, T., & Rosen, S. (2021). Differentiated service delivery models for HIV treatment in Malawi, South Africa, and Zambia: A landscape analysis. *Global Health Science and Practice, 9*(2), 296–307. https://doi.org/10.9745/GHSP-D-20-00532

Kelly, J., Glinski, C., Laurenzi, C., Mangqalaza, H., Toska, E., Gittings, L., Langwenya, N., Sidloyi, L., Mbiko, A., Taleni, B., & Salwe, B. (2022). Reflections of public healthcare nurses during the first wave of the COVID-19 pandemic in the Eastern Cape Province of South Africa. *South African Health Review, 2021*(1). https://journals.co.za/doi/epdf/10.10520/ejc-healthr-v2021-n1-a9

Khan, M. S., Rego, S., Rajal, J. B., Bond, V., Fatima, R. K., Isani, A. K., Sutherland, J., & Kranzer, K. (2021). Mitigating the impact of COVID-19 on tuberculosis and HIV services: A cross-sectional survey of 669 health professionals in 64 low and middle-income countries. *PLoS ONE, 16*(2), e0244936. https://doi.org/10.1371/journal.pone.0244936

Laurenzi, C. A., du Toit, S., Ameyan, W., Melendez-Torres, G. J., Kara, T., Brand, A., Chideya, Y., Abrahams, N., Bradshaw, M., Page, D. T., Ford, N., Sam-Agudu, N. A., Mark, D., Vitoria, M., Penazzato, M., Willis, N., Armstrong, A., & Skeen, S. (2021). Psychosocial interventions for improving engagement in care and health and behavioural outcomes for adolescents and young people living with HIV: A systematic review and meta-analysis. *Journal of the International AIDS Society, 24*(8), e25741. https://doi.org/10.1002/JIA2.25741

Laurenzi, C. A., Melendez-Torres, G. J., Page, D. T., Vogel, L. S., Kara, T., Sam-Agudu, N. A., Willis, N., Ameyan, W., Toska, E., Ross, D. A., & Skeen, S. (2022). How do psychosocial interventions for adolescents and young people living with HIV improve adherence and viral load? A realist review. *Journal of Adolescent Health*. https://doi.org/10.1016/j.jadohealth.2022.03.020

Mambo, S. B., Sikakulya, F. K., Ssebuufu, R., Mulumba, Y., Wasswa, H., Thompson, K., & Kyamanywa, P. (2020). Sexual and reproductive health problems among Ugandan youth during the COVID-19 pandemic lockdown: An online cross-sectional study. *Research Square*. https://doi.org/10.21203/rs.3.rs-48529/v2

Mark, D., Hrapcak, S., Ameyan, W., Lovich, R., Ronan, A., Schmitz, K., & Hatane, L. (2019). Peer support for adolescents and young people living with HIV in sub-Saharan Africa: Emerging insights and a methodological agenda. *Curr HIV/AIDS Rep, 16*, 467–474. https://doi.org/10.1007/s11904-019-00470-5

Morgan, R., Tan, H.-L., Oveis, N., Memmott, C., Korzuchowski, A., Hawkins, K., & Smith, J. (2022). Women healthcare workers’ experiences during COVID-19 and other crises: A scoping review. *International Journal of Nursing Studies Advances, 4*(2022), 100066. https://doi.org/10.1016/j.ijnasa.2022.100066
Novins, D. K., Stoddard, J., Althoff, R. R., Charach, A., Cortese, S., Cullen, K. R., Frazier, J. A., Glatt, S. J., Henderson, S. W., Herrington, R. J., Hulvershorn, L., Kieling, C., McBride, A. B., McCauley, E., Middeldorp, C. M., Reiersen, A. M., Rockhill, C. M., Sagot, A. J., Scahill, L., ..., Zima, B. T. (2021). Editors’ note and special communication: Research priorities in child and adolescent mental health emerging from the COVID-19 Pandemic. *Journal of the American Academy of Child & Adolescent Psychiatry, 60*(5), 544–554.e8. https://doi.org/10.1016/J.JAAC.2021.03.005

Riley, T., Sully, E., Ahmed, Z., & Biddlecom, A. (2020). Estimates of the potential impact of the covid-19 pandemic on sexual and reproductive health in low-and middle-income countries. *International Perspectives on Sexual and Reproductive Health, 46*(2020), 73–76. https://doi.org/10.1363/46E9020

Shreffler, J., Petrey, J., & Huecker, M. (2020). The impact of COVID-19 on healthcare worker wellness: A scoping review. *Western Journal of Emergency Medicine, 21*(5), 1059–1066. https://doi.org/10.5811/westjem.2020.7.48684

Siedner, M. J., Kraemer, J. D., Meyer, M. J., Harling, G., Mngomezulu, T., Gabela, P., & Herbst, K. (2020). Access to primary healthcare during lockdown measures for COVID-19 in rural South Africa: An interrupted time series analysis. *BMJ Open, 10*(10), e043763. http://dx.doi.org/10.1136/bmjopen-2020-043763

Snyder, K., Wallace, M., Duby, Z., Aquino, L. D., Stafford, S., Hosek, S., & Bekker, L. G. (2014). Preliminary results from Hlanganani (Coming Together): A structured support group for HIV-infected adolescents piloted in Cape Town, South Africa. *Children and Youth Services Review, 45*, 114–121. https://doi.org/10.1016/j.childyouth.2014.03.027

Stover, J., Chagoma, N., Taramusi, I., Tong, Y., Glaubius, R., Mahiane, G., & Org, J. (2020). Estimation of the potential impact of COVID-19 responses on the HIV epidemic: Analysis using the goals model. *MedRxiv*. https://doi.org/10.1101/2020.05.04.20090399

Toska, E., Cluver, L. D., Boyes, M. E., Isaacsohn, M., Hodes, R., & Sherr, L. (2017). School, supervision, and adolescent-sensitive clinic care: Combination social protection and reduced unprotected sex among HIV-positive adolescents in South Africa. *AIDS and Behavior, 21*(9), 2746. https://doi.org/10.1007/S10461-016-1539-Y

Toska, E., Cluver, L., Laurenzi, C. A., Wittesaele, C., Sherr, L., Zhou, S., & Langwenya, N. (2020b). Reproductive aspirations, contraception use and dual protection among adolescent girls and young women: The effect of motherhood and HIV status. *Journal of the International AIDS Society, 23*(S5), e25558. https://doi.org/10.1002/jia2.25558

Toska, E., Laurenzi, C. A., Roberts, K. J., Cluver, L., & Sherr, L. (2020a). Adolescent mothers affected by HIV and their children: A scoping review of evidence and experiences from sub-Saharan Africa. *Global Public Health, 15*(11), 1655–1673. https://doi.org/10.1080/17441692.2020.1775867

van Staden, Q., Laurenzi, C. A., & Toska, E. (2022). Two years after lockdown: Reviewing the effects of COVID-19 on health services and support for adolescents living with HIV in South Africa. *Journal of the International AIDS Society, 25*(4), e25904. https://doi.org/10.1002/jia2.25904

World Health Organization (2020). *Continuing essential sexual reproductive, maternal, neonatal, child and adolescent health services during COVID-19 pandemic: Practical considerations*. https://apps.who.int/iris/bitstream/handle/10665/332162/RG_Detailed__eng.pdf?sequence=1&isAllowed=y

Zungu, N., Naidoo, I., Hodes, R., North, A., Mabaso, M., Skinner, D., Gittings, L., Sewpaul, R., Takatshana, S., Jooste, S., Moyo, S., Ramlagan, S., Cloete, A., & Toska, E. ALHIV Team. 2020. *Being ALHIV: What do we know about adolescents living with HIV in South Africa*. Human Sciences Research Council and University of Cape Town AIDS and Society Research Unit. https://www.researchgate.net/publication/354543506_Adolescents_living_with_HIV_in_South_Africa

Zungu, N., Toska, E., Gittings, L., & Hodes, R. (2021). Closing the gap in programming for adolescents living with HIV in Eastern and Southern Africa: The role of social protection in positive prevention. In K. Govender & N. K. Poku (Eds.), *Preventing HIV among young people in Southern and Eastern Africa: Emerging evidence and intervention strategies* (pp. 243–260). Routledge.