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'We were not allowed to gather even for Christmas.' Impact of COVID-19 on South African young people: Exploring messaging and support

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ABSTRACT

COVID-19 prevention measures including lockdowns, school closures, and restricted movement disrupted young people's lives. This longitudinal qualitative study conducted in Soweto, South Africa aimed to explore young people's knowledge and perceptions of COVID-19, vaccination, and the impact of infections. A convenience sample of 30 young black people (n = 15 men; n = 15 women, aged 16–21 years) from Soweto participated in 24 focus group discussions (FGDs), conducted in six phases – each phase had four FGDs stratified by gender and age. Young people's understanding of COVID-19 deepened throughout the study, however, did not always translate into adherence (following the government's COVID-19 prevention measures). Although deemed inadequate, TV and radio were preferred over internet COVID-19 information. Parents, teachers, and schools were trusted sources of information. Vaccines and limited access to information attributed to low-risk perception, while new COVID-19 variants attributed to high-risk perception. A low-risk perception and conspiracy theories contributed to non-adherence (disregarding COVID-19 preventative measures provided by the government), particularly among young men. Accessing reliable information that considers young people's lives and their living context is important. Communities, scientists, and policymakers must learn from the COVID-19 experience and implement localised preventive strategies for education, awareness, and economic support in future emergencies.

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Introduction

The unprecedented Coronavirus (SARS-CoV-2) infection was declared a pandemic on 11 March 2020 by the World Health Organization (WHO) (Sohrabi et al., 2020; Wang et al., 2020), causing widespread disruptions of public health systems and affecting global economies (Pokhrel & Chhetri, 2021). The first case in Africa was reported in Nigeria on 28 February 2020 (Adepoju, 2020). The National Institute for Communicable Diseases (NICD) confirmed the first case of COVID-19 in South Africa (SA) on 5 March 2020 and since then it has held the record for the highest number of cases in Africa (Guthold et al., 2018).

The SA government declared a national state of disaster on 15 March 2020 followed by nationwide lockdown on 27 March 2020 to avoid overwhelming the health system and control the transmission of disease (Giandhari et al., 2021). This had a severe negative, and long-term impact on the economy, starting with immediate loss of economic activity (Arndt et al., 2020c). As a result, uemployment increased with low-skilled, less-educated workers being hit the hardest by the loss of livelihood (Arndt et al., 2020a, 2020b).

These economic shocks including wage reductions and loss of income, compounded by quarantine, social isolation, and lockdown measures led to increased levels of food insecurity (Arndt et al., 2020c; Arndt et al., 2020b). Almost 24% of South Africans were affected by moderate to severe food insecurity in 2020, of whom almost 15% experienced severe food insecurity (Stats, 2022). Inaddition, these COVID-19-related disruptions to education programmes may have lifelong implications for young people since adolescence is a critical developmental phase (Desmond et al., 2021; Gittings et al., 2021; Mahaye, 2020; Mukute et al., 2020). Government-offered interventions such as the COVID-19 Social Relief Grant and online learning programmes (Alvarez-Iglesias et al., 2021; Kohler & Bhorat, 2020; Landa et al., 2021) were not sufficient to ease the socio-economic disruptions.

Previous research, including longitudinal data, has demonstrated that COVID-19 prevention measures affected young people's mental health including increased levels of anxiety and depression (Baloch et al., 2021; Ochnik et al., 2021). Studies conducted in SA indicated that mental health conditions rose during the pandemic, disproportionately affecting the poor through mechanisms linked to structural inequality, unemployment, and lack of access to quality health care and other services (Kim et al., 2021; Posel et al., 2021).

While studies on the impact of COVID-19 in SA have been reported (Gittings et al., 2021; Kollamparambil & Oyenubi, 2021; Mbunge, 2020; Silubonde et al., 2023; Van der Berg & Spaull, 2020), they have not clearly reflected on the in-depth analysis of the impact of events across time and how impacts evolved as the COVID-19 pandemic progressed. This paper reports findings from longitudinal qualitative research with young people for 8 months of the pandemic with the aim of exploring young people's knowledge and perceptions of COVID-19 and how the pandemic affected their lives across different periods.

Methods

Design and setting

This longitudinal qualitative study was conducted at the SA Medical Research Council (SAMRC)/ Wits Developmental Pathways for Health Research Unit (DPHRU) at the Chris Hani Baragwanath Academic Hospital (CHBAH) in Soweto from November 2020 to June 2021. Soweto is one of the most well-known historically disadvantaged townships in SA distinguished by its diverse communities, socioeconomic status, and cultures (Ndimande, 2009). However, while there is economic diversity in Soweto, poverty indicators such as unemployment and food insecurity are still present (Battersby & McLachlan, 2013), alongside limited access to health services, especially for young people (Miller et al., 2017). We used focus group discussions (FGDs) for data collection. FGDs

were chosen to enable interaction, socialisation, and knowledge sharing – at a time when many people were isolated. Longitudinal FGD design facilitated a better understanding of a range of perspectives on young people's experiences of COVID-19 (Hennink, 2013; Seal et al., 1998).

We draw from the health belief model (Rosenstock, 1966; Rosenstock, 1974) to understand young people's behaviours as COVID-19 unfolded in South Africa. Health Belief Model (HBM) posits that positive factors increase pro-health behaviours while negative factors decrease or inhibit them. Thus, for an individual to adopt a positive health behaviour and/or avoid risks for diseases, he/she must: (1) believe to be susceptible to the disease; (2) believe that the disease will negatively impact, at least moderately, their life; (3) believe that adopting certain behaviours is indeed beneficial to reduce their susceptibility or, if they already have it, its severity (Becker, 1974; Rosenstock, 1966; Rosenstock, 1974).

Participants and recruitment

We recruited a convenience sample of thirty self-identified black young people (n = 15 men; n = 15 women) aged between 16 and 21 years from Soweto households. Research assistants (RAs) entered households in Soweto communities close to the DPHRU to recruit eligible participants using information letters outlining the purpose of the study and providing contact information for the research team. Recruitment began when movement restrictions were relaxed for some activities including health-related research. RAs observed all safety measures when visiting households. RAs collated the information on potential participants who were then called by phone to schedule appointments for discussions. Four groups were formed from those who agreed to take part. The groups were homogenous by gender and age: two with young men (aged 16–17 years and 18–21 years) and two with young women (aged 16–17 years and 18–21 years). The purpose of this was to capture the differences in views among young people. Participants were retained at a rate of 87% until the data collection was completed, with attrition at 13%.

Data collection

Each FGD was composed of 7–8 participants. Two trained and experienced multilingual, qualitative researchers (a man and a woman), facilitated 24 virtual focus group discussions (FGDs), which were conducted in six phases – each phase was composed of four FGDs stratified as follows: Group 1 was with women (18–21 years), Group 2 with men (18–21 years), Group 3 with women (16–17 years) and Group 4 with men (16–17 years). FGDs were facilitated in English with the option for participants to use vernacular languages. FGDs in the six phases were facilitated using a semi-structured discussion guide (Appendix 1) – with the moderator exploring participants' views and responses to the COVID-19 pandemic between November 2020 and June 2021. The same questions were asked to the participants at each time point but with some modifications based on the current state of the nation. All six FGD phases were conducted virtually through Zoom. A 150 Rand (South African currency) airtime recharge voucher was provided to all participants the day before each FGD to assist with internet connection costs. FGDs lasted 45–90 min. All FGDs were audio-recorded on a digital recorder, with participants' permission. One researcher observed the FGDs, taking detailed field notes about group dynamics and participant reactions. Audio recordings were transcribed verbatim and translated into English, where necessary. All participants gave written informed assent or consent, depending on their age, prior to participating in the study. A parent/caregiver consent was also sought for all participants under the age of 18 years.

Data analysis

Data were thematically analysed (Braun & Clarke, 2006, 2020) and organised using qualitative analysis software MAXQDA 2020 (version 20.4.2). All transcripts from the six phases, as well as

field notes were uploaded into MAXQDA. Codes were developed both inductively (from the data itself) and deductively (based on research questions and earlier discussions from the field notes). Initially, field notes, early discussions, and deliberations on the FGDs provided a starting point for the development and definitions of an initial codebook. GM and ENB developed the codebook, which was reviewed by other researchers. The codebook was discussed including code definitions, then reviewed and revised codes based on mutual agreement amongst researchers. This codebook was used for coding – as codes were applied to relevant text in the transcripts. GM and ENB coded separately while discussing and iterating on any emergent new code, which was discussed and added to the codebook. After all transcripts were coded, ENB and GM met to discuss and resolve any discrepancies in coding. Thereafter, analysis was performed where key themes and sub-themes were identified, grouped, and consolidated into various categories. The themes are also presented in a meaningful structure and tabulated in tables (see Tables 1 and 2). Key themes and sub-themes are presented in the results section, using excerpts from the transcripts.

Ethical considerations

Written informed consent was obtained from the study participants after researchers read the information sheet was read aloud and explained the purpose of the study at the beginning of the first FGD. The Human Research Ethics Committee (HREC) of the Witwatersrand University granted ethical approval - ethics number M170663.

Results

In this section, four key themes identified are presented under the following headings: 1. Knowledge about COVID-19 and Sources of Information; 2. COVID-19 perceptions and Conspiracies; 3. Impacts of COVID-19; and 4. Perceptions of COVID-19 vaccines.

Knowledge about COVID-19 and sources of information

Although participants across all phases demonstrated a general understanding of COVID-19, participants in phases 4 to 6 demonstrated a more specific understanding of COVID-19, including how it spreads, dangers of COVID-19 infection, and prevention measures that were being implemented by the South African government than they did in phases 1 and 2. To begin with, an increase in COVID-19 knowledge was largely linked to the increased awareness in the general public including amongst their teachers and parents;

> My English teacher told us that even if a person in class tests positive the only way they can infect us is if you don't have your mask on and you don't sanitise and stay in the same room that is not ventilated for more than 15 min' (Phase 3\SATEC-19_FGD_ women 18–21 yrs)

In addition, we observed that as we progressed with discussions through the various phases of (from Phase 1 to 6), there were more discussions and debates around COVID-19 and participants were providing their personal experiences in relation to their families and peers. This enhanced more learning and understanding of COVID-19. In addition, participants engaged in questions and clarifications around how COVID-19 was unfolding in SA, and some commented that the FGDs were helpful as they helped them interact with their peers.

Secondly, participants understood and discussed various COVID-19 preventive measures such as wearing masks, hand washing and sanitisation, social distancing, and stricter lockdown measures. However, we noted that social distancing, curfews, hand washing, and wearing of masks were commonly discussed between phases 1 and 4. This was in line with the measures that were being implemented by the SA government during the Level 5 lockdown where there were restricted movements and people were required to observe all the COVID-19 preventive measures (De Villiers et al., 2020; Dukhi et al., 2021). In phases 5–6, participants revealed that

Table 1. Dates of data collection phases in relation to imposition of government measures and COVID-19 waves in South Africa.

Phase name	Time when FGDs were conducted	Level of lockdown	COVID-19 wave number	Government measures	Vaccination roll out yes/no	Key topic of FGD
Phase 1	November 2020	- Alert level 1	Wave 2. **Newer Variant 501Y-Vs (Beta variant) Deadlier variant than in Wave 1 Number of infections increasing**	**Lockdown:** Social, religious, political, and other gatherings will be permitted, as long as the number of people does not exceed 50% of the normal capacity of a venue (Outdoor maximum 500, indoor max 250). **Preventive measures:** Washing or sanitising of hands, social distancing and masks, isolation, and quarantine. **Schools:** Social distancing, temperature screening, and online learning **Funerals:** Not more than 50 people allowed to gather (initially). This increased to 100. **Restricted social gatherings:** Night vigils not permitted, venues for exercise/recreation or sporting activities not allowed. **Curfew hours**: From 11pm to 4am. **Businesses**: Non-essential businesses not allowed, restaurants and bars closed at 10pm, sale of alcohol permitted between 10am and 6pm and from Monday to Thursday, Alcohol consumption in all public spaces forbidden. **Support:** Covid social relief grant. **Travel restrictions:** Restrictions from countries with high infection rates; travellers required a COVID-19 negative test result not older than 72 h from time of departure.	- No	- Limited knowledge about COVID-19, conspiracies, prevention measures, fear/worry of infection and death
Phase 2	December 2020	- Alert level 1	Wave 2: **Newer Variant 501Y-Vs (Beta variant) Deadlier variant than in Wave 1 Number of infections increasing**	**Prevention Measures**: Washing or sanitising of hands, social distancing and masks, isolation and quarantine. **Funeral:** Increased from 50–100 people. **Curfew hours**: From 11pm to 4am. **Businesses**: Non-essential businesses not allowed to operate, restaurants and bars closed at 10pm, sale of alcohol permitted between 10am and 6pm and from Monday to Thursday, Alcohol consumption in all public spaces forbidden. **Schools:** Closed. **Support:** Covid social relief grant. **Gatherings:** Restricted numbers of people congregating in	- No	-Conspiracies, information sources, total shutdown, fear/worry of infections, prevention measures, new variant

(*Continued*)

Table 1. Continued.

Phase name	Time when FGDs were conducted	Level of lockdown	COVID-19 wave number	Government measures	Vaccination roll out yes/no	Key topic of FGD
				any one place without proper controls or protocols not allowed.		
Phase 3	January 2021	- Alert level 3	Wave 2: **Newer Variant 501Y-Vs (Beta variant) Deadlier variant than in Wave 1 Number of infections increasing**	**Prevention:** Mandatory wearing of a face masks in public spaces, social distancing, hand washing and/or sanitisation. **Curfew Hours:** From 9pm to 5am. **Businesses:** Non-essential establishments like restaurants, bars and fitness centres closed by 8pm, all types of work outside home permitted under strict compliance to health protocols and social distancing measures. **Schools:** Closed until 14 February. **Support:** Covid social relief grant. **Alcohol:** Sale of alcohol for off-site and on-site consumption not permitted. **Gatherings:** Prohibition of social gatherings; political meetings, traditional council meetings and faith-based gatherings.	-No - It was announced that the first consignment of COVID-19 vaccines will be received soon, in SA	- Conspiracies, total shutdown, poor adherence to prevention measures, social relief grant, new variant, perceptions on vaccines
Phase 4	February-March 2021	- Alert level 3	Wave 2: **Newer Variant 501Y-Vs (Beta variant) Deadlier variant than in Wave 1 Number of infections increasing**	**Curfew hours**: From 11pm to 4am **Prevention:** Mandatory wearing of a face masks in public spaces, social distancing, hand washing and/or sanitisation. **Gatherings:** Night vigils or other gatherings before or after funerals not permitted. All gatherings were limited 50 people indoors and 100 people outdoors or no more than 50 per cent capacity if the venue is small. **Businesses:** Non-essential establishments like restaurants, bars and fitness centres closed by 10pm, all types of work outside home permitted under strict compliance to health protocols and social distancing measures **Schools:** All learners returned to school 15 February, social distancing, temperature screening, and online learning. **Support:** Covid social relief grant. **Alcohol:** Sale of alcohol for off-site consumption permitted from 10am to 6pm, from Mondays to Thursdays; on-site consumption permitted, from 10am to 10pm.	- No -AstraZeneca vaccine doses arrived	- Specific knowledge of COVID-19, its spread, risks, and prevention, vaccine perceptions and rollout

Phase 5	April 2021	- Alert level 1	Wave 2: **Newer Variant 501Y-Vs (Beta variant) Deadlier variant than in Wave 1 Number of infections increasing**	**Curfew Hours:** From 12am midnight to 4am **Gatherings**: Maximum number of people allowed at any gathering was 100 people indoors or 250 people outdoors or no more than 50 per cent capacity if the venue is small. Night vigils or other gatherings before or after funerals were not permitted. **Businesses:** Non-essential establishments like restaurants, bars and fitness centres closed by 11pm, all types of work outside home were permitted under strict compliance to health protocols and social distancing measures. **Schools:** Social distancing, temperature screening, and online learning. **Support:** Covid social relief grant. **Travel Restrictions:** Only five airports were open for international travel. **Prevention:** The wearing of masks in public places was mandatory. **Alcohol:** Sale of alcohol was permitted.	- Yes (Pfizer)	- Specific knowledge of COVID-19, less worried of infections, vaccine rollout, vaccine hesitancy
Phase 6	June 2021	- Alert level 3	Wave 3: **New Variant (B.1.617.2) Increased number of infections 15.7% above the WHO threshold of 5%**	**Curfew:** Hours of curfew started at 10pm and end at 4am **Businesses:** Non-essential establishments like restaurants, bars and fitness centres closed by 9pm, all types of work outside home permitted under strict compliance to health protocols and social distancing measures. **Schools:** social distancing, temperature screening, and online learning. **Support:** Covid social relief grant. **Gatherings:** Limited 50 people indoors and 100 people outdoors or no more than 50 per cent capacity if the venue is small. Attendance at funerals and cremations was set at 50 people. **Alcohol:** Alcohol from retail outlets for off-site consumption was permitted between 10am and 6pm from Monday to Thursday.	- Yes (Johnson and Johnson & Pfizer)	- Less worried of infections, vaccine hesitancy, living with COVID-19, schools reopening, getting back to normal

Table 2. Key themes and sub-themes identified from the FGDs.

Themes	Sub-theme	Phases where these themes were identified
Knowledge about COVID-19	General understanding of COVID-19, understanding of preventive measures, knowledge about infections	Phase 1,2,3,4,5,6
	More knowledgeable about COVID-19	Phase 2 & 3
	No longer scared of infections	Phases 4,5,6
Source of Information	Teachers, parents/guardians, TV, radio, social media platforms, WhatsApp groups	Phase 1,2,3,4,5 & 6
	No longer interested in COVID-19 news, stopped following COVID-19 updates	Phase 3, 5, 6
COVID-19 Perceptions	Fear of infection (self), fear of family being infected, high-risk perception	Phase 1, 3 & 5
	Taking COVID-19 for granted non-adherent to COVID-19 measures	Phase 1, 2
	COVID-19 conspiracies: Likened COVID-19 with flu, COVID-19 perceived as a scare threat to people	Phase 1,2,3 & 4
	Reported increasing number of COVID-19 infections, increase in number of deaths	Phase 2, 3
Negative impacts of COVID-19	Job loses, food insecurity, lifestyle changes, psychological impacts	Phase 1,2,3
	Closure of schools, home schooling challenges/ difficulties studying from home, worried about poor performance at school, challenges returning to school	Phase 1,2,3
	Difficulties returning back to school	Phase 2 & 3
	Psychological distress: Fear of repeating classes, fear of failing in exams, stressed about elderly parents getting infected, worried about parents losing jobs	Phase 1,2,4
Positive Impacts of COVID-19	Families spending time together, avoiding unnecessary friends/ negative peer pressure, more time to study, more time to relax, play video games and watch TV	Phase 1
Government Responses	Negative: Misuse of COVID-19 grants, poor leadership, police brutality	Phase 1 & 2
	Positive: Social grant, lockdown prevented more deaths, preventive measures protected people from infections	Phase 1 & 2
Vaccines	Distrust about vaccines, negative perceptions about vaccines, vaccine conspiracies, lack knowledge about vaccines	Phase 3,4 & 5
	More knowledgeable about vaccines, vaccine types, positive perceptions about vaccines	Phase 5,6
Behaviour change and moving back to stable life	Mention of consistently adhering to preventive measures: Especially whenever there were mentions of spikes in COVID-19, mention of sanitising, wearing masks, social distancing etc. Behaviour changes also linked to high police surveillance and arresting those who do not follow laid down protocols.	Phases 1,3,6
	Things getting back to normal, schools opening, people getting jobs, etc.	Phase 5 & 6

life was moving to 'normal' as businesses, schools and other activities had resumed. As such, most of the preventive measures were not being observed in the community:

> We are now in Alert level 1, and I can see a lot of things have gone back to normal like businesses and schools. What I've noticed is people are starting to forget about this pandemic that we are facing as a country, people are not social distancing or even wearing their masks. (Phase 5\SATEC-19_FGD_ men 18–21 yrs)

Such reluctance to adhere to preventive measures was also influenced by vaccine roll-out in the country – as participants reported that they felt more safer with vaccines being administered when compared to earlier phases.

We also noted that participants in phases 2 and 3 demonstrated a clearer understanding of the nature and severity of the COVID-19 infection; '*So, they did explain that the second wave means that this second strain has become stronger.' (Phase 3\SATEC-19_FGD_ men 18–21 yrs).* Such sentiments were reported when SA was experiencing a deadlier newer variant 501Y-Vs (Beta variant) when compared to the one experienced in Wave 1. In addition, at this time, the government was constantly reporting or updating the public on the increasing numbers of new infections and participants seemed to understand the severity of the new variant as exemplified by one discussant; '*I know*

we are now facing a deadly variant. The government has constantly updated us and told us how we should prevent ourselves from getting infections' (Phase 3\SATEC-19_FGD_ women_16-17 yrs). In addition, our longitudinal approach identified that whenever there were spikes in COVID-19 in SA, participants believed they were more at risk of infections, leading to increased adherence to preventive measures. In other words, risk perceptions positively influenced the adoption of preventive behaviours; '*I've heard that we are actually in the third wave, and it is actually bad because like already I know two people that it has already taken [died of]. So, I'm following the precautions available like sanitation, masks everything.' (Phase 6\SATEC-19_FGD_ men_18-21 yrs)*

However, our findings show that as regulations were relaxed by the government and people became more knowledgeable about COVID-19 – including access to information and the introduction of vaccines – they became less frightened of COVID-19 infection, as described above. This was commonly discussed in phases 5–6.

Participants reported various channels that they used to get COVID-19-related information. Those in phases 1–4 largely relied on parents, teachers, school, social media (WhatsApp and Facebook), and TV for updates. This can be attributed to the fact that in these earlier phases, there was a complete shutdown of various amenities including schools and young people spent time at home with parents; some engaged with teachers through online platforms. This is contrary to the sentiments we got in phases 5–6 where participants mentioned that in addition to the sources of information reported in their earlier phases, they now relied more on the internet (google) and newspapers as sources of information;

> At the start I didn't know much so I used to Google about it. Then after third term that is when my mom told me we might be experiencing the second wave of the Corona virus. So, I did Google about how to prevent it (Phase 5\SATEC-19_FGD_Women 16–17 yrs)

While there were various channels of accessing information, a majority trusted information provided by parents, teachers, and schools more than they did information from the internet. Participants noted that sometimes, information from the internet and social media was exaggerated, and this formed the basis for COVID-19 conspiracies and mistrust. It was also reported that information provided by local TV and radio was not sufficient to enable people to make decisions such as whether or not they should be vaccinated; '*With me I learnt a few things about COVID-19 by watching the TV and by Googling. Because sometimes the TV doesn't give much information.' (Phase 2\SATEC-19_FGD_Women 16–17 yrs)*.

Interestingly, despite receiving frequent updates on new deadlier COVID-19 variants (Table 1), participants in phases 3, 5, and 6 reported losing interest in COVID-19 news, a result of government prevention regulations relaxation. They argued that they were tired of listening to such news and wanted to live normal lives: '*No I've stopped [watching news] because I don't want to know anything about it because to me it feels like this thing is just a little thing. So, I don't follow news anymore.' (Phase 3\SATEC-19_FGD_ women_18-21 yrs)*. Another participant said: '*Honestly the interest is gone. People no longer want to hear anything about the virus.' (Phase 5\SATEC-19_FGD_ men_18-21 yrs)*. Disinterest in COVID-19 among young people during wave 2 (Beta variant) may have been attributable to their perception that they were subjected to conflicting information from multiple sources. In addition, participants revealed that there were limited updates from the government during this time in relation to COVID-19 situation – and this made some people think COVID-19 was getting over. Moreover, during phase 4, the first consignment of the AstraZeneca vaccine doses arrived in the country which caught people's attention. As such, people were more interested in hearing news about vaccines including their access and who were prioritised to be vaccinated.

COVID-19 perceptions and conspiracies

Participant's perceptions of COVID-19 changed over time. In the earlier phases (phases 1–2), a majority of participants revealed that they were not worried about COVID-19. This was said to

be common amongst their peers; '*People my age don't care. They are not wearing masks, not social distancing, not sanitizing. I think they will care if they lose someone close. They don't think it's real.*' *(Phase 1\Covid 19 FGD _men 18–21 yrs)*. Such sentiments were largely due to the novelty of the virus – where many people lacked information about COVID-19 and its severity. However, a few participants in these earlier phases revealed that they feared COVID-19 infections, and closely followed COVID-19 news updates to get more information about the pandemic. While there were confusions and limited access to information during these earlier phases, those who demonstrated fear of infections revealed that they had witnessed on TV or listened to the radio how people were dying in other countries.

Participants particularly in phases 1 to 4 discussed the various conspiracies related to COVID-19. During this time, young people reported accessing information from various sources as discussed above – some of which were unreliable or exaggerated. For example, young discussed that COVID-19 was unreal or did not exist or was a disease manufactured in the laboratories; '*I feel that this COVID-19 doesn't even exist, it is just a disease the scientists brought into this world, just to decrease our population.*' *(Phase 3\SATEC-19_FGD_ women_16-17 yrs)* Another theory was associated with participants likening COVID-19 to flu or the common cold many downplaying its seriousness; '*I think we are talking about the flu which kills people … ' (Phase 2\SATEC-19_FGD_ women_18-21 yrs);* '*So Corona virus has similar symptoms like a flu, that means you can't identify if you are having a flu or you are having a Corona virus.*' *(Phase 1\SATEC-19_FGD_ men_18-21 yrs)* Others suggested that COVID-19 was a 'scare' and that news related to COVID-19 infections and deaths was intended just to scare: '*They [young people] don't follow COVID-19 rules because they think Corona virus is a pandemic scare.*' *(Phase 2\SATEC-19_FGD_ women_18-21 yrs).* While more women than men discussed the various conspiracies and rumours that they heard in their communities; '*I was scared because there were rumours going around that COVID-19 makes young girls infertile and is aimed for population control,*' *(Phase 5\SATEC-19_FGD_ women 16–17 yrs)*, our analysis show more young men in all FGDs demonstrating mistrust of COVID-19. In other words, young men believed in some of the conspiracies around COVID-19 and believed COVID-19 was not real.

As a result, many young men – who demonstrated disbelief and mistrust of COVID-19 messaging also reported that they did not adhere to COVID-19 preventive measures; '*I can't believe what I am told, I'm very unsure. That's why I don't wear masks*' *(Phase 2\SATEC-19_FGD_ men 18–21 yrs)*. For the women who mentioned that they were non-adherent to COVID-19 preventive measures, we found that difficulty breathing and the discomfort of wearing masks for longer times; *'People are not following the preventive measures. Let's use the mask as an example, its irritating to the point where I can't even breathe normally.*' *(Phase 2\SATEC-19_FGD_ women_16-17 yrs)* and stigma from peers (especially from young boys) around wearing masks influenced them to become non-adherent: '*My peers do not care about COVID-19. When they see other people wearing mask, like old people, they will just laugh and gossip.*' *(Phase 2\SATEC-19_FGD women 16–17 yrs)* These findings align with other studies conducted in other African countries which show young boys being influenced by conspiracy theories and perceiving themselves to be at lower risk of infections (Bosire et al., 2022).

Impacts of COVID-19

Household financial insecurity was the most discussed impact of COVID-19 by both young men and women, and particularly in the earlier phases (1–3). Participants had witnessed job loss within their households and the community. They reflected on how tough things had become, worsened by the closing of businesses during lockdowns. Family members relying on informal economies were unable to work or look for jobs. They watched their families struggle to afford basic needs such as food and housing. As a result, many households, including children, were struggling to survive; '*My mother lost her job, and they didn't get payment at work. My brother didn't go to school, and he*

struggled to understand' (Phase 1\Covid 19 FGD men_18–21 yrs); '*Our economy is collapsing. This pandemic is just making our situation worse. It's been a real struggle to get food.*' *(Phase 1\SATEC-19_FGD_ men_16-17 yrs)*. Indeed, during these earlier phases, the South Africa government had put strict measures – Alert level 5 (Arndt et al., 2020a; Denoon-Stevens & du Toit, 2021; Jain et al., 2020; Ngarava, 2022) where movement was restricted, and most businesses were closed down. In fact, the Coronavirus Rapid Mobile (CRAM) survey conducted just after we conducted phase 3 of our interviews reported that hunger had worsened despite welfare payments to fight the impact of COVID-19 (Bridgman et al., 2020a; Bridgman et al., 2020b; Casale & Shepherd, 2021).

Some participants were worried about inability to access food in their neighbourhoods. Others revealed that there was reduced food stocked in local stores or grocery shops, or that food was now expensive to buy. Although the South African government moved swiftly to cushion its citizens especially the elderly and marginalised with social grants and food parcels, some participants felt the support was not sufficient to take care of entire families especially in larger households.

The second most discussed impact was schooling – commonly between phases 1–3. Participants talked about difficulties studying from home following school closures, mostly because they lacked the necessary infrastructure; '*Many people didn't have access to data and the [schools] don't supply proper equipment for digital learning.*' *(Phase 1\Covid 19 FGD_ women_18-21 yrs)* Others mentioned that studying from home or online was challenging because '*teachers did not explain the way I would like them to explain because, unlike learning face-to-face at school, you get to ask them different kind of questions in order for you to understand.*' *(Phase 1\SATEC-19 FGD_ women_16-17 yrs)* Despite this, participants noted that not all learners experienced these challenges evenly. For example, learners who could afford private coaching at home were perceived to have managed the situation better than those from poorer backgrounds: '*Those who come from poor backgrounds won't cope, they won't get good mark because now it is not their thing. For those that can afford they could hire a private tutor maybe they will get help from there.*' *(Phase 3\SATEC-19_FGD_ men_18-21 yrs)*

As a result, most participants in these earlier phases reported that they were worried about scoring poor marks, inability to complete the syllabus or being asked to repeat classes:

> '*Well number one of my worries was my academic yes, in terms of not going to school, like the others said, repeating the same grade next year, yeah that was frustrating honestly.*' *(Phase 1\SATEC-19 FGD_women_16-17 yrs).* Participants also noted challenges when schools reopened: '*When we went back the first time it was really scary because the teachers were putting so much pressure on us to always sanitise, and always have our face shields on and it was hard the social distancing.*' *(Phase 2\SATEC-19_FGD_ women_16-17 yrs)* In addition catching up the lost lessons during lockdown was another source of concern amongst discussants: '*Okay, right now things are a bit shaky because as grade 12, we will have more pressure because we have to catch up last year's work and all the work for grade 12*'. *(Phase 3\SATEC-19_FGD_Group 3 women_16-17 yrs)*

Inability to socialise with friends or peers was also discussed as a negative impact of COVID-19. For example, young people were particularly upset at not being able to associate during Christmas festivities: '*Okay, my festivities were not the ones that I'm used like the ones before everything has changed completely. We were not allowed to gather even for Christmas.*' *(Phase 3\SATEC-19_FGD_ women_16-17 yrs)* Another discussant in a different FGD said: '*Yes because the president said we can't light up fireworks and we should light candles and pray so that 2021 could be a better year.*' *(Phase 3\SATEC-19_FGD_ women 18–21 yrs).* Despite this, one participant in phase 3 reported how he was amazed by the fact that people were able to follow government's directives; '*I was amazed. People listened and the streets were quiet. Everyone was inside their house everything worked out.*' *(Phase 3\SATEC-19_FGD_ men 18–21 yrs)*. However, he noted that Christmas wasn't as joyful.

However, some participants reported that they experienced positive impacts of COVID-19 such as: '*It brought us (*Singh et al., 2010*) much closer so that we could understand each other … .*'. *(Phase 1 \Covid 19 FGD group 2 men_ phase 1 18–21 yrs);* '*Parents are now spending time with us more because, before COVID-19, they were always working, sometimes not coming home.*' *(Phase 1 \SATEC-19_FGD_Group 4 men_16-17 yrs).* Spending time with family and relatives within the

home was also said to help young people cope with uncertainties of the pandemic. Others mentioned that they had enough time to sleep, relax or play which helped them to relax: '*My mom made sure I don't go out. I was sitting at home playing video games which helped me a lot.*' *(Phase 1\Covid 19 FGD men 18–21 years);* '*I spent my time cleaning, watching TV and sleeping.*' *(Phase 1\Covid 19 FGD women 18–21 years).* All these sentiments reflect the measures put in place to restrict movements during Wave 1 of COVID-19 in SA, and families had to spend time at home.

Importantly, young people felt that COVID-19 had a negative impact on their mental health and psychological well-being. Although we did not conduct any mental health assessments, many participants reported that they were worried about failing exams or scoring poor marks, something that seemed to be a major concern amongst all school-going young people across all groups. In addition, participants demonstrated psychological distress – which was associated with constant fear of infection, fear of their parents dying or getting infected; '*I was scared for my granny and mother. My mother's friends contracted the virus, and I was scared for me and my little brother.*' *(Phase 1\Covid 19 FGD men_ 18–21 yrs).* Others were able to articulate specific effects on mental health: '*What bothered young people is like depression, and other psychological factors that led to the depression. The pandemic made them lose hope. A lot of my peers are at home, and they tried applying for jobs and some didn't get to university.' (Phase 1\Covid 19 FGD men_ 18–21 yrs).* Indeed, in the earlier phases of the pandemic, people across the globe experienced distress as they did not know how the pandemic would unfold. The distress was heightened by increasing numbers of infections and deaths.

However, during the later phases of our study (Phase 5-6), participants seemed calmer and more relaxed during FGD discussions. Some reported that they were less anxious or worried about COVID-19 when compared to earlier discussions: '*I think that people are now less worried about this whole Corona virus. I am less anxious and now accustomed to COVID-19.' (Phase 5\SATEC-19_FGC_Men 16–17 yrs).* Such sentiments may have been influenced by the fact that there was clearer information on preventive measures, vaccines had started being administered, number of infections and deaths were dropping, and things were getting back to normal – including children going to school and people going back to their jobs and businesses. Yet, as discussed above, such relaxation or getting accustomed to COVID seemed to also influence non-adherence to COVID-19 preventive measures in the later phases. Our findings show that this should be a critical period for more sensitisation on preventive measures and encouraging people on the importance of adherence.

Perceptions of COVID-19 vaccines

Issues with vaccines were commonly discussed in phases 3–6. A more detailed understanding of vaccines including the types of vaccines and the types that were being used in SA emerged in phases 5 and 6, however: '*The vaccine that was used was Johnson & Johnson. It was given to our medical workers.' (Phase 5\SATEC-19_FGD_ men_18-21 yrs).* Although vaccination had started, some participants noted that there was no proper messaging to support their uptake: '*I haven't had a person telling me about he or she has taken the vaccine. Even my granny doesn't want to take the vaccine.' (Phase 6\SATEC-19_FGD_ women_18-21 yrs).* In this vein, one participant said that; '*If more information was given to us and the research is done right that is when the people will change their mind. But for now, people are not ready to take the vaccine.*' *(Phase 5\SATEC-19_FGD_ men 18–21 yrs)*

This lack of clarity and information about vaccines influenced participants' feelings about vaccines. Expression of mixed feelings were especially common in phases 3,4 and 5 and mostly common among young men; many demonstrated distrust in vaccines: '*If ever it comes to a push where we all have to get vaccinated, then I think I would rather die than be vaccinated.' (Phase 5\SATEC-19_FGD_men_18-21 yrs);* '*To be honest I don't actually follow up on the whole vaccination thing I just see what I see and for me anything that has vaccine inside I wouldn't take it.*' *(Phase 5 \SATEC-19_FGD_ men_18-21 yrs)*

Towards the last phase of discussions (phases 5 and 6), participants seemed more knowledgeable about vaccines and demonstrated willingness to be vaccinated. They also reported that some of their family members had been vaccinated with no ill effects; '*What made me think positive about the vaccine is that I get to see that it does not bring any negative symptoms as my aunt was also vaccinated. Also, a lot of people have been vaccinated now.*' *(Phase 5\SATEC-19_FGD_ women_16-17 yrs)*

Discussion

This study was guided by the HBM framework to explore young people's knowledge and perceptions of COVID-19, factors that influenced behaviours in relation to adherence/non-adherence to COVID-19 preventive measures, and how the pandemic affected all aspects of their lives in Soweto, South Africa. Our findings show that knowledge about COVID-19 increased across the phases, and this was in part due to an increase in access to information including discussions amongst participants during FGDs. Knowledge and understanding of COVID-19, as well as access to trustworthy sources of information was key in influencing how young people perceived their health and responded to COVID-19 preventive measures. Yet, we learned that although many young people had a general understanding of COVID-19, this did not translate to behaviour change such as wearing masks. This was, in part, due to other compounding factors such as conspiracies around COVID-19, misinformation, rumours, and distrust of information particularly from the internet as well as government's relaxed stand on adherence to COVID-19 regulations. Participants felt that at the start of the pandemic, information reported on social media was exaggerated, resulting in mistrust and conspiracies. Participants trusted information relayed through TV and Radio although felt that this information was inadequate to support young people in engaging with preventive measures like vaccinations. Our findings demonstrate that people need not only to have access to information or be aware of the existing health risks but also to feel themselves at risk to adopt protective or preventive measures (Alagili & Bamashmous, 2021). This calls for carefully and deliberately designed risk communication messages aimed to influence behaviour change. In addition, the South African government should ensure constant communication with the public during a national crisis, especially ensuring people have access to reliable information. This should be key especially when new interventions are being introduced to kerb any misinterpretations such as low-risk perceptions.

Mistrust in COVID-19 information was also worsened by conspiracy theories which the young people felt were heightened by a sense of vulnerability triggered by the sustained threat to physical, mental/psychological, and financial well-being. Prior to the COVID-19 pandemic, there have been other examples of conspiracy beliefs greatly influenced denial and mistrust of biomedical explanation and treatment of highly stigmatised diseases such as HIV/AIDS (Hogg et al., 2017). Notably, conspiracy beliefs have also been found to have a widespread history embedded in culture, politics, and religion – including instances where political elites in South Africa have jeopardised timely access to antiretroviral therapy (ART) medications, thereby increasing HIV infections and deaths especially amongst children (Chigwedere et al., 2008; Nattrass, 2008). Studies conducted in many countries in Africa have also shown that conspiracy theories especially when COVID-19 was declared a pandemic, influenced people's uptake of preventive measures (Bam, 2022; Dereje et al., 2022; Oyekan, 2021; Wonodi et al., 2022). As such, there is a need to develop preventive messages to counter conspiracy theories during pandemics and ensure such messaging could be tailor made to address men and women concerns. This may be one way to promote adherence to public health preventive measures.

In line with the HBM, our data revealed that whenever there were spikes of increased infection, young people believed that they (including their parents/caregivers and peers) were at risk of infection (perceived severity and susceptibility), which lead to increased adherence to preventive measures. However, this was only sustained for a short period, and many went back to less adherent behaviours whenever risk perceptions were low, and when regulations were relaxed. These findings

suggest that strong fear appeals result in the greatest behavioural change only when people feel efficacious (Witte, 1996; Witte & Allen, 2000). This further supports the HBM hypothesis that health-related action is dependent upon the simultaneous occurrence of a health concern, vulnerability, and the belief that following a particular health recommendation would be beneficial in reducing the perceived threat (Becker, 1974; Rosenstock, 1974). In contrast, strong fear appeals coupled with low-efficacy messages result in the most defensive responses or avoidance coping strategies, both of which may contribute to a lack of adherence to preventative measures (Bavel et al., 2020). From phases 1 to 4, we learned that young people believed that their lack of knowledge, mistrust, and conspiracy theories influenced their level of engagement with protective measures. However, by phases 5 and 6 of data collection, participants demonstrated more knowledge and ability to access trustworthy sources of information (e.g. TV and newspapers). This enabled them to make informed decisions about adopting preventive measures such as vaccinations.

We also found that the more knowledgeable young people were about COVID-19, the less scared they were about being at risk of infection. In addition, low-risk perception was linked to the introduction of vaccines – where young people perceived that vaccines would reduce infections and deaths. While COVID-19 vaccines have reversed the trend of infections and deaths across the globe (Madhi et al., 2022; Ndwandwe & Wiysonge, 2021; Zheng et al., 2022), it is important to ensure continuous sensitisation, education, and creating updates especially amongst young people to increase uptake of preventive measures. We also found that young people's focus and behaviour shifted from being focused on their own wellbeing to being more considerate of others. Similar to findings reported by (Rwafa-Ponela et al., 2022), many young people talked about being worried about the risk of their parents/friends/neighbors becoming infected with COVID-19 demonstrating a concern for others when confronted by disaster (Drury et al., 2009). This adds to existing findings on the ways people cooperate rather than compete in response to a crisis (Drury, 2018). This feeling can be used in future public health preventive measures and messaging in SA, targeting the use of collective terms such as 'us' and promoting action for the common good – building on the 'Ubuntu' philosophy (Chigangaidze et al., 2022; Murove, 2012; Nabudere, 2005).

Young people discussed the various impacts of COVID-19 such as the socio-economic implications including food insecurity and financial crisis within their households (Bosire et al., 2022; Bukari et al., 2022; Odunitan-Wayas et al., 2021). School disruptions created a greater risk of widening educational disparities between the poor and rich due to lack of support and resources for remote learning among poorer families (Bosire et al., 2022). Another aspect that young people highlighted as particularly difficult was the isolation associated with preventative measures and their inability to gather or socialise with peers, especially over holidays. This influenced the psychological wellbeing of young people and those around them. Participants consistently reported feelings of anxiety and being constantly worried about uncertainty over education and their future, fear of infection as well as loss of life. Despite this, the ability of family to spend time together for longer periods and avoidance of bad companies/groups, enough time to sleep and rest, and watching TV were said to be positive impacts brought about by COVID-19 lockdown measures and were key strategies that helped young people cope during the pandemic. In the later phases of our discussions, when vaccines were introduced and some movement restrictions were lifted despite the infection rate remaining high, participants were more relaxed and calmer, and some reported that they were no longer scared of COVID-19. These findings point out the importance of ensuring access to information in case of pandemics – to reduce distress and other psychological disturbances that come with the onset of new diseases. Also, it is important for the SA government to ensure rapid response to address financial and food insecurities especially amongst vulnerable households. This will cushion populations and improve their mental wellbeing amidst pandemics such as COVID-19.

Our findings show that individual behaviours and risk perceptions varied across various phases of data collection and were informed by factors such as how the pandemic unfolded, conspiracies related to COVID-19, and access to information. In addition, the socio-economic contexts and

family dynamics – the ways that relatives interact with one another, as well as the different influences that shape those interactions – were crucial in individual's risk perceptions. These findings highlight the gaps and opportunities that could be utilised by the government to improve disease prevention and increase adherence behaviours while designing interventions that are suitable for specific populations and ages. Our findings point out that risk perceptions and willingness to change are influenced by many factors that extend beyond an individual's domain. Understanding the relative contributions of individual, community, contextual, policies, and environmental factors that influence positive behaviour change is paramount in designing interventions that suit specific groups of people (Kalam et al., 2021; Osur et al., 2022).

Our study has limitations, first, the repeated participation of young people in focus group discussions may have influenced the results we are reporting. Because we used a convenience sampling method in this study, our results are not generalisable; however, this sampling method allowed for faster and easier data collection at a lower cost, which was necessary because data collection occurred during the pandemic's peak. Furthermore, due to COVID-19-related restrictions, our data collection period was only three-quarters of a year, despite the fact that the pandemic lasted longer. Nonetheless, the longitudinal design allowed us to collect data as the pandemic unfolded, allowing us to gain a better understanding of its impact on young people.

In conclusion, community leaders, scientists, and policy leaders need to learn from the COVID-19 experience and ensure youth preventive strategies targeting education, awareness, and economic support are in place and tailored to a local context in future emergencies. Providing reliable information that considers young people's lives and the context in which they live is important. Additionally, there is a need for the government to develop positive behaviours change interventions whenever there are new variants (as citizens are keen to listen) as well as new interventions (such as vaccines) – as citizens may assume that they are no longer at risk of infections.

Declarations

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Availability of data and material

Data will be made available upon written request to the corresponding author detailing the intended use of data.

Author contribution

GM collected the data, conceptualised the study, analysed data, and drafted the manuscript; ENB conceptualised the study, analysed data, and drafted the manuscript; SAN conceptualised the study and commented on the manuscript; PHJ commented on the manuscript; and MB commented on the manuscript.

Conflicts of interest

Authors declare no competing interests.

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Appendix

Virtual FGD guide - COVID-19: Exploring Messaging and Support for Young People
FGD Questions:

1. What do you know about the coronavirus pandemic and who has told you this? Where did you hear about it?
2. What is going on for you right now? How are you spending your time? What has changed for you ever since the lockdown was implemented? Do you think the lockdown was necessary?
3. What do you think about what you've heard and what you are being told to do?
4. Do you have any fear of contracting the Corona virus? What worries you the most?
5. Do you think the current situation (Covid-19 pandemic) has potential effects on one's mental health? What kind of mental health problems can one experience and why?
6. How do you think people in your generation are dealing with this situation?
7. How has the pandemic and stages of lockdown impacted your family/household? How has the impact affected livelihoods? How has the impact affected household food security?
8. What do you think about the government's response to the pandemic? Are you happy with how they are handling the situation? What do you think about the R350 social grant that the government is offering to the unemployed? Is any member of your household accessing this grant?
9. Do you think the different stages of lockdown are working? What changes would you recommend?
10. How has the pandemic affected you in terms of schooling, behaviour (physical activity, sedentary, sleep), diet, health, stress?
11. What do you think of the department of education's response to schooling during the lockdown? Do you think online learning is working for you and why?
12. What do you think we could do to help young and vulnerable people to stay safe and follow government advice? What would the messages from the government be to make young people follow the guidance? Where should these messages be placed?
13. What could young people do that would help and how do we involve young people in keeping other young people safe?
14. What solutions/interventions in your community could help with families impacted by the pandemic?
15. What do you think of the future amid what is currently happening?
16. What would you recommend to researchers studying young people?