Global Social Welfare
https://doi.org/10.1007/s40609-022-00230-1

Locked Down: Economic and Health Effects of COVID-19 Response on Residents of a South African Township

Deborah A. Fisher[1] · **Ted R. Miller**[1,2] · **Joel W. Grube**[3] · **Christopher L. Ringwalt**[4] · **Tom Achoki**[5,6] · **Tara Polzer Ngwato**[7] · **Lebogang Shilakoe**[7] · **Penelope Mkhondo**[7]

Accepted: 30 June 2022

Abstract

Background Little research has examined how pandemics affect residents in under-resourced communities. This study investigated how COVID-19 and lockdown policies affected residents of Alexandra, one of Johannesburg, South Africa's lowest-income townships.

Methods We conducted a telephone survey May 11–22, 2020, while the lockdown and alcohol ban were in effect, of a spatially stratified sample of 353 adult Alexandra residents drawn randomly from voter registration, credit card application, and prior studies' sampling frames. We examined economic consequences; health experiences, including COVID-19 exposure and mental health symptoms; alcohol use; and personal experiences with violence.

Results Respondents were aged 18 to 89 and 47% female. About 70% of those employed before the lockdown were no longer working. Over half of households lost at least one source of income. About 50% of respondents reported stockpiling food. A majority reported price rises and declines in availability of food. Smaller percentages reported such changes for other items. Over 80% reported stress or anxiety, or depression due to the pandemic. The prevalence of past-week alcohol use fell from over 50% before the lockdown to less than 10% during the lockdown. Self-reported physical violence victimization increased.

Discussion COVID-19 and the lockdown disrupted Alexandra residents' lives through unemployment, lost income, mental health problems, and increased violence. The differences between these outcomes and those in more advantaged communities deserve investigation. Research should also seek to identify tailored responses to effectively address the challenges of marginalized communities that often have limited resources to deal with pandemics and policies to contain them.

Keywords Coronavirus · COVID-19 · Pandemic · South Africa

Background

The COVID-19 pandemic has taken a substantial toll worldwide in morbidity, mortality, and social and economic disruption. After the first confirmed case in early March 2020, South Africa instituted a strong policy response to curtail the epidemic's spread. By March 15, a national state of disaster was declared that included a travel ban, social distancing, and the closure of schools and universities. Eight days later, President Ramaphosa announced a national lockdown that took effect on March 26 and required all but essential workers to stay at home and to leave only to access health care or buy essential items (South African News Agency, 2020, March 23). Nationwide, alcoholic beverage sales were banned from March 26 through May 31, and again from mid-July to mid-August (Reuter et al., 2020). Lockdown enforcement was vigorous, with more than 300,000 arrests

✉ Deborah A. Fisher
fisher@pire.org

1 Pacific Institute for Research and Evaluation, 4061 Powder Mill Road, Suite 350, Beltsville, MD 20705-3113, USA

2 Curtin University School of Public Health, Curtin University, Kent St, Bentley, WA 400, Australia

3 Pacific Institute for Research and Evaluation, 2150 Shattuck Ave., Suite 601, Berkeley, CA 94704, USA

4 Pacific Institute for Research and Evaluation, 101 Conner Drive, Suite 200, Chapel Hill, NC 27514-7038, USA

5 AB InBev Foundation, 1440 G Street NW, DC, Washington, DC 20005, United States

6 School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa

7 Social Surveys Africa, 2 Upper Park Drive, Forest Town, Johannesburg 2193, South Africa

Published online: 03 August 2022

of violators by June (Waterworth & Chemaly, 2020, August 15).

While the first alcohol ban was in place in South Africa, indicators of alcohol-related harm suggest that it was accompanied by reductions in alcohol-attributable hospital admissions, contact crimes (e.g., murder, rape, assault), and injury deaths (Voices360, 2020, May 5). A study of trauma cases in the emergency center of a large, rural regional hospital found that the volume of patients treated for assaults, road crash injuries, and other injuries declined dramatically (56–60%) from February (pre-pandemic) to April (post-pandemic) of 2020 (Reuter et al., 2020). The reductions persisted even after the alcohol ban was lifted (Venter et al., 2021).

Despite the potential benefits of containing the spread of the coronavirus and possible reductions in crime and trauma requiring medical care, highly restrictive policies such as lockdowns may be burdensome, particularly for residents of low- and middle-income countries (Obasa et al., 2020). Stay-at-home orders may make it impossible for lower-wage workers to perform their jobs, thus causing economic hardships especially for families that are already economically disadvantaged. In addition, reduced access to food and other essential commodities along with price increases associated with COVID-19 policies may disproportionally affect such families (Paslakis et al., 2021). One study of nine countries in Africa conducted during the COVID-19 pandemic found that female-headed households, the poor, and those with less formal education appeared to suffer the most in terms of food insecurity (Dasgupta & Robinson, 2021). Additionally, the diversion of resources to fight a pandemic may strain health care resources that are particularly critical to vulnerable populations (e.g., maternal and child health services). For example, using data spanning January 1, 2018, through July 31, 2020, from 65 primary care clinics in KwaZulu-Natal province, South Africa, investigators found that HIV testing decreased by 47.6% by April 2020 (Dorward et al., 2021). Additionally, the median number of initiations of antiretroviral therapy decreased from a median of 571 per week pre-lockdown to 375 per week post-lockdown. The reduction occurred immediately, with an estimated 46.2% decrease in the first week of the lockdown. Pandemics such as COVID-19 and the attendant shifts in health care resources that may be implemented to contain them may negatively affect diagnosis and the continuity of care for other health issues, resulting in increased non-COVID-19 morbidity and mortality, especially among at-risk populations (Blumberg et al., 2020). Some have argued that the early and extensive lockdown in South Africa benefitted health service preparedness for handling COVID-19 cases, but had deleterious effects on tuberculosis and vaccine programs, as well as HIV treatment (Kaswa, 2021; Madhi et al., 2020).

Studies of the effects of disasters have repeatedly found adverse effects on emotional distress and mental health outcomes (Pfefferbaum & North, 2020). In a study of COVID-19-related stressors and mental health among a self-selected sample of South Africans who were of higher SES and education, De Man et al. (2022) found that 46.0% of respondents reported anxiety and 47.2% reported experiencing depression. In addition to anxiety and depression, the circumstances associated with pandemics (e.g., social isolation, economic loss, inadequate food supplies) may also lead to increases in stress, boredom, irritability, confusion, substance use, and domestic violence (Brooks et al., 2020; Galea et al., 2020; Pfefferbaum & North, 2020; Wu et al., 2008). These emotional and psychological effects may last beyond the pandemic (Liu et al., 2012). Although physical and mental health problems may be common during public health disasters such as the COVID-19 pandemic, those with relatively few resources, and particularly a low income, may find it more difficult to cope with pandemic-related circumstances and experience more negative outcomes.

To investigate the effects of the pandemic and the associated lockdown in a vulnerable community, we conducted a cross-sectional telephone survey of residents in Alexandra Township within Johannesburg, South Africa. The purpose of the survey was to investigate broadly how the pandemic affected the lives of Alexandra residents. In contrast to nearby upper-class suburbs, Alexandra is one of the poorest urban areas in South Africa, with families often living in densely clustered "shacks" which average nine square meters floor space and often house families of three or more. Our survey asked residents about preparations they made before the lockdown, access to food and other supplies, employment and economic repercussions, and pandemic-related outcomes, including COVID-19 infection, mental health, alcohol use, and experiences with violence during the lockdown.

Methods

Sample and Procedures

Sampling

To create the sampling frame, Social Surveys Africa (SSA) merged two databases. One comprised cell phone numbers of Alexandra residents from voter rolls and credit application data; the other included residents who had participated in previous studies and had given permission to be recontacted about future studies. These two datasets yielded 2386 cell phone numbers. SSA previously segmented Alexandra into a community tapestry of 143 "Small Area Layers" (SALs), spatial sampling units defined and categorized by Statistics South Africa into statistically derived community clusters based on level of infrastructure, socioeconomic status, and

inequality (Russell, 2018). SSA randomly selected 85 SALs as targets for the telephone interviews. They interviewed a maximum of 15 respondents from any given cluster. Quota sampling, based on age and gender, was used to achieve the targeted sample size. Up to five call attempts were made to each number.

Survey Procedures

Interviewers called cell phone numbers and, after a brief introduction, screened the person who answered for eligibility. Inclusion criteria for respondents were being at least 18 years of age, residing in a targeted community cluster of Alexandra both before and during the lockdown, and being able to charge their cell phone without having to leave their residence so that survey participation would not encourage violating stay-at-home orders. After establishing eligibility, the interviewer described the study and administered an informed consent script and then the survey. The survey instrument was available in three main languages: English, IsiZulu, and Southern Sotho. PIRE/HBSA Institutional Review Board (FWA00003078) approved all study procedures. We conducted the survey during the period of May 11–22, 2020, while the national lockdown (with orders to stay at home except to access health care and buy essential items) and the first of two successive alcohol bans were in effect in South Africa.

Completion Rates

To achieve the targeted 350 completed interviews, interviewers attempted calls to 741 randomly selected cell phone numbers, of which 205 were out of service/not owned. Of the remaining 536 numbers, 127 were ineligible because the individuals reached did not live in Alexandra prior to the lockdown and 51 either declined to talk to the interviewer or otherwise refused to participate. Five interviews were not used because they were incomplete. Interviews were completed with 353 respondents, who represented 86% of the total of 409 adults who were successfully reached and found to be eligible to participate. Of the survey's 353 respondents, 269 (76.2%) were recruited from the voter roll/credit application database and 84 (23.8%) were recruited from past studies.

Measures

Measures used in this study included (a) sociodemographic information, (b) COVID-19-related economic experiences, (c) COVID-19-related health experiences, (d) alcohol, and (e) violence. Appendix A displays the survey items.

Sociodemographics

Respondents were asked their age (recorded as number of years); sex (male, female, something else); highest level of education completed (open-ended and coded as no formal education, 1-year increments from grades 1 through 12, some tertiary education [college/university], completed tertiary education, post-university education); perceived socioeconomic status (how rich or poor respondents considered their families to be compared to others in South Africa, answered on a 7-point scale from rich to poor); and type of housing (formal house, formal backyard, informal backyard, or informal settlement).

Employment

A series of questions (yes/no) regarding employment and income asked respondents (a) if they were employed before the lockdown, (b) if they were working during the lockdown, (c) if they or anyone else in the household traveled to and from work during the lockdown, and (d) if anyone in their household lost a source of income because of the lockdown.

Stockpiling

Information about stockpiling of supplies before the lockdown was assessed with a multipart question asking if they stocked up on (a) fruits and vegetables, (b) other food, (c) drinking water, (d) alcoholic beverages, (e) cigarettes, (f) marijuana or other recreational drugs, (g) pharmacy items, and (h) cooking fuel.

Price and Availability of Supplies

Two multipart items asked respondents (yes/no) if the lockdown had made it more difficult to locate each of the eight supplies and if it had raised the prices for them.

COVID-19 Exposure

Participants were asked whether (yes/no) (a) they knew from a medical diagnosis or thought that they had had the coronavirus, (b) they self-quarantined at any time during the lockdown, and (c) thought they had been exposed to someone who probably had coronavirus.

Shelter in Place

Respondents also reported how often during the past week they had left the home where they were sleeping (3 or

more times a day, once or twice a day, every 2 or 3 days, once or twice, not at all).

Mental Health

To assess mental health during the pandemic and lockdown, respondents were asked two questions about how often in the past week because of the coronavirus they felt: (a) anxious or stressed, and (b) depressed (never, some of the time, most of the time, all of the time). These items were dichotomized (yes/no). Similar single-item indicators have good reliability and validity and show good agreement with longer tests (Williams & Smith, 2019; Young et al., 2015; Zimmerman et al., 2006).

Alcohol Use

Respondents were asked (a) whether they had had a whole drink of any alcoholic beverage (beer, wine, liquor, or spirits, either commercially produced or homemade) in the past 12 months (yes/no), (b) frequency of drinking (0–7 days) in the past week and the week before the coronavirus lockdown, and (c) frequency of heavy episodic drinking (at least 5 whole drinks in a 2-h period) during the past week as well as the week before the coronavirus lockdown (0–7 days).

Alcohol Access

A multipart item was used to obtain information on respondents' sources of alcohol during the lockdown. Those who had drunk alcohol in the past week were asked which of the following sources they used to get alcohol (yes/no): (a) purchased stock at home, (b) family's homebrew, (c) someone else's homebrew, (d) for free at someone else's home or a party, (e) at a bar, tavern, shebeen, or club, (f) at a restaurant, (g) from a store that sells alcohol, and (h) on the black market.

Enforcement of Alcohol Policies

To assess perceptions of enforcement of the alcohol ban, respondents were asked how likely (very likely, somewhat likely, somewhat unlikely, very unlikely) they thought (a) an adult drinking an alcoholic beverage in a public place would be stopped by police, (b) a bar or restaurant selling alcohol for on-premises consumption would be stopped by the police, and (c) a bar or restaurant selling alcohol for takeaway would be stopped by the police.

Violence Experiences

Respondents were asked about their involvement as either as a victim or a perpetrator in physical violence and sexual violence. Specifically, to assess physical violence they were asked (yes/no) whether (a) anyone, age 12 or over, in the Johannesburg area, got violent (hit, punched, kicked, slapped, drew a weapon on, or intentionally injured) with them in the past week (victimization) and (b) they were violent with someone else in the past week (perpetration). Sexual violence victimization was assessed by asking whether (c) anyone sexually touched, fondled, grabbed, or kissed them against their will in the past week and (d) anyone had forced or tried to force them to have vaginal, oral, or anal sex against their will. Parallel items addressed sexual violence perpetration by asking whether they had engaged in either of these behaviors toward others.

To estimate violence levels in Alexandra pre-COVID-19, we used unpublished data from a household survey with a random quota sample of 1484 Alexandra adults that we conducted with a 92.4% response rate in November 2018 (Miller et al., 2019). That survey used the same violence descriptions to ascertain victimization and perpetration frequency in December 2017 through November 2018. Although both surveys were conducted in the same township, given its population size (with varying estimates from 179,624 to upwards of 700,000; http://www.statssa.gov.za/?page_id=4286&id=11305), we believe the likelihood of respondents participating in both surveys is very small.

Analysis

We conducted all analyses using SPSS version 27. All analyses used data weighted by sex and age groups based on the 2011 Census to approximate the population. The primary analyses consisted of descriptive statistics (percentages and 95% confidence intervals) providing estimates of the extent to which participants had experienced lockdown-related outcomes. Comparisons across age, sex, and employment groups were conducted using Pearson's chi-square tests. Finally, z-tests were used to explore differences in rates of experiencing violence during the lockdown compared with population estimates obtained from a 2018 survey conducted in Alexandra.

Results

Sample Characteristics

Participants ranged in age from 18 to 89 (mean age = 36.7; $SD = 14.2$); 53.0% identified as male, 46.7% as female, and 0.3% as other. In terms of highest level of education, 1.3% had no formal education, 2.9% completed some primary school, 1.8% completed primary school, 23.1% completed some secondary school, 45.2% completed secondary school, 10.4% had some university, 11.6% completed university, and

3.7% had some post-university education. With respect to living situation, 56.0% reported living in a formal house, 21.0% in a formal backyard dwelling, 13.2% in an informal backyard dwelling, and 9.7% in an informal settlement. For perceived socioeconomic status, 15.7% reported being above average, 37.6% about average, and 46.7% below average.

Economic Experiences

Employment

A great majority (70.1%, 95% *CI* = 64.1, 76.1) of respondents who were employed before the lockdown were unemployed during the lockdown. Someone other than the respondent was working in only 28.2% (95% *CI* = 23.5, 32.9) of households during the lockdown and over half (54.8%, 95% *CI* = 49.6, 60.0) of households had lost at least one source of income.

Stockpiling

More than four in 10 households stocked up on fruits and vegetables (43.9%) as well as other food items (47.8%) shortly before the lockdown went into effect (Table 1). Over half (52.0%) reported stocking up on any food products. Nearly one quarter (24.9%) stocked up on pharmacy items. Stocking up on recreational drugs (1.3%), alcohol (5.7%), or cigarettes (5.6%) was less common. Respectively, 8.0% and 13.8% of households stockpiled drinking water and cooking fuel.

Prices and Availability of Supplies

Overall, 77.3% of households reported that fruit and vegetables or other food prices rose during the lockdown and 70.8% reported decreased availability of food (Table 1). Similarly, significant proportions reported higher prices (24.9% and 32.6%, respectively) for and decreased access (43.2% and 41.1%, respectively) to alcohol and cigarettes; 13.2% reported increased prices for marijuana or other recreational drugs. Over a quarter reported that cooking fuel (26.8%) and pharmacy items (29.5%) were more expensive during the lockdown and about a quarter reported difficulty accessing cooking fuel (20.6%) and pharmacy items (24.9%). In contrast, only 9.0% reported that drinking water price increased and 9.3% that availability of drinking water was affected.

Health Experiences

COVID-19 Exposure

Overall, 14 (3.7%, 95% *CI* = 1.9, 5.9) of respondents reported that they either believed or knew from a medical diagnosis that they had been infected with the coronavirus. All of these respondents reported that they self-quarantined. None of them thought they had been exposed to someone who probably had the virus, but seven reported leaving the house at least daily and eight reported they or another member of the household traveled to and from work during the lockdown.

Shelter in Place

Across all households, 28.9% (95% *CI* = 24.2, 33.6) included a household member who was traveling to and from work during the lockdown. During the week prior to the interview, 20.1% (95% *CI* = 15.9, 24.3) reported that they had not left their residence, 37.1% (95% *CI* = 32.1, 43.1) that they had left it once or twice, 11.5% (95% *CI* = 8.2, 14.8) that they had left every 2 or 3 days, 12.8% (95% *CI* = 9.3, 16.3) that they left once or twice a day, and 16.3% (95% *CI* = 12.4, 20.2) that they had left three or more times daily.

Table 1 Percentage (95% *CI*) of Alexandria respondents reporting lockdown-related stocking up, price increases, and difficulty locating supplies[a]

	Percentage yes		
Supplies	**Stocking up**	**Price increase**	**Difficulty locating**
Fruits and vegetables	43.9 (38.7, 49.1)	67.2 (62.3, 72.1)	62.1 (57.0, 67.2)
Other food items	47.8 (42.6, 53.0)	69.2 (64.4, 74.0)	57.4 (52.2, 62.6)
Any food products[b]	52.0 (46.8, 57.2)	77.3 (72.9, 81.7)	70.8 (66.1, 75.5)
Drinking water	8.0 (5.2, 10.8)	9.0 (6.0, 12.0)	9.3 (6.3, 12.3)
Alcoholic beverages	5.7 (3.3, 8.1)	24.9 (20.4, 29.4)	43.2 (38.0, 48.4)
Cigarettes	5.6 (3.2, 8.0)	32.6 (27.2, 37.5)	41.1 (36.0, 46.2)
Marijuana or other recreational drugs	1.3 (0.1, 2.5)	13.2 (9.7, 16.7)	25.0 (20.5, 29.5)
Pharmacy items	24.9 (20.4, 29.4)	29.5 (24.7, 34.3)	24.2 (19.7, 28.7)
Cooking fuel	13.8 (10.2, 17.4)	26.8 (22.2, 31.4)	20.6 (16.4, 24.8)

[a]Analyses based on weighted data and include "yes," "no," and "don't know" as valid responses to questions. [b]Fruits and vegetables or other food items

Table 2 Percentage (95% *CI*) of Alexandra respondents reporting feeling anxious or stressed or depressed in the past week because of the lockdown by sex[a]

		Sex			
Mental health indicator	**Total**	**Female**	**Male**	χ^2	*p*
Anxious or stressed	82.0 (78.0, 86.0)	83.5 (77.8, 89.2)	80.6 (74.9, 86.3)	0.49	0.48
Depressed	66.4 (61.5, 71.3)	67.9 (60.8, 75.0)	65.1 (58.2, 72.0)	0.31	0.58
Anxious/stressed or depressed	86.3 (82.7, 89.9)	86.6 (81.4, 91.8)	86.0 (81.0, 91.0)	0.02	0.88
Anxious/stressed and depressed	62.1 (57.0, 67.2)	64.8 (57.5, 72.1)	59.7 (52.7, 66.7)	0.99	0.32

[a]Analyses based on weighted data and include "yes," "no," and "don't know" as valid responses to questions on depression and anxiety/stress

Mental Health

A substantial percentage (82.0%) of respondents said they had felt anxious or stressed because of the coronavirus and 66.4% reported that they felt depressed (Table 2). Altogether, 86.3% reported feeling either depressed or anxious/stressed and 62.1% felt both depressed and anxious/stressed. Men and women did not differ significantly in their likelihood of responding affirmatively to any of these measures. Older respondents were less likely to report experiencing anxiety/stress or either anxiety/stress or depression (Table 3) but did not differ significantly from the other age groups on either of the other mental health indictors. Among those who were employed prior to the lockdown, job loss during the lockdown was not significantly related to any of the mental health indicators (Table 4).

Alcohol Use and Perceptions

Alcohol Use

Among the 96 past-year drinkers, only nine (9.1%, 95% *CI* = 3.3, 14.9) had consumed alcohol in the past week during the lockdown. Most reported drinking on 1 to 3 days; one reported drinking daily. Only one reported drinking five or more drinks in a 2-h period (i.e., heavy episodic drinking) in the last week (on two occasions). In contrast, in response to queries about drinking the week before the coronavirus lockdown and alcohol ban, 55 (58.9%, 95% *CI* = 49.1, 68.7) of the past-year drinkers reported consuming alcohol that week, of whom four had done so on 5 or 6 days and six had done so daily. Five respondents reported heavy episodic drinking the week prior to the lockdown.

Alcohol Access

Among the nine past-week drinkers during the lockdown, five accessed it from their own purchased stock, two from their family's homebrew, two from someone else's home brew, two from the black market, and one from a store that sells alcohol. None reported getting alcohol at someone else's home or a party; a bar, tavern, shebeen, or club; or a restaurant.

Enforcement of Alcohol Policies

When asked about enforcement of alcohol policies, somewhat less than two-thirds of all respondents (64.1%, 95% *CI* = 59.1, 69.1) rated police intervention as "very likely" if an adult drank an alcoholic beverage in a public place or if a bar or restaurant were selling alcohol for on-premises consumption (61.5%, 95% *CI* = 56.4, 6.6). More than half of all respondents (57.9%, 95% *CI* = 52.7, 63.5) said intervention was "very likely" for a bar or restaurant that was selling alcohol for takeaway.

Violence Experiences

Overall, 11 respondents reported involvement in physical violence in the past week, 10 as victims and one as a perpetrator. Sexual assault was even rarer; one respondent reported sexual assault victimization and one reported both perpetration and victimization. Compared with estimated

Table 3 Percentage (95% *CI*) of Alexandra respondents reporting feeling anxious/stressed or depressed in the past week by age group[a]

	Age group				
Mental health indicator	**18–34**	**35–49**	**50 +**	χ^2	*p*
Anxious/stressed	83.6 (78.4, 88.8)	86.7 (80.0, 93.4)	66.0 (53.2, 78.8)	10.86	< 0.004
Depressed	67.7 (61.1, 74.3)	71.4 (62.5, 80.3)	55.8 (42.3, 69.3)	3.88	0.14
Anxious/stressed or depressed	88.7 (84.3, 93.1)	90.8 (85.1, 96.5)	67.9 (55.3, 80.5)	17.60	< 0.001
Anxious/stressed and depressed	62.6 (55.7, 69.3)	66.7 (57.4, 76.0)	53.8 (40.4, 67.2)	2.39	0.30

[a]Analyses based on weighted data and include "yes," "no," and "don't know" as valid responses to questions on depression and anxiety/stress

Table 4 Percentage (95% *CI*) of Alexandra respondents reporting feeling anxious/stressed or depressed in the past week by job loss during lockdown[a]

Mental health indicator	Total[b]	Lost job		χ^2	p
		Yes	No		
Anxious/stressed	83.1 (78.1, 88.1)	83.1 (77.2, 89.0)	83.1 (74.0, 92.2)	0.00	0.99
Depressed	66.7 (60.5, 72.9)	65.6 (58.1, 73.1)	69.2 (58.0, 80.4)	0.27	0.60
Anxious/stressed or depressed	89.1 (85.0, 93.2)	88.3 (83.2, 93.4)	90.9 (84.0, 97.8)	0.32	0.57
Anxious/stressed and depressed	60.7 (54.2, 67.2)	60.4 (52.7, 68.1)	61.5 (49.7, 73.3)	0.03	0.87

[a]Analyses based on weighted data and include "yes," "no," and "don't know" as valid responses to questions on depression and anxiety/stress. [b]Includes only those employed prior to the lockdown

population rates based on our 2018 survey, respondents in the 2020 survey reported they were more likely to be victims of physical violence in the past week (0.8% versus 2.9%), $z = 3.22$, $p < 0.001$. In contrast, sexual victimization was similar across the two surveys (0.7% versus 0.6%), $z = -0.24$, $p < 0.81$). Although we have limited demographic variables in common to compare across the two surveys, Appendix B shows that, after weighting, the two samples did not differ significantly in terms of their distributions on sex, marital status, or head of household educational attainment. The participants in the 2020 survey were 1.9 years older on average, although this difference was substantively small ($\eta^2 = 0.002$).

Discussion

Our phone survey in Alexandra, conducted in May of 2020, indicated that the COVID-19 lockdown imposed substantial economic and personal hardships on township residents. A great majority of those who were working before the pandemic no longer were employed while locked down about 2 months after the first local case was detected. Over half of households had lost at least one source of income. Substantial numbers reported stocking up on food staples prior to the lockdown and a substantial majority reported experiencing higher prices and decreased availability of food and other supplies.

Respondents who reported having contracted COVID-19 all said that they followed public health guidelines to quarantine themselves post-diagnosis. Although none of the respondents who contracted COVID-19 was among those who thought they had been exposed to someone with the virus, most had traveled outside their home and most were from households where someone was traveling to and from work during the epidemic. Community transmission thus may have played an important role in infection spread.

Consistent with other studies of pandemics, substantial numbers of the township's residents reported stress or anxiety, or depression associated with COVID-19 (Cullen et al., 2020; Esterwood & Saeed, 2020; Lima et al., 2020; Qiu et al., 2020; Shah et al., 2020; Yao et al., 2020). Harling et al. (2020) and Kim et al. (2020) reported smaller, but nevertheless significant, mental health impacts associated with COVID-19 elsewhere in South Africa, especially as the lockdowns there relaxed. Interestingly, other studies found that COVID-19-related mental health impacts were less evident in rural and low-income areas (Harling et al., 2020; Spaull et al., 2020). In contrast, we found very high levels of stress or anxiety and depression among this sample of South Africa's poorest residents.

Among those who had consumed alcohol in the past year, past-week prevalence of alcohol use decreased from 59% before the lockdown to 9% during it. Respondents believed that police were actively enforcing the strict alcohol policies that prohibited sales during the lockdown. This finding is consistent with the most frequently reported sources of alcohol consumed by past-week drinkers—their stock of purchased alcohol and their own or someone else's homebrew.

Despite reduced prevalence of alcohol consumption, the lockdown was associated with a significant increase in self-reported physical violence victimization, but no change in reports of sexual violence. The increase in physical violence victimization is consistent with reports of 65–100% increases in domestic violence hotline calls in South Africa during the lockdown (Farber, 2020, September 1; Grobler, 2020, May 11). In contrast, hospital-treated trauma decreased during and after the lockdown (Navsaria et al., 2020; Reuter et al., 2020; Venter et al., 2021) and, in April–June, police reports of murder, attempted murder, assault with intent to cause grievous bodily harm, rape, and car-jacking each fell 35–41% below the comparable months in 2019 (Waterworth & Chemaly, 2020, August 15). Murder and rape then surged above their usual numbers as restrictions eased (Harrisberg, 2020, June 16). With travel restricted and alcohol sales banned, drink driving convictions declined by 86% and drug crimes by 53%. Police Minister Cele said "the reduction in crime was not only due to the alcohol ban, but also to people staying in their homes and high-visibility policing including the army, police and metro police" (Waterworth & Chemaly, 2020, August 15). We suggest that fear of catching COVID-19 at a hospital or during a police investigation may have discouraged violence victims from seeking medical care or reporting victimization. That possibility serves as a cautionary note about

relying on formal data sources alone to track violence during a pandemic. Although our data suggest that non-sexual physical violence rose during the lockdown, this finding does not necessarily indicate that the alcohol sales ban did not itself reduce violence. Given that 72% of medically attended violent victimization incidents in South Africa involve alcohol, of which at least 49% may be directly attributed to alcohol (Cherpitel et al., 2012), violence might have risen even more absent the sales ban.

In a recent study, Zhu and colleagues examined policy responses to the pandemic and other factors in COVID-19 infections in the BRICS countries, which include Brazil, Russia, India, China, and South Africa (Zhu et al., 2021). Using a policy stringency index from 0 to 100 that reflected the level of policy response to the pandemic, the investigators found that daily new COVID-19 cases rose rapidly when the policy stringency index was low (0 to 45), slowed when the index was higher (46 to 80), and decreased when the index was above 80. The investigators concluded that strong policy responses such as through effective containment and case management are crucial to curtail a pandemic. Effective and strong policy responses are undoubtedly an important tool for curtailing public health disease outbreaks that pose risks for extensive morbidity and mortality. It is also important, however, for policy makers to consider that pandemics, as well as some policy responses developed to address them, may disproportionately burden vulnerable segments of the population and exacerbate existing inequities. For example, Nguse and Wassenaar (2021) found that while the COVID-19 pandemic affected all South Africans in various ways, the poor have been most affected due to structural inequality, poverty, unemployment, and lack of quality health care and other services. Thus, attention to ways to reduce or counter the adverse effects of strong policy responses on vulnerable populations is important. Dasgupta and Robinson (2021) reported that loss of income, attributable to lockdowns to control the spread of COVID-19, decreased access to food. To address food insecurity, the nine African countries in that study used both food and cash safety nets, the latter of which appeared to be slightly more effective. An investigation of other efforts to address inequities related to pandemic mitigation measures was conducted by Sweeney et al. (2021). Using data from six countries (Pakistan, Georgia, Chile, UK, Philippines, and South Africa), the investigators developed an econometric model to simulate the impact of lockdown policies on income loss. Findings suggest that improved safety nets (e.g., replacement of lost income) can reduce adverse economic and health impacts resulting from stringent lockdown policies. Such models may be used to assist policy makers in evaluating the equity implications of interventions, identifying segments of the population in need of social protection, and informing decisions on implementing policy interventions (e.g., determining when and how best to implement less stringent approaches and providing robust support when more stringent ones are necessary).

Limitations

Our sample may not have been representative, insofar as our sampling frame comprised respondents whose names appeared on voter rolls and credit applications, or who had participated in previous surveys and agreed to be recontacted for future studies. That said, it is likely that our efforts to increase the external validity of our sample by ensuring some degree of its spatial dispersion in Alexandra increased its representativeness. However, compared to 2011 census data (https://census2011.adrianfrith.com/place/798014) and our 2018 household survey (Miller et al., 2019), our unweighted telephone sample had fewer respondents under age 35 and more over age 50. Although we weighted our data to better reflect the population, the representativeness of the sample may be limited. Additionally, retrospective reports are subject to recall bias. Because most of our questions asked respondents about events that occurred in the previous week during the pandemic, we expect these reports to be relatively free from such bias. However, our pre-pandemic measures asked respondents about the week prior to the lockdown, which involved a recall period of approximately 6 to 7 weeks before the interview. Because the survey was administered by an interviewer, there may also have been social desirability biases, especially on questions concerning illegal or sensitive behaviors. Despite these issues, by providing a snapshot of how the coronavirus has affected the lives of residents in a socioeconomically disadvantaged South African township, this survey helps fill a void given that most studies have focused on higher-income countries.

Implications for Policy and Practice

Our findings suggest the need for targeting relief and resources to disadvantaged communities to address pandemic-related economic and health issues when implementing strict measures such as stay-at-home orders. In marginalized communities, where many residents have jobs that cannot be performed by telecommuting, strict sequestration orders can cause substantial income loss as well as loss of access to household necessities, including food. Efforts to contain the virus in such communities may need to place greater emphasis on testing and contact tracing than in well-resourced communities. Finally, efforts to understand the association of social problems with sequestration orders and alcohol bans should use multiple data sources, given that archival data from police and medical facilities may undercount the true number of cases if people do not seek treatment or report adverse events because of concerns about contracting the virus.

Conclusions

Considered in aggregate, our findings suggest that the COVID-19 epidemic substantially disrupted the lives of Alexandra residents, especially in terms of lost jobs and income and access to and affordability of essentials. It also was associated with anxiety, depression, and violence. Further research is needed to understand how the incidence of these outcomes differs between disadvantaged communities and those that are well resourced. Understanding these differences, together with the health, economic, and equity implications of strategies for managing and mitigating pandemics, will inform policy makers' efforts to address pandemic threats while reducing the burdens they impose on vulnerable communities.

Appendix A

Table with survey items for South Africa COVID phone survey.

Construct	Questions	Response options*
Living Situation	Are you living in the formal house, formal backyard, informal backyard or informal settlement?	•formal house •formal backyard •informal backyard •informal settlement
Age	How old are you?	Enter #
Sex	Do you consider yourself to be a:	•male •female •something else
Stocked up Prior to lockdown	When you heard about the coronavirus before the government announced the lockdown, did you stock up on:	•fruits and vegetables? •other food? •water? •alcoholic beverages, such as beer, wine, liquor or spirits? •cigarettes? •marijuana or other recreational drugs? •pharmacy items? •cooking fuel?
Employed prior to lockdown	Were you employed before the lockdown?	•yes •no
Respondent working during lockdown	Are you working during the lockdown?	•yes •no
Other household member working during lockdown	Is anyone else in your household working during the lockdown?	•yes •no
Traveling to work during lockdown	Are you or anyone else in your household travelling to and from work during the lockdown?	•yes •no
Loss of income because of lockdown	Did anyone in your household lose one of their sources of income because of the lockdown?	•yes •no
Left home during lockdown	During the past week, how often have you left the home where you are sleeping? Was it:	•3 or more times a day •Once or twice a day •Every 2 or 3 days •Once or twice •Not at all
Prices raised because of lockdown	Has the lockdown raised the prices for:	•fruits and vegetables? •other food? •drinking water? •alcoholic beverages? •cigarettes? •marijuana or other recreational drugs? •pharmacy items? •cooking fuel?
Availability of supplies decreased because of lockdown	Has the lockdown made it hard to locate:	•fruits and vegetables? •other food? •drinking water? •alcoholic beverages? •cigarettes? •marijuana or other recreational drugs? •pharmacy items? •cooking fuel?
Lifetime alcohol use	Have you ever had a whole drink—more than a sip or a taste, such as beer, wine, liquor or spirits, either commercially produced or homemade?	•yes •no
Past year alcohol use	During the PAST 12 MONTHS, did you have a whole drink—more than a sip or a taste, of any kind of alcoholic beverage such as beer, wine, liquor or spirits, either commercially produced or homemade?	•yes •no

Construct	Questions	Response options*
Past week alcohol use	Considering just the past week, on how many days have you had a whole drink—more than a sip or a taste, of any kind of alcoholic beverage, such as beer, wine, liquor or spirits, either commercially produced or homemade?	Enter #
Past week binge drinking	On how many days in the past week did you have at least **5** whole drinks of an alcoholic beverage in a two-hour period?	Enter #
Past week alcohol sources	In the past week, which of the following sources did you get alcohol from?	•Your purchased stock at home •Your family's homebrew •Someone else's homebrew •For free at someone else's home or a party •At a bar, tavern, shebeen, or club •At a restaurant •From a store that sells alcohol •On the black market
Past week alcohol use	Considering just the week before the coronavirus lockdown, on how many days did you have a whole drink—more than a sip or a taste, of any kind of alcoholic beverage, such as beer, wine, liquor or spirits, either commercially produced or homemade?	Enter #
Binge drinking in week prior to lockdown	On how many days in the week before the coronavirus lockdown did you have at least **5** whole drinks of an alcoholic beverage in a two-hour period?	Enter #
Enforcement of alcohol laws during lockdown	Now I have some questions about how the laws and rules about selling and drinking alcohol are being enforced in your community during the lockdown •If an adult were drinking an alcoholic beverage in a public place, how likely is it that the police will stop that person? •If a bar or restaurant is selling alcohol for on-premises consumption, how likely are they to be stopped by the police? •If a bar or restaurant is selling alcohol for takeaway, how likely are they to be stopped by the police?	1 = very likely; 4 = very unlikely
Anxiety and stress due to epidemic	Over the past week, how often have you felt anxious or stressed because of the coronavirus?	1 = never; 4 = all of the time
Depression due to epidemic	Over the past week, how often have you felt depressed because of the coronavirus?	1 = never; 4 = all of the time
Diagnosed with COVID-19	Do you know from a medical diagnosis or do you think that you have the coronavirus?	•yes •no
Self-quarantined	At any time since the lockdown began, did you self-quarantine from your household?	•yes •no
Exposed to COVID-19	Have you been exposed to someone who probably had Coronavirus?	•yes •no
Tested for COVID-19	Have you been tested for the Coronavirus?	•yes •no

Construct	Questions	Response options*
Violent victimization	Did anyone, age 12 or over, in the Johannesburg area get violent with you in the past week?	•yes •no
Violence perpetration	Aside from any incidents where someone was violent with you, were you violent with someone else in the past week?	•yes •no
Sexual victimization	In the Johannesburg area in the past week, did anyone force you or try to force you to have vaginal, oral, or anal sex against your will? In the Johannesburg area in the past week, did anyone sexually touch, fondle, grab, or kiss you against your will?)	•yes •no
Sexual perpetration	In the Johannesburg area in the past week, did you force anyone or try to force anyone to have vaginal, oral, or anal sex against their will? In the Johannesburg area in the past 12 months, did you sexually touch, fondle, grab, or kiss someone against their will?	•yes •no

*Response options include "refused" and "don't know".

Appendix B

Comparison of Demographic Characteristics for 2018 and 2020 Survey Samples[a]

	Survey Year				
Demographic Characteristic	**2018**	**2020**	**T-test[b]/ LRχ^2**	***p***	**η^2**
Mean Age (years)	34.8	36.7	2.48	< 0.02	0.002
Sex (%)			0.13	0.94	< 0.001
Male	53.9	53.0			
Female	45.8	46.7			
Other	0.3	0.3			
Marital Status (%)			7.12	0.13	< 0.001
Single/Never Married	69.6	67.9			
Married/Marriage-Like Relationship	24.8	23.0			
Divorced/Separated	2.7	5.1			
Widowed	2.4	3.1			
Other	0.5	0.9			
Highest Education Completed By Head of Household (%)			3.36	0.34	< 0.001
Less than Primary	7.7	5.1			
Primary	22.4	22.0			
Secondary	42.8	44.3			
Any College/University	27.1	28.6			

[a]Data were weighted based on sex and age categories from the 2011 Census.

[b]A t-test (unequal variances) was used to compare age across the samples. All other comparisons used likelihood ratio chi-square tests.

Author Contribution Deborah Fisher worked on the development of the survey instrument and wrote the first draft of the manuscript. Ted Miller conceptualized the study, worked on the development the survey instrument, conducted some of the analyses, and helped draft the manuscript. Joel Grube worked on the development of the survey instrument, conducted most of the analyses, and helped draft the manuscript. Christopher Ringwalt worked on the development of the survey instrument and contributed to the development of the manuscript. Tara Polzer Ngwato, Lebogang Shilakoe, and Penelope Mkhondo helped develop the survey instrument, led development of the sampling strategy, and supervised the field work. All authors provided critical revisions to the manuscript. All authors contributed to and have approved the final manuscript.

Funding The research and preparation of this article were supported by funding from the AB InBev Foundation (award/grant number not applicable). The content is solely the responsibility of the authors and does not necessarily represent the official views of the AB InBev Foundation or AB InBev. By contract, the authors had complete independence to determine the content of this article.

Availability of Data and Materials The survey instrument and de-identified dataset are available through the GSDG Data Library upon application at https://www.gsdgdatalibrary.org/. Additionally, a table listing the survey items and responses appears in Appendix A.

Declarations

Ethics Approval and Consent to Participate All study procedures were approved by the PIRE/HBSA Institutional Review Board

(FWA00003078). Prior to conducting the survey, phone interviewers administered the informed consent script and participants provided their response verbally. Because the research used a verbal consent process, the IRB granted a waiver of documentation of informed consent.

Consent for Publication Not applicable.

Competing Interests Tom Achoki is the AB InBev Foundation (ABIF) project officer for the evaluation of Global Smart Drinking Goals program. All other authors have been supported within the past year by funding from ABIF, which draws all of its funding from the alcohol industry.

Data Sharing De-identified survey data are available through the GSDG Data Library upon application at https://www.gsdgdatalibrary.org/.

References

Blumberg, L., Jassat, W., Mendelson, M., & Cohen, C. (2020). The COVID-19 crisis in South Africa: Protecting the vulnerable. *South Africa Medical Journal*, *110*(9), 825–826. https://www.ncbi.nlm.nih.gov/pubmed/32880258

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet, 395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Cherpitel, C. J., Ye, Y., Bond, J., Room, R., & Borges, G. (2012). Attribution of alcohol to violence-related injury: Self and other's drinking in the event. *Journal of Studies on Alcohol and Drugs*, *73*(2), 277–284. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3281985/pdf/jsad277.pdf

Cullen, W., Gulati, G., & Kelly, B. D. (2020). Mental health in the COVID-19 pandemic. *QJM: An International Journal of Medicine*, *113*(5), 311–312. https://doi.org/10.1093/qjmed/hcaa110

Dasgupta, S., & Robinson, E. J. Z. (2021). Food insecurity, safety nets, and coping strategies during the COVID-19 pandemic: Multi-country evidence from Sub-Saharan Africa. *International Journal of Environmental Research and Public Health*, *18*(19). https://doi.org/10.3390/ijerph18199997

De Man, J., Smith, M. R., Schneider, M., & Tabana, H. (2022). An exploration of the impact of COVID-19 on mental health in South Africa. *Psychology, Health, and Medicine, 27*(1), 120–130. https://doi.org/10.1080/13548506.2021.1954671

Dorward, J., Khubone, T., Gate, K., Ngobese, H., Sookrajh, Y., Mkhize, S., Jeewa, A., Bottomley, C., Lewis, L., Baisley, K., Butler, C. C., Gxagxisa, N., & 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. *Lancet HIV, 8*(3), e158–e165. https://doi.org/10.1016/S2352-3018(20)30359-3

Esterwood, E., & Saeed, S. A. (2020). Past epidemics, natural disasters, COVID19, and mental health: Learning from history as we deal with the present and prepare for the future. *Psychiatric Quarterly, 91*(4), 1121–1133. https://doi.org/10.1007/s11126-020-09808-4

Farber, T. (2020). *Shocking stats on gender-based violence during lockdown revealed*. The Times Live. https://www.timeslive.co.za/news/south-africa/2020-09-01-shocking-stats-on-gender-based-violence-during-lockdown-revealed/

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Internal Medicine, 180*(6), 817–818. https://doi.org/10.1001/jamainternmed.2020.1562

Grobler, R. (2020). *Lockdown: Gender-based violence call centre receives 120 000 calls in 3 weeks*. News24. https://www.news24.com/news24/SouthAfrica/News/lockdown-gender-based-violence-call-centre-receives-120-000-calls-in-3-weeks-20200511

Harling, G., Gomez-Olive, F. X., Tlouyamma, J., Mutevedzi, T., Kabudula, C. W., Mahlako, R., Singh, U., Ohene-Kwofie, D., Buckland, R., Ndagurwa, P., Gareta, D., Gunda, R., Mngomezulu, T., Nxumalo, S., Wong, E. B., Kahn, K., Siedner, M. J., Maimela, E., Tollman, S., Collinson, M., & Herbst, K. (2020). Protective behaviours and secondary harms from non-pharmaceutical interventions during the COVID-19 epidemic in South Africa: A multisite prospective longitudinal study. *medRxiv: The Preprint Server for Health Sciences* [pii]. https://doi.org/10.1101/2020.11.12.20230136

Harrisberg, K. (2020). *Murders of South African women surge as 9-week lockdown eases*. Global Citizen. https://www.globalcitizen.org/en/content/gender-violence-covid-19-lockdown-south-africa/ .

Kaswa, R. (2021). The impact of the COVID-19 pandemic on accessing HIV care: A case report. *South African Family Practice (2004)*, *63*(1), e1-e4. https://doi.org/10.4102/safp.v63i1.5344

Kim, A. W., Nyengerai, T., & Mendenhall, E. (2020). Evaluating the mental health impacts of the COVID-19 pandemic: Perceived risk of COVID-19 infection and childhood trauma predict adult depressive symptoms in urban South Africa. *Psychological Medicine*. https://doi.org/10.1017/S0033291720003414,S0033291720003414[pii]

Lima, C. K. T., Carvalho, P. M. M., Lima, I., Nunes, J., Saraiva, J. S., de Souza, R. I., da Silva, C. G. L., & Neto, M. L. R. (2020). The emotional impact of coronavirus 2019-nCoV (new coronavirus disease). *Psychiatry Research, 287*, 112915. https://doi.org/10.1016/j.psychres.2020.112915

Liu, X., Kakade, M., Fuller, C. J., Fan, B., Fang, Y., Kong, J., Guan, Z., & Wu, P. (2012). Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. *Comprehensive Psychiatry, 53*, 15–23.

Madhi, S. A., Gray, G. E., Ismail, N., Izu, A., Mendelson, M., Cassim, N., Stevens, W., & Venter, F. (2020). COVID-19 lockdowns in low- and middle-income countries: Success against COVID-19 at the price of greater costs. *South Africa Medical Journal*, *110*(8), 724–726. https://www.ncbi.nlm.nih.gov/pubmed/32880296

Miller, T. R., Ringwalt, C. L., Grube, J. W., Paschall, M. J., Fisher, D. A., & Gordon, M. V. (2019). Design and outcome measures for the AB InBev Global Smart Drinking Goals evaluation. *Contemporary Clinical Trials Communications, 16*, 100458. https://doi.org/10.1016/j.conctc.2019.100458

Navsaria, P. H., Nicol, A. J., Parry, C. D. H., Matzopoulos, R., Maqungo, S., & Gaudin, R. (2020). The effect of lockdown on intentional and nonintentional injury during the COVID-19 pandemic in Cape Town, South Africa: A preliminary report. *South Africa Medical Journal*, 13183. https://www.ncbi.nlm.nih.gov/pubmed/33334392

Nguse, S., & Wassenaar, D. (2021). *South African Journal of Psychology, 51*(2), 304–313. https://doi.org/10.1177/00812463211001543

Obasa, A. E., Singh, S., Chivunze, E., Burgess, T., Masiye, F., Mtande, T., Ochieng, J., Chalwe, V., Mokgatla, B., Rennie, S., & Moodley, K. (2020). Comparative strategic approaches to COVID-19 in Africa: Balancing public interest with civil liberties. *South Africa Medical Journal*, *110*(9), 858–863. https://www.ncbi.nlm.nih.gov/pubmed/32880268

Paslakis, G., Dimitropoulos, G., & Katzman, D. K. (2021). A call to action to address COVID-19-induced global food insecurity to prevent hunger, malnutrition, and eating pathology. *Nutrition Reviews, 79*(1), 114–116. https://doi.org/10.1093/nutrit/nuaa069

Pfefferbaum, B., & North, C. S. (2020). Mental health and the Covid-19 pandemic. *New England Journal of Medicine, 383*(6), 510–512. https://doi.org/10.1056/NEJMp2008017

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry, 33*(2), e100213. https://doi.org/10.1136/gpsych-2020-100213

Reuter, H., Jenkins, L. S., De Jong, M., Reid, S., & Vonk, M. (2020). Prohibiting alcohol sales during the coronavirus disease 2019 pandemic has positive effects on health services in South Africa. *African Journal of Primary Health Care & Family Medicine, 12*(1), e1–e4. https://doi.org/10.4102/phcfm.v12i1.2528

Russell, B. (2018). *Rethinking rural development planning: Mainstreaming economic development in rural communities through user-friendly information systems* 9th Rural Development Policy Conference, May 24–25, Durban, South Africa,

Shah, K., Kamrai, D., Mekala, H., Mann, B., Desai, K., & Patel, R. S. (2020). Focus on mental health during the coronavirus (COVID-19) pandemic: Applying learnings from the past outbreaks. *Cureus, 12*(3), e7405. https://doi.org/10.7759/cureus.7405

South African News Agency. (2020). *President Ramaphosa announces a nationwide lockdown*. South African News Agency. Retrieved Jan from https://www.sanews.gov.za/south-africa/president-ramaphosa-announces-nationwide-lockdown

Spaull, N., Oyenubi, A., Kerr, A., Maughan-Brown, B., Ardington, C., Christian, C., Shepherd, D., Casale, D., Espi, G., Wills, G., Bridgman, G., Bhorat, H., Turok, I., Bassier, I., Kika-Mistry, J., Kotze, J., Budlender, J., Visagie, J., Ingle, K., Rossouw, L. R., Patel, L., Benhura, M., Leibbrandt, M., Mohohlwane, N., Magejo, P., English, R., Daniels, R. C., Hill, R., Zizzamia, R., Jain, R., Burger, R., Burger, R., Taylor, S., van der Berg, S., Köhler, T., Brophy, T., Kollamparambil, U., & Ranchhod, V. R. (2020). *National Income Dynamics Study (NIDS) – Coronavirus Rapid Mobile Survey (CRAM). Synthesis Report: NIDS-CRAM Wave 2*. t. F. E. F. Allan & Gill Gray Philanthropy, and the Michael & Susan Dell Foundation.

Sweeney, S., Capeding, T. P. J., Eggo, R., Huda, M., Jit, M., Mudzengi, D., Naylor, N. R., Procter, S., Quaife, M., Serebryakova, L., Torres-Rueda, S., Vargas, V., Group, C. C. W., & Vassall, A. (2021). Exploring equity in health and poverty impacts of control measures for SARS-CoV-2 in six countries. *BMJ Global Health, 6*, e005521. https://doi.org/10.1136/bmjgh-2021-005521

Venter, A., Lewis, C. M., Saffy, P., & Chadinha, L. P. (2021). Locked down: Impact of COVID-19 restrictions on trauma presentations to the emergency department. *South Africa Medical Journal, 111*(1), 52–56.

Voices 360. (2020). *Making South Africa alcohol safe can be Covid-19 legacy*. Voices 360. https://www.voices360.com/lifestyle/making-south-africa-alcohol-safe-can-be-covid-19-legacy

Waterworth, T., & Chemaly, F. (2020). *Crime holiday' in lockdown as Cele guns for booze*. IOL. https://www.iol.co.za/ios/news/crime-holiday-in-lockdown-as-cele-guns-for-booze-5009670a-11f4-4fda-9e4f-e372baa8e652

Williams, G., & Smith, A. P. (2019). Diagnostic validity of the anxiety and depression questions from the Well-Being Process Questionnaire. *Journal of Clinical and Translational Research*, *4*(2), 101–104. https://www.ncbi.nlm.nih.gov/pubmed/30873498

Wu, P., Liu, X., Fang, Y., Fan, B., Fuller, C. J., Guan, Z., Yao, Z., Kong, J., Lu, J., & Litvak, I. J. (2008). Alcohol abuse/dependence symptoms among hospital employees exposed to a SARS outbreak. *Alcohol and Alcoholism, 43*(6), 706–712. https://doi.org/10.1093/alcalc/agn073

Yao, H., Chen, J. H., & Xu, Y. F. (2020). Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry, 7*(4), e21. https://doi.org/10.1016/S2215-0366(20)30090-0

Young, Q. R., Nguyen, M., Roth, S., Broadberry, A., & Mackay, M. H. (2015). Single-item measures for depression and anxiety: Validation of the screening tool for psychological distress in an inpatient cardiology setting. *European Journal of Cardiovascular Nursing, 14*(6), 544–551. https://doi.org/10.1177/1474515114548649

Zhu, J., Yan, W., Zhu, L., & Liu, J. (2021). *COVID-19 pandemic in BRICS countries and its association with socio-economic and demographic characteristics, health vulnerability, resources, and policy response*.

Zimmerman, M., Ruggero, C. J., Chelminski, I., Young, D., Posternak, M. A., Friedman, M., Boerescu, D., & Attiullah, N. (2006). Developing brief scales for use in clinical practice: The reliability and validity of single-item self-report measures of depression symptom severity, psychosocial impairment due to depression, and quality of life. *Journal of Clinical Psychiatry, 67*(10), 1536–1541. https://doi.org/10.4088/jcp.v67n1007