

# **Bridging the digital divide with data-free platforms: Online survey reaching families with young children during the COVID-19 pandemic**

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# Bridging the digital divide with data-free platforms: Online survey reaching families with young children during the COVID-19 pandemic

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## Abstract

**Background:** The COVID-19 pandemic and containment measures have severely affected families around the world. It is frequently assumed that digital technologies can supplement and perhaps even replace services for families. This is challenging in conditions of high device and data costs as well as poor internet provision and access, raising concerns about widening inequalities in availability of support and consequent effects on child and family outcomes. Very few studies have examined these issues, including in low- and middle-income countries.

**Objective:** The main aim of the study was to gather data on the impact of COVID-19 on families of young children using an online survey. A secondary aim was to assess the feasibility of using a data-free online platform to conduct regular surveys and, potentially, to provide support for parents and families of young children in South Africa.

**Methods:** We used a data-free mobile messenger platform to conduct a short digital survey of the impact of COVID-19 on caring for young children in South Africa.

**Results:** More than 16,000 people consented to the short survey within 96 hours of it being launched. Respondents were predominantly from lower- and lower-middle classes, representing the majority of the population, with residential locations roughly proportionate to national patterns. Mothers comprised 70% of respondents and fathers 30%. Using RedCAP, we made aggregate findings in the form of bar graphs, available to participants to view and download once they had completed the survey. Participants were also able to download contact details for support and referral services at no cost.

**Conclusions:** Data-free survey methodology breaks new ground and demonstrates potential not previously considered. Reach is greater than achieved through phone surveys and some social media platforms, men are not usually included in parent surveys, costs are lower than phone surveys, and the technology allows for immediate feedback to respondents. These factors suggest that zero-rated services could provide a feasible, sustainable and equitable basis for ongoing interactions with families of young children.

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## Original Manuscript

## **Bridging the digital divide with data-free platforms: Online survey reaching families with young children during the COVID-19 pandemic**

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## Abstract

### Background

The COVID-19 pandemic and containment measures have severely affected families around the world. It is frequently assumed that digital technologies can supplement and perhaps even replace services for families. This is challenging in conditions of high device and data costs as well as poor internet provision and access, raising concerns about widening inequalities in availability of support and consequent effects on child and family outcomes. Very few studies have examined these issues, including in low- and middle-income countries.

### Objectives

The study objectives were twofold, the first was to gather data on the impact of COVID-19 on families of young children using an online survey. The second was to assess the feasibility of using a data-free online platform to conduct regular surveys and, potentially, to provide support for parents and families of young children in South Africa.

### Methods

We used a data-free mobile messenger platform to conduct a short digital survey of the impact of COVID-19 on caring for young children in South Africa. We report on the methodological processes and preliminary findings of the online survey.

### Results

More than 44,000 individuals accessed the survey link and 16,217 consented to the short survey within 96 hours of it being launched. Respondents were predominantly from lower- and lower-middle classes, representing the majority of the population, with urban residential locations roughly proportionate to national patterns, and some under-representation of rural households. Mothers comprised 70% of respondents and fathers 30%, representing 18,672 children 5 years and younger. Response rates per survey item ranged from 75% at the start of the survey to 50% at completion. Eighty-two percent of parents experienced at least one challenge during the pandemic and 53% did not receive help when needed from listed sources. Aggregate and individual findings in the form of bar graphs were made available to participants to view and download once they had completed the survey. Participants were also able to download contact details for support and referral services at no data cost.

### Conclusions

Data-free survey methodology breaks new ground and demonstrates potential not previously considered. Reach is greater than achieved through phone surveys and some social media platforms, men are not usually included in parent surveys, costs are lower than phone surveys, and the technology allows for immediate feedback to respondents. These factors suggest that zero-rated services could provide a feasible, sustainable and equitable basis for ongoing interactions with families of young children.

**Keywords:** Families; Parenting; Children; COVID-19; Digital; Survey; Data-free

## Introduction

The COVID-19 pandemic has affected families everywhere, both directly through illness and death, and indirectly through the effects of containment measures on economic activities and routines of daily life. Lockdowns, with varying degrees of restriction have been imposed in many countries and, by the end of March 2020, more than 20% of the world's population was estimated to be under lockdown [1]. Many countries are, or will soon be, under second or third lockdowns. Although the

SARS-2 coronavirus has had less serious effects on the morbidity and mortality of young children than older age groups, preschool children have been severely affected by indirect effects [2].

In South Africa, as in many other countries, public nurseries, kindergartens and preschools have been closed since late March 2020 under one of the strictest lockdowns in the world. Private facilities began to re-open in late July 2020, but by August 2020 only 13% of children under the age of 6 were attending their usual facility [3]. Movement restrictions and bans on visiting between households means that families were not able to draw on the assistance of relatives and friends for relief childcare. As a consequence, families have had sole responsibility for providing nurturing care for young children 24 hours a day – ensuring children's good health and nutrition, safety and security, early learning opportunities, and love and affection [4].

Exacerbating concerns about childcare, some 3 million South Africans are estimated to have lost their jobs as a result of the effects of COVID-19 on the economy, with women most affected [5]. Inestimable numbers of informal workers, mostly women, also lost their ability to generate income. As only 34% of South African children live with both parents [6], mothers, grandmothers and aunts carry a heavy burden for both childcare and financial support for young children. Providing educational input for older siblings under school closures is an added responsibility for many families, given that most households have more than one child [7]. Confinement in small crowded living spaces, together with fear of infection, are adding to mental health stresses in South Africa as in other countries, with potentially further adverse effects on children [8], particularly younger children [9].

Both short- and longer-term adverse physical, psychological and social effects of the pandemic conditions on children are predicted, with supporting evidence emerging. These include interrupted, delayed and missed preventive health care visits for pregnant women and children, separation of parents and neonates at birth, closure of day care facilities, household poverty and food shortages, parental and child mental health stresses and increased risk of parental substance abuse and interpersonal violence, including child abuse [10]. Ongoing longitudinal studies confirm that parental mental health has deteriorated, that children are more irritable and sleep less [11], that younger children are more likely than older children to manifest symptoms such as clinginess and fear that family members might become infected [12] and that women and working parents are finding it hardest to cope [13].

There is considerable optimism about the potential application and expansion of digital technologies to fill gaps in knowledge and supplement health and social care during the pandemic [14]. These include public communication using mobile phones and the internet, surveys, digital surveillance and contact tracing, electronic clinical monitoring, telehealth and counselling services [15]. Along these lines, is a proliferation of digitally-delivered parent guidance, advice, activities and learning materials produced by governments, civil society groups and multinationals to help maintain healthy adult-child interactions to support young children's development [16,17]. Digital technologies and methods are also being used to investigate the effects of pandemic conditions on families and young children. These include surveys delivered by phone and video, Facebook, Instagram and Twitter [18-20].

While important efforts are being made to understand the effects of the COVID-19 pandemic on parents and young children using digital technologies, a number of challenges have to be addressed. Among these are that few studies have specifically looked at effects on preschool children; survey samples tend to be small, undefined and/or selective, and questionnaires tend to be long, taking 40 minutes to an hour to complete [19,21]. Further, once-off surveys close to the start of initial lockdowns will likely underestimate the long-term effects on children through continued job losses in families, increased household poverty, chronic parental mental health problems, and repeat lockdowns. What would be most helpful are repeat, tailored surveys to monitor compounding impacts on families, how family coping strategies evolve, and the interventions that give greatest relief at different stages of the pandemic's impact.



In low- and middle-income countries, the most immediate challenge is to establish communication channels to reach the greatest number of affected families, both to convey accurate information on how families can protect themselves and their children, solicit the changing needs of families, and respond effectively to needs. In this respect, it has been recognised that, even in high income countries, few of the most marginalised groups are reached by digital technologies, and that it is essential to develop tools to address gaps in internet access to avoid a COVID-related increase in inequality due to the “the digital divide” [15,22]. According to UNICEF [23], distance learning has failed to make up for school attendance, with about a third of children in the countries surveyed not reached at all. Even in countries where distance learning exists, only two thirds of children are reached by television and a quarter by online delivery.

It is estimated that internet usage worldwide varies from ~87% in Europe to ~34% in Africa, with lowest access (23%) amongst African women [24]. The most common reasons for lack of internet use are the high cost of devices and data, and poor provision and access to data services. Like many other countries, South Africa is highly unequal. Internet penetration is estimated at around 62%, with most people having access through their mobile phones. About double the number of users live in urban as compared to rural areas [25]. Only about 10% of South Africans have a stable internet source in their homes [26]. WhatsApp – a data-driven platform – is the most frequently used social media application, followed by Facebook (87%), Instagram (61%) and Twitter (44%) [25]. WhatsApp has evolved into one of the primary methods of communication between individuals, and between communities, government and NGOs.

Some online surveys have been conducted to ascertain understanding, practices and impacts of COVID-19 amongst South Africans, although none specifically have focused on parents of or young children themselves [27-29]. In order to survey large numbers of parents of preschool children to ascertain their most pressing needs during COVID-19 lockdown conditions and how families were coping, we trialled the use of a data-free, zero-cost social media platform. If successful, the platform and similar other channels could be used to establish ongoing communication with parents of young children, both to communicate prevention measures, survey COVID-19 impacts and provide appropriately targeted interventions.

## Methods

### Study design

We designed a short questionnaire consisting of between 18 and 30 questions, depending on response options, with one item displayed onscreen at a time and a progress indicator. Skip patterns and branching logic were used to streamline questions and improve participant experience by reducing the number of irrelevant questions requiring a response. The small number of questions also eliminated the need for their randomization. Participants were required to provide a response for each question to move forward in the survey, non-response options in the form of “other” were included, but participants could move backwards to edit prior responses. The questionnaire was translated into the most common languages used in South Africa – Afrikaans, English, Sesotho, isiZulu and Sepedi. The questionnaire and translated versions were programmed into REDCap, a secure web platform designed to support survey distribution and data capture for research [30,31]. A list of national referral and support services for families was uploaded in Adobe Acrobat format and made available to download at the conclusion of each completed survey.

A set of screening questions excluded participants younger than 18 years of age, those not caring for a child under 5 and those not living in South Africa. All participants were required to consent to the

survey, as mandated by the Human Research Ethics Committee of the University of the Witwatersrand (H20/06/38). The informed consent process included disclosures of the nature and purpose of the survey, risks and benefits of participation, uses to which the data would be put; guarantees of anonymity, and investigator contact details as well as those of the responsible ethics committee. Demographic details were kept to a minimum to make the survey as short as possible and encourage participation. Questions covered challenges of caring for young children, sources and types of help received, as well as unmet needs. The questionnaire was piloted amongst staff and colleagues speaking each of the languages. The English version of the questionnaire is attached as supplementary material. Coding of multilingual responses was held constant to allow for integrated analysis and immediate graphic presentation of results.

We used the Moya Messenger platform, hosted by biNu [32], as our population source for convenience sampling [32]. biNu's technology offers two services, the first is to reverse-bill online content through partnerships with all major cellular networks in South Africa, and the second is the data-free Moya Messenger platform. Their Moya Messenger app is a growing platform of users who are able to send messages to other users without incurring data costs. The app offers unlimited texting, group chat, end-to-end security with automatic encryption and contact discovery, similar to WhatsApp and Viber, but without the use of the individual's data. The platform is monetized through a Moya Discover service where external parties pay to have their websites, surveys and content featured. Surveys are pinned to the platform and open to all users subscribed to Moya. Users of the Moya platform are made aware of the terms and conditions associated with using the app including exposure to advertising.

The data-free services are used in two ways. The first is to have all survey content reverse-billed. This generates a data-free link which can be shared through any medium for participants to access and complete the survey without paying for data. The second is to share survey links with the sample of Moya subscribers who have access to the interface where the survey is pinned and are able to complete the survey without incurring any data costs. A grant awarded to the University of the Witwatersrand was billed for data used by participants at the rate of 20 cents a megabyte, averaging R6 per survey response. By February 2020, the Moya platform had in excess of 2.3 million active daily users [33] of all genders, age categories and income groups. The user profile is 53% female, 90% so-called "Non-White", with 80% of the sample falling into a Living Standards Measure (LSM) between 3-7 deciles based on urbanization and asset ownership [34], and 92% earning less than R15,000 per month (US\$ 1000). That is, users fall into low- and lower-middle class groups.

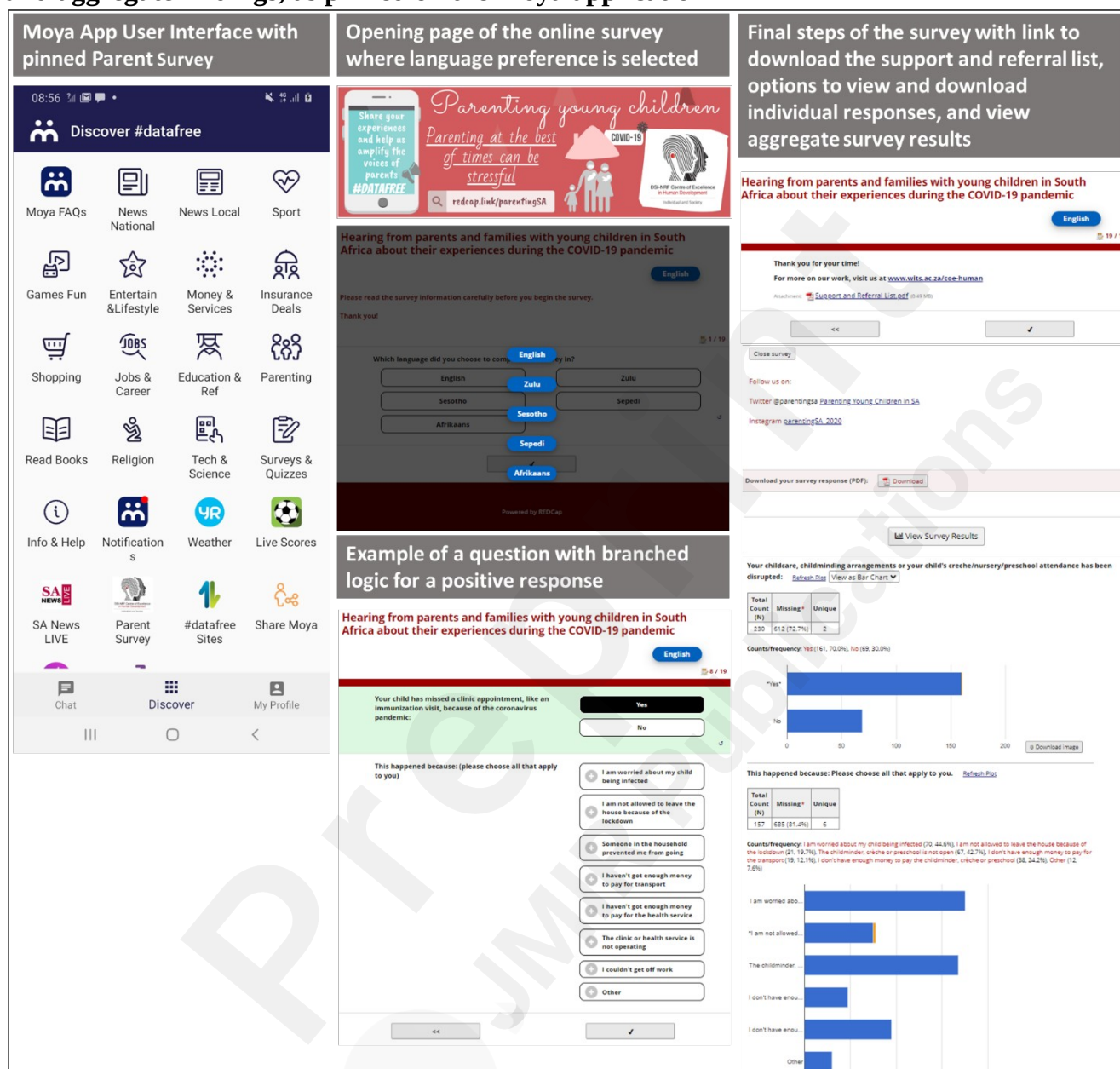
## Distribution of survey

REDCap generates a url link to the survey that can be distributed from the web platform or from other sources. biNu reconfigured the url and all its content to be reverse-billed to a secure account held by the research team. All responses linked to the url are transmitted directly to the REDCap server and collated in a secure database. For distribution on the Moya Messaging platform, biNu places a pinned notice of the survey on the platform's interface where users are able to view news, updates and survey alerts. Since the survey link is available to any user of the platform, it is considered an open survey. The link is the initial contact with potential participants who are able to see the pinned notice on their user interface and can open to complete it (Figure 1). Once the survey link is opened from the Moya interface, users are asked to choose their language preference and directed to the information section of the survey which detailed the purpose of the survey, eligibility, consent and that there would be no incentive for participation. Each time the link is opened, a record of that response is created in REDCap as a single observation. The survey was not restricted to a single response per device. The survey was pinned to an app (Moya Messenger) and was only accessible from a device with the app installed. The absence of an incentive is also thought to discourage multiple entries from the same individual. Cookies were not collected but REDCap does collect IP addresses along with a master log file of all survey activity, which could be analysed retrospectively to identify duplicate responses; however this data is not accessible to normal end-users and strict processes to ensure anonymity must be adhered to before REDCap grants access to this data. During the piloting phase the survey took between 4-8minutes to complete with an average of 5 minutes. Accurate survey lengths could not be calculated during the data collection phase because participants were allowed to leave the survey and return at a later time to complete it.

## Analysis


Responses to the survey were collected and stored in REDCap in real time, allowing continuous online analysis of data. Once the responses reached time and budget allocations for the study, the survey was terminated on both the REDCap and Moya platforms. Data cleaning and quality control were undertaken on the REDCap platform using built-in data validation features. The data was exported into SPSS 26.0 for further data cleaning and analysis. Cases with missing data were not excluded from the analysis and no statistical corrections were performed to adjust for any non-representativeness.

**Figure 1: Screenshots of the online survey, including language selection, questions, individual and aggregate findings, as pinned on the Moya application**



**Figure 2: Support and referral services in English and isiZulu**

**HEARING FROM PARENTS AND FAMILIES OF YOUNG CHILDREN IN SOUTH AFRICA – WHAT HELP DO YOU NEED THE MOST DURING THE COVID-19 PANDEMIC?**



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Individual and Society

**REFERRAL LIST**


If you need any additional support you may contact the following organizations and services:

National COVID-19 24-hour hotline telephone number	0800 029 999
National COVID-19 WhatsApp number	0600 12 3456
Sign-up for MomConnect	*134*550#
Child Welfare South Africa	087 822 1516, <a href="mailto:national@childwelfare.org.za">national@childwelfare.org.za</a>
Childline	0800 055 555 0800 123 321
Depression and mental health	0800121314 SMS 31393
Home Affairs, birth registration and identity documents	0800 601 190
SASSA	0800 601 011

If you have any queries or concerns about the study, please contact the researchers:

Prof. Linda Richter: [linda.richter@wits.ac.za](mailto:linda.richter@wits.ac.za) 011 717 2382/082 [REDACTED]  
Ms. Sara Naicker: [sara.naicker@wits.ac.za](mailto:sara.naicker@wits.ac.za) 011 717 2382/072 [REDACTED]

**UKUZWA KUBAZALI NEMINDENI YABANTWANA ABANCANE ENINGIZIMU AFRIKA - YILUPHI USIZO OLUDINGA KAKHULU NGESIKHATHI SOKUQHUBEKA KWE-COVID-19?**



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**UHLU LOKUDLULISELWA**

Uma udinga usizo olwengeziwe ungaxhumana nalezinhlango nezinsizakalo ezilandelayo:

National COVID-19 24-hour hotline telephone number	0800 029 999
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Home Affairs, birth registration and identity documents	0800 601 190
SASSA	0800 601 011

Uma unemibuzo noma ukukhathazeka mayelana nalolu cwaningo, sicela uxhumane nabaphenyi:

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Ms. Sara Naicker: [sara.naicker@wits.ac.za](mailto:sara.naicker@wits.ac.za) 011 717 2382/072 [REDACTED]

## Results

The progression of participation in the survey was tracked by calculating attrition at each stage of the screening questions. The survey link was opened by 44,292 users within 96 hours of it appearing on the data-free platform; 21,993 participants were of eligible age, 17,325 participants were caring for a child under the age of 5, and 16,217 participants consented to participate in the survey at a recruitment rate of 37%. Two percent of respondents (n=305) were caregivers of groups of children in day care centres. These responses were excluded from the analysis and 15,912 eligible consenting participants comprised the analytical sample.

Response rates and missing values are shown in Table 1. More than half of participants (8,007) responded to all questions.

**Table 1:** Response rates and missing values

Variables	Responded		No response given	
	Freq.	Per.	Freq.	Per.
Missed clinic visits	11,907	74.8	4,005	25.2
Disruption in ECD services	10,646	66.9	5,266	33.1
Breastfeeding challenges for children 0-6 months	1545	73.8	2,093	54.8
Child feeding challenges	9,954	62.6	5,958	37.4
Difficult to be affectionate	9,310	58.5	6,602	41.5
Violence towards child	9,001	56.6	6,911	43.4
Child behavior challenges	8,668	54.6	7,244	45.5

Receiving community help	8,439	53.0	7,473	46.9
Receiving government help	8,246	51.8	7,666	48.2
Receiving NGO help	8,007	50.3	7,905	49.7

By residence, respondents were roughly representative of the South African urban population residing in cities, suburbs and townships, with lower representation from rural respondents who have less access to mobile phones and the internet. By 2016, 99% of South Africans in urban areas had a smartphone compared to 83% in rural areas [35], however only 45% of rural households were able to access the internet using their mobile device, compared to 64% of urban households [36].

**Table 2: Representativeness of the sample by area of residence**

Area of residence	Freq.	Per.	National avg.
City or suburb	4,959	32.6	27%
<b>Township<sup>1</sup></b>	6,578	43.3	40% <sup>2</sup>
Rural settlement, village, farm, or tribal area	3,068	20.2	33% <sup>3</sup>
Other	599	3.9	
<b>Total</b>	<b>15,204</b>	<b>100.00</b>	

1 Townships were created as segregated dormitory suburbs in urban areas to house African workers under *Apartheid*

2 Cooperative Governance and Traditional Affairs (2009). Township Transformation Timeline; Pretoria

3 World Bank (2018). <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=ZA>

Although the majority of South Africans are African language speakers, 83% of respondents (n=13,207) completed the survey in English, the main language of instruction in South African schools following mother tongue teaching in Grades 1 to 3. A substantial proportion of participants were fathers (29.75% or 4,734).

**Table 3: Children referred to by respondents**

Age	Freq.	Percent	Cum.
<b>0-6 months</b>	2,093	11.5	11.5
<b>&gt;6 months and &lt; 1 year</b>	2,252	12.4	23.8
<b>&gt;1 year and &lt;3 years</b>	4,954	27.2	50.9
<b>&gt;3 years and &lt;5 years</b>	8,939	49.0	100.0
<b>Total</b>	18,238	100.0	
<b>Gender</b>			
<b>Girl</b>	9,361	50.1	50.1
<b>Boy</b>	9,311	49.9	100.0
<b>Total</b>	18,672	100.0	

Table 3 shows the ages of children to whom respondents referred. Children were roughly evenly divided between children 0-3 and 3-5 years, and between boys and girls. A total of 18,672 children are included in the analysis but questions were not answered in reference to a single index child. Just about half of parents (51.4%, 6,799) reported one child under 5 in the home and 41% (n=5,125) reported 2-3 children under 5 in the home.

**Table 4: Responses on challenges and support by parent type**

	Mother		Father		Total	
	F	%	F	%	F	%
<b>You have missed a clinic appointment, like an immunization visit, because of the coronavirus pandemic:</b>						
Yes	2,446	32.8	1,165	34.0	3,920	32.9

	Mother		Father		Total	
	F	%	F	%	F	%
No	5,022	67.3	2,257	65.9	7,987	67.1
<b>Your childcare, childminding arrangements or your child's crèche/nursery/preschool attendance been disrupted:</b>						
Yes	4,641	67.8	2,027	69.6	7,313	68.7
No	2,204	32.2	884	30.4	3,333	31.3
<b>Breastfeeding my baby is difficult during this time:</b>						
Yes	367	34.9	117	29.0	510	33.0
No	682	65.0	286	70.9	1,035	66.9
<b>I am struggling to properly feed my young child:</b>						
Yes	3,185	49.1	1,407	53.4	4,964	49.9
No	3,304	50.9	1,229	46.6	4,990	50.1
<b>It is difficult to be affectionate to my child during this time:</b>						
Yes	2,372	38.7	1,150	47.5	3,832	41.2
No	3,763	61.3	1,269	52.5	5,478	58.8
<b>Someone in the household has been angry and violent towards my child:</b>						
Yes	657	11.0	320	13.8	1,070	11.9
No	5,304	88.9	1,994	86.2	7,931	88.1
<b>The angry and violent person was:</b>						
You	85	12.4	60	17.7	157	13.9
Another adult	454	66.1	205	60.5	720	64.1
Another child	148	21.5	74	21.8	246	21.9
<b>You find your child more difficult to deal with:</b>						
Yes	1,662	28.9	532	24.1	2,391	27.6
No	4,098	71.2	1,677	75.9	6,277	72.4
<b>I have received help from my neighbours, community or faith group:</b>						
Yes	1,332	23.7	532	24.9	2,028	24.0
No	2,759	49.1	1,032	48.3	4,085	48.4
I don't need help	1,534	27.3	573	26.8	2,326	27.6
<b>I have received help from government:</b>						
Yes	1,849	33.6	536	25.7	2,581	31.3
No	3,137	57.0	1,359	65.3	4,867	59.0
I don't need help	514	9.4	187	8.9	798	9.7
<b>I have received help from non-government organizations:</b>						
Yes	687	12.9	319	15.8	1,106	13.8
No	4,135	77.4	1,508	74.6	6,097	76.2
I don't need help	519	9.7	194	9.6	804	10.0
<b>What kind of help do you need most to look after yourself and your child:</b>						
Food parcels	2,893	20.7	1,035	18.2	3,928	19.9
Clothes, blankets	1,588	11.4	548	9.6	2,136	10.9
Medicine	1,180	8.5	527	9.3	1,707	8.7
Information	504	3.6	288	5.1	792	4.0
Masks, soap, sanitizer, gloves to protect us from coronavirus	1,533	10.9	616	10.8	2,149	10.9
Clean water	540	3.9	290	5.1	830	4.2
Money or vouchers	3,016	21.6	1,258	22.1	4,274	21.7
Child care	595	4.3	244	4.3	839	4.3



	Mother		Father		Total	
	F	%	F	%	F	%
Help in the home	327	2.3	131	2.3	458	2.3
Transport to the clinic or to the shop	314	2.3	158	2.8	472	2.4
Protection from someone in the house who is violent	162	1.2	91	1.6	253	1.3
Support for mental distress, like counselling	628	4.5	216	3.8	844	4.3
I don't need any help	418	2.99	132	2.32	550	2.80

Responses to the survey questions showed that families were severely affected by government's attempts to contain the COVID-19 pandemic. The detailed results of COVID-19 effects on families are under preparation. A third of children (33%, 3,920) were reported to have missed an immunization visit, mainly because parents feared that their child would become infected; 69% (7,313) of children's day care and crèche arrangements were discontinued or disrupted, also mainly because of fear of infection. This response was fairly constant from 0-6 months to 3-5 years, indicating that closure of services and facilities also affect parents with very young infants. One third of mothers (35%, 367) and fathers (29%, 117) reported that breastfeeding a child under 6 months of age was difficult, citing fear of infecting their baby. Half of all parents (50%, 4,964) were finding it difficult to feed their young child, mainly because the family did not have enough money to buy appropriate food. Forty-one percent of parents (3,832), proportionately more fathers (48%/1,150) compared to 39% (2,372) of mothers were finding it difficult to be affectionate towards their child, evenly divided between parental stress and depression, household tension and child irritability and crying. Close to a third of parents (1,662), slightly more mothers, were finding it difficult to deal with their young child's behaviour. Responses as to how parents were coping ranged from trying to comfort a distressed and crying children (33%, 633), punishing a child for being naughty (25%, 517), feeling hopeless and not knowing what to do (25%, 516), and asking other household members for help to distract and comfort a child (9%, 183). Fourteen percent of fathers (320) and 11% of mothers (657) reported that someone in the household had been angry and violent towards their child. Most often violence was reported to be perpetrated by another adult in the household (64%, 720), but 18% (60) of fathers and 12% (85) of mothers reported they had been angry and violent towards their child. The most frequent reasons given for getting angry and violent with a young child was when an adult lost their temper (40%, 433), the child broke or took something they weren't supposed to touch (29%, 315), and to prevent the child being hurt or injured by, for example, fire, poison or an open water source (15%, 161).

Two thirds of parents said they needed help, the majority of whom were in urgent need of money, vouchers or food parcels. Clothes, blankets, personal protective equipment (PPE) like masks and soap, and medicine were also high on their list of needs. When asked what help they had received from different sources, more parents reported getting assistance from government organizations (31%, 2,581) than from neighbours and community groups (24%, 2,028) or from non-governmental organizations (14%, 1,106). Among those who did receive help, the most common form this took was reported to be money or vouchers from government organizations (35%, 1,175). Help received from non-governmental organizations was most frequently reported to be food parcels (38%, 612). Neighbours and community groups were reported to give a wide range of help, most commonly food, financial loans, PPE, information, relief childcare and emotional support for mental distress.

## Discussion

We assessed the feasibility of an online survey delivered through a data-free platform to investigate the variability of challenges facing families of young children. We restricted the survey to individuals



living in South Africa and to adults caring for children 5 years and younger at home. In this paper, we report on strengths and weaknesses of the use of an online survey in general, and a data-free platform particularly, to monitor COVID-19 effects on families over time, an important question given the likely long-term after-effects of the pandemic on daily life [28], and the generally high cost of devices and data and consequently low rate of internet access in sub-Saharan African. South Africa will remain under varied levels of lockdown throughout 2021, which includes an overnight curfew, mandatory mask wearing, social distancing, and restrictions on gatherings. Government has issued directions of 'conditions of return' for day care centres and preschools, including screening, masks for children over two years, clearly indicated spacing between children and smaller staff:child ratios [37]. Financial losses and likely very slow economic recovery mean that the shocks of the epidemic will be felt for the greater part of early and middle childhood for this cohort of children. Families who continue to get poorer, may be forced to leave their homes to live with relatives, remove children from preschool and school because they can't afford fees, transport and supplies, and send one or more children to live with family in other parts of the country, as has occurred during other crises endured on the sub-continent. This study was able to rapidly and cost-effectively gather data from a large sample on a relatively broad range of challenges affecting families with young children with no cost to participants. Once-off surveys administered early during the early stages of lockdown must be repeated over time to track cumulative effects on children over the next 4-5 years. The University of Oregon's RAPID-EC study [38] and the University of Oxford's CO-SPACE study [39] are two examples of ongoing large-scale, repeat, online surveys including parents and young children.

We were not able to locate any published COVID-19 surveys focused on young children and delivered on a data-free online platform, a gap that this paper attempts to fill. Many surveys use phone or email interviews [40] or social media platforms such as Facebook, Twitter and LinkedIn [18,41] to deliver survey links. These methods are subject to a number of selective factors. They all presume existing paid internet use and, in the case of phone interviews, a pool of what are often frequently changing mobile telephone numbers [42].

In contrast, online data-free surveys cast a wide net and arguably reach those most affected by the pandemic, as demonstrated through the findings of our study. This reach is dependent on the availability of telecommunication entities with the capacity to partner with multiple major networks in a given country to offer reverse-billing services. The additional user pool that the Moya Messenger platform presented, users who were familiar with the survey alert system, contributed to the high response rate. Efforts to share the survey links on Twitter and other social media sites garnered drastically fewer responses without a strong and sustained communication strategy and networks with access to large groups. Eligibility criteria lead to a large drop-off of respondents, suggesting that users of zero-rated services 'cruise' around looking for topics of interest to them and, most likely, those that offer incentives. The effects of incentives on response rates and data quality have long been debated, particularly in the context of online surveys where control of multiple responses is much more complicated. The offset costs of online surveys, compared to traditional data collection methods, may encourage the use of incentives for participants, particularly with some evidence that incentives increase response rates without reducing data quality [43].

In contrast to telephone interviews, data-free online surveys are very cheap. We received 15,912 surveys at a cost of R110,000, including set-up costs (~US\$7,333), or R6.9 South African per survey (~.46USc per survey). By our calculation, using current rates for interviewers, training and supervision telephone costs, and ~20% second or third attempts to get an answer from the number [42], a single 20-minute phone interview in South Africa would cost in the region of R80 (~US\$5.33). Repeat surveys using online data-free surveys are therefore feasible and affordable. A sample such as the Moya user platform offers a ready group of potential participants who are familiar with surveys. While there are disadvantages to the use of a single, albeit large, convenience sample such as this, there are also advantages. The closed nature of the sample allows easier penetration for

repeat surveys, the sample is well-defined based on user demographics analysed by the host entity, and specifically for Moya – the data-free service attracts those in groups who are most in need. Such a platform is valuable where the purpose is to rapidly and efficiently reach a large sample that can be generalized to a larger proportion of the population for data that can be quickly acted on to guide policy and practice, particularly in emergencies. Online surveys outside of such a platform and in the public sphere are equally useful, if not more so in terms of generalizability, but require substantially more time and effort to recruit potentially representative participants through social media platforms, television, radio and newspaper adverts and databases of individuals. Accessing large databases of individuals raises ethical questions when beneficiaries and customers have not agreed to be solicited for participation in surveys, regardless of personal or societal benefits. Legal frameworks, including South Africa's Protection of Personal Information law (Act 4 of 2013), are perhaps further along than ethical bodies governing digital research.

The use of online surveys offers a larger degree of anonymity compared to other data collection methods and may be more effective at eliminating social desirability bias for sensitive issues and encouraging participation from those who would otherwise be reluctant. The wide reach of data-free online platforms is illustrated by the comparatively large number of fathers (30% of all respondents) who completed a survey about young children. It is notoriously challenging to engage male caregivers in parenting issues [44], and men are less likely to be targeted by phone surveys about family issues. Men's perspectives on family challenges are important as they are frequently the financial providers and decision-makers.

We were able to provide immediate feedback on response trends on the data-free platform for those respondents who were interested to look at them. This was made possible because the questionnaire was designed in REDCap [45], and survey responses were directed seamlessly back into the secure REDCap server which provided individual and aggregate analyses of available data. In addition, a list of referral services for families needing immediate help was available for download at nil data-costs once the survey was completed. We were also able to programme the survey in additional languages, another feature of REDCap. In the South African context, where the poorest and hardest to reach groups are often those not fully literate in English, the additional, minor cost of translation warranted the effort for the 17% of the sample who chose to answer the survey in an African home language.

Digital and other technologies are advancing quickly to fill gaps created in information collection and service provision occasioned by COVID-19 [46]. However, the danger of growing inequities due to differential access to the internet is acknowledged, an issue that is particularly pertinent in low- and middle-income countries. Data-free platforms supported by governments, external funders, and the private sector have the potential to expand internet access and can be used to monitor the effects of the pandemic, adapt supports, and create and expand two-way communications between families with young children, and service providers. Data-free content that increases access to learning and knowledge has seen some growth during the pandemic, with universities and other institutions either subsidizing data costs or offering zero-rated websites. In the public domain, UNICEF's Internet of Good Things [47] hosts mobile-packaged content designed to make content on issues from maternal health, positive parenting to sexual and reproductive health content available for free even on low-end devices.

## Challenges and limitations

As anticipated, families from rural areas were under-represented compared to national population distributions. Rural households in South Africa and other countries have less access to smartphones and even when these devices are present, access to the internet due to high data costs and available signal is lower than in urban areas. Data-free technology goes a long way to reaching rural families but additional measures, such as WhatsApp and push message services, may be needed to close the

gap further. Zero-rated services are not new. Concerns that they are not ‘net neutral’ and that service providers can exercise control over content [48] need to be addressed to increase global internet access at a time when COVID-19 has made it most needed.

We refrained from asking for detailed personal information (age, education, employment, race, etc.) for fear of deterring respondents from completing the survey in the face of a long run-in of questions perceived to be less salient to the topic to which respondents were attracted [49] – the challenges of caring for young children during COVID-19. Nonetheless, such information would be useful for more fine-grained analysis of the data. Further, our survey was designed as a single cross-sectional enquiry. Repeat surveys are critical in the context of the anticipated long-run consequences of COVID-19 on families, and we did not test the willingness of respondents to be identified or to be anonymously re-surveyed at a later time. Although we made the real-time results of the survey available on the platform, together with a list of referrals we did not, at this time, monitor how many respondents accessed the results or downloaded the referral sources.

Many of the features of the online data-free survey described here are specific to the technology used by the researchers. Capabilities for programming multi-lingual surveys, revealing individual and aggregate findings instantaneously, among others, are not standard across the growing number of online survey platforms. In addition, the use of any individual feature is rarely without flip-side disadvantages. For example, the option to prevent a single device from submitting multiple responses may prevent an individual from submitting multiple survey responses, but does not allow more than one eligible household member to complete the survey when relevant. Forced response options, which conventionally were thought to improve completeness of data, result in an individual dropping out of the survey altogether rather than missing individual items along the survey path. Researchers need to carefully consider the packages, platforms and survey options against their research aims and objectives to ensure that the benefits of online surveys are fully realised and disadvantages are minimized.

## Conclusions

Although digital technologies show tremendous promise to bridge gaps created by the suspension of face-to-face surveys and services, we have yet to come to grips with the very stark inequalities of internet access, both between and within countries. In this study, we demonstrate the feasibility and value of using a zero-rated service provider to conduct a survey of COVID-19 impacts on families of young children in a low-middle-income country. The response rate was higher than comparable surveys, the survey was affordable, and it drew in a wide audience, demonstrated by the large number of fathers who participated. Further developments in digital services to respond to COVID-19 impacts, whether through surveys or online services such as counselling and education, need to consider using data-free platforms to ensure that the most vulnerable families are reached and can participate, and new sources of funding need to be opened up to do so.

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## Ethics

University of the Witwatersrand Human Research Ethics Committee (Non-Medical) H20/06/38

**Conflicts of interest**

Both authors declare no conflicts of interest.



## References

1. Around 20% of global population under coronavirus lockdown. The Guardian. URL: <https://www.theguardian.com/world/2020/mar/24/nearly-20-of-global-population-under-coronavirus-lockdown> [accessed 2020-09-30]
2. Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr* 2020;109(6):1088-95. PMID:32202343
3. Wills G, Kotzé J, Kika-Mistry J. A sector hanging in the balance: early childhood development and lockdown in South Africa. RISE Working Paper Series20/055. 2020. URL: [https://doi.org/10.35489/BSG-RISE-WP\\_2020/055](https://doi.org/10.35489/BSG-RISE-WP_2020/055) [accessed 2020-12-02]
4. Britto PR, Lye SJ, Proulx K, et al. Nurturing care: promoting early childhood development. *Lancet* 2017;389(10064):91-102. PMID:27717615
5. So. Africa: Three million South Africans have lost their jobs as a result of the Covid-19 pandemic, women most affected. Business & Human Rights Resource Centre. 2020. URL: <https://www.business-humanrights.org/en/latest-news/so-africa-three-million-south-africans-have-lost-their-jobs-as-a-result-of-the-covid-19-pandemic-women-most-affected/> [accessed 2020-09-21]
6. Shung-King M, Lake L, Sanders D, et al, editors. South African Child Gauge 2019. Cape Town: Children's Institute, University of Cape Town; 2019. URL: [http://www.ci.uct.ac.za/sites/default/files/image\\_tool/images/367/Child\\_Gauge/South\\_African\\_Child\\_Gauge\\_2019/ChildGauge\\_2019\\_final\\_print%20%28sm%29.pdf](http://www.ci.uct.ac.za/sites/default/files/image_tool/images/367/Child_Gauge/South_African_Child_Gauge_2019/ChildGauge_2019_final_print%20%28sm%29.pdf) [accessed 2020-02-23]
7. Hall K, Mokomane Z. The shape of children's families and households: A demographic overview. In: Hall K, Richter L, et al, eds. South African Child Gauge 2018. Cape Town Children's Institute, University of Cape Town; 2018. p. 32-45.
8. Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *J Affect Disord* 2020;277:55-64. PMID:32799105
9. Marchetti D, Fontanesi L, Mazza C, Di Giandomenico S, Roma P, Verrocchio MC. Parenting-related exhaustion during the Italian COVID-19 lockdown. *J Pediatr Psychol* 2020;45(10):1114-23. PMID:33068403
10. Yoshikawa H, Wuermli AJ, Britto PR, et al. Effects of the global coronavirus disease-2019 pandemic on early childhood development: short- and long-term risks and mitigating program and policy actions. *J Pediatr* 2020;223:188-93. PMID:32439312
11. Westrupp E, Bennett C, Berkowitz TS, et al. Child, parent, and family mental health and functioning in Australia during COVID-19: comparison to pre-pandemic data. *PsyArXiv* 2020 Sep; <https://doi.org/10.31234/osf.io/ydrm9>
12. Jiao WY, Wang LN, Liu J, et al. Behavioral and emotional disorders in children during the COVID-19 epidemic. *J Pediatr* 2020;221:264-66. PMID:32248989
13. Tani M, Cheng Z, Mendolia S, et al. Working parents, financial insecurity, and child-care: mental health in the time of COVID-19. Forthcoming in: *Rev Econ Househ* 2020; <https://www.econstor.eu/bitstream/10419/224030/1/dp13588.pdf>
14. Fontanesi L, Marchetti D, Mazza C, et al. The effect of the COVID-19 lockdown on parents: A call to adopt urgent measures. *Psychol Trauma* 2020;12(S1):S79-S81. PMID:32525382
15. Budd J, Miller BS, Manning EM, et al. Digital technologies in the public-health response to COVID-19. *Nat Med* 2020;26(8):1183-92. PMID:32770165
16. Gurwitch RA-OX, Salem H, Nelson MA-O, Comer JS. Leveraging parent-child interaction therapy and telehealth capacities to address the unique needs of young children during the COVID-19 public health crisis. *Psychol Trauma*;12:S82-S84. PMID:32538646
17. Wang G, Zhang Y, Zhao J, et al. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet* 2020;395(10228):945-47. PMID:32145186
18. Chung G, Lanier P, Wong PYJ. Mediating effects of parental stress on harsh parenting and

- parent-child relationship during coronavirus (COVID-19) pandemic in Singapore. *J Fam Violence* 2020; Sep 2:1-12. PMID:32895601
19. Günther-Bel C, Vilaregut A, Carratala E, et al. A mixed-method study of individual, couple, and parental functioning during the state-regulated COVID-19 lockdown in Spain. *Fam Process* 2020;59(3):1060-79. PMID:32678461
  20. Northstone K, Smith D, Bowring C, et al. The Avon Longitudinal Study of Parents and Children - A resource for COVID-19 research: questionnaire data capture May-July 2020. *Wellcome Open Res* 2020;5:210. PMID:32995559
  21. Hart J, Han W-J. COVID-19 experiences and parental mental health. *J Soc Social Work Res* 2020; doi.org/10.1086/711613
  22. Watts G. COVID-19 and the digital divide in the UK. *Lancet Digit Health* 2020;2(8):e395-e96. PMID:32835198
  23. UNICEF. Covid-19: Are children able to continue learning during school closures? A global analysis of the potential reach of remote learning policies using data from 100 countries. New York, 2020. URL: [https://reliefweb.int/sites/reliefweb.int/files/resources/Remote-Learning-Factsheet-English\\_2020.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/Remote-Learning-Factsheet-English_2020.pdf) [accessed 2020-12-02]
  24. Statista. Internet usage rate worldwide in 2019. URL: <https://www.statista.com/statistics/491387/gender-distribution-of-internet-users-region/> [accessed 2020-12-02]
  25. Talkwalker. Social media statistics and usage in South Africa. URL: <https://www.talkwalker.com/blog/social-media-stats-south-africa#:~:text=There%20is%20a%2062%25%20Internet,%2C%20a%203.1%25%20YoY%20increase.&text=75%25%20of%20the%20South%20African,age%20bracket%20of%2016%2D64> [accessed 2020-09-21]
  26. StatsSA. General Household Survey 2016. Preotria, 2017. URL: <https://www.statssa.gov.za/publications/P0318/P03182016.pdf> [accessed 2021-01-20]
  27. Kim AW, Nyengerai T, Mendenhall E. Evaluating the mental health impacts of the COVID-19 pandemic in urban South Africa: perceived risk of COVID-19 infection and childhood trauma predict adult depressive symptoms. *Psychol Med* 2020 Sep;1-13. PMID:32895082
  28. Carlitz RD, Makhura MN. Life under lockdown: illustrating tradeoffs in South Africa's response to COVID-19. *World Dev* 2021;137:105168. PMID:32895596
  29. Reddy SP, Sewpaul R, Mabaso M, et al. South Africans' understanding of and response to the COVID-19 outbreak: An online survey. *S Afr Med J* 2020;110(9):894-902. PMID:32880275
  30. Harris PA, Taylor R, Thielke R, et al. Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform* 2009;42(2):377-81. PMID:18929686
  31. Harris PA, Taylor R, Minor BL, et al. The REDCap consortium: Building an international community of software platform partners. *J Biomed Inform* 2019 Jul;95:103208. PMID:31078660
  32. biNu. <https://www.bi.nu/> [accessed 2020-12-02]
  33. biNu. #datafree Moya Messenger closing in on 1 million daily active users in South Africa. URL: <https://medium.com/datafree/datafree-moya-messenger-closing-in-on-1-million-daily-active-users-in-south-africa-8b364f6d0bb9> [accessed 2020-12-02]
  34. South African Audience Research Foundation. Living Standards Measure. 2020. URL: <http://www.saarf.co.za/lsm/lsms.asp> [accessed 2021-01-21]
  35. Deloitte. Game of Phones: Deloitte's Mobile Consumer Survey. The Africa Cut 2015/2016. 2016. URL: [https://www2.deloitte.com/content/dam/Deloitte/za/Documents/technology-media-telecommunications/ZA\\_Deloitte-Mobile-consumer-survey-Africa-300816.pdf](https://www2.deloitte.com/content/dam/Deloitte/za/Documents/technology-media-telecommunications/ZA_Deloitte-Mobile-consumer-survey-Africa-300816.pdf) [accessed 2021-01-21]
  36. StatsSA. General Household Survey 2018. 2019. URL: <http://www.statssa.gov.za/publications/P0318/P03182018.pdf> [accessed 2021-01-21]
  37. Republic of South Africa Government Gazette 2020 Vol. 661, 10 July 2020, No. 43520. URL:

- <https://archive.opengazettes.org.za/archive/ZA/2020/government-gazette-ZA-vol-661-no-43542-dated-2020-07-24.pdf> [accessed 2020-09-21]
38. RAPID-EC. 2021. URL: <https://www.uorapidresponse.com/policy-action> [accessed 2021-01-25]
39. Co-SPACE Study. 2021. URL: <https://cospaceoxford.org/about/> [accessed 2021-01-25]
40. Patrick SW, Henkhaus LE, Zickafoose JS, et al. Well-being of parents and children during the COVID-19 pandemic: a national survey. *Pediatrics* 2020;146(4):e2020016824 37. PMID:32709738
41. Adibelli D, Sümen A. The effect of the coronavirus (COVID-19) pandemic on health-related quality of life in children. *Child Youth Ser Rev* 2020;119: PMID:33071408 42. Austrian K, Pinchoff J, Tidwell JB, et al. COVID-19 related knowledge, attitudes, practices and needs of households in informal settlements in Nairobi, Kenya. SSRN 2020; <http://dx.doi.org/10.2471/BLT.20.260281>
43. Olsen F, Abelsen B, Olsen JA. Improving response rate and quality of survey data with a scratch lottery ticket incentive. *BMC Med Res Methodol* 2012;12(1):52. PMID:22515335
44. Panter-Brick C, Burgess A, Eggerman M, et al. Practitioner review: engaging fathers--recommendations for a game change in parenting interventions based on a systematic review of the global evidence. *J Child Psychol Psychiatry* 2014;55(11):1187-212. PMID:24980187
45. Wright A. REDCap: A tool for the electronic capture of research data. *J Electron Resour Med Libr* 2016;13(4):197-201. doi.org/10.1080/15424065.2016.1259026
46. Fagherazzi G, Goetzinger C, Rashid MA, et al. Digital health strategies to fight covid-19 worldwide: challenges, recommendations, and a call for papers. *J Med Internet Res* 2020;22(6):e19284. PMID:32501804
47. UNICEF. Internet of Good Things. 2021. URL: <http://www.goodinternet.org/> [accessed 2021-02-01]
48. Bates S, Bavitz C, Hessekiel K. Zero rating and internet adoption: The role of telcos, ISPs & technology companies in expanding global internet access: Workshop Paper and Research Agenda. 2017. URL: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3047847](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3047847) [accessed 2020-09-21]
49. Adua L, Sharp JS. Examining survey participation and response quality: The significance of topic salience and incentives. *Surv Methodol* 2010;36(1):95-109. <https://www150.statcan.gc.ca/n1/en/pub/12-001-x/2010001/article/11252-eng.pdf?st=WkqM3zIz>

## Supplementary Files



## Figures

**Moya App User Interface with pinned Parent Survey**

**Opening page of the online survey where language preference is selected**

**Final steps of the survey with link to download the support and referral list, options to view and download individual responses, and view aggregate survey results**


**Hearing from parents and families with young children in South Africa about their experiences during the COVID-19 pandemic**

**Example of a question with branched logic for a positive response**

**Hearing from parents and families with young children in South Africa about their experiences during the COVID-19 pandemic**

Support and referral services in English and isiZulu.

**HEARING FROM PARENTS AND FAMILIES OF YOUNG CHILDREN IN SOUTH AFRICA – WHAT HELP DO YOU NEED THE MOST DURING THE COVID-19 PANDEMIC?**



**REFERRAL LIST**


If you need any additional support you may contact the following organizations and services:

National COVID-19 24-hour hotline telephone number	0800 029 999
National COVID-19 WhatsApp number	0600 12 3456
Sign-up for MomConnect	*134*550#
Child Welfare South Africa	087 822 1516, <a href="mailto:national@childwelfare.org.za">national@childwelfare.org.za</a>
Childline	0800 055 555 0800 123 321
Depression and mental health	0800121314 SMS 31393
Home Affairs, birth registration and identity documents	0800 601 190
SASSA	0800 601 011

If you have any queries or concerns about the study, please contact the researchers:

Prof. Linda Richter: [linda.richter@wits.ac.za](mailto:linda.richter@wits.ac.za) 011 717 2382/082 [REDACTED]  
 Ms. Sara Naicker: [sara.naicker@wits.ac.za](mailto:sara.naicker@wits.ac.za) 011 717 2382/072 [REDACTED]

**UKUZWA KUBAZALI NEMINDENI YABANTWANA ABANCANE ENINGIZIMU AFRIKA - YILUPHI USIZO OLUDINGA KAKHULU NGESIKHATHI SOKUQHUBEKA KWE-COVID-19?**



**UHLU LOKUDLULISELWA**

Uma udinga usizo olwengeziwe ungaxhumana nalezinhlangano nezinsizakalo ezilandelayo:

National COVID-19 24-hour hotline telephone number	0800 029 999
National COVID-19 WhatsApp number	0600 12 3456
Sign-up for MomConnect	*134*550#
Child Welfare South Africa	087 822 1516, <a href="mailto:national@childwelfare.org.za">national@childwelfare.org.za</a>
Childline	0800 055 555 0800 123 321
Depression and mental health	0800121314 SMS 31393
Home Affairs, birth registration and identity documents	0800 601 190
SASSA	0800 601 011

Uma unemibuzo noma ukukhathazeka mayelana nalolu cwaningo, sicela uxhumane nabaphenyi:

Prof. Linda Richter: [linda.richter@wits.ac.za](mailto:linda.richter@wits.ac.za) 011 717 2382/082 [REDACTED]  
 Ms. Sara Naicker: [sara.naicker@wits.ac.za](mailto:sara.naicker@wits.ac.za) 011 717 2382/072 [REDACTED]

## **Multimedia Appendixes**

South African Parent Survey.

URL: <http://asset.jmir.pub/assets/84cdeb6d60e452dbf05b840da397a99d.pdf>



## CONSORT (or other) checklists

CHERRIES Checklist for Online Surveys.

URL: <http://asset.jmir.pub/assets/68787f9254e289c6fcc94fdb66229b61.pdf>