



WAVE 4

National Income Dynamics
Study (NIDS) – Coronavirus
Rapid Mobile Survey (CRAM)

Changes in education: A reflection on COVID-19 effects over a year

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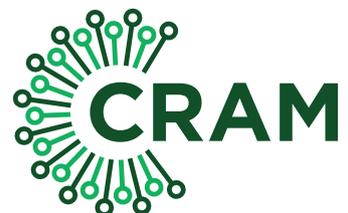
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N.i.D.S.
NATIONAL INCOME DYNAMICS STUDY



CORONAVIRUS RAPID MOBILE SURVEY 2020

Changes in education: A reflection on COVID-19 effects over a year

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Abstract

This policy paper makes use of four waves of the National Income Dynamics Study – Coronavirus Rapid Mobile Survey (NIDS-CRAM) panel data to estimate changes in and the determinants of adult concern, child hunger and access to school meals amongst respondents residing in households with learners in the compulsory schooling system. The transition between Waves 2 and 3 of NIDS-CRAM from lockdown Level 3 to a less restrictive Level 1, as well as the transition from Waves 3 and 4 from Level 1 to a more restrictive adjusted Level 3, are expected to be linked to significant changes in food security and child hunger, and, potentially, adult concern about learner return given significant shifts in the number of infections and deaths.

Previous education policy papers produced using Waves 1 through 3 of the NIDS-CRAM data provided discussions on learner attendance as a result of phased school reopening, and how this might be used as a proxy for the effects of the pandemic on schooling and learning. In this policy paper, we build on this using panel data from the Early Grade Reading Study (EGRS) II to estimate learning losses experienced by grade 4 learners in 2020, as well as contextual factors gathered through telephonic surveys with teachers that may help explain how teachers and learners responded.

Finally, this paper presents a new analysis of deaths amongst teachers using government administrative data comparing the trends of 2020 (and the known peaks of COVID-19 infections) to those of the previous year. This new analysis presents credible information to be considered in the ongoing debate about the risks faced by teachers by going to school.

Executive Summary

In order to explore the ways in which COVID-19 has impacted basic education in South Africa, previous NIDS-CRAM education papers have examined outcomes such as school attendance, adult concern around school attendance of children in their households, and school feeding. This was achieved through comparing one wave of data to another as lockdown levels and schooling practices changed. In this paper, we use the existing four waves of NIDS-CRAM data as a panel, looking at changes within the same households from Wave 2 (collected 13 July - 8 August 2020) to Wave 4 (collected 2 February – 10 March 2021). We attempt to understand changes in adult concern about learners' return to school, as well as patterns in child hunger (additionally using Wave 1 collected 7 May – 27 June 2020) and school feeding when schools were open and closed.

While the NIDS-CRAM data provides important information on household attitudes and practices, one of the primary concerns in the education sector has been the extent of learning lost—or what can be thought of as the educational learning cost of disrupted schooling—for learners. To date, estimates of learning losses have been based on simulations or other international emergency contexts. These simulations were based on a set of assumptions, for example, that for every 1 day of schooling lost one might expect 1.25 days' worth of learning to be lost.¹ This assumption reflects the fact that when children are out of school, not only are they losing out to foregone learning, but they are also forgetting what they had previously learned.

In this policy paper, we estimate learning losses using panel data from the Early Grade Reading Study (EGRS) II, a randomised control trial (RCT) implemented in 180 schools in Mpumalanga from 2017 to 2019 at the Foundation Phase (grades 1-3). Learner assessments were administered over five waves of data collection on the same cohort of learners, with the last wave of data collected in October 2020 when most learners were nearing the end of grade 4. Having comparable reading scores (the same reading passage was used) for the same children at the end of 2019 and the end of 2020 allows us to calculate the learning gains in reading outcomes during the 2020 academic year. Comparisons are then made to 'typical' annual learning gains observed in previous years and previous studies not affected by the pandemic, as well as official reading benchmarks. This analysis suggests that the **ratio of learning losses to lost schooling days has been as much as 1.5**; that is to say, the actual number of school days lost underestimates the amount of learning lost, and earlier estimates based on simulations similarly underestimated this.

Finally, this policy paper considers available evidence on COVID-19 related health risks to children and adults posed by school attendance, as well as presents a new analysis of excess deaths observed amongst teachers. This analysis presents credible information to be considered in the ongoing debate about the risks teachers face when attending school.

The main findings of this policy paper are:

The panel data provides a dynamic perspective on adult worry over the return to school of learners living in their household. **In the first quarter of 2021, 57% of respondents indicated that they were very worried about sending their child to school, down from 74% six months prior.** Overall, 62% of respondents reported feeling very worried about learners' return to school at least two of the three times they were asked. A total of 32% of adults living with children were very worried about school return across all three waves, and 16% remained a little/not worried at all time points. In terms of transitions, approximately a third of respondents who were "not worried" or "a

¹ Azevedo, Joao Pedro; Hasan, Amer; Goldemberg, Diana; Iqbal, Syedah Aroob; Geven, Koen. 2020. Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes : A Set of Global Estimates. Policy Research Working Paper;No. 9284. World Bank, Washington, DC;

little worried” in July 2020 had transitioned to “very worried” by February 2021, and similarly a third of respondents who were “very worried” in July 2020 had transitioned to “not worried” or “a little worried” by February 2021. However, in November/December 2020, **the majority of parents and caregivers in South Africa (58%) agreed that children should be able to attend school every day, rather than rotational timetables.**

So, what influences worry? Adopting the panel data and multivariate regression analysis, attitudes towards and worry about contact school attendance are shown to be related to socio-economic factors, most notably food shortages. This echoes the findings of previous NIDS-CRAM analyses which indicated levels of high concern to be two to three times higher amongst the poorest 40% of households compared to the wealthiest 10% of households. If children received a free school meal in the last week, levels of parental worry were significantly lower compared to otherwise comparable households. We further found attitudes towards contracting COVID-19 and feelings of hopelessness and/or depression to be a significant factor influencing household worry.

What about hunger? Levels of hunger have stayed consistently high relative to pre-COVID times. According to Wave 1 of NIDS-CRAM, 49% of adults living with children indicated that their household had run out of money for food during the month prior to the interview. This declined to 39% in Wave 2 of NIDS-CRAM but increased to 43% and 45% in Waves 3 and 4, respectively. Overall, **72% of adults living with children reported that their households had run out of money to buy food the month prior to being interviewed in at least one of the four waves of NIDS-CRAM.** **Food insecurity is strongly related to child hunger in the data:** roughly 1-in-3 adults residing in households with insufficient money to buy food report child hunger. Additionally, the longer a household spends in food insecurity, the higher the likelihood of child hunger.

What about school meals? Wave 4 data collection began whilst public schools were still closed. Therefore, as expected, lower levels of school feeding were observed. Overall, only 25% of adults interviewed in Wave 4 reported that a learner in their household received a school meal in the previous week. However, there is a clear change in responses comparing data collected either side of the official date of public-school reopening (15 February 2021). While only 17% of respondents interviewed before this date indicated children in the household receiving a school meal, this figure jumps to 43% after this date. **This suggests that access to free school meals has declined from 49% in November/December 2020 to 43% in February/March 2021,** although this difference is not significant. Therefore, it appears that school feeding at the beginning of the 2021 academic year neither deteriorated nor improved from the final quarter of 2020 but remains significantly below pre-COVID levels.

Using the balanced panel data, we find that reported access to school meals is erratic, with many respondents indicating access in one wave but not another, despite schools being open in these waves. **64% of adults interviewed in Wave 3 and Wave 4—when schools were open to all grades and legally meant to be serving meals—reported learners receiving a school meal at least once, but less than half (25%) of these reported children receiving school meals at two points in time.** This clearly shows the importance of keeping schools open for all grades in order to reduce child hunger.

What has happened to learning? The 2020 school year was marked by unexpected school closures and drawn-out periods of no schooling, especially for lower grades. The phased reopening of public schools and the implementation of rotational attendance timetables meant that learners in grades 1 to 5 lost an estimated 60% of a possible 198 school days. While in other contexts, learning at home or accessing education virtually is possible, in the socio-economic context of South Africa, school-based classrooms are where almost all curricular learning happens for the majority of learners. Using data from EGRS II collected in 2020, and comparing to comparable studies, we estimate that **overall learning loss for grade 4 learners was 76% in Home Language (HL) and 48% in English as a First Additional Language (EFAL).** Otherwise stated, these figures indicate that **learners learnt roughly a quarter of what they could have learnt for Home Language, and just about half of what they could have learnt for EFAL.** This is especially concerning as rotational attendance continues to be implemented in 2021.

Health risks to teachers: The reason cited for disruptions to schooling in 2020—including phased reopening, social distancing within classrooms and rotational attendance by learners—is the health risk posed by COVID-19 to learners and teachers. As was noted in the previous NIDS-CRAM papers on education, the local and international evidence continues to show that the health risks posed by COVID-19 to children are much lower than the risks to adults, and also low relative to other factors that cause child deaths. Following an excess deaths approach and using teacher payroll data (PERSAL), we estimate that of 401 327 teachers, approximately 1 600 teachers have passed away due to COVID-19. It is clear that the vast majority of these deaths occurred during the first and second waves of the pandemic in July 2020 and January 2021. Our analysis of excess deaths amongst teachers also confirms what the NICD has found for the population as a whole: that there is no clear association between the timing of schools being open and increased spread of the virus (NICD, 2021).² In light of this, together with the evidence of substantial harm caused to children by the disruptions to schooling, we believe there is a strong case for keeping schools open as far as possible and moving towards full time attendance, especially at the primary school level where the health risk is lowest, and the educational risk may be greatest.

² NICD. 22 January 2021. COVID-19 Special Public Health Surveillance Bulletin. Volume 18, Issue 7.

1. Introduction

The National Income Dynamics Survey – Coronavirus Rapid Mobile Survey (NIDS-CRAM) is a rapid assessment survey that employs Computer Assisted Telephone Interview (CATI) with the aim of tracking the socio-economic impacts of the ongoing COVID-19 crisis in South Africa. Unlike most other rapid online or telephone surveys, NIDS-CRAM attempts to collect data from a nationally representative sample of South African adults aged 18 years and older using a pre-existing sample of individuals from Wave 5 of the longitudinal NIDS study that was conducted in 2017. Since May 2020, four waves of the NIDS-CRAM have been collected, the last being conducted between 2 February and 10 March 2021. The sample sizes for each wave of NIDS-CRAM were 7 073 (Wave 1), 5 676 (Wave 2), 6 130³ (Wave 3), and 5 629 (Wave 4).

In this policy paper, aspects of our analysis that focuses on adult concern, hunger and school feeding will be restricted to the NIDS-CRAM sub-group of respondents who were interviewed in all four waves, that is, the balanced sample of 3 837 individuals. Given widespread school closure at the time of Wave 1, questions were limited to access to remote learning (i.e. school books, education programs on TV and/or the radio, and access to educational content online). Waves 2 and 3, corresponding with school reopening (discussed further in Section 3 below), included questions on school attendance, access to school meals, and concerns about learners returning to school during the COVID-19 pandemic. Unfortunately, the timing of Wave 4 did not overlap fully with the reopening of schools in 2021, and therefore only questions regarding concerns about learner return to school and school feeding were asked. We further restrict our analysis of the NIDS-CRAM data to individuals reporting to reside with children (individuals aged 17 years and younger), yielding a final sample of interest of 2 336. All data is weighted appropriately to account for attrition, and standard errors are corrected for the complex survey design (clustering and stratification).⁴

To determine the impact of lost schooling on learning outcomes, we draw on data from the Second Early Grade Reading Study (EGRS II) that was conducted between 2017 and 2019 in 180 Quintile⁵ 1 to 3 schools in the Ehlanzeni and Gert Sibande Districts of Mpumalanga.⁶ The reading outcome scores at the end of grade 3 and grade 4 allow us to calculate the grade 4 learning gains in reading outcomes during 2020. To understand the impact of the pandemic on learning outcomes, we then compare these learning gains in 2020 to learning gains in grade 4 in previous studies—such as the first Early Grade Reading Study (EGRS I) in the North West—and the Story Powered Schools Study (SPS) in KwaZulu-Natal and the Eastern Cape. Interviews were also conducted with grade 2 and grade 3 teachers in the EGRS II schools. The primary focus of the teacher questionnaire was to gain a better understanding of whether teachers were implementing the new practices that they had received training for in previous years. Additionally, the opportunity allowed us to ask questions aimed at getting a better understanding of the impact of the COVID-19 pandemic on teaching schedules. A similar questionnaire was also administered telephonically to a sample of EGRS I teachers and school management teams members between 20 to 30 January 2021.

2. Lockdown phases and school reopening

One of the benefits of the NIDS-CRAM data is the fact that respondents are re-surveyed over time, allowing for us to take a dynamic, cross-time view of outcomes and attitudes. Furthermore, the various waves of NIDS-CRAM were conducted at times when different lockdown regulations were in place. This allows for transitions between states of worry and access to food/school-feeding to be analysed across the various lockdown phases.

³ Given attrition of 28.7% between Waves 1 and 3 (i.e. only 5 046 of the original 7 073 adults from Wave 1 were successfully interviewed in Wave 3), a top-up sample was introduced in Wave 3 resulting in 1 084 additional interviews.

⁴ For more detail on the NIDS-CRAM survey design and weighting approach, see Ingle et al (2021).

⁵ Quintiles refer to Department of Basic Education proxies for the socio-economic status of a school. Quintile 1 to 3 schools do not charge fees and thus serve the poorest three quarters of learners, while Quintiles 4 and 5 schools are typically fee charging.

⁶ This sample of schools only include isiZulu and Siswati schools in these two districts. The sample was not explicitly drawn to be representative of the districts, but the sample was randomly drawn and constitute just over 50% of the schools with the same Language of Learning and Teaching in each district.

Table 1 provides a summary of the grades and dates during which schools were open, from when learners began returning to schools in June 2020 until mid-March 2021 when the most recent collection of NIDS-CRAM data, Wave 4, was concluded. A phase of national lockdown Level 3 was in effect during the period 1 June to 17 August 2020. During this time, two waves of NIDS-CRAM data collection took place: Wave 1, conducted between 7 May and 27 June 2020, and Wave 2, conducted between 13 July and 8 August 2020. During the former, much of the schooling sector remained closed. Government gazettes referring to official school reopening dates (dated 29 May 2020 and 2 August 2020) stipulated that only those learners in grades 7 and 12 were officially allowed to attend school from 8 June 2020, followed by grades R, 6 and 11 from 6 July 2020. However, the gazettes did allow for deviations from phased return based on a school's ability to comply with COVID-19 guidelines as well as approval by the provincial Head of Department. As indicated by Mohohlwane, Taylor and Shepherd (2020)⁷ using Wave 2 of the NIDS-CRAM data, positive attendance rates amongst grades 1-5 and grades 8-10 learners were reported for the month of July 2020, although these were significantly below the attendance rates of grades that were officially open.

As indicated in *Table 1*, learners across all grades were permitted to attend school from 31 August 2020. This is reflected by estimated weekly attendance rates of at least 95% across all grades using NIDS-CRAM Wave 3 data (Mohohlwane, Taylor and Shepherd, 2021)⁸ collected between 2 November and 13 December 2020. Wave 3 also corresponded with a phase of Level 1 lockdown that was in operation from 21 September to 28 December 2020. We would expect the transition between Waves 2 and 3 of NIDS-CRAM from lockdown Level 3 to a substantially less restrictive lockdown Level 1 to be associated with lower levels of adult concern, as well as lower levels of food insecurity and increased access to school feeding.

The reopening of schools for the 2021 academic year was meant to take place on 27 January 2021. However, a second wave meant that a phase of adjusted Level 3 lockdown was reintroduced on 29 December 2020, remaining in place until 28 February 2021. As a result, the reopening of public schools was delayed by two weeks to 15 February 2021, although private schools were permitted to open two weeks earlier on 1 February 2021.

7

8 Mohohlwane, N., Taylor, S., & Shepherd, D. 2021. Schooling during the COVID-19 pandemic: An update from Wave 3 of the NIDS-CRAM data NIDS-CRAM.

Table 1: School reopening and opening dates between 1 June 2020 and 12 March 2021, by grade

The week starting:																			
June					July					August					September				
Gr	1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14	21	28	
R	Grey	Grey	Grey	Grey	Light Green	Green	Dark Green	Dark Green	Grey	Grey	Light Green	Light Green	Green	Green	Green	Green	Green	Green	Green
1	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
2	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
3	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
4	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
5	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
6	Grey	Grey	Grey	Grey	Light Green	Green	Dark Green	Dark Green	Grey	Grey	Light Green	Light Green	Green	Green	Green	Green	Green	Green	Green
7	Grey	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Dark Green	Dark Green	Grey	Grey	Light Green	Light Green	Green	Green	Green	Green	Green	Green	Green
8	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
9	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
10	Grey	Grey	Grey	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green								
11	Grey	Grey	Grey	Grey	Light Green	Green	Dark Green	Dark Green	Grey	Grey	Light Green	Light Green	Green	Green	Green	Green	Green	Green	Green
12	Grey	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Dark Green	Dark Green	Grey	Dark Green	Light Green	Light Green	Green	Green	Green	Green	Green	Green	Green
October					November					December					February			March	
Gr	5	12	19	26	2	9	16	23	30	7	14		1	8	15	22	1	8	
1	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
2	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
3	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
4	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
5	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
6	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
7	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
8	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
9	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
10	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
11	Green	Green	Green	Light Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green
12	Green	Green	Green	Light Green	Dark Green	Dark Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	School closed	Grey	Purple	Grey	Purple	Dark Green	Dark Green

Notes: This table only provides information relevant to ordinary schools. Grey shades indicate weeks during which schools were closed for specific or all grades. Green shades indicate weeks during which public schools were open for specific or all grades. Darker shades of grey and green indicate weeks during which NIDS-CRAM data was being collected. The yellow shaded cells represent weeks during which the National School Certificate (NSC) examinations were written by grade 12 learners. The purple shaded cells in February indicate the earlier 2021 reopening date for private schools (1 February 2021).

3. A dynamic perspective of adult worry about learners' return to school

Schools serve as important components of any community's infrastructure: Aside from education, they provide critical services (e.g. school meal programs and counselling) that assist in mitigating health disparities (Gilbert et al., 2020;⁹ Van Lancker and Parolin, 2020).¹⁰ The disruptions caused by COVID-19 in the delivery of these services have the potential to exacerbate already existent socio-economic (and racial) inequalities as a result of, amongst other factors: a lack of resources for effective remote learning (i.e. books, access to radio and/or television for public broadcasting, and access to the internet) amongst the most socioeconomically disadvantaged (Van Lancker and Parolin, 2020); lower support for home learning from the schools predominantly attended by poorer learners; and the compounding challenges of financial strain, job loss/inflexibility and safety experienced by their parents (Cluver, Lachman, Sherr, et al., 2020;¹¹ van Doorn, Cooney and Sabin, 2020;¹² Armitage and Nellums, 2020;¹³ Casale and Shepherd, 2020).¹⁴

The closing and reopening of schools during the current pandemic, particularly prior to widespread availability of a COVID-19 vaccine, is expected to cause some anxiety and raise concerns in households with children. As argued by Gilbert and colleagues (2020): "Understanding parental attitudes and concerns is [not only] critical to informing communication and messaging around COVID-19 mitigation... [but] also highlight the need for flexible education plans and equitable resource provision so that youth education is not compromised" (p1848).

In July 2020—when South Africa was in a Level 3 national lockdown and only grades 6, 7, 11 and 12 were (officially) attending school—close to 75% of adults living with children expressed being very worried about the return of learners to school during the COVID-19 pandemic (see *Figure 1* below). In November/December 2020, when Level 1 lockdown was in effect and learners of all grades were permitted to attend school (albeit on a rotational basis), levels of high concern had fallen by approximately 20 percentage-points (30%).

Data collected in February 2021 indicated that levels of high worry about learners' return had increased by approximately 6-percentage points between Waves 3 and 4; however, this difference is only significant at the 10% level. Separating out the roughly 62% and 38% of Wave 4 respondents (living with children) that were interviewed before and after the official reopening of schools, respectively, we find that 59% of adults in the former group were very worried about learner return, compared to 52% amongst the latter. Although this 7-percentage point gap does suggest a positive correlation between school closure and adult concern, the difference is only significant at the 10% level.

9 Gilbert, L.K., Strine, T.W., ..., Ko, J.Y. (2020). Racial and ethnic differences in parental attitudes and concerns about school reopening during the COVID-19 pandemic – United States, July 2020. *MMWR Morbidity and Mortality Weekly Report* 69(49): 1848-1852.

10 Van Lancker, W. and Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *Lancet Public Health* 5(5): E243-E244.

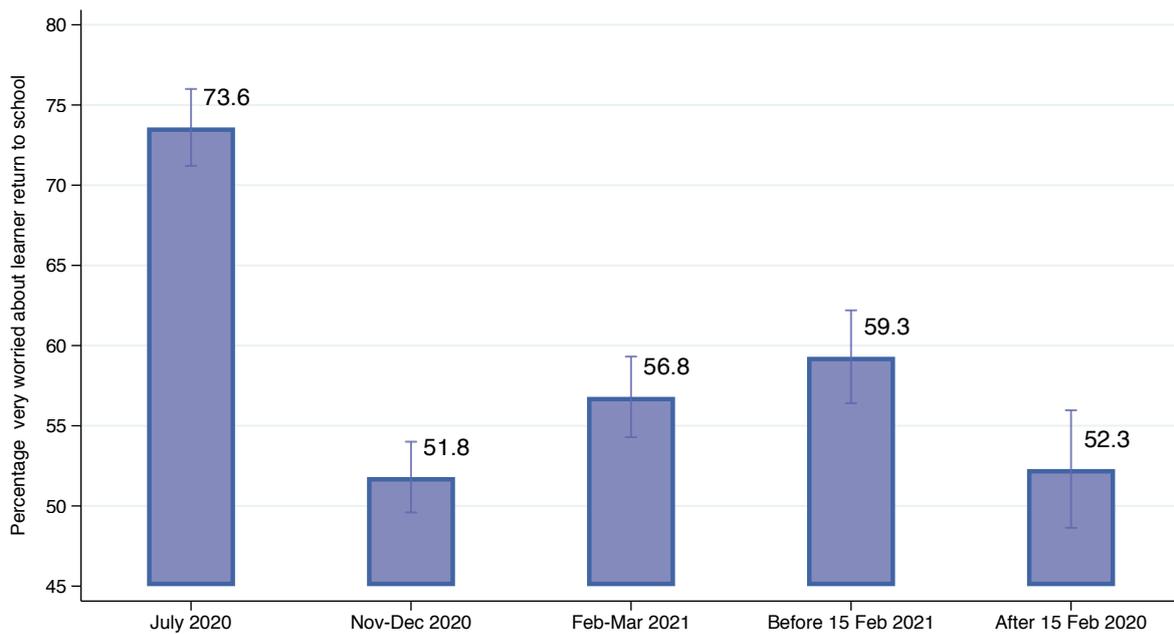
11 Cluver, L., Lachman, J.M., Sherr, L., Wessels, I., Krug, E., Rakotomalala, S., et al. (2020). Parenting in a time of COVID-19. *Lancet Correspondence* 395(10231): E64.

12 van Doorn, A., Cooney, R.E. and Sabin, M.L. (2020). COVID-19 exacerbating inequalities in the US. *Lancet Correspondence* 395(10232): E1243-E1244.

13 Armitage, R. and Nellums, L.B. (2020). COVID-19 and the consequences of isolating the elderly. *Lancet Public Health* 5(5): E256.

14 Casale, D. and Shepherd, D. (2020). The gendered effects of the ongoing lockdown and school closures in South Africa: Evidence from NIDS-CRAM Waves 1 and 2.

Figure 1: Estimated level of 'high worry' of school return during a pandemic, July 2020 – February 2021



Source: NIDS-CRAM, Waves 2 and 3 (2020) and Wave 4 (2021)

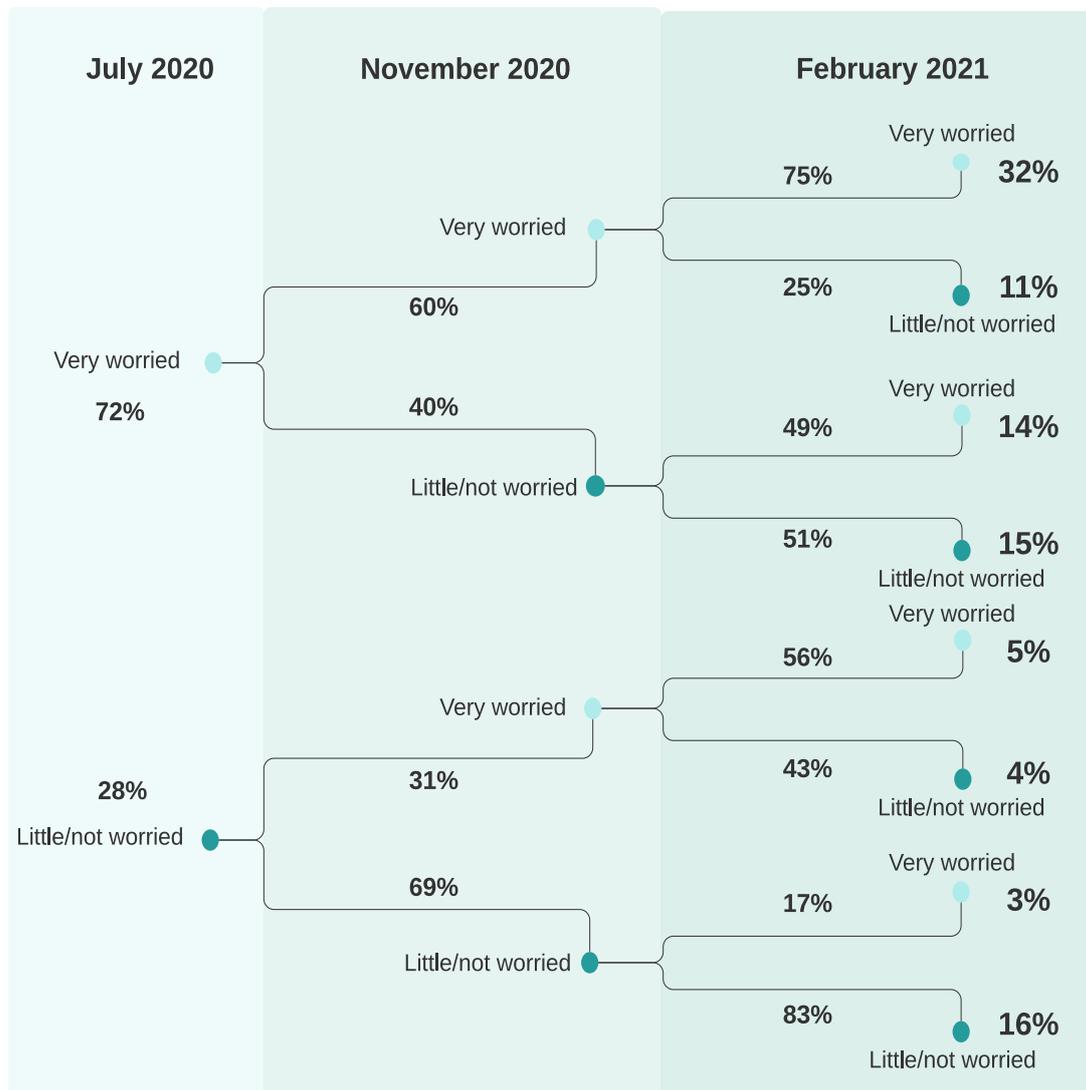
Notes: The sample is all adult respondents who reported to live with at least one child (<=18 years of age) at the time of interview. The unbalanced panel is used and data are weighted appropriately. 90 percent confidence intervals are shown.

Observing transitions between levels of worry between data collection waves (*Figure 2* below), 32% of adults living with children were very worried about school return across all three waves; 16% remained little/not worried. Overall, 62% of respondents reported feeling very worried at least two of the three times they were asked. Just under a third¹⁵ of respondents who were “not worried” or “a little worried” in July 2020 (Wave 2) transitioned to “very worried” by February 2021 (Wave 4). Similarly, just over a third¹⁶ of respondents who were “very worried” in July 2020 transitioned to “not worried” or “a little worried”. This suggests some consistency in attitudes/opinions over time, as the majority of respondents within each starting-state (July 2020) group report the same level of concern at each consecutive round of surveying. It is, nevertheless, interesting to note that more people (absolutely) became less worried over time.

¹⁵ This is calculated as the proportion of respondents that transitioned from “Little/not worried” in July 2020 to being “Very worried” in February 2021 (5% + 3% = 8%) divided by the relative size of the overall group with a beginning state of “Little/not worried” in July 2020 (28%).

¹⁶ This is calculated as the proportion of respondents that transitioned from “Very worried” in July 2020 to being “Little/not worried” in February 2021 (11% + 15% = 26%) divided by the relative size of the overall group with a beginning state of “Little/not worried” in July 2020 (72%).

Figure 2: Transition tree of adult concern for learner return to school, July 2020 – February 2021



Source: NIDS-CRAM, Waves 2 and 3 (2020) and Wave 4 (2021)

Note: balanced sample used and data are weighted appropriately. Only those respondents who reported living with children (<18 years) in all waves, as well as provided valid responses to the question on worry about school return, are considered for analysis. This provides a sample of n = 2 080.

3.1. What determines adult worry about learners returning to school?

Attitudes towards and worry about contact school attendance are expected to differ in ways that are related to family socioeconomic factors. Learners from wealthier households are less likely to experience exposure as a result of, for example, greater access to private transport to and from school and smaller class sizes. Learners from lower-income households are more likely to attend overcrowded and under-resourced schools where difficulties in implementing social distancing could, for example, result in school attendance that is possible on a one-day per week basis as opposed to every other day. Using the nationally representative School Monitoring Survey 2017/18 data for secondary schools, Köhler (2020)¹⁷ reported that 73% of Quintile 1 and 2 schools have classes exceeding 45 learners per class. In contrast this was only found in 17% of Quintile 5 schools. Concerns are also likely to be higher in households with medically vulnerable members; lower

¹⁷ Köhler, T. (2020). Class size and learner outcomes in South African schools: The role of school socioeconomic status. *Development Southern Africa*, 1-25.

income families tend to be multigenerational and have members with chronic health conditions (Biney, Amoateng and Ewemooje, 2020).¹⁸

Earlier analysis of the NIDS-CRAM data indicated that, at the time of widespread school closures in July 2020, levels of worry were significantly higher amongst socio-economically poorer households (Mohohlwane et al., 2020). By November 2020, and similar to the trend indicated in *Figure 2* above, overall worry decreased significantly across all socioeconomic status categories (Mohohlwane et al., 2021). However, large discrepancies remained between adults residing in relatively poor and wealthier households. Adjusting for household composition, levels of high worry in July 2020 were found to be higher amongst adults residing in larger, multigenerational households, as well as amongst adults living with either very young (<7 years of age) or older (>60 years of age) persons.

These findings are in line with an analysis of parent attitudes and beliefs about school reopening in the United States (US) by Kroshus et al. (2020),¹⁹ which found that, controlling for other home context and socio-demographic factors, parents from lower income households were significantly more likely to keep their children at home, as too were adults with little job flexibility and who reported living with at least one vulnerable person.

Table 2 summarises the marginal effects estimated from probit regressions of high worry for learner return to school measured at Waves 2, 3 and 4 of the NIDS-CRAM data. The balanced sample of adults is utilised for these regressions. Unsurprisingly, attitudes towards risk of getting COVID-19 emerges as a significant determinant of worry across all waves. Adults reporting to reside in households experiencing food shortages were also significantly more likely to be very worried about learner return to school at all points in time. At Wave 3 (column 2), it is evident that socioeconomic vulnerability is strongly linked to high worry amongst the adult population: adults reporting to reside in larger, food insecure households and who lack employment are significantly more likely to be very worried about learner return to school. However, child access to meals through schools significantly lowers the likelihood of high concern, a finding that continues into Wave 4 (column 3). This indicates the importance of social protection, including that which is offered by schools, for mitigating parental stress and anxiety.

It is interesting to note the household and individual factors that emerge as significant determinants of adult worry at the three different time points that correspond to different levels of national lockdown and, relatedly, school opening. In Wave 2 (column 1), when school closures and general worry about learner return were at their highest, the household and socio-demographic characteristics accounting for significantly lower levels of worry were respondent's level of education and child access to educational content online, both of which are highly correlated to socio-economic status. Significantly higher levels of worry, on the other hand, were associated with access to piped water and electricity, and feelings of hopelessness and depression. The positive association between worry and access to utilities may be related to the peak of the first wave of COVID-19 infections that was recorded to be significantly higher in metro areas, and corresponds to the timing of data collection for Wave 2. This is reflected again in Wave 4 (column 3) following the second wave of infections in South Africa, although the association is less significant.

What is more interesting, perhaps, is the finding that respondents with significant others were significantly less likely to be very worried in Wave 4. Coupled with a significant positive coefficient on 'employed', this could suggest that single parents with employment may be facing stress related to the fact that learners would not be able to attend school on a continuous, but rather a rotating basis for the foreseeable future in 2021.

18 Biney, E., Amoateng, A.W. and Ewemooje, O.S. (2020). Inequalities in morbidity in South Africa: A family perspective. *SSM - Population Health* 12: 100653.

19 Kroshus, E., Hawrilenko, M., Tandon, P.S., and Christakis, D.A. (2020). Plans of US parents regarding school attendance for their children in the Fall of 2020. *JAMA Pediatrics* 174(11): 1093-1101.

Table 2: Marginal effects from probit regressions of high worry about learners return to school, July 2020 – February 2021

Dependent variable: Very worried about learner/s return to school			
Sample:	Wave 2	Wave 3	Wave 4
	(1)	(2)	(3)
<i>Socio-demographic characteristics of respondent</i>			
Female	-0.017 (0.030)	-0.047 (0.031)	-0.013 (0.031)
Have a spouse/partner	-0.043 (0.027)	-0.041 (0.033)	-0.089** (0.035)
Age (centred)	-0.002* (0.001)	0.002 (0.001)	0.000 (0.001)
Some secondary schooling	-0.070 (0.046)	0.069 (0.049)	-0.011 (0.052)
Complete secondary schooling	-0.125** (0.055)	0.054 (0.057)	-0.023 (0.060)
Tertiary schooling	-0.177*** (0.058)	0.022 (0.060)	-0.062 (0.062)
Employed	-0.018 (0.034)	-0.074** (0.033)	0.094*** (0.034)
Coloured	0.006 (0.127)	0.169 (0.124)	0.084 (0.136)
Indian/Asian	-0.189 (0.202)	0.126 (0.160)	-0.119 (0.202)
White	-0.124 (0.144)	-0.176 (0.154)	-0.090 (0.184)
Interview conducted in Afrikaans	-0.157 (0.154)	-0.165 (0.120)	-0.062 (0.13)
Interview conducted in English only	0.021 (0.101)	-0.025 (0.115)	-0.102 (0.100)
<i>Household composition</i>			
Number of children <7 years	0.003 (0.018)	0.006 (0.016)	0.001 (0.016)
Pensioners living in household	-0.004 (0.052)	-0.032 (0.060)	0.023 (0.055)
Household size	0.011 (0.007)	0.013** (0.006)	-0.002 (0.007)
<i>Household socioeconomic characteristics</i>			
Household has access to piped/tap water	0.110*** (0.040)	-0.038 (0.037)	0.065* (0.035)
Household has access to electricity	0.163** (0.076)	-0.098 (0.063)	-0.103 (0.065)
Traditional dwelling	0.017 (0.040)	0.030 (0.042)	0.029 (0.050)

Informal dwelling	-0.012 (0.061)	0.009 (0.054)	0.015 (0.060)
Urban	-0.070** (0.034)	0.040 (0.043)	-0.018 (0.037)
Household ran out of money to buy food last month	0.083*** (0.032)	0.109*** (0.038)	0.148*** (0.040)
Household hunger experienced in last 7 days	0.054 (0.041)	0.094** (0.040)	0.067 (0.043)
Government grants are main income source of household	-0.090** (0.045)	0.037 (0.055)	-0.003 (0.045)
Receive child support grant/s	0.088** (0.042)	0.045 (0.041)	0.053 (0.039)
Receive old age pension grant/s	0.039 (0.055)	0.001 (0.058)	-0.023 (0.055)
Employment/business earnings are main income source of household	0.027 (0.053)	0.003 (0.057)	-0.048 (0.055)
<i>Access to school resources</i>			
Child/ren in the household received school meal in last 7 days	-0.056 (0.043)	-0.078** (0.034)	-0.074** (0.030)
Children not attending school	0.025 (0.033)	0.103** (0.051)	0.038 (0.030)
Children in household accessed content online in May/June 2020	-0.189*** (0.072)	0.063 (0.070)	0.020 (0.072)
Children in household used their school books in May/June 2020	0.044 (0.084)	-0.185* (0.097)	-0.045 (0.111)
<i>Perceptions of risk</i>			
At risk of getting the Coronavirus	0.066* (0.037)	0.133*** (0.033)	0.103*** (0.033)
Can't avoid getting the Coronavirus	0.031 (0.046)	0.034 (0.049)	0.006 (0.112)
<i>Health and well-being</i>			
Felt down, depressed or hopeless during last 2 weeks	0.116*** (0.031)	0.050 (0.031)	
Somewhat likely to get vaccine should it become available			-0.029 (0.045)
Somewhat unlikely to get vaccine should it become available			-0.043 (0.061)
Not at all likely to get vaccine should it become available			0.046 (0.037)
Number of observations	1 909	2 223	2 301
F-statistic	4.01***	4.52***	3.75***

Source: NIDS-CRAM data, Waves 2 and 3 (2020) and 4 (2021).

Notes: Balanced sample used with data weighted appropriately. Only respondents who reported living with children (<18 years) are considered for analysis. Cluster robust standard errors shown in parentheses. Regressions additionally control for province fixed effects.

* significant at the 10% level

** significant at the 5% level

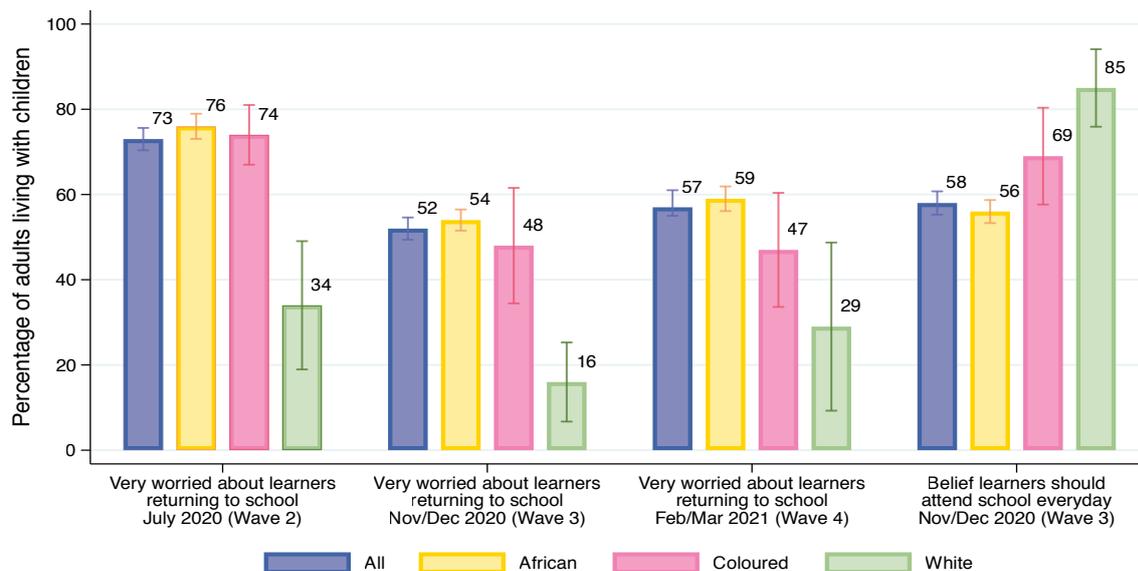
*** significant at the 1% level

3.2. Racial differences in adult worry

Analysis of high worry over school return in the NIDS-CRAM data by the demographic (race) group of respondents indicates that white adults living with children report significantly lower levels of high concern about school return than either African or Coloured adult respondents (see *Figure 3*).²⁰ In July 2020, levels of high worry amongst African, Coloured and White adult respondents were 76%, 74% and 34%, respectively. In November/December 2020, worry across all population groups fell significantly, although a 30-40 percentage point gap remained between White and African and Coloured respondents. This gap narrowed to 20-30 percentage points in February/March 2021.

In Wave 3 (November/December 2020)—a time at which the least stringent lockdown protocols (Level 1) were in place—respondents were additionally asked their opinion on whether or not learners should be allowed to attend school every day, as opposed to on a rotational basis that satisfies social distancing protocols. Here too strong racial differences emerged, with 85% of White adults responding that they felt that children should be able to attend school every day, compared to 56% and 69% of African and Coloured adults, respectively. Overall, more than half of adults (56%) felt that children should be able to attend school every day as opposed to rotational timetables. Agreement with this statement could signal a desire for the relaxation of COVID-19 mitigation measures in schools, perhaps because parents are confident in their child/ren's schools' ability to manage risk and ensure child and teacher safety. This is, in itself, a reflection of structural differences in access to quality schooling.

Figure 3: Parent and caregiver worry about school return and beliefs about school attendance, by race (July 2020 – February 2021)



Source: NIDS-CRAM data, Waves 2 and 3 (2020) and 4 (2021).

Notes: Unbalanced panel samples used with data weighted appropriately. Only respondents who reported living with children (<18 years) are considered for analysis. 95% confidence intervals indicated.

Evidence from the United States (US), most specifically the study of Gilbert and colleagues (2020), also pointed towards racial and ethnic differences in parental attitudes and concerns about school reopening. Compared to Black (non-Hispanic) and Hispanic/Latino parents with school aged children, white (non-Hispanic) parents were more likely to hold the view that schools should reopen for all students (at 100% capacity), and less concerned about schools' ability to adhere to COVID-19 mitigation strategies and perceived fewer risks of contraction and contagion. However, Gilbert et al.'s estimates are, similar to the NIDS-CRAM figures reported above, unadjusted; that is, they do

²⁰ It is difficult to make comparisons with Indian/Asian respondents given the small sample size of roughly n = 25.

not take account of structural inequalities that put different groups of people at varying levels of risk for poor health outcomes and, relatedly, varying distributions of socio-demographic factors such as access to health care, education, employment and income.

The regression output indicated in columns 1 to 3 of *Table 2* indicates that racial differences in adult worry are substantially reduced and no longer statistically significant when controlling for risk perceptions, socio-demographic and household characteristics. Overall, the findings of this paper are similar to the cross-sectional analysis of parents' plans regarding school attendance in the US by Kroshus et al. (2020) that found no significant relationship between race/ethnicity and parent attitudes once conditioning on other factors. Furthermore, Kroshus et al. estimated the likelihood of keeping children at home to be significantly higher amongst parents from lower income households, as well as those who feared contracting COVID-19 and lacked confidence in their children's schools to mitigate infection and spread.

3.3. Correlates of transitions between states of worry

Table 3 below investigates the determinants of moving between different states of worry across time. In interpreting the findings, it is again relevant to keep in mind the level of national lockdown in effect at each data collection wave. Moving between Waves 2 and 3 (columns 1 and 3), those who believed that they were at risk of contracting COVID-19, expressed feelings of hopelessness/depression, and living in food insecure households were significantly more likely to either remain in or transition to a state of being "very worried" about learner return to school. Similar findings are observed when moving between Waves 2 and 4 (columns 2 and 4), although employment is also estimated to be significantly related to a higher probability of reporting being "very worried". Conversely, respondents living with children who had recently received meals through their school were significantly less likely to remain in or transition to a state of high concern between Waves 2 and 4.

Moving between Waves 3 and 4, we find very few determinants of remaining in a state of high concern in both of these waves (column 5). This suggests consistency in attitudes amongst those who reported being "very worried" about learner return at a time of low rates of infection and substantially reduced levels of national lockdown. As already indicated in section 4.1, this group is represented by the most vulnerable within society, as well as those most severely impacted by economic shutdown. The transition from low/no to high worry between Wave 3 and 4 (column 6) is similarly significantly related to food insecurity and risk perceptions. Those living with a significant other and whose children were able to access food through schools were significantly less likely to feel "very worried".

Table 3: Marginal effects from probit regression of cross-wave transitions between high worry about learners return to school

Dependent variable:	High worry in Wave 3	High worry in Wave 4	High worry in Wave 3	High worry in Wave 4	High worry in Wave 4	High worry in Wave 4
Conditional on:	High worry in Wave 2		Little/no worry in Wave 2		High worry in Wave 3	Little/no worry in Wave 3
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Socio-demographic variables</i>						
Female	-0.015 (0.039)	0.062 (0.040)	-0.040 (0.053)	-0.068 (0.052)	0.008 (0.040)	-0.018 (0.046)
Have a spouse/partner	-0.027 (0.044)	-0.049 (0.040)	-0.026 (0.057)	-0.078 (0.053)	-0.010 (0.042)	-0.121*** (0.045)
Age (centred)	-0.001 (0.002)	-0.001 (0.002)	0.002 (0.003)	0.002 (0.002)	0.000 (0.002)	0.000 (0.002)
Some secondary schooling	0.054 (0.061)	-0.056 (0.067)	0.024 (0.080)	0.117 (0.088)	-0.013 (0.057)	-0.083 (0.073)
Complete secondary schooling	0.045 (0.070)	0.004 (0.069)	-0.027 (0.098)	0.047 (0.098)	0.068 (0.066)	-0.166** (0.078)
Tertiary schooling	-0.084 (0.07)	-0.043 (0.075)	0.040 (0.104)	-0.003 (0.102)	-0.009 (0.071)	-0.111 (0.081)
Employed	-0.031 (0.042)	0.104*** (0.040)	-0.026 (0.060)	0.006 (0.054)	0.075* (0.045)	0.113** (0.045)
Coloured	0.055 (0.138)	-0.326** (0.146)	0.496*** (0.077)	0.184 (0.231)	-0.287 (0.230)	0.127 (0.159)
Indian/Asian	0.399*** (0.074)	-0.364* (0.201)			-0.350 (0.265)	-0.222 (0.152)
White	-0.122 (0.178)	-0.236 (0.203)		0.098 (0.246)	-0.443* (0.237)	0.074 (0.206)
Interview conducted in Afrikaans	-0.151 (0.148)	0.265*** (0.088)	-0.320*** (0.057)	-0.212 (0.183)	0.218** (0.102)	-0.049 (0.168)
Interview conducted in English only	-0.085 (0.128)	0.099 (0.097)	-0.099 (0.135)	-0.298*** (0.062)	0.060 (0.149)	-0.116 (0.106)
<i>Household composition</i>						
Number of children <7 years	0.043** (0.020)	-0.010 (0.020)	-0.055** (0.022)	0.005 (0.032)	-0.009 (0.021)	0.014 (0.023)
Pensioners living in household	0.017 (0.045)	0.025 (0.038)	-0.042 (0.070)	-0.046 (0.070)	-0.011 (0.043)	0.010 (0.045)
Household size	-0.004 (0.009)	0.016* (0.009)	0.020** (0.010)	-0.022* (0.012)	-0.005 (0.008)	-0.002 (0.009)
<i>Household socioeconomic</i>						
Household has access to piped/tap water	-0.043 (0.045)	0.074* (0.043)	-0.079 (0.065)	0.056 (0.061)	0.027 (0.049)	0.068 (0.049)
Household has access to electricity	-0.089 (0.073)	-0.032 (0.068)	-0.095 (0.117)	-0.133 (0.128)	-0.033 (0.073)	0.009 (0.101)

Traditional dwelling	0.018 (0.053)	0.094* (0.051)	0.011 (0.091)	-0.033 (0.089)	0.010 (0.054)	0.024 (0.083)
Informal dwelling	-0.078 (0.066)	0.047 (0.063)	0.181** (0.091)	-0.024 (0.089)	0.025 (0.069)	0.023 (0.082)
Urban	0.006 (0.049)	0.025 (0.040)	0.048 (0.057)	-0.022 (0.059)	-0.017 (0.045)	-0.021 (0.046)
Ran out of money to buy food last month	0.141*** (0.043)	0.104** (0.043)	-0.004 (0.057)	0.053 (0.058)	0.081* (0.043)	0.160*** (0.052)
Hunger experienced in last 7 days	0.044 (0.050)	0.082* (0.049)	0.259*** (0.078)	0.020 (0.092)	0.009 (0.050)	0.076 (0.072)
Government grants main income source	0.030 (0.072)	-0.026 (0.055)	-0.022 (0.070)	-0.001 (0.077)	0.010 (0.050)	0.041 (0.073)
Employment/business earnings main income source	-0.019 (0.07)	-0.039 (0.059)	-0.077 (0.081)	-0.077 (0.088)	-0.001 (0.061)	-0.062 (0.085)
<i>Access to school resources</i>						
Children received school meal in last 7 days	-0.054 (0.040)	-0.116*** (0.036)	-0.054 (0.052)	-0.164*** (0.049)	-0.066 (0.044)	-0.094** (0.040)
Children in household accessed content online in May/June 2020	0.021 (0.045)	-0.075* (0.040)	0.080 (0.058)	-0.026 (0.053)	-0.018 (0.040)	-0.094** (0.044)
Children in household used their school books in May/June 2020	0.059 (0.042)	0.025 (0.040)	-0.033 (0.061)	-0.009 (0.057)	-0.029 (0.041)	0.019 (0.041)
<i>Perceptions of risk</i>						
At risk of getting the Coronavirus	0.147*** (0.041)	0.084** (0.0384)	0.079 (0.053)	-0.014 (0.052)	0.013 (0.042)	0.122*** (0.042)
Can't avoid getting the Coronavirus	-0.007 (0.064)	0.014 (0.061)	0.128** (0.066)	-0.066 (0.083)	0.016 (0.0705)	0.093 (0.069)
<i>Health and well-being</i>						
Felt down, depressed or hopeless during last 2 weeks	0.035 (0.038)		0.120** (0.060)			
Somewhat likely to get vaccine should it become available		-0.038 (0.051)		-0.220*** (0.057)	0.015 (0.058)	-0.052 (0.062)
Somewhat unlikely to get vaccine should it become available		-0.073 (0.070)		0.040 (0.096)	-0.120 (0.093)	0.122 (0.074)
Not at all likely to get vaccine should it become available		0.064 (0.047)		-0.022 (0.063)	0.055 (0.047)	-0.070 (0.056)
Current health is good		-0.035 (0.0475)		-0.029 (0.058)	-0.121** (0.051)	0.021 (0.050)
Current health is fair/poor		0.045 (0.046)		0.048 (0.068)	0.002 (0.046)	0.025 (0.057)
Number of observations	1 462	1 486	478	476	1 169	957
F-statistic	2.91***	2.83***	2.10**	2.96***	1.11	3.26***

Source: NIDS-CRAM data, Waves 2 and 3 (2020) and 4 (2021).

Notes: Balanced sample used with data weighted appropriately. Only respondents who reported living with children (<18 years) are considered for analysis. Cluster robust standard errors shown in parentheses. Regressions additionally control for province fixed effects.

* significant at the 10% level

** significant at the 5% level

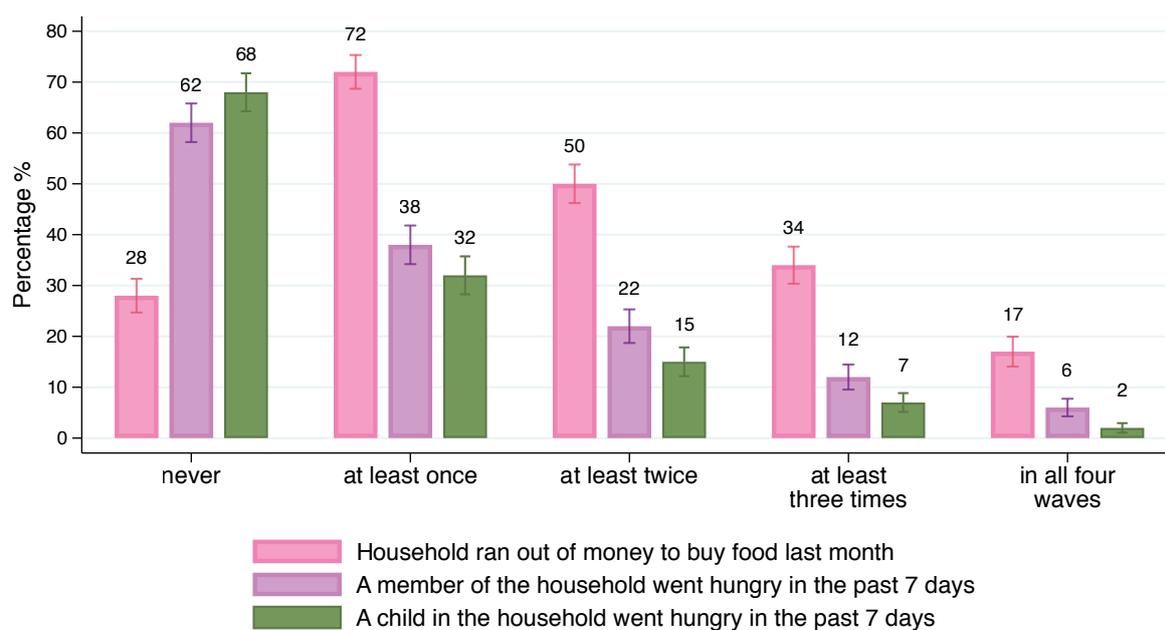
*** significant at the 1% level

4. Child hunger

The findings of sections 3.1 and 3.3 point towards an important role for food security in mitigating stress and concern experienced by adults living with children. According to the GHS 2018 data, 24% of households with children aged 17 years and younger reported running out of money to buy food. The prevalence of insufficient money for food was significantly lower amongst households without children (17%). According to Wave 1 of NIDS-CRAM, 49% of adults reporting to reside with children indicated that their household had run out of money for food the month prior to the interview. Although a decline to 39% was observed in Wave 2 of NIDS-CRAM, the proportion stood at 43% and 45% in Waves 3 and 4, respectively.

Using the balanced sample of NIDS-CRAM respondents, *Figure 4* indicates that more than 70% of adults living with children reported that their households had run out of money to buy food the month prior to being interviewed in at least one of the four waves of NIDS-CRAM. Roughly 1 in 6 adults living with children reported their households ran out of money for food at all points of data collection. Comparing to the full sample (i.e. adults living in households with and without children), levels of food insecurity measured by running out of money for food is higher amongst households with children (see *Figure 5*).

Figure 4: Frequency of reports of household food insecurity and hunger amongst adults living with children, April 2020 – February 2021



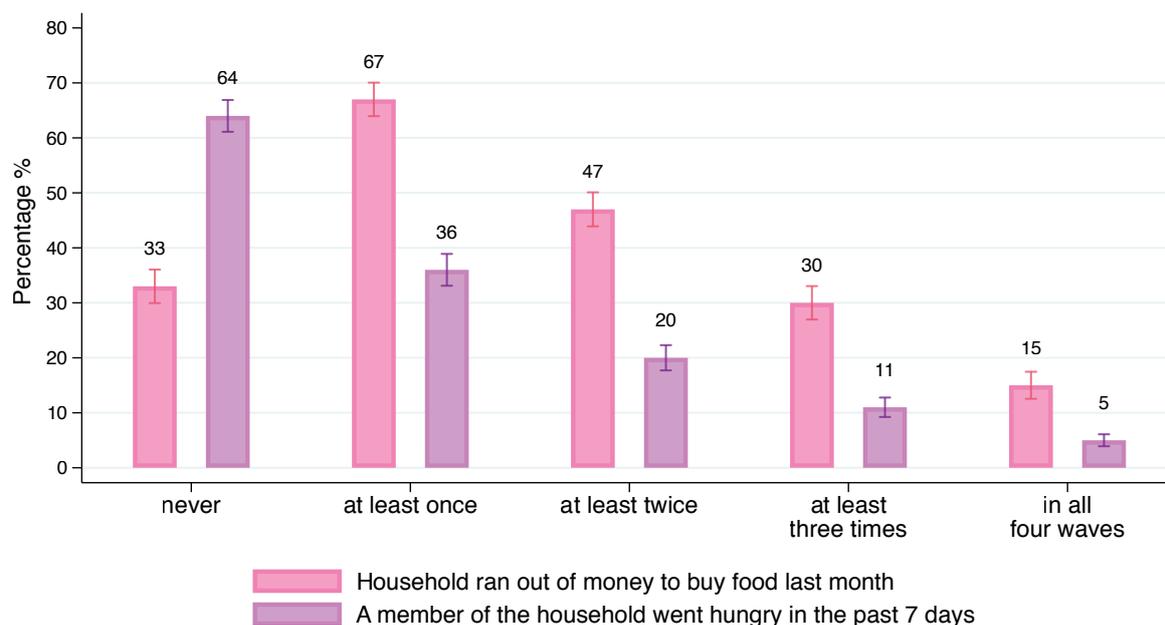
Source: NIDS-CRAM data Waves 1, 2 and 3 (2010) and Wave 4 (2021).

Notes: The balanced sample of respondents living with children (<18 years) is used. Data is weighted appropriately. 95% confidence intervals are indicated.

Figures 4 and *5* further present the adult-reported prevalence of hunger (amongst all household members) in households with and without children.²¹ Similar proportions of adults in households with and without children reported recent hunger at least once over the four waves of interviews (38% and 36%, respectively). In general, however, reported instances of hunger are slightly (1-2 percentage points) higher amongst adults living with children. Additionally, roughly a third of adults living with children reported instances of recent child hunger at least once (*Figure 4*).

²¹ The specific question asked was "In the last 7 days has anyone in your household gone hungry because there wasn't enough food?"

Figure 5: Frequency of reports of household food insecurity and hunger, April 2020 – February 2021



Source: NIDS-CRAM data Waves 1, 2 and 3 (2010) and Wave 4 (2021).

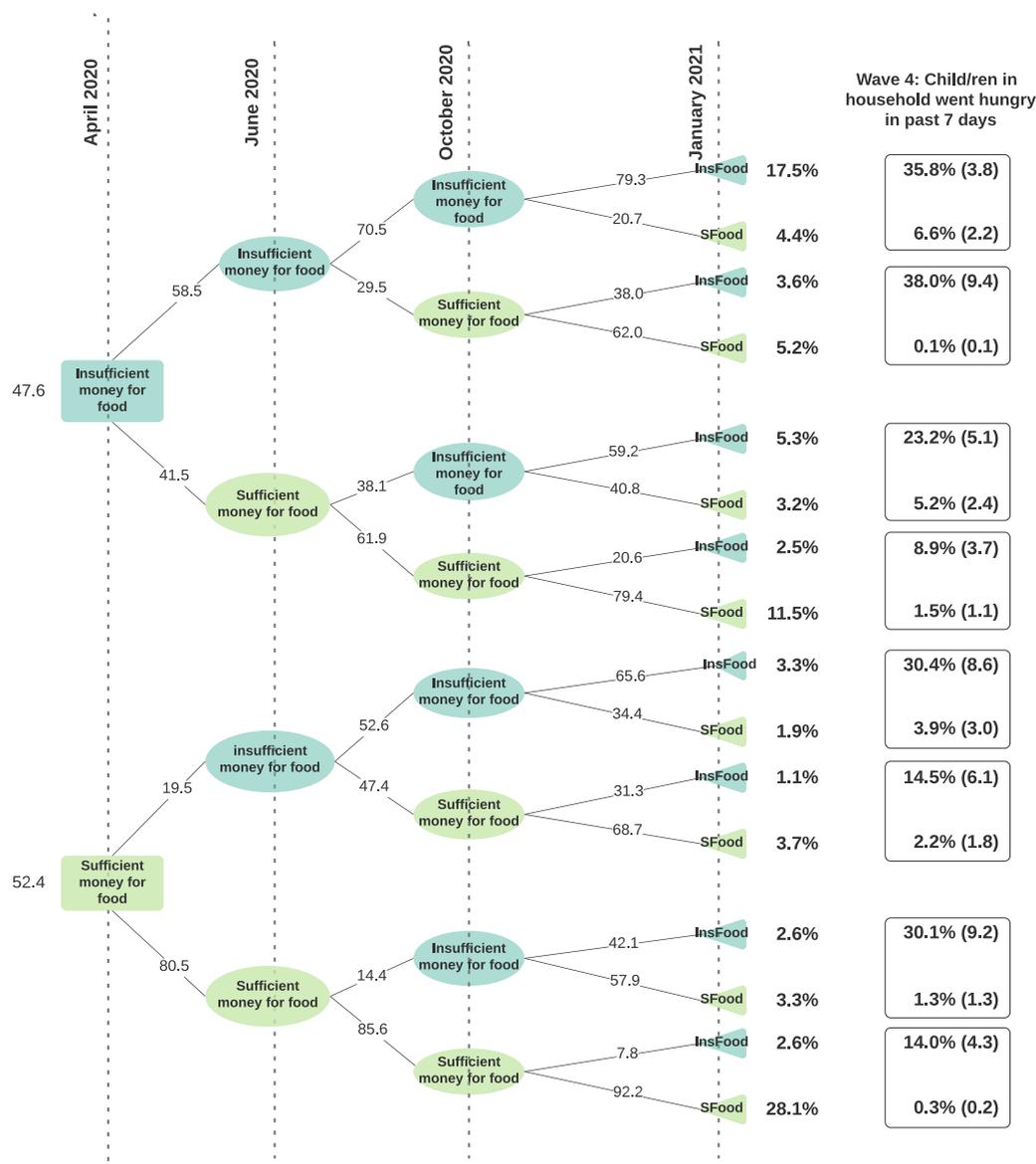
Notes: The balanced sample of respondents is used. Data is weighted appropriately. 95% confidence intervals are indicated.

A complete picture of transitions in food insecurity over time using the balanced panel sample is represented in *Figure 6*. Food insecurity appears to be relatively consistent, as 77.1%²² of adults reporting lack of money for food in January 2021 reported insufficient income for food in at least two of the other three waves. In fact, half of adults living with children reported that their household had run out of money for food in at least 2 of the 4 waves.

The final panel of *Figure 6* indicates the prevalence of child hunger in households at each respective terminal pathway on the transition tree. In the first quarter of 2021, roughly one in three adults residing in households that had lacked income for food in at least three of the four waves indicated that child nutrition was negatively impacted. From this we can deduce that the longer a household spends in food insecurity, the higher the likelihood of child hunger. In cases where no shortage of income for food was reported in Wave 4, and irrespective of prior histories of food shortages, child hunger is significantly lower. In fact, child hunger is generally lower than 5% in households whose adult members report relatively few incidences of food insecurity. These figures are in line with GHS 2018, where 34% of households that ran out of money to buy food reported insufficient food for children, compared to 0.9% of households with sufficient money for food.

²² Computed as 29.7% (17.5% + 3.6% + 5.3% + 3.3%) divided by 38.5% (proportion of balanced sample reporting income shortage for food in January 2021).

Figure 6: Transition tree of adult reported food insecurity amongst households with children



Source: NIDS-CRAM data Waves 1, 2 and 3 (2010) and Wave 4 (2021).

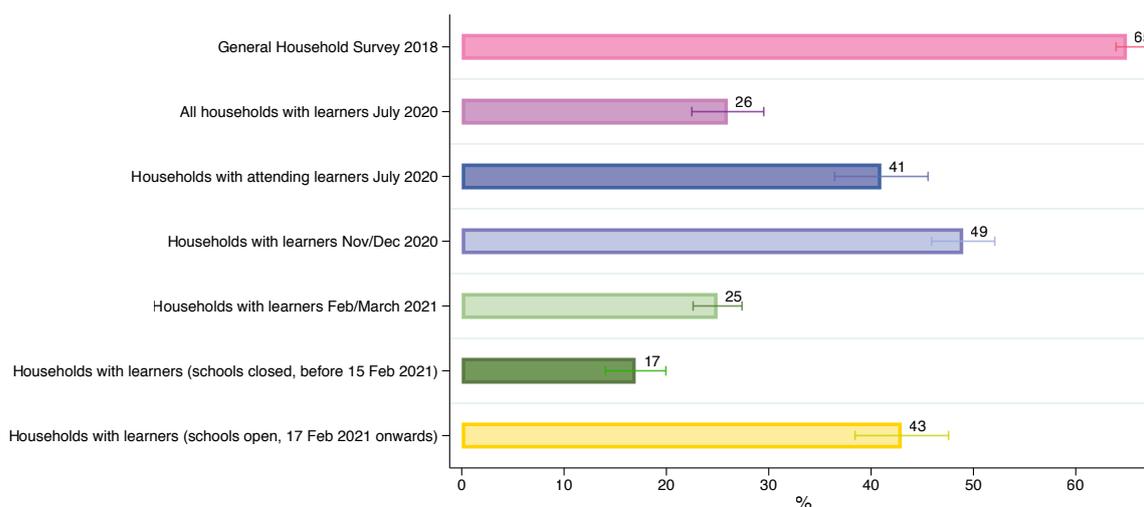
Notes: The balanced sample of respondents living with children (<18 years) is used. Data is weighted appropriately. SFood = Sufficient money for food, InsFood = Insufficient money for food. Standard errors are indicated in parentheses.

4.1. School feeding

One of the most important core services that has been provided by the DBE for more than 20 years is daily meals to eligible learners through the National School Nutrition Programme (NSNP). According to the 2018 General Household Survey, approximately two-thirds of households with learners attending Grades R to 12 reported that children received a school meal at least once a week. In July 2020, roughly a quarter of adults living with school-aged children reported that a learner in the household had received a meal at school in the week prior (see *Figure 7* below). This low number partly reflects the fact that (officially) only learners in grades 6, 7, 11 and 12 were in attendance at the time of data collection. Amongst those respondents living with learners who had attended school, the proportion receiving meals (41%) was still below that of pre-COVID-19 levels (approximately 65% according to GHS 2018).²³ By November/December 2020 when all grades were open, the NIDS-CRAM Wave 3 estimates put school feeding at just below 50% (Mohohlwane et al, 2021: 6).

²³ The proportion of 65% from the GHS 2018 reflects the proportion of households with children (<18 years) that reported learners receiving a meal at school on at least a weekly basis; of these, 89% reported that learners received a meal daily.

Figure 7: Percentage of adults residing with children who received a meal at school



Source: NIDS-CRAM data Waves 2 and 3 (2010) and Wave 4 (2021), and GHS (2018).

Notes: The unbalanced sample of respondents is used. Only respondents who reported living with children (<18 years) are considered for analysis. Data is weighted appropriately. 90% confidence intervals shown.

As mentioned in the introduction, the timing of NIDS-CRAM Wave 4 data collection did not overlap fully with the reopening of public schools. Therefore, we would expect overall school feeding levels to be lower in Wave 4 than in Wave 3. This is confirmed by an estimated 23% of adults interviewed in Wave 4 reporting that a learner in their household received a school meal in the week prior. However, there is a clear discontinuity at the time of the reopening of public schools, with proportions jumping from 17% before 15th February 2021, to 43% after 17th February 2021.²⁴ Note that this 43% figure derives from responses from 942 individuals (compared to 2 606 before 15th February). The weighted sample does show some significant difference in the distribution of these individuals across South Africa when compared to the overall NIDS-CRAM weighted sample of adults living with children. Specifically, the weighted sample of respondents interviewed on 17 February 2021 and later are over(under)-represented by individuals from KwaZulu-Natal (Limpopo). The sample is, however, not significantly dissimilar from the overall sample in terms of gender, race, age and level of education.

Figure 8 presents a transition tree of reported learner access to school meals amongst adults who took part in all of NIDS-CRAM waves 2, 3 and 4. Given differences in learners' access to schools, either due to official school/grade closure and rotational timetables, it is rather unsurprising that little consistency in access to school meals is observed. According to the balanced NIDS-CRAM panel, 42% and 5% of adults reported children in their household never and always receiving a school meal in the past 7 days, respectively. Of the 58% of adults reporting that learners in their household received a school meal at least once during the three waves, less than half (25%) of these reported children receiving meals at school at two points in time.

If we consider interviews that took place during time periods at which schools were open to all grades (i.e. November/December 2020 and 15 February 2021 onwards) and legally meant to be providing meals, we see that just over a third of adults living with children reported no learners receiving a meal in both waves, whilst only a quarter reported learners receiving meals at both time periods (see Figure 9).

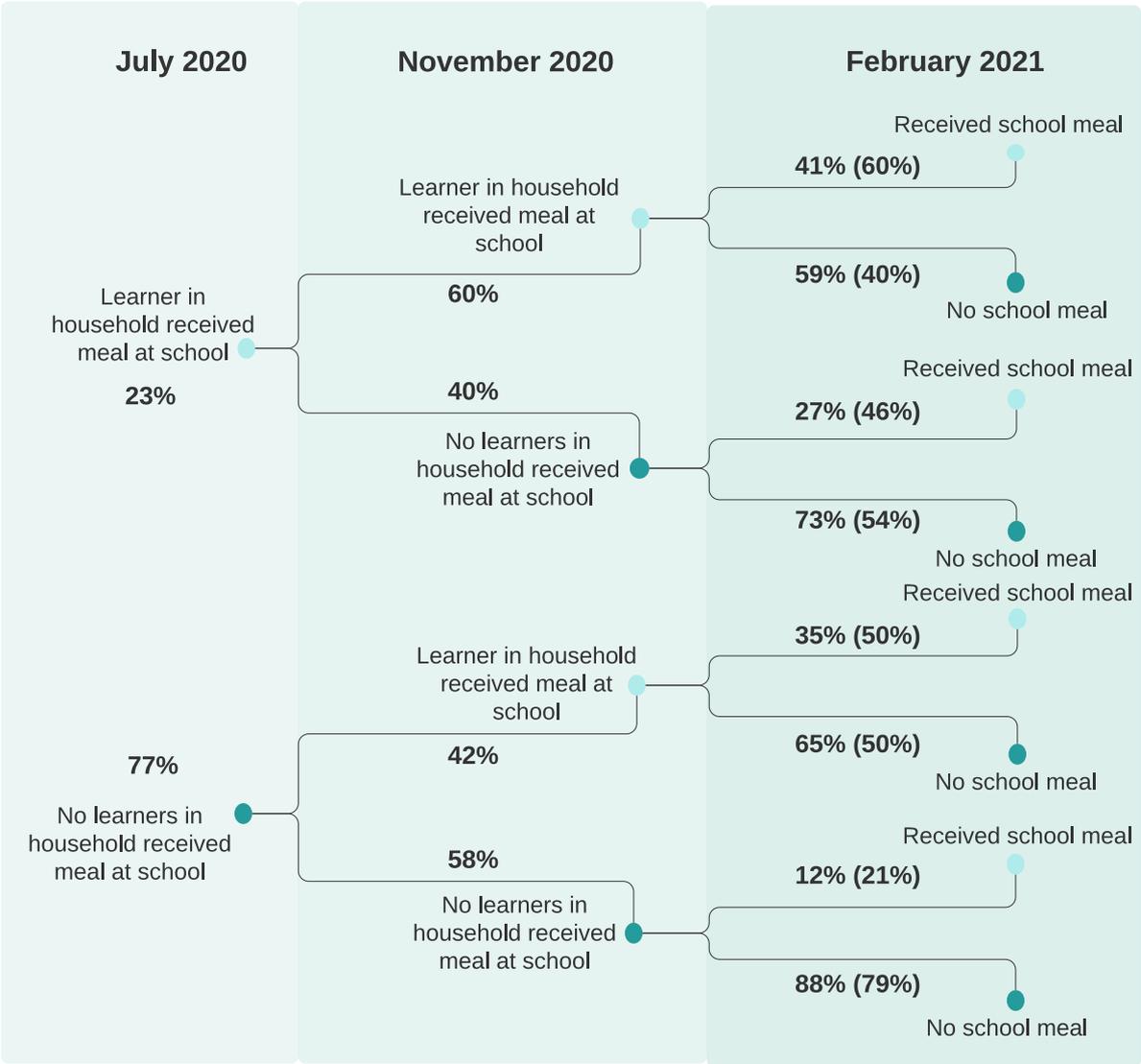
According to the GHS 2018, 10.8% of household report instances of child hunger (defined as insufficient food for children younger than 18 years at least some of the time). Comparing the level

²⁴ We choose this slightly later date given the phrasing of the question "In the past 7 days, have any learners in your household received a meal from school?", as well as the fact that rotational timetabling may have meant that some learners would not have been allowed to attend during the first few days of the 2021 academic year. The proportion of adults reporting that learners received a meal including interviews that took place on the 15th and 16th of February 2021 is very similar at 40%.

of child hunger by access to the NSNP in 2018, 2.8% of households where children attend schools who are not part of NSNP report instances of child hunger, compared to 13.2% of households where children attend schools with NSNP and actively participate in the school feeding programme. This indicates that NSNP is accessed by the most vulnerable households and children. *Figure 9* further includes the level of reported child hunger by receipt of school meals, estimated to be higher than pre-COVID-19 levels, irrespective of access to school meals.

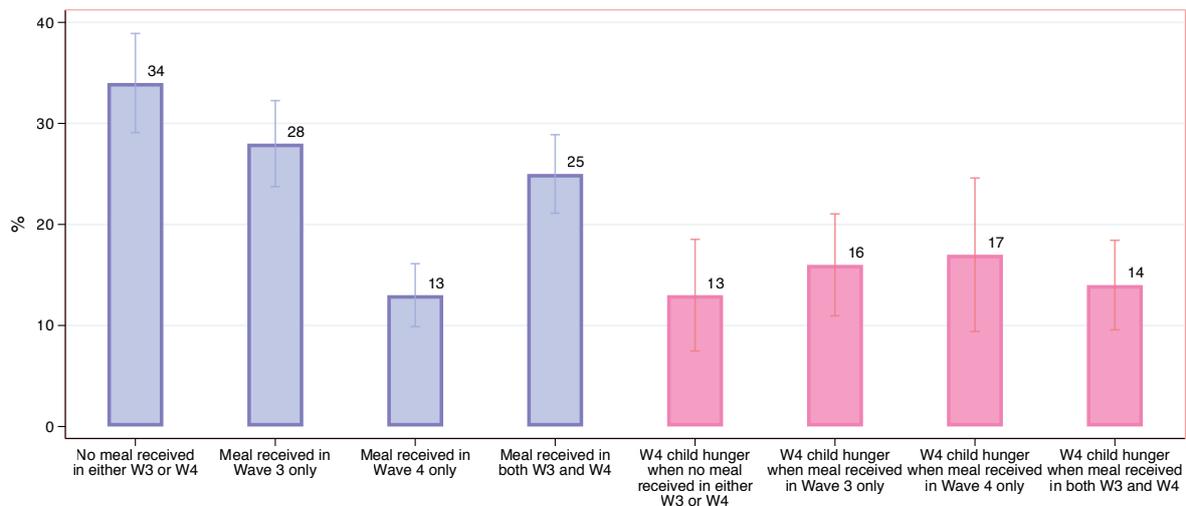
In the sections that follow, we will discuss in more detail the capacity of the school sector to meet the nutrition needs of learners in the context of continued rotational timetabling, as well as the implications of disruptions in school feeding and rising child hunger on adult worry/stress and learner well-being.

Figure 8: Transition tree of access to school meals and associated child hunger, July 2020 – February 2021



Source: NIDS-CRAM data Waves 2 and 3 (2020) and 4 (2021).
Notes: Balanced panel sample of respondents used. Only respondents who reported living with children (<18 years) are considered for analysis. Data is weighted appropriately. The values in parentheses at February 2021 represent data that was collected after 15th February 2021 when public schools were officially opened for the 2021 school year.

Figure 9: Frequency of adults reporting learners in the household receiving a meal at school in Wave 3 and/or Wave 4



Source: NIDS-CRAM data Wave 3 (2010) and Wave 4 (2021).

Notes: The unbalanced sample of respondents from Wave 4 are used. Only respondents who reported living with children (<18 years) are considered for analysis. Data is weighted appropriately. 95% confidence intervals shown.

4.2. Involvement and capacity of the schooling sector

It is clear that disruptions to school attendance led to interruptions in learner access to school meals. While estimates of lost schooling focuses on overall schooling and, increasingly, on lost learning, the number of lost meals is often unquantified. In 2020, the overall school year was reduced from a planned 198 days to 156 days²⁵— a total of 42 days—marked most starkly by the 10-week closure of schools from 18 March 2020 to 7 June 2020 (following several delays in reopening) for most grades. In 2021, a second wave of infections meant that school reopening was delayed by 13 days to 15 February²⁶ from an initial plan to reopen for learners on 27 January 2021.²⁷ During these periods of school closure and delays in reopening, the vast majority of learners were not provided with school meals.

While this is standard practice (NSNP only takes place during the school term), over the past year the significantly reduced school year meant that school holidays were longer than in pre-COVID-19 years. Overall, at least 55 days of school meals were lost between March 2020 and March 2021 due to no schooling. However, based on rotational timetabling and reported challenges in the provisioning of meals even during the school term, 55 days of lost meals is likely to be an underestimate. While learners were allowed to come to school for meals even on days they were not attending school, according to our analysis and DBE reports, this was not the case across schools. In the case of alternate day attendance, this estimate could be increased by half of the schooling days—i.e. 78 days out of the 156 days—making total lost days of meals as high as 133 out of 211.

The transition tree on access to school meals (*Figure 8*) confirms that even during the school term, school meals were not always successfully accessed and/or served. Additional confirmation for this is provided by provincial and national reports on progress in serving school meals. Historically speaking, reporting on the NSNP has occurred publicly as part of the standard annual report. A landmark court ruling on 17 July 2020²⁸ found that the DBE and Provincial Education Departments (PEDs) had first, a constitutional and statutory duty to ensure that the NSNP provides a daily

²⁵ Government Gazette No. 43609, 11 August 2020

²⁶ Government Gazette No. 44162, 16 February 2021. This is the official gazette following prior sharing of the amended calendar in the Department of Basic Education Circular 01 of 2021 published on 21 January 2021

²⁷ Government Gazette No. 43769, 2 October 2020

²⁸ Equal Education and others v Department of Basic Education and others (2020)

meal to qualifying learners, whether they were attending school in person or studying remotely, and secondly, were in breach of their duty following the suspension of the NSNP since 18 March 2020. Significantly, the court ruled that the NSNP is an issue of justice that the DBE and PEDs are responsible for legally, as opposed to a supplementary function. As a result, the court ordered the resumption of the programme within 10 days and the filing of progress reports under oath every 10 days.

To date, seven sets of reports have been due. However, as of 21 April 2021, the latest reports that were due on 14 April 2021 had not been submitted.²⁹ The submitted March 2021 reports confirmed that by 12 March, approximately 1.5 million learners (1 516 319) had not received meals. This number had been as high as just over 2 million learners (2 014 813) a month earlier (17 February 2021).³⁰ The largest changes were observed for the Eastern Cape province, which reportedly doubled the number of learners receiving meals between February and March 2021.

The reports, however, do not provide explanations for the increased feeding of 500 000 learners between February and March 2021. The figures reported for February are based on numbers collected during the two days immediately following the official reopening of schools (i.e. 15th and 16th February 2021). Therefore, we might expect numbers to be lower if attendance was lower for the first few days of the 2021 academic year, which includes the effect of rotational attendance. Other factors that may have contributed include the provision of transport for learners in farm schools in Free State, as well as the provision of food parcels in Mpumalanga and Gauteng. It is also worth noting that the Northern Cape experienced significant challenges between February and March 2021, with the number of learners receiving a meal reduced by almost half due to floods and inaccessibility of schools.

4.3. Longer-term consequences of child hunger

The NIDS-CRAM data and the provincial and national reports on the NSNP has provided us with data and trends over time for the provision of school meals and the overall state of child hunger. What has not yet been discussed are the potential longer-term effects of this. In light of the findings discussed in this paper, we agree that the longer-term effects of child hunger resulting from the pandemic effects in South Africa need serious consideration. The accessibility to, frequency and design of the NSNP programme, including the complimentary benefits provided through the deworming programme, position the NSNP well to contribute to long term child health outcomes. Current disruptions may, therefore, undermine the progress made.

Several reports released in 2020, including the Child Gauge report³¹ published locally and the Global Nutrition Report (GNR)³² internationally, offer some insight into this. These reports describe how food insecurity has an effect not just on immediate hunger, but also on overall child development physically, psychologically and socially. While the Child Gauge reports some progress over time on child nutrition indicators in South Africa, it also highlights serious challenges. According to the report, 27% of children under the age of 5 are stunted; this figure has not changed since 1999, and approximately 17% of adolescent boys (between 15-19 years old) were found to be anaemic in 2016. Both reports further highlight the anticipated negative effects of the pandemic on child nutrition.

As shown in Section 3 of this policy paper, adult worry is highly correlated with food insecurity: NIDS-CRAM participants reporting levels of high worry over an extended period of time were determined to reside in households lacking access to food (due to income shortages) and reporting hunger amongst household members. This is not unusual, as food insecurity has been shown to have psychological effects and is often associated with stress. In a systematic review of research from

29 Section 27 and Equal Education Sixth Letter to the Minister Motshekga and Education MECs on NSNP plans. 21 April 2021

30 Department of Basic Education- Judgement and court order compliance: National School Nutrition Programme. Report as at 21 March 2021

31 May, J. Witten, C. Lake, L. 2020. South African Child Gauge 2020 Food and nutrition security. Children's Institute, University of Cape Town.

32 2020 Global Nutrition Report Action on equity to end malnutrition

developing countries, Weaver and Hadley (2009)³³ found that insecurity causes uncertainty, which is often a cause for worry, stress and, if sustained, depression. It is, therefore, also not surprising that the same participants that expressed high levels of worry about learner return to school were also more likely to express feelings of hopelessness and depression, as well as perceived themselves to be more at risk for getting COVID-19.

While all NIDS-CRAM participants were adults, international literature shows that household food insecurity does not only negatively affect adults, but also children. In a recent qualitative study of 60 children between the ages of 7 and 14 from food insecure households, Lueng et al. (2020)³⁴ found that children worried about not having enough food, as well as about the effect that this has on their parents, expressed feelings of embarrassment and sadness about their situation. In the context of South Africa, we can argue that the majority of children in food insecure households are aware of their status, particularly as they are direct participants in the NSNP programme and receiving meals from school. When learners are not receiving meals from school, and these meals are not being replaced by alternative sources, children's awareness of food insecurity becomes even more stark. We might, therefore, extrapolate that those learners eligible for NSNP, but not receiving meals at school, are significantly at risk of experience psychological strain, as has been observed in other contexts.

5. Effects of the COVID-19 pandemic on teaching and learning

Rotational teaching schedules inevitably mean that even when schools re-opened, the majority of learners still spent half of their time at home. In highly resourced contexts, the implications of the rotational teaching may not have been as severe, since some learners were able to attend classes through virtual means. In South Africa, however, most schools serve learners in poorly resourced contexts where virtual teaching is not an option. Although the EGRS II sample of schools are not representative of the country, or even Mpumalanga, it nevertheless provides us with a better understanding of the context under which teaching and learning occurred during 2020 in Quintiles 1, 2 and 3 schools in rural areas. In addition, the EGRS I contextual data collected in North West in January 2021 confirms the same resource constraints and experiences, with less than 4% of teachers used any form of virtual teaching. The findings from both the EGRS I and II are discussed below to provide contextual insight on parent, teacher and school responses to the pandemic.

The main purpose of the EGRS I and II studies was to evaluate the impact of different interventions on reading outcomes in the Foundation Phase. The first Early Grade Reading Study (EGRS I) targeted Setswana Home Language literacy and the second study (EGRS II) targeted English as a First Additional Language (EFAL). In both studies, targeted teacher support was provided through a structured learning programme that entailed the provision of daily lesson plans with integrated materials, as well as teacher training and support. In both studies, teachers were supported over one year, with the intervention following learners; that is, grade 1 teachers were supported in the first year, grade 2 teachers in the second year, and grade 3 teachers in the third year.

In EGRS I, three separate interventions targeting Setswana HL literacy were evaluated. The first two consisted of the same lesson plans and integrated materials, with the main difference being the mode of support to teachers. The third intervention had a different theory of change, focusing on parental involvement. Implementation took place from 2015 to 2017 in 230 schools, with 50 schools allocated to each intervention arm and 80 schools allocated as the control group. The same learners were tracked throughout the Foundation Phase and were assessed at the ends (between October to November) of grade 1 (2015), grade 2 (2016), and grade 4 (2018).

33 Weaver, L. J., & Hadley, C. (2009). Moving beyond hunger and nutrition: a systematic review of the evidence linking food insecurity and mental health in developing countries. *Ecology of food and nutrition*, 48(4), 263-284.

34 Lueng, C. W., Stewart, A. L., Portela-Parra, E. T., Adler, N. E., Laraia, B. A., & Epel, E. S. (2020). Understanding the psychological distress of food insecurity: a qualitative study of children's experiences and related coping strategies. *Journal of the Academy of Nutrition and Dietetics*, 120(3), 395-403.

EGRS II was aimed at determining the effectiveness of two different coaching modalities, namely: in-person coaching and virtual coaching. To evaluate the impact of these interventions, learners were assessed on reading outcomes in their Home Language (HL) and English as First Additional Language (EFAL) from the start of grade 1. The study took place in 180 schools located in the Ehlanzeni and Gert Sibande Districts of Mpumalanga, with 50 schools assigned to each of the interventions and 80 control group schools. As with EGRS I, the same learners were tracked throughout the Foundation Phase and assessed at the ends (between October and November) of grade 1 (2017), grade 2 (2018), grade 3 (2019) and grade 4 (2020).

In both EGRS I and II, a sample of 20 learners per school were randomly selected at the start of grade 1 and tracked through to grade 4 as a longitudinal study. The original EGRS I sample of learners assessed at the start of 2015 consisted of 4 538 learners, with 3 304 of these learners (73% of the original sample) successfully assessed in Wave 4 at the end of 2018. In the case of EGRS II, 3 482 learners were assessed in 2017, and 3 327 (95% of the original sample) were successfully assessed in 2020.

In addition to learner assessments, teacher, school principal and home background questionnaires were collected in both EGRS I and II to provide contextual information. A recent addition to this contextual data was a survey specific to COVID-19 that was administered telephonically to 439 EGRS I teachers and school management team (SMT) members between 20th and 30th January 2021.

To provide a more accurate sense of the context pre-COVID, in 2017, the guardians of learners in the EGRS II sample were asked whether they owned a computer; only 12% responded that they did. Additionally, only 39% of the children in this sample lived in a household where the main caregiver had a completed matric. When asked whether there were reading books appropriate for children in their households, almost a third of guardians in the sample reported that there were no children's reading books in the home, whereas a further 52% indicated that they had between one and five books. Just less than two-thirds (63%) of parents reported that they have never visited their local library, and a further 19% responded that there was no public library nearby to where they live (Department of Basic Education, 2018).

Parents and guardians in low resourced households are often not aware of the additional activities that they can do with their children, or are at work during the day with little time to dedicate to their children's education. Overall, 41% of the caregivers responded that they read to their children only minimally (once per week or less). This is most likely an overestimate, given that caregivers are likely to provide a socially desirable response to a question pertaining to the education of their children. Even if this is an overestimate, it is safe to assume that there are very few learning opportunities for learners if not provided through the school, and parents in these contexts would require some guidance or support on how best to actively support their children's educational development during the time that they were not attending school.

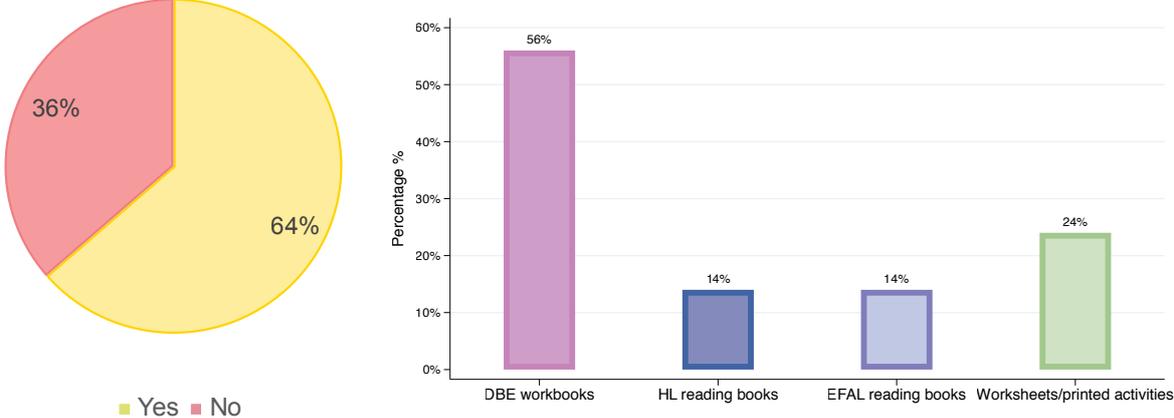
5.1. EGRS I and II teacher perspectives on schooling during the pandemic

In November 2020, the grade 2 and grade 3 teachers in the EGRS II sample were asked whether they or the school made any workbooks or other reading materials available for learners to take home. Almost two-thirds of teachers responded that they had made some learning resources available (*Figure 10*). Of the teachers who responded that they had made resources available, over half mentioned that these took the form of departmental workbooks, and a quarter mentioned that they had made worksheets or printed activities available. Only 14% of teachers responded that they had made either Home Language (HL) or English First Additional Language (EFAL) reading books available for learners to take home. In the case of EGRS I, when grade 1 to 3 teachers and SMTs were asked about sending materials home, 87% of respondents indicated that they had sent materials home, with DBE workbooks mentioned most (63%) followed by printed activities (34%).

If we account for the fact that 36% of teachers reported no provision for take-home materials in EGRS II, this implies that less than 40% of teachers (36%) reported that DBE workbooks were made

available to learners to take home. This low proportion is particularly concerning, as administrative data (as well as data from the General Household Survey report) indicated that enough workbooks were delivered to schools for each child to have their own workbook per subject (HL, EFAL, Mathematics and Life Skills) per grade. This indicates that although access to workbooks is not a problem, they are perhaps not being used as intended.

Figure 10: Materials made available for learners to take home



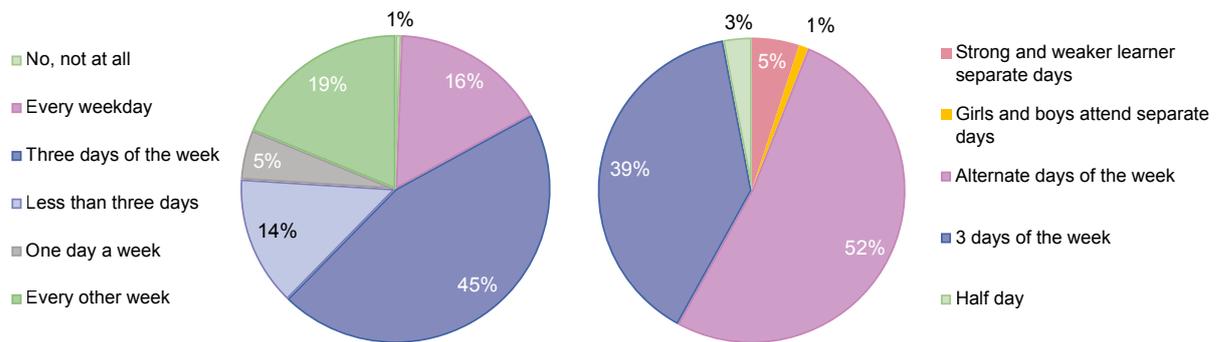
Source: EGRS II (2020), grade 2 and grade 3 teacher questionnaires.
Notes: The responses for the second graph are conditional on having responded “Yes” to the question in the first graph.

Furthermore, only a quarter of teachers in EGRS II indicated that they or the school contacted parents to provide support or additional activities for learners during lockdown. In the case of EGRS I, the most popular mechanism of communication with parents was WhatsApp messaging (37%). More concerning, however, is the very low percentage (7%) of teachers who reported sending learner work through parents. This means that during the 10-week closure between March and June 2020—the duration of which was longer than planned—teachers did not lead learning through parents. When asked about how communication between school management and teachers changed, noting that this may have had a bearing on how teachers communicated, 62% of SMTs reported communicating less often or less directly.

Schools were provided with various options when considering the implications of social distancing for their time scheduling. Of the teachers in the EGRS II sample, 77% responded that the number of learners attending lessons in their grade was smaller than usual. About 16% of teachers indicated that learners were coming to school every day of the week, 45% indicated that learners came to school three days of the week, and 19% indicated that children were coming to school every second week (see *Figure 11*).

A higher proportion (96%) of EGRS I teachers reported that the number of learners that had returned to school was smaller than usual. None of the teachers reported daily attendance, with the most popular model being attendance every second day (52%), and the next most popular method being the 10-day cycle where learners attend for 3 days in one week and 2 days in the next week (39%). Interestingly, a small percentage of respondents (3%) were implementing a half day model teaching one group of learners in the morning and a second group in the afternoon.

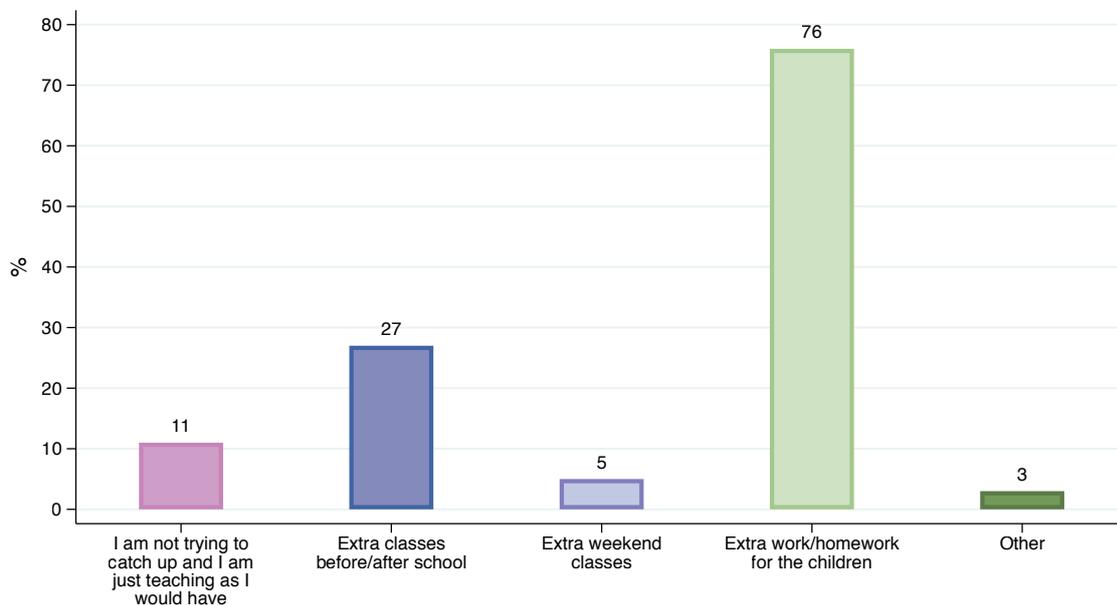
Figure 11: Rotational option followed at school



Source: EGRS II (2020), grade 2 and grade 3 teacher questionnaires; EGRS I (2021) grade 1 to 3 teacher and SMT questionnaires with multiple option responses

With the dramatic loss in teaching time, teachers have been faced with many complexities in terms of trying to catch up and deal with the increased variation in learner abilities in their classes. Most teachers in EGRS II responded that they were trying to catch up on lost teaching time by providing learners with extra homework; a quarter of teachers also mentioned that they were implementing extra classes to assist with catch-up (see *Figure 12*). When asked how they were dealing with the fact that some children may have forgotten more of the work than others, teachers were most likely to respond that they spend time revising previous work with all their learners, or that they focused specifically on revising work with weaker learners.

Figure 12: How are you currently trying to catch up on the lost teaching time?



Source: EGRS II (2020), grade 2 and grade 3 teacher questionnaires.

Notes: Multiple response options could be chosen.

EGRS II teachers were also asked whether learners would catch-up any learning losses from 2020 in 2021. About 41 percent said “yes”, 25% said “no”, and nearly a third (32%) responded “somewhat” or “maybe”. Just one percent indicated that they didn’t think there would be learning losses. While catch-up questions were not asked in EGRS I, teachers were asked whether they think learners would catch-up any learning losses from 2020 in 2021. Similar to EGRS II, almost three quarters

(73%) said “yes” or “maybe”, while 25% said “no”. A further 1% thought there would be no learning losses, and 1% did not respond.

When asked about their wellbeing and how behind learners were, 64% of EGRS I teachers reported that they felt stressed or worried by the pandemic, and only 36% felt they were especially supported by principals during this time. Less than half of teachers (40%) felt very or moderately supported by the district, while 20% felt that they were not supported. In addition, a mere 5% of respondents thought learners were on track, indicating that 95% believed learners were behind their normal trajectories.

5.2. Lost schooling and reading outcomes

The end-of-grade 4 EGRS II learner assessment (administered in 2020) was designed to be comparable to the end-of-grade 3 learner assessment (administered in 2019), with the aim of evaluating the learning gains in reading outcomes during the grade 4 year. The same passage was used for the HL oral reading fluency (ORF) in the grades 2, 3 and 4 assessments, making the results directly comparable over time. Similarly, the EFAL ORF, the EFAL word reading, the EFAL listening comprehension, and the HL written comprehension are directly comparable between grades 3 and 4. However, the HL and EFAL ORF tasks are the only tasks where it is possible to compare the learning gains in grade 3 to the learning gains in grade 4. For the remainder of the tasks, we only include the grade 4 learning gains.

Table 4 shows the mean scores achieved in each grade on each of the tasks, the difference between the mean scores (the learning gains), and whether the mean scores are significantly different.³⁵ The full sample of learners (pooling all treatment and control groups) have been included in the analysis, since the learning gains are very similar across treatment and control groups of learners.³⁶

There were significant gains in reading outcomes in both HL and EFAL in grade 3: At the end of grade 2, learners on average read 14.5 words correctly per minute (*wcpm*) in their HL, whereas they read 22 *wcpm* by the end of grade 3, and 23.7 *wcpm* by the end of grade 4. This signifies gains of 7.8 additional words in grade 3, but only 1.2 additional words in grade 4. Similarly, in EFAL, learners gained 9.8 additional words correct in grade 3 and 7.1 additional words correct in grade 4. Therefore, whilst reading gains in HL dropped quite significantly in grade 4, it remained relatively consistent for EFAL.³⁷

³⁵ Significance was determined through a t-test of the mean scores.

³⁶ This seems to suggest that the treatment effect may not have been sustainable a year after the interventions, however, the sustainability of the treatment effects will be discussed in greater detail in the EGRS II wave 5 report.

³⁷ It should be noted that there is a general difference between the average *wcpm* between HL and EFAL which is a result of the different orthographies and language structures. For more information on this, please see the Department of Basic Education’s Reading Benchmark Report.

Table 4: Learning levels and learning gains on comparable tasks between grade 2 and grade 4

	N	HL ORF (wcpm)	EFAL ORF (wcpm)	EFAL Word Recognition (wcpm)	EFAL Listening	HL Written Comprehension (nqc)	Maths (nqc)
End of grade 2	2 763	14.53	19.19	-	-	-	-
End of grade 3	2 684	21.99	28.29	23.78	0.99	2.30	1.43
End of grade 4	2 405	23.71	36.21	27.83	1.30	2.57	2.78
Raw Gains gr2- 3	2 476	7.79***	9.81***	-	-	-	-
Raw Gains gr 3-4	2 315	1.24***	7.14***	3.49***	0.28**	0.20***	1.30***
SD ³⁸ Gains gr 2-3	2 684	0.49***	0.44***	-	-	-	-
SD Gains gr 3-4	2 405	0.10***	0.82***	0.19***	0.29**	0.14***	1.08***

Source: EGRS II data (2018-2020).

Notes: Full sample of learners included and learning gains for both isiZulu and Siswati are combined. wcpm = words correct per minute, nqc = number of questions correct.

*** significant at the 1% level

** significant at the 5% level

* significant at the 10% level

This could be a result of the language transition in grade 4, that is, the language of learning and teaching changes from a learners' home language to English. Despite this transition to English, learners still have their home language as a subject, and one would therefore still expect them to have shown some learning gains. It is very difficult to establish whether the drop in the HL outcomes is due to the language transition, or as a result of the lost learning time. In the next section we compare these EGRS II results to those in different studies to better understand this drop in learning gains.

5.3. Comparing EGRS II learning gains with other studies

It is challenging to establish a credible counterfactual for an event such as a pandemic where all learners were similarly impacted by school closures and rotational teaching time. Nevertheless, to get a better sense of the consequences of the pandemic on reading outcomes, we can compare the grade 4 EGRS II learning gains with learning gains reported in similar South African contexts conducted in pre-COVID times. Two such studies include the Story Powered Schools (SPS) study in KwaZulu-Natal and the First Early Grade Reading Study (EGRS I) in the North West.

The SPS study assessed grade 2, grade 3 and grade 4 learners on their HL reading outcomes in no-fee (Quintile 1 – 3) schools in isiZulu and isiXhosa between 2017 and 2019.³⁹ The design of the SPS study was different from that of the EGRS II study, in that two different cohorts of learners were used to evaluate the impact of the interventions. This means that the grade 2, grade 3 and grade 4 reading outcomes are not from the same sample of learners, and should therefore be interpreted as grade averages collected at various points in time from the same schools. For example, both the grade 3 and grade 4 outcomes were measured at the end of the third term in 2018. Also, no assessment was conducted at the end of grade 2, but rather at the beginning of grade 3. Thus, the grade 3 learning gains reflect gains over three quarters of a year, rather than a full year.

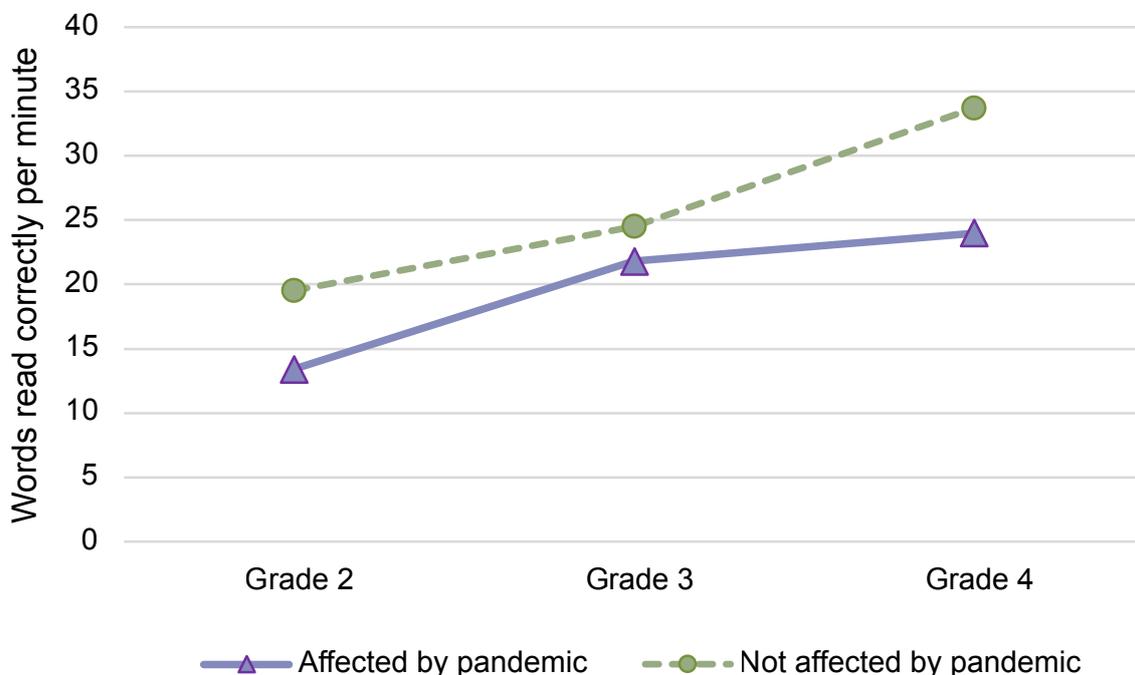
From *Figure 13* below, we can see that, before COVID, the SPS sample of learners' performance in *wcpm* was above that of the EGRS II sample of learners. The average grade 3 learner in SPS was reading 24.5 isiZulu *wcpm*, relative to an average of 21.8 isiZulu *wcpm* for learners in the EGRS II sample. Nevertheless, among the EGRS II isiZulu learners, the average reading gains from grade 2

³⁸ To calculate the standardised gains between grade 2 and grade 3, the grade 3 scores were standardised to the grade 2 mean and standard deviation. Similarly, to calculate the standardised gains between grade 4 and grade 3, the grade 4 scores were standardised to the grade 3 mean and standard deviation.

³⁹ Only the isiZulu reading outcomes are considered in this analysis in order to increase the comparability of the reading outcomes.

to grade 3 were 8.4 *wcpm*, and for SPS it was 5 *wcpm*.⁴⁰ However, in grade 4 in 2020, the average reading gains for EGRS II indicates an almost flattened trend, with gains of only 2.2 *wcpm*. In comparison, the reading gains between grades 3 and 4 were 9.2 *wcpm* for SPS in 2018. Effectively, this implies that home language (HL) reading development virtually halted in 2020 amongst grade 4 EGRS II learners.

Figure 13: Comparing EGRS II and SPS grade 2 to grade 4 reading gains in HL



Source: Own calculations using EGRS II and SPS data.
Notes: Only the isiZulu learning outcomes for EGRS II are used.

Since the orthography of Setswana is very different from that of isiZulu, we cannot compare the HL reading outcomes of EGRS I to EGRS II, but rather compare grade 3 and grade 4 English reading outcomes. For the English First Additional Language (EFAL) oral reading fluency (ORF) assessment, the exact same reading passage was used in both EGRS I and EGRS II for grades 3 and 4. A further useful comparison across the EGRS I and EGRS II assessments is the fact that coaching interventions were trialed in both studies. We still interpret the grade 3 and grade 4 outcomes as the grade average, however, since both the EGRS I grade 3 and grade 4 scores were measured at the end of 2018, and therefore do not represent the same learners.

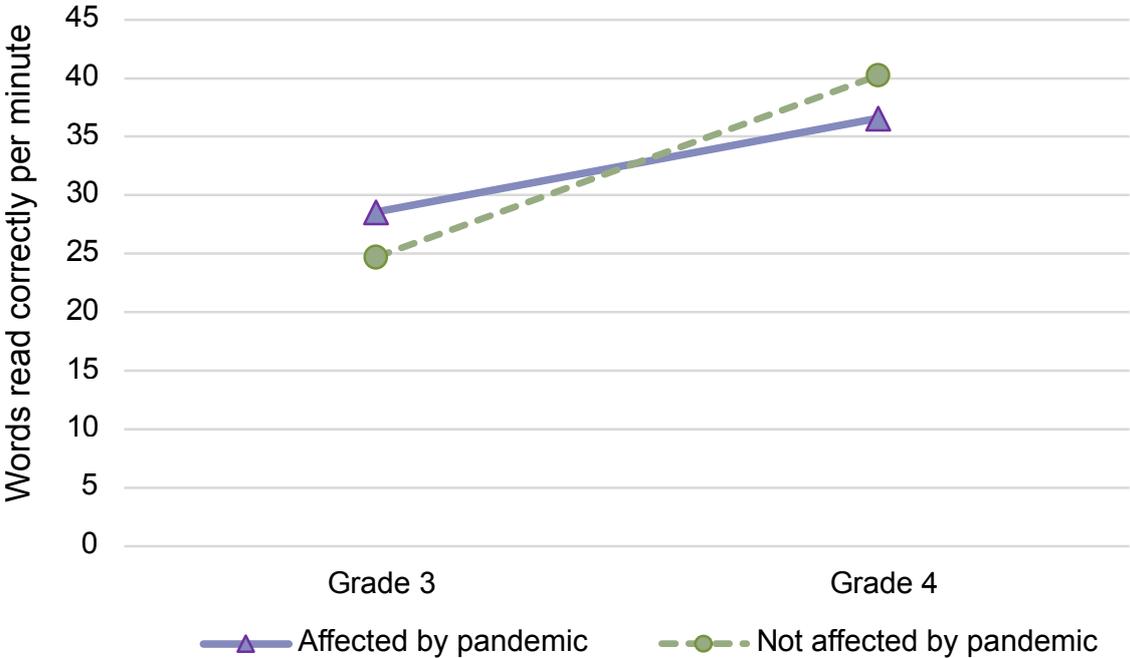
Figure 14 depicts EFAL reading outcome gains between grades 3 and 4. Despite EGRS II learners performing slightly better than EGRS I at the end of grade 3, it is evident that the difference in average scores between the end of grade 3 and the end of grade 4 is much lower than that of EGRS I learners. For EGRS I, the difference in average scores between the grade 3 and grade 4 cohorts from the control group was 15 *wcpm*, whilst that for the coaching group was 16 *wcpm*. For EGRS II, control group learners showed an increase of 8.5 *wcpm*, whereas the coaching group learners showed an increase of 5.3 *wcpm*.

Table 5 summarises the comparisons of learning gains in HL and EFAL in the EGRS II study to the learning gains in the SPS and EGRS I study. This provides a rough quantification of the learning loss relative to a year of schooling. If we assume that the grade 4 learning gains in SPS provides us with the business-as-usual learning gains in HL reading, then we would have expected EGRS II learners to have gained an additional 9 *wcpm* on average over the course of 2020. However, the gain observed was, on average, an additional 2 *wcpm*. This translates to just less than a quarter

⁴⁰ The learning gains in SPS may be lower since they were only measured between Term 1 and Term 3 of the Grade 3 year.

of a year's worth of reading development, suggesting that the EGRS II learners lost just more than three-quarters of a year's worth of learning to read. Regarding EFAL, we note an average increase of 15.5 *wcpm* in the EGRS I sample in grade 4. The comparative increase amongst the EGRS II sample in 2020 was only 8 *wcpm*. This signifies a loss of about half of a year's worth of learning to read in EFAL.

Figure 14: Comparing EGRS I and EGRS II grade 3 to grade 4 gains in EFAL ORF scores (wcpm)



Source: Own calculations using EGRS II data and EGRS I data.
Notes: Only the control and coaching intervention learners are included.

Table 5: Comparing learning gains relative to learning gains in previous years in comparable studies

	HL				EFAL			
	EGRS II		SPS		EGRS II		EGRS I	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
End of grade 2	13.41	14.55	19.56	14.57				
End of grade 3	21.82	17.89	24.52	16.28	28.54	30.25	24.69	28.89
End of grade 4	24.01	18.72	33.67	18.06	36.55	33.58	40.23	37.39
Raw gains gr2 - 3	8.41		4.96					
Raw gains gr3 - 4	2.19		9.15		8.01		15.54	
Gains SD gr 2-3	0.58		0.34					
Gains SD gr 3-4	0.12		0.56		0.26		0.54	
% of a year of learning lost	76%				48%			

Source: Own calculations using EGRS II data, SPS data and EGRS I data.
Notes: For the HL comparison, only the isiZulu learning outcomes were included. For the EFAL comparison, only the control and coaching intervention learners were included.

Learning losses have been reported across multiple contexts, including the United Kingdom and Canada, and have been more substantial amongst public and less resourced schools (McKinsey, 2021).⁴¹ Similar learning loss patterns for Brazil have been estimated using Brazil's Basic Education, and are estimated to have set the country's learning trajectory back by up to four years.⁴² These losses were also shown to be unequal, with the least resourced schools the most impacted.

As discussed earlier, very few of the schools sampled in EGRS II and I provided learners (or their parents) with additional learning resources to support learning at home. As was illustrated in *Table 5*, this dramatic loss in opportunities for learning has translated into severe learning losses. In Home Language, learners lost up to three quarters of a year of learning, and in EFAL almost 50% of a year of learning. This learning loss implies that by the end of grade 4, learners in our EGRS sample were at the risk of not ever reading fluently enough to be able to comprehend what they are reading in their home language, as well as at risk of not being able to transition to reading independently. Future development and learning will be substantially limited if learners are not able to extract meaning from text when reading independently at the end of grade 4.

5.4. Comparing EGRS II grade 4 reading outcomes with the reading benchmarks

In 2020, the Department of Basic Education (DBE) released a technical report on the development of reading benchmarks in the Nguni language group. This report proposes a lower oral reading fluency (ORF) threshold of 20 words read correctly in a minute (*wcpm*) for learners at the end of grade 2. This threshold acts as a minimum threshold below which learners are very unlikely to comprehend what they read, and without improved fluency, will be unlikely to develop further comprehension skills. The report further proposes an upper ORF threshold of 35 *wcpm* for learners at the end of grade 3. Once learners reach this level of reading fluency, reading comprehension becomes increasingly possible. Since all learning from grade 4 onwards is dependent on a learner's ability to read independently for meaning, this upper reading threshold needs to be reached. This section, therefore, considers the gains made in 2020 in terms of the additional proportion of learner who managed to reach these thresholds.

As indicated in *Table 6*, 39.5% of the learners in the EGRS II sample had met the lower ORF threshold by the end of grade 2, indicating that 60% of learners were unlikely to comprehend what they read. By the end of grade 3, 58% of learners could reach the lower threshold; however, by the end of grade 4, no additional learners had reached this threshold. This implies that, by the end of grade 4, 40% of the learners in the EGRS II sample could not read fluently enough to be able to understand what they are reading.

In terms of the upper threshold, we note that 11% of learners in grade 2 could already read at a level of fluency to be able to comprehend what they are reading. This percentage increased to 30% by the end of grade 3. However, the proportion of learners reading at this threshold by the end of grade 4 increased by only 2 percentage-points. Roughly two-thirds of the learners in this sample, therefore, could not read fluently enough by the end of grade 4 to be able to learn independently.

41 McKinsey & Co report, 2021. Teacher Survey: Learning Loss is Global – and Significant. While the findings of this report are based on teacher surveys, it is anticipated that learner assessments will confirm this.

42 Learning and Evaluation and Results Learning Center for Brazil and Lusophone Africa, 2021, O IMPACTO DA PANDEMIA NA EDUCAÇÃO Avaliação Amostral da Aprendizagem dos Estudantes

Table 6: Percentage of EGRS II learners reaching the lower and upper reaching thresholds

	Lower threshold (20 wcpm)		Upper threshold (35 wcpm)	
	%	s.e	%	s.e
Grade 2	39.5%	0.01	10.8%	0.01
Grade 3	58.1%	0.01	29.5%	0.01
Grade 4	58.9%	0.01	31.4%	0.01

Source: EGRS II data.

Notes: Full sample of learners included.

5.5. How to limit learning losses now?

All three of the standardised international assessments of learning in which South Africa participates⁴³ have documented substantial improvements in the quality of learning since about the mid-2000s. Admittedly, these improvements were off a very low base, and the absolute level of learning remains below many comparable developing countries and is only slightly above average in the Southern and East African region. Prior to the pandemic, the PIRLS 2016 study indicated that about 78% of South African children do not learn to read with adequate comprehension by grade 4.

Unfortunately, the learning losses that have been documented in this section confirm what previous simulations were pointing to: As a result of the disruptions to schooling in 2020, children are far behind where they would otherwise have been in terms of core learning outcomes, such as reading. This crisis has only aggravated an already massive challenge around learning outcomes in South Africa. According to some estimations, it could take 10 or more years to return to the improvement trend we were on in terms of early grade reading outcomes (Gustafsson and Nuga-Deliwe, 2020).⁴⁴ Perhaps more worryingly, the children whose early learning has now been negatively affected by this extraordinary disruption to schooling may never fully recover what was lost. Indeed, international studies of disasters that have caused similar significant disruptions to schooling have shown lifelong negative impacts, such as lower ultimate educational outcomes and lower lifetime earnings.⁴⁵

Unfortunately, disruptions to schooling are not likely to be a feature of 2020 alone. The current situation in schools is predominantly one of rotational timetabling, whereby children attend school every other day, every other week, or some other similar arrangement. Therefore, up to 50% of teaching time (or more) continues to be lost at the time of writing this policy paper, with further associated learning losses. As the DBE endeavors to implement learning recovery plans, there is little doubt the most effective intervention going forward would be to limit further losses in teaching time and minimizing rotational timetables. The extent to which this is possible, however, will continue to depend on the perceived COVID-19 related health risks posed by attending school. The next section of this paper explores the extent of these risks.

6. The health risk to learners and teachers

As discussed in the previous NIDS-CRAM papers on education (Mohohlwane et al., 2020, 2021), the health risk posed by COVID-19 to children is relatively low, and both local and international

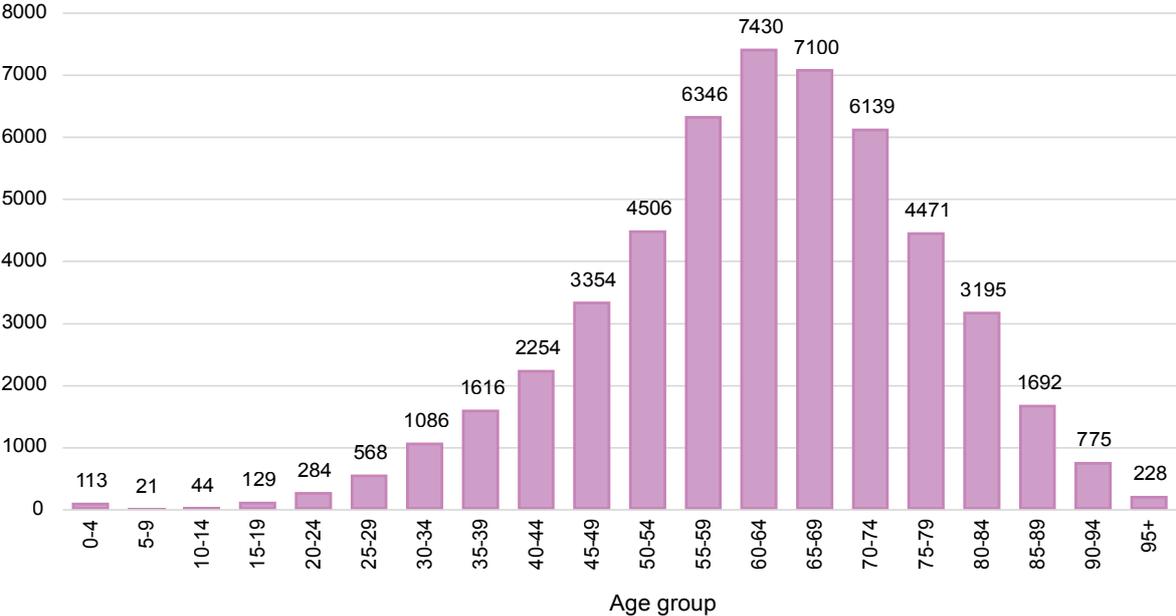
43 These assessments are the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading and Literacy Study (PIRLS) and the Southern and East African Consortium for Monitoring Educational Quality (SEACMEQ). These surveys are designed to measure learning trends over time.

44 Gustafsson, M. & Nuga-Deliwe, C (2020). How is the COVID-19 pandemic affecting educational quality in South Africa? Evidence to date and future risks.

45 Spaul, N. & Kotze, J. (2015). Starting behind and staying behind in South Africa: The case of insurmountable learning deficits in mathematics. *International Journal of Educational Development*, 41: 13-24; Van der Berg, S., Gustafsson, M. & Malindi, K. (2020). Education and skills for the economy and links to labour markets in South Africa. Pretoria: National Planning Commission

evidence has continued to indicate this. Children, especially young children, appear less likely to contract the virus and are much less likely to become seriously ill from it (Munro and Roland, 2020). *Figure 15* below shows that the risk of death in South Africa is strongly correlated with age and that children remain at low risk. This remains the case with the prevalence of a new variant of the virus from about October 2020. Keeping in mind that there are far more 5- to 9-year-olds in the South African population than there are 60- to 64-year-olds, it is significant that only 21 children in the former age group were reported to have died due to COVID-19 as at 27 March 2021, compared with 7 430 deaths among 60-64-year-olds. Whilst any death is tragic, it is also important to consider that approximately 3 000 children in this age group die every year due to other causes, including infectious diseases (Statistics South Africa, 2020).⁴⁶

Figure 15: Numbers of all deaths in South Africa due to COVID-19 by age up to 27 March 2021 (total deaths = 51 351)



Source: Data obtained from NICD weekly sentinel hospital report for Week 12 of 2021

Given the low risk posed to learners, the main concern becomes the risk that school attendance could contribute to an unacceptably high rate of transmission amongst parents and/or teachers. Here, the case is not as clear cut as the risk to children themselves. However, local and international evidence has begun to indicate that school closure was not a particularly effective strategy for reducing the spread of the SARS-CoV-2 virus and, conversely, that reopening schools was not linked to an unacceptable increase in virus spread (Munro and Faust, 2020).⁴⁷ The NICD in South Africa has also concluded that there have been “no consistent changes in incidence trends associated with the timing of opening or closing of schools” (NICD, 2021).⁴⁸

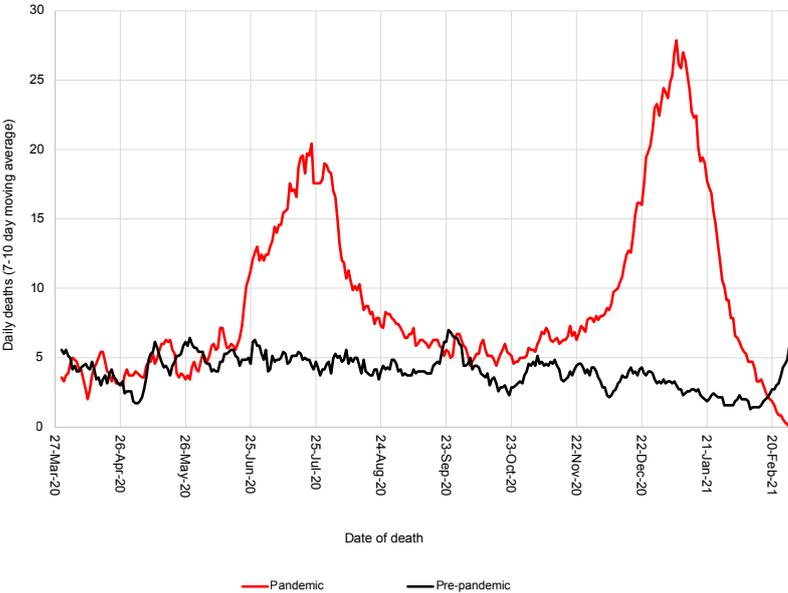
New analysis of teacher payroll data (PERSAL) uses an excess deaths approach to estimate the number of deaths amongst publicly employed educators attributable to COVID-19. In total there are 401 327 teachers on the PERSAL system. *Figure 16* compares the numbers of daily deaths amongst teachers reported in the PERSAL system in the year before the pandemic (2019) to those numbers reported at the same time of year during the pandemic (2020). Sadly, it is immediately obvious that there was an increase in excess deaths amongst teachers at the time of the first and second

⁴⁶ Statistics South Africa. 2020. “Mortality and causes of death in South Africa
⁴⁷ Munro, A. P., & Faust, S. N. (2020). Children are not COVID-19 super spreaders: time to go back to school. Archives of Disease in Childhood, 105(7). Available at <http://dx.doi.org/10.1136/archdischild-2020-319474>
⁴⁸ NICD. 22 January 2021. COVID-19 Special Public Health Surveillance Bulletin. Volume 18, Issue 7.

waves of the pandemic, peaking in July and January, respectively. It is also noticeable that there were not significantly more excess deaths during the months of September, October and November 2020, a period during which all grades were attending school; this is opposed to July 2020, when only certain grades began to return, and January 2021 when schools were closed. The daily death mortality rate was 4 deaths (3.7) out of 1 000 people prior to the pandemic, increasing to 8 (8.2) during the pandemic. Overall, the excess deaths of 1 678 teachers were noted between March 2020 and February 2021, increasing the overall deaths from the expected 1 354 'based on non-pandemic trends, to a total of 3 032 deaths (Gustafsson, Maponya, and Mahlangu, 2021).⁴⁹

Although this does not necessarily prove that attending school does not increase the risk faced by teachers—since it is conceivably possible that even more teachers would have died during the first and second waves if schools had been open at the time—it does suggest that the major factor influencing the risk to teachers is the overall prevalence of the virus in society, rather than school attendance.

Figure 16: Daily teacher deaths in 2019 before the pandemic (3.7 deaths) and during in 2020 during the pandemic (8.2deaths)



Source: Calculations by Martin Gustafsson, using teacher payroll data (PERSAL) for 2019 and 2020.
***Note:** the graph is based on mortality rates (deaths in a year per 1000) educators

Conclusion and recommendations

This paper contributes to the emerging body of evidence in the basic education sector on the effects of COVID-19 on schooling, and in turn, associated aspects such as well-being affected by worry, nutrition and hunger, health risks posed by opening schools, as well as learning losses. The ongoing debates and decisions around how to do schooling in the time of COVID-19 revolve around a trade-off between two main factors: It is about balancing the COVID-19 related health risks to children, parents and teachers caused by attending school with the harm caused to children by not attending school. So, just over a year into the pandemic, what do we know about each of these factors?

⁴⁹ Gustafsson, M. Maponya, T and Mahlangu, M. 2021. Excess deaths of publicly employed educators during the COVID-19 pandemic1. Analysis for the Department of Basic Education

COVID-19 health risks of schooling:

Fortunately, it turns out that the health risks posed by COVID-19 to children (especially young children) are low: Children are less likely than adults to contract COVID-19, are much less likely to become seriously ill, and do not seem to be responsible for much of the spread of the virus. Whereas about 3 000 children aged 5-9 die annually in South Africa due to a variety of causes, only 21 children aged 5-9 died from COVID-19 between 5 March 2020 and 10 April 2021 (over a year). This is compared to 7 553 people between the ages of 60 and 64.

Turning to teachers, our paper provided an estimate of the number of deaths amongst publicly employed educators attributable to COVID-19 using administrative data. We compared the numbers of daily deaths amongst teachers reported in the year before the pandemic (2019) to the numbers reported at the same time of year during the pandemic (2020 and January 2021). Unfortunately, evidence of excess deaths amongst teachers are indicated: the daily death rate increased from 4 to 8, peaking during the first and second waves in July 2020 and January 2021, respectively. Overall, excess deaths were reported as 1 678 out of 401 327 teachers in the public-school payroll. The South African Medical Research Council estimated a total of 125 744 excess deaths by January 2021. Therefore, teacher excess deaths represent 1.3% of the overall total. While tragic, it is important to note that most excess teacher deaths occurred mainly at times when schools were closed. We do not see substantial excess deaths amongst teachers during the months of September, October and November 2020, a period during which all grades were attending school.

South Africa's NICD has maintained their conclusion that there were "no consistent changes in incidence trends associated with the timing of opening or closing of schools". International organisations, including the World Health Organisation who had initially advocated and provided guidelines for school closure, are increasingly finding the same evidence and advocating for the reopening of schools. They further note that school access restrictions have proven to not be an effective non-pharmaceutical intervention based primarily on the low infection rate and lack of a relationship between infection peaks and school attendance, as demonstrated in this paper for the South African case.

Learning losses caused by school disruptions:

Global concerns are being raised about the potentially disastrous effects on children caused by missing so much school. This is seen across both developed country contexts, where access to remote online learning is more commonplace, as well as developing countries where most schooling may only take place in schools. The same concerns exist in the South African context. Learners attending more than 70% of public schools come from resource-poor households where, if not provided through the school, very few opportunities for learning exist. Our analysis of the First and Second Early Grade Reading Studies (EGRS I and II) data showed that not much had been done to provide learners with resources to learn at home. Options like using technology are not viable for the majority of schools and households. Opportunities for contact learning have been severely limited and continue to grow given initial school closures in response to the pandemic, as well as the phased-in re-opening and ongoing rotational system. This dramatic loss in opportunities for learning has translated into severe learning losses, shown in this paper to be as much as 75% for Home Language reading in grade 4, and almost 50% in EFAL. These gaps should be expected to continue to grow if school attendance continues to be restricted.

Nutrition loss caused by school disruptions

Another persistent challenge caused by the COVID-19 pandemic is the increase in child hunger seen in the NIDS-CRAM data. The important role played by the National School Nutrition Programme has been highlighted more than ever. Unfortunately, in the November 2020 and February 2021 NIDS-

CRAM surveys, we observe that the percentages of adults reporting that children in their households recently received meals at school was still just less than 50%. This is compared to about 65% before the pandemic. This might also be due to the disruptions caused by rotational timetabling.

The NIDS-CRAM survey also asked adults how worried they are about their children returning to school. Levels of worry have remained high throughout the second half of 2020 and again in February 2021. It was also interesting that when their children are receiving meals at school, parents and caregivers tend to be less worried. This points to the important role that school feeding plays in helping households navigate the challenges caused by the pandemic. The longer-term impact of child hunger on long term stress for both adults and children should be strongly considered alongside the long-term effects for nutrition that may increase health crises, such as stunting amongst children.

Adult worry

Overall, although worry amongst parents and caregivers has remained high, it has been decreasing, with the most drastic decrease observed between Wave 2 and 3, from 74% to 52%. This represents a 20-percentage point (almost 30%) decrease. These declines can be linked to changes in lockdown levels, with less worry correlated with fewer restrictions. Our paper also demonstrated that worry is significantly higher amongst those living in food insecure households, perceiving themselves to be at risk of getting COVID-19, and reporting feelings of hopelessness and/or depression. Food insecurity and risk perceptions are also significantly related to transitioning from “little or not worried” to “very worried”. As already mentioned, child access to meals at school is related to diminished worry.

Considering these findings, what do we recommend?

Return to full-time school attendance, at least at the primary school level: Overall, the evidence available suggests that school attendance has not contributed to a substantial increase in the health risks posed by COVID-19 in South Africa. Meanwhile, there is evidence of substantial harm to children caused by the disruptions to schooling. Although the initial school closures and measures to facilitate social distancing seemed wise at the time, going forward it would seem imperative to keep schools open as far as possible, as well as to maximize the possible teaching time received by children. This should be the primary strategy within government’s plans for the recovery of learning. In a context such as ours, where distance learning alternatives are not an effective option for most children and schools, protecting teaching time at school is critical. The practice of rotational timetabling that is causing significant additional losses in teaching time should be reconsidered, especially at the primary school level. Health and safety protocols that do not result in lost teaching time, such as sanitizing and wearing masks, should be continued.

Ensure that children receive their daily meals at school: Aside from the effects on learning, a further reason that emerges for maximising school attendance is nutrition. The negative impact of this pandemic on child hunger has highlighted the important role that the National School Nutrition Programme plays in South Africa. At the times of the NIDS-CRAM surveys, we see that the percentages of households with children receiving meals at school has still not returned to normal pre-pandemic levels. It is clear that when schools have been closed, children were much less likely to receive school meals. But even at times when schools were open, school feeding was not at its normal level—this may have to do with rotational timetabling. This paper has also shown that not receiving school meals could be a factor contributing to worry amongst parents and caregivers about their children.

For further information please see [cramsurvey.org](https://www.cramsurvey.org)