



Austin Shaeff and CLCD – Ghana

EFFECT OF COVID-19 ON CAREGIVER AND CHILDREN'S LEARNING ACTIVITIES IN GHANA

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■ Introduction

Background & Significance

To date, there has been over 96 million confirmed cases of COVID-19 worldwide and over 2 million deaths.¹ According to Ghana Health Service, Ghana has reported about 60,000 confirmed cases and 361 fatalities.² The full effects of COVID-19 on economies, household income, education, and society are yet to be fully determined.

In Ghana, the closure of schools left more than 9.2 million basic school students out of the classroom.³ Caregivers were then responsible for engaging children in learning, despite challenges with technology, limited knowledge in pedagogy, and limited access to academic resources.

The potential ramifications of COVID-19 on children and caregivers are serious and vast. The CDC remarked that children may experience social, emotional, and psychological challenges as a result of COVID-19.⁴ Unemployment and underemployment rates have increased due to COVID-19, causing caregivers to experience higher levels of stress and financial strain.

Caregivers and children are both at increased risk for deteriorating mental health and developing psychological disorders.⁵

The overarching goal of the study was to determine COVID-19 related health behaviors, risks, and effects on Ghanaian children and caregivers. The purpose of the data collection was to identify areas of need, improve health education, and inform the Center for Learning and Childhood Development's (CLCD) response to the pandemic.

This brief report focuses on the effects of COVID-19 on Ghanaian children, their caregivers, and families. It also examines factors associated with caregiver engagement of children in learning activities at home.

Method

Setting

This study was conducted in the Greater Accra region and surrounding areas of Ghana.

Participants

A total of 120 individuals participated in the study. Participants of the study were caregivers, defined as any adult (above the age of 18 years) who provided care for a child below the age of 8 years. Inclusion criteria for the study was as follows: lived in Accra, participated voluntarily, an adult at least 18 years of age), and at least a child between the ages of 0 to 8 years. Those who did not meet all inclusion criteria listed were excluded from the study.

Procedure

This cross-sectional data was collected from April 28th, 2020 to May 9th, 2020. This occurred two weeks after Ghana's COVID-19 lockdown was lifted. Participants were selected from a CLCD database of caregivers, and who were willing to voluntarily participate within the study. Trained research assistants gained informed consent and interviewed participants via telephone.

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Phone-based data collection was chosen because of COVID-19 transmission and the inability to conduct the study in the location where it took place. Participant interviews on average lasted about 20 minutes.

Measures

The survey was comprised of 39 questions, which were broken down into eight different domains: caregiver identifiers and demographics (10), COVID-19 effects on caregivers and children (3), caregiver engagement of children in learning (3), caregiver satisfaction with COVID-19 response (2), caregiver COVID-19 related knowledge and health beliefs (7), COVID-19 health-seeking behaviors for caregivers (4), caregiver attitudes surrounding COVID-19 (4), and caregiver knowledge about key stakeholder activities (5).

Survey questions regarding parental engagement were adapted from UNICEF's Multiple Indicator Cluster Survey (MICS).⁶ The health belief questions were drawn from the Health Belief Model (HBM).⁷

Statistical Analysis

The analyses were performed in two parts. The first part consisted of descriptive statistics to characterize the participants' socio-demographic background and to describe participant responses to each of the survey domains. The second part was a bivariate analysis to identify the predictors of caregiver engagement of children in learning. Pearson's chi-squared test was used for categorical variables with cells equal to or greater than five, and Fisher's chi-squared test was used for cells of four or less.

ANOVA was used for continuous variables and the generalized linear modeling obtained the relative risk ratios. A generalized linear model with a binomial family and a log link was used to estimate prevalence risk ratios for caregiver engagement of children in learning activities.

Caregiver engagement was created based on six learning activities that had a binary response (yes or no). The six items were summed and consolidated into one variable. The total score ranged from 0-6. The total score was subsequently divided into three categories to reflect the intensity/level of caregiver engagement: no/low engagement (0-2), moderate engagement (3-4), and high engagement (5-6). All statistical analyses were performed using Statistical software Stata IC version 16.0.8 A p-value of less than 0.05 was used to indicate statistical significance.

Results

Survey questions regarding COVID-19 related health behavior, risk, and impact can be found in Appendix A. There were 120 caregivers who participated in the study. The majority of participants were women (n=103, 86%), held a tertiary degree or higher (n=101, 84%), and were married/cohabiting (n=107, 90%). The mean age was 35.85 Caregivers had on average 2.23 children (range: 1-7).

Not all participants answered the question, but of the 43 caregivers that did, 42% (n=18) had a child with a developmental delay.

Table 1 illustrates the complete demographic characteristics of the survey respondents.

Table 1: Demographic Characteristics of Participants in the Center for Learning and Childhood Development (CLCD) COVID-19 Impa*Not all participants completed this question.ct Survey; N=120

Characteristics	Total n (%)
Categorical Variables	
Gender	
Male	17 (14.17)
Female	103 (85.83)
Level of Education	
Less than Secondary/Technical	8 (6.66)
Secondary/Technical	11 (9.17)
Tertiary and above	101 (84.17)
Marital Status	
Single	7 (5.83)
Married/Cohabiting	108 (90.00)
Divorced/Widowed	5 (4.17)
Do you have a child with a developmental delay*	
Yes	18 (41.86)
No	25 (58.14)
Continuous Variables	
	Mean (range)
Age (years)	35.85 (24-66)
Number of children	2.23 (1-7)
Number of people in household	5.27 (1-11)

*Not all participants completed this question.

Results

COVID-19 Effects on Caregivers and Children: Table 2 shows that 51% (n=61) said that their child's education was their greatest concern during the coronavirus pandemic. The second most common reported concern among caregivers was their child's education or getting sick with the virus at about 31% (n=34), and the third-ranked concerns were loss of income at 25% (n=21) or lockdown roughly at 29% (n=24). A full display of the top three concerns can be seen in Table 2.

Table 2. Participants' Top 3 Concerns during COVID-19, Ranked; N=120

Concerns	1 st n (%)	2 nd n (%)	3 rd n (%)
Children's education	61 (51.26)	34 (31.48)	8 (9.64)
Getting COVID-19	27 (22.69)	33 (30.56)	12 (14.46)
Going hungry	6 (5.04)	5 (4.63)	11 (13.25)
Loss of income	18 (15.13)	26 (24.07)	21 (25.30)
Lockdown	7 (5.88)	8 (7.41)	24 (28.92)
Other	0 (0.00)	2 (1.85)	7 (8.43)
Total	119	108	83

In Figure 1, over two-thirds of respondents age 18 years or older said that they were engaging the child in a learning activity, of which 92% (n=110) responded that the said activity was playing with the child. Despite over 55% (n= 68) of families being classified as having a high engagement level with their child, only about 17% (n=20) participated in all six learning activities with their child as seen in Table 3.

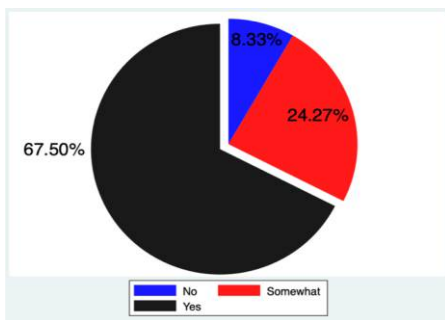


Figure 1. Percent of Caregivers Aged 15 years or Older who Engaged Children in Learning Activities during Ghana's COVID-19 Lockdown; N=120

Table 3. Caregivers' Involvement in Different Child Learning Activities; N=120

Learning Activities*	Yes n (%)	No n (%)
Read/looked at books	84 (70.00)	36 (30.00)
Told stories	68 (56.67)	52 (43.33)
Sang songs	100 (83.33)	20 (16.67)
Went outside	54 (45.00)	66 (55.00)
Played with	110 (91.67)	10 (8.33)
Name, counted, drew	98 (81.67)	22 (18.33)

**Not mutually exclusive.*

Figure 2 illustrates the total amount of learning activities caregivers participated in during the government lockdown from March 30, 2020 to April 20, 2020.9 Merely 16.67% (n=20) of caregivers engaged in all six learning activities. About 5.83% (n=7) of caregivers participated in zero learning activities with their children, while the majority reported partaking in five learning activities (40%, n=48).

It is worth mentioning that no caregiver was involved in only one learning activity. Approximately 57% (n=68) of caregivers were classified as having a high caregiver engagement in children's learning activities shown in Figure 3.

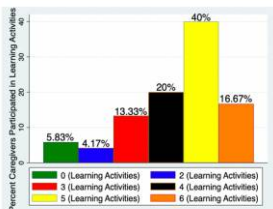


Figure 2. Percent of total learning activities caregivers participated in; N=120

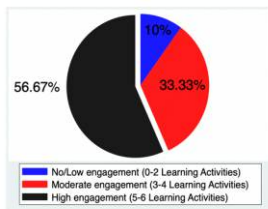


Figure 3. Percentage of caregiver's engagement level; N=120

Caregiver Satisfaction with COVID-19 Response

Figure 4 illustrates participant satisfaction with the government's response to COVID-19 in Ghana. Approximately 19% (n=23) said they were very satisfied with the way the government handled the coronavirus pandemic, and 12.5% agreed with the government's decision to lift the lockdown when it occurred. (See Figure 5).

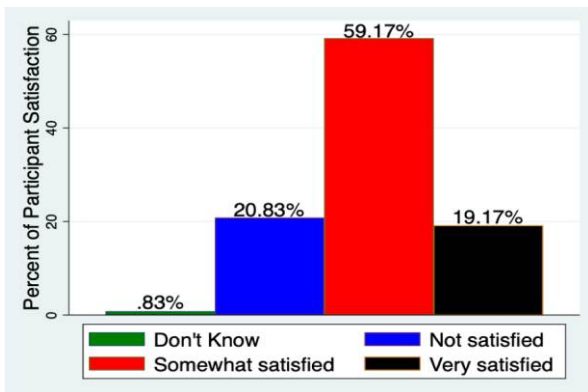


Figure 4. Participants' Satisfaction with Government Response to the Coronavirus pandemic in Ghana; N=120

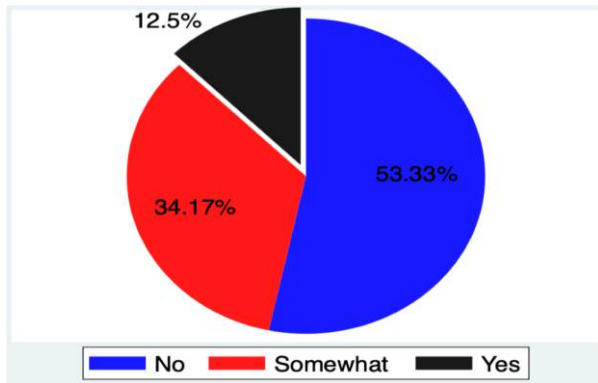


Figure 5. Participants' Agreement with the Ghanaian Government Lifting the COVID-19 Lockdown; N=120

Caregiver COVID-19 Related Knowledge and Health Belief

Table 4 displays a 5% (n=6) increase in the number of individuals being somewhat concerned about COVID-19 before and after the government lockdown and roughly a 6% (n=8) increase in the number of individuals being very concerned about contracting the coronavirus from before to after the government lockdown.

It is shown that 85% (n=102) of caregivers stated that getting sick with the coronavirus would have serious consequences for them (see Figure 6).

Concern level	Don't know n (%)	Not at all concerned n (%)	A little concerned n (%)	Somewhat concerned n (%)	Very concerned n (%)
Before lockdown	1 (0.83)	10 (8.33)	16 (13.33)	8 (6.67)	85 (70.83)
After lockdown	0	5 (4.17)	9 (7.50)	14 (11.67)	92 (76.67)

Table 4. Participants level of concern about getting the coronavirus before and after the government lockdown; N=120

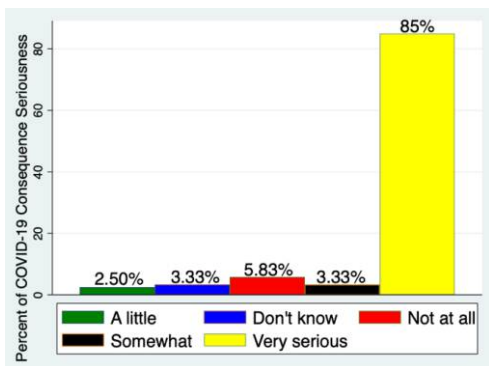


Figure 6: Getting Sick with the Coronavirus Would Have Serious Consequences for Me; N=120

The level of confidence participants had in being able to protect themselves and their families varied widely. While 77.5% (n=93) of respondents reported being very confident in the ability to protect themselves and their families from the coronavirus, about 19% (n=23) felt somewhat confident, and 2.5% (n=3) were not confident at all. About 47% (n=56) of people were confident that they could maintain the six-foot social distancing protocol (see Table 5).

Confidence level	Not at all confident n (%)	Somewhat confident n (%)	Very confident n (%)	Don't know n (%)
Preventing yourself and family from COVID-19	3 (2.50)	23 (19.17)	93 (77.50)	1 (0.83)
Maintaining social distancing	25 (20.83)	39 (32.50)	56 (46.67)	N/A

Table 5: Participants' Confidence Level Maintaining Social Distancing of 6ft; N=120
*N/A= Not available.

When asked “how much do you believe that people will treat you differently or stigmatize you if you or someone in your household were to be infected with COVID-19?”, 62% (n=74) said that they very much believed that they would be stigmatized if someone in their household became ill with the virus (Figure 7).

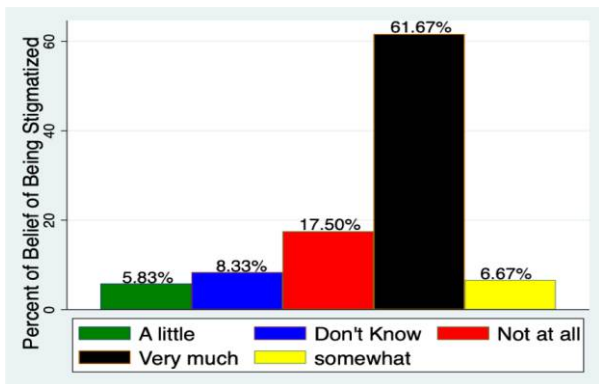


Figure 7. Belief in Being Stigmatized if You or Someone in Your Household Has the Coronavirus; N=120

*Values displayed in the figure are the represented percentages.

COVID-19 Health-Seeking Behaviors for Caregivers

Another intriguing finding was that over 90% (n=111) of participants did not believe they were refused medical services because of the pandemic. Comparatively, 42% (n=50) of participants had avoided going to the hospital or missed an appointment for their health, whereas 50% (n=61) reported they avoided going to the hospital or missed an appointment for their child's health (Table 6).

Figure 8 illustrates that 70% (n=84) of people stated they were very likely to avoid going to the hospital if they were not seriously ill.

Table 6: Participants who Refused Medical Care			
Questions	Yes n (%)	No n (%)	Don't know n (%)
Been refused medical service because of COVID-19	7 (5.83)	111 (92.50)	2 (1.67)
Avoided medical treatment or missed appointment for yourself	50 (41.67)	70 (58.33)	N/A
Avoided medical treatment or missed appointment for your child	61 (50.83)	59 (49.17)	N/A

Table 6. Percentage of participants who have been refused medical care because of COVID-19 and have avoided medical assistance or missed health appointments; N=120
**N/A= Not available.*

Table 6. Percentage of participants who have been refused medical care because of COVID-19 and have avoided medical assistance or missed health appointments; N=120

*N/A= Not available

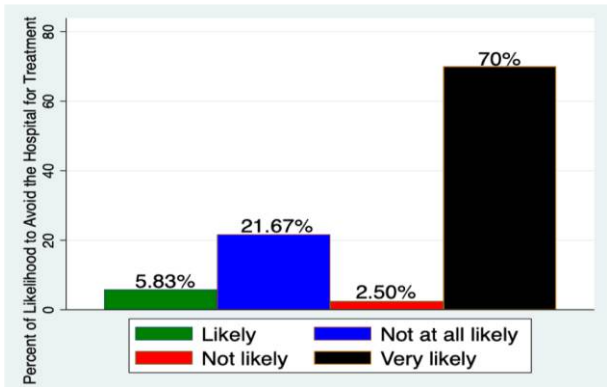


Figure 8. Likelihood that participants would avoid the hospital for treatment if they became non-life threateningly ill; N=120

*Values displayed in the figure are the represented percentages.

COVID-19 Attitudes Surrounding COVID-19

According to Table 7, although most people felt that Ghana could both control and defeat the coronavirus, more people felt that the country could control rather than defeat the virus. Roughly 79% (n=95) of respondents agreed that Ghana could successfully control the coronavirus and 65% (n=78) of people said they had confidence in Ghana's capabilities to overcome the pandemic.

The degree of separation between respondents agreeing that Ghana could successfully control the virus and their confidence in Ghana's capabilities to overcome the pandemic could be attributed to 95% (n=115) of participants registering they wore a mask when leaving the house, and 67.5% (n=81) stating they would rather reside in the confinements of their house than go out into crowded areas.

Table 7: Belief and Confidence of Ghana's COVID-19 Control

Questions	Yes n (%)	Maybe n (%)	No n (%)	Don't know n (%)
Believe Ghana can successfully control COVID-19	95 (79.17)	16 (13.33)	6 (5.00)	3 (2.50)
Have confidence Ghana can win against COVID-19	78 (65.00)	20 (16.67)	15 (12.50)	7 (5.83)

Table 7. Belief and confidence of participant's that Ghana can control and beat the coronavirus; N=120

UNICEF

UNICEF is a global leader in fostering children's well-being. According to their Ghana COVID-19 situation report, such efforts as: food donations, safe breastfeeding areas, greater access to water & hygiene/sanitation stations, safe protocol(s) for schools with supplemental educational bundles, and more are being made to help Ghanaian citizens.¹⁰

We sought to understand the participants' knowledge about UNICEF's work to support parents during the pandemic. Among the participants, 91% (n=109) knew about UNICEF as an organization, but only 3% (n=4) were aware of how they were helping parents cope during the pandemic (See Table 8).

Figure 9 indicates the scant 1.67% (n=2) of caregivers that had utilized resources provided by UNICEF. Caregivers obtained information about COVID-19 from the media, internet, and social media (~60% [n=153]) or government affiliations such as Ghana Health Services, WHO, and CDC (22% [n=54]). The full distribution of how COVID-19 information was acquired during the pandemic is in Table 9.

Table 8: UNICEF Resource Awareness		
Questions	Yes n (%)	No n (%)
Know of UNICEF	109 (90.83)	11 (9.17)
Aware of how UNICEF is helping parents	4 (3.33)	116 (96.67)

Table 8. Participant's awareness of UNICEF's resources on COVID-19; N=120

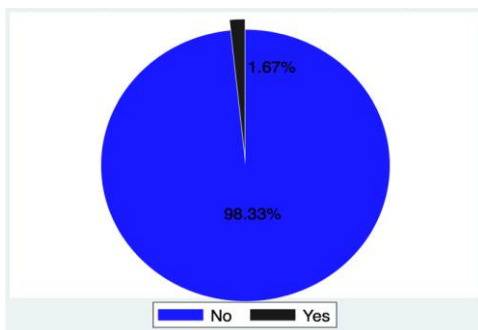


Figure 9. Percentage of Participants using UNICEF Resources; N=120

Table 9: Information Sources	
Source of COVID-19 information	n (%)
Don't know	2 (0.80)
Government	20 (8.03)
Ghana Health Services	18 (7.23)
WHO	13 (5.22)
Media	63 (25.30)
Internet	39 (15.66)
Social Media	51 (20.48)
Friends/Family	36 (14.46)
CNN/BBC	1 (0.04)
CDC	3 (1.21)
Workplace	2 (0.80)
Noguchi Institute	1 (0.40)

Table 9. Source of Coronavirus Information; N = 120*

*Responses are not mutually exclusive.

The magnitude of the caregiver's engagement level in the child's learning activities was significantly associated with one demographic characteristic from the participants and three questions from the survey found in Appendix A. For the demographic characteristic, the number of people in the household was linked with the caregiver's engagement level in the child's learning activities ($p=.0103$).

From the CLCD COVID-19 Impact Survey, serious consequences following COVID-19 illness ($p=.005$), avoided hospital or pharmacy or missed medical appointment(s) for the caregiver health ($p=.027$), and avoided hospital or pharmacy or missed medical appointment(s) for the child's health ($p<.001$) were all found to be statistically significant when related to the learning activity engagement level of caregivers.

The complete bivariate analysis of the caregiver's engagement level with the participant's demographic characteristics and questions from the CLCD COVID-19 impact survey can be found in Table 10.

Table 10: Bivariate Analysis of the Caregiver's Engagement

Demographic characteristics and Survey Questions	Total N=120 n (%)	No/Low caregiver engagement level (n=12) n (%)	Moderate caregiver engagement level (n=40) n (%)	High caregiver engagement level (n=68) n (%)	P- value
Categorical Variables					
Gender					0.537*
Female	103 (85.83)	9 (75)	35 (87.50)	59 (86.76)	
Male	17 (14.17)	3 (25)	5 (12.50)	9 (13.24)	
Developmentally Delayed child**					0.706*
No	25 (58.14)	5 (71.43)	8 (61.54)	12 (52.17)	
Yes	18 (41.86)	2 (28.57)	5 (38.46)	11 (47.82)	
Consequence seriousness of getting the virus					0.005*
Don't know	4 (3.33)	0 (0)	3 (7.50)	1 (1.47)	
Not at all	7 (5.83)	0 (0)	6 (15)	1 (1.47)	
A little	3 (2.50)	0 (0)	3 (7.50)	0 (0)	
Somewhat	4 (3.33)	0 (0)	0 (0)	4 (5.88)	
Very serious	102 (85.00)	12 (100)	28 (70)	62 (91.18)	
Confident that you can prevent yourself and your family from COVID-19					0.356*
Don't know	1 (0.83)	0 (0)	0 (0)	1 (1.47)	
Not at all confident	3 (2.50)	0 (0)	2 (5)	1 (1.47)	
Somewhat confident	23 (19.17)	2 (16.67)	4 (10)	17 (25)	
Very confident	93 (77.50)	10 (83.33)	34 (85)	49 (72.06)	

Treated differently or stigmatized if you or someone in your household has COVID-19					0.891*
Don't know	10 (8.33)	1 (8.33)	2 (5)	7 (10.29)	
Not at all	21 (17.50)	2 (16.68)	7 (17.50)	12 (17.65)	
A little	7 (5.83)	1 (8.33)	3 (7.50)	3 (4.41)	
Somewhat	8 (6.67)	1 (8.33)	4 (10)	3 (4.41)	
Very much	74 (61.67)	7 (58.33)	24 (60)	43 (63.24)	
Avoided the hospital or pharmacy or missed a health appointment for your own health					0.027*
No	70 (58.33)	10 (83.33)	27 (67.50)	33 (48.53)	
Yes	50 (41.67)	2 (16.68)	13 (32.50)	35 (51.47)	
Avoided the hospital or pharmacy or missed a health appointment for your child's health					< .001*
No	59 (49.17)	11 (91.67)	24 (60)	24 (35.29)	
Yes	61 (50.83)	1 (8.33)	16 (40)	44 (64.71)	
Continuous Variables	Mean (SD)				P-value
Age (years)	35.85 (5.78)	39 (12.17)	36.03 (4.82)	35.17 (4.32)	0.104
Number of people in household	5.27 (1.63)	4 (1.48)	5.6 (1.63)	5.29 (1.57)	0.010
Number of children	2.23 (1.05)	1.92 (.90)	2.23 (1.17)	2.29 (1.01)	0.521

Table 10. Bivariate Analysis of the Caregivers' Engagement Level with the Participants' Demographic Characteristics and CLCD COVID-19 Impact Survey Questions; P – values were obtained by ANOVA, Chi-square, and Fisher's (*) analyses.

*Bold values indicate statistically significant results using a cut-off of $p < 0.05$.

** Not all participants completed this question.

Caregivers who reported they were likely to avoid medical facilities or appointments for their own health or that of their children were more likely to engage in their children's learning activities. Specifically, the prevalence risk of higher caregiver engagement was 1.48 times higher among caregivers who reported avoiding hospitals, pharmacies, or appointments for themselves compared to those who did not avoid these health centers ($p=0.012$).

Whereas the prevalence risk of high caregiver engagement for caregivers avoiding hospitals, pharmacies, or appointments for a child was 1.77 times greater compared to a caregiver who attended hospitals, pharmacies, or an appointment for a child ($p=.001$).

In addition, we found that the prevalence risk of high caregiver engagement was 1.40 times higher in those who were somewhat confident of being able to protect themselves and their family from the virus compared to those who were very confident ($p=.032$). All other demographic characteristics and survey question predictor's prevalence risk ratios were not statistically significant ($p>0.05$) and can be found in Table 11.

Table 11: Predictor of Caregiver Engagement Level

Demographic characteristics and Survey questions	Prevalence Risk Ratio (95% CI)	P-value
Categorical Variables		
Gender		
Female	1.00	
Male	0.92 (0.57 - 1.49)	0.747
Developmentally delayed child*		
No	1.00	
Yes	1.27 (0.73 - 2.21)	0.389
Consequence seriousness of getting the virus		
Not at all	0.24 (0.04 - 1.45)	0.119
Don't know	0.41 (0.07 - 2.26)	0.307
A little/Somewhat	0.94 (0.49 - 1.82)	0.854
Very serious	1.00	
Confident that you can prevent yourself and your family from COVID-19		
Not at all confident/Don't know	0.95 (0.35 - 2.58)	0.918
Somewhat confident	1.40 (1.03 - 1.91)	0.032
Very confident	1.00	
Treated differently or stigmatized if you or someone in your household has COVID-19		
Not at all	0.98 (0.65 - 1.49)	0.937
Don't know	1.20 (0.77 - 1.89)	0.417
A little	0.74 (0.31 - 1.77)	0.496
Somewhat	0.65 (0.26 - 1.61)	0.348
Very much	1.00	

Avoided the hospital or pharmacy or missed a health appointment for your own health		
No	1.00	
Yes	1.48 (1.09 - 2.02)	0.012
Avoided the hospital or pharmacy or missed a health appointment for your child's health		
No	1.00	
Yes	1.77 (1.26 - 2.50)	0.001
Continuous variables		
Age (years)	1.00 (0.99 - 1.00)	0.735
Number of people in household	1.01 (0.92 - 1.11)	0.840
Number of children	1.04 (0.93 - 1.17)	0.481

Table 11. Predictors of Caregiver Engagement Level during COVID-19 Lockdown in Ghana (April 28th - May 9th): Bivariate prevalence risk ratio; N = 120.

Bold values indicate statistically significant results using a cut-off of $p < 0.05$.

* Not all participants completed this question.

■ Discussion

This study explored the effects of COVID-19 on caregivers and their families. The major findings of this study indicate that: (1) Caregivers were most concerned with their child's education, getting sick with the virus, loss of income, or being under lockdown during the pandemic; (2) A higher proportion of caregivers reported that they will miss a health visit for their child compared to for themselves; (3) Caregivers recorded greater participation in the learning activities for reading/looking at books, singing songs, playing with the child, and naming, counting, or drawing; (4) More than half of the caregivers reported high learning activity engagement levels; (5) The major sources where individuals obtained their pandemic information were from the media, social media, internet, or family/friends; and (6) Caregiver engagement in children's learning were associated with perceived seriousness in contracting COVID-19, avoiding medical facilities and appointments for the caregivers and child's health, and the number of people living the household.

As the community continues to be affected by the virus, caregivers are forced to adapt to novel roles and norms. Parents and other caretakers face social pressure to be the child's educator and provide social interaction.¹¹ Achieving the social component may be complicated, as numerous caregivers stated that the consequences for getting the virus were very serious and believed that they would be treated differently if someone in their household were to become ill with the coronavirus.

Families of children who have a developmental delay are at a stark disadvantage because of the lack of resource of aides, therapists, and other assistive programs which have become more unattainable throughout this pandemic.¹²

More than 56% (n=68) of caregivers participated in the learning activity reading/looked at books, told stories, sang songs, played with, and named, counted, or drew. Nevertheless, only 45% (n=54) engaged in the learning activity of going outside with their children. This suggests that there is a likelihood that children will be lagging in their social skills when returning to school.

This is understandable as roughly 67% (n=81) of caregivers reported that they have not gone into crowded places and 85% (n=102) believe that the consequences to becoming ill from the virus would be serious. The inability for children to get together for playdates or be around others prevents children from acquiring socialization via peer interaction, something that would have normally occurred if not for the pandemic. About one-third of caregivers participated in zero learning activities with a child.

The study suggests that even though Ghanaians are concerned about the virus and believe it to be serious, they are discontent with how the government has managed COVID-19. For example, the study found that 80% (n=96) of respondents were not satisfied or only somewhat satisfied with the government's response to the pandemic, and 53.33% (n=64) did not agree with the government lifting the lockdown.

It was also revealed during the study that Ghanaians were confident to uphold the Ghana Health Services recommendation to maintain a distance of two meters. It appears that many caregivers might be missing more of their child's health than their own.

This may impact the child's health due to lower vaccination rates, fewer prenatal care visits, or less postnatal care visits.

At the start of the pandemic, UNICEF developed several resources for caregivers. Given the institution's influence in shaping child development issues, we sought to identify the proportion of caregivers who were aware of resources the organization provided to support parents.

The data showed that several participants (91%) stated they were aware of UNICEF, but more caregivers reported (97%) not knowing how UNICEF was helping parents during the pandemic. A scarce number of caregivers (1.67%) reported utilizing the resources provided by UNICEF.

The findings should be evaluated against the limitations of the study including a small sample size, overrepresentation of women, and individuals with higher levels of education. Nevertheless, the study's findings are pertinent and timely to the pandemic.

As a result of this study, educational areas where children may be susceptible to being behind when returning to school were identified, factors impacting a caregiver's level of engagement with a child were identified, and insights to how the Ghanaian people feel about the coronavirus and their government were revealed.

■ Recommendations

The results from the study provide ample opportunities for improving the COVID-19 pandemic situation in Ghana. We suggest areas where Ghana can improve its current pandemic response to improve children, their families, and caregiver's wellbeing.

1. Education about COVID-19: Individuals should be encouraged to vet information gathered through the media and other sources, if not confirmed by a reputable source. About 76% of Ghanaians acquired their information about the coronavirus from the media, social media, internet, and family/friends. All of these sources of information are not government-affiliated or viewed as factual sources. Despite this, these platforms are heavily utilized and can assist in expanding and improving coronavirus communication.

One way to improve COVID-19 education is by explicitly educating the public on the health benefits for abiding by public health restrictions and the negative health effects of not adhering to guidelines.

By doing this, individuals may be more inclined to comply with the new health regulations and be more understanding as to why the measures are being taken.^{13,14,15}

2. Resources for caregiver engagement:

The use of heavily trafficked websites and other media should be used to increase awareness of resources being provided. According to Sasu (2020), the number of Ghanaian internet users has steadily increased each year since 2017, with more than 4.4 million users alone from January 2019 to January 2020.¹⁶ During the study, it was discovered that while almost everyone knew of UNICEF, hardly anyone knew how the organization was helping parents or caregivers during the pandemic. Advertisements for locations of assistive programs and services could greatly help raise awareness, and ultimately lead to a higher utilization of such resources.

Government and school websites should have information posted on how to engage children during this time, with corresponding appropriate ways to explain and talk about the pandemic with children. These sites should also contain links and/or videos of therapy and educational activities that can be performed at home.

For example, the state of New Jersey's government site offers resources involving remote learning and activities parents or caregivers can do with children.¹⁷ The CDC provides information about how parents or caregivers could talk to children about the coronavirus, and Florida's department of education provides free online educational resources with a range of subjects for students of all ages, parents, and teachers.^{18,19}

That being said, other online websites should not be disregarded for ideas on how to improve the caregiver's engagement level. Websites like better leaders better schools and Educational Development Center, or blogs similar to that of Children's Hospital of Orange County (CHOC) Children's can all offer ideas for how parents or caregivers can become more engaged with children.^{20,21,22}

3. Financial aid assistance: The third and final recommendation is financial assistance for all families who have a child with a developmental disability. Many child services have either been discontinued or significantly reduced due to the pandemic.²³

Parents are doing the best they can, but some children require greater medical attention and specific accommodations that only can come from trained professionals.²⁴ This study showed that one of the third greatest concerns of the people was loss of income.

The loss or diminished household income has multiple implications on the family's health as it limits the amount of food that can be purchased, necessary medical devices, or supplemental education material. Dunn, Kenney, Fleischhacker et al. (2020), said that food-related financial problems can lead to rationing of food, missing medical treatments or medications, and even lapses in home and utility payments.²⁵

All of the above can lead to increased caregiver stress levels, which in turn affects their mental health. The additional stress on caregivers can be damaging to the surrounding relationships with their spouses and their children.⁵ Any monetary contribution would help alleviate some financial worry imposed upon caregivers and would greatly lower their financial uncertainty.²⁶

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Appendix A

Questionnaire of COVID-19 Related Health Behavior, Risk and Impact

Questions	Options
COVID-19 Impact	
Tell me about how the COVID-19 impacted you (eg. work, family, health, parenting)	Write in response/open-ended question
What are you concerned about the most during this period. Kindly rate your top three concerns	Children's education, Getting sick with the virus, Hunger, Loss of income, Other (if other go to next question)
If other kindly specify	Write in response/open-ended question
Engaging Children	
During the lockdown did you or anyone in your household age 15 or over engage your children in learning activities?	Yes, Somewhat, No, Don't know
In which of the following learning activities was the child engaged? (Adapted from MICS)	Reading books to or look at pictures from books, told stories, Sang songs, Took outside the home or compound/yard/enclosure, Played with your child, Name/counted/or drew things with your child
	Or
	Yes, No, Don't know
In what ways have you been helping your children cope with the virus	Write in answer/open-ended question
Satisfaction with COVID-19 response	
How satisfied are you with the government's response to the coronavirus pandemic in Ghana?	Very satisfied, somewhat satisfied, Not satisfied, Don't know
Do you agree to the government's lifting of the lockdown?	Yes, Somewhat, No, Don't know
COVID-19- Related Knowledge and Health Belief	

What are the main clinical symptoms of COVID-19?	Write in response/open-ended question
Before the government lockdown, how concerned were you about getting the coronavirus?	Not at all concerned, A little concerned, Somewhat concerned, Very concerned, Don't know
After the government lockdown, how concerned are you about getting the coronavirus?	Not at all concerned, A little concerned, Somewhat concerned, Very concerned, Don't know
Getting sick with the coronavirus would have serious consequences for me?	Not at all, A little, Somewhat, Very serious, Don't know
How confident are you that you can prevent yourself or your family from getting COVID-19, if you take the right precautions? (Self-efficacy)	Not at all confident, Somewhat confident, Very confident, Don't know
How confident are you that you will be able to do social distancing (staying 6 ft away, avoiding close social contact) to prevent COVID-19.	Not at all confident, Somewhat confident, Very confident, Don't know
How much do you believe that people will treat you differently or stigmatize you, if you or someone in your household were to be infected with COVID-19?	Not at all, Somewhat, A little, Very much, Don't know

COVID -19 Health-seeking

Has a health worker, pharmacist, hospital, or health facility refused to serve you because of the coronavirus pandemic	Yes, No, Don't know
Have you avoided going to the hospital or pharmacy or missed a health appointment for your own health (i.e. postnatal visits, putting off another health issue) due to the corona virus	Yes, No, Don't know

Have you avoided going to the hospital or pharmacy or missed a health appointment for your child's health? (i.e. immunizations, infant well visits) due to the corona virus	Yes, No, Don't know
If you were sick (not life threatening) now, how likely would you avoid going to the hospital to receive care? (i.e. immunizations, infant well visits) due to the corona virus,	Not at all likely, Not likely, likely, Very likely, Don't know

COVID -19 Attitudes

Do you agree that COVID-19 will finally be successfully controlled?	Yes, Maybe, No, Don't know
Do you have confidence that Ghana can win the battle against the COVID-19 virus	Yes, Maybe, No, Don't know
In recent days, have you gone to any crowded place	Yes, No, Don't know
In recent days, have you worn a mask when leaving home	Yes, Maybe, No, Don't know

UNICEF

Do you know UNICEF	Yes, No
Do you know what they are doing to help parents deal/cope with the Corona Virus	Yes, No
If yes what do you know	Write in response/open-ended question
Have you ever used any resources from them during this pandemic, such as their website or educational materials	Yes, No
Where do you get your information on Coronavirus from	Government, WHO, Ghana Health Services, Media, Internet, Social Media, Friends and Family, CNN/BBC



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