

ORIGINAL ARTICLE

## Effects of The Coronavirus Pandemic Among Adolescents and Young People Living in South-East Nigeria

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ABSTRACT

**Background:** Information on the effects of the coronavirus pandemic on adolescents and young people, who are in a critical phase of transition to adulthood is sparse. We evaluated the effects of coronavirus disease (COVID-19) among adolescents and young people living in Southeast Nigeria.

**Objective:** To evaluate the effects of the coronavirus pandemic on young people in Nigeria

**Methods:** A cross-sectional (online and onsite) study of 328 Nigerian youths was conducted, and data on sociodemographic profile and effects of the pandemic collected through pre-tested self-administered questionnaires, were analysed using STATA 16.0, with the significance level for tests of association set at  $p < 0.05$ .

**Results:** The mean age of participants was  $16.8 \pm 3.3$  years. Two hundred and eleven participants (64.3%) experienced a fear of death significantly associated with a low monthly income ( $p < 0.001$ ), 62/328 (18.9%) respondents had experienced intra-familial sexual abuse, significantly associated with age group ( $p = 0.003$ ). Positive effects reported by 190/328 (57.9%) participants included learning

new things (88/190 =46.3%), spending time with loved ones (39/190 =20.5%), spending time on studies (29/190 =15.3%,  $p=0.015$ ), significantly associated with age group; and time for rest and self-discovery (34/190 =17.9%,  $p=0.038$ ) significantly influenced by age group.

**Conclusions:** A significant number of participants had a fear of death and intra-familial sexual abuse which was strongly associated with monetary poverty, and age; while some participants positively engaged in self-discovery, rest and studies. Thus, the mental health and social welfare of youths should be focused on, and positive skills enhanced during this pandemic and afterward.

**Keywords:** Adolescents, COVID-19 pandemic Impact, Nigeria, Young people, Sexual abuse

## INTRODUCTION

The entire world was taken by storm, as most nations were largely unprepared for the onslaught of the COVID19 pandemic which began in December 2019.<sup>1</sup> COVID-19 has affected a lot of lives, communities, and governments of the world, causing physical, health, social, mental, and economic challenges among other problems; and morbidity and mortality from COVID-19, which have been waxing and waning, vary amongst different individuals and countries.<sup>2,3,4,5,6,7</sup> Low and middle-income countries may be more badly affected as the pandemic threatens the already fragile sectors which are at the brink of collapse.<sup>8</sup> Nigeria, a low-middle income country, is the largest country in Africa, with a teeming population of above 211 million.<sup>9,10</sup>

Since the first report of COVID-19 in Nigeria, there has been a daily increase in both confirmed cases and mortality from the disease, despite the gross under testing.<sup>11</sup> The pandemic has disrupted almost all aspects of the lives of Nigerians as we know it, leading to loss of lives, poor health indices with crippling of an already fragile health sector, poverty, loss of education, unemployment, mental illness, and an increase in crime rate among others.<sup>12</sup> Guglielmi *et al.* in a study among adolescents in Cox's Bazar (district containing refugee

camp in Bangladesh) reported increased poverty, hunger, loss of education, depression, and gender-based violence as prominent effects of the pandemic.<sup>13</sup>

In another study conducted by Hamad *et al.* among adolescents 11-19 years old in Gaza's Strip, positive impacts reported included: increased family interaction, increased interaction with friends albeit virtually, and learning new skills such as drawing; whereas negative impacts mentioned were domestic violence, fear of contracting the virus, loss of education and missing friends.<sup>14</sup> Mazumder *et al.* in their study on young adult Indians found both positive (relaxation, family interaction, improved personal hygiene, and healthy lifestyle), while negative impacts of the pandemic were anxiety, fear of the pandemic, and poor sleep.<sup>15</sup>

Almost one out of every 3 Nigerians is between 10 and 24 years old, and in Nigeria, adolescents and young people constitute a major workforce of the nation.<sup>16</sup> Since the outbreak of the coronavirus pandemic, there have been some reports on its effects on adults, while a paucity of data on its effects on adolescents, and young people who constitute the major workforce and student population, and are in a critical stage of transition from childhood to adulthood exists.<sup>8</sup> This study

evaluated the effects of the COVID-19 pandemic on Nigerian youths.

#### METHODOLOGY

This was a cross-sectional survey (online and on-site; quantitative) conducted over a 3-month period from 22<sup>nd</sup> July to 17<sup>th</sup> October 2020, among adolescents and young people living in South-East Nigeria. The minimum sample size of 308 was calculated with an estimated proportion of 20% to achieve a power of 80%, a precision of 95%, and assuming a non-response rate of 20%.<sup>17</sup> A total of 328 youths were studied. Consecutive enrollment of participants was done until the sample size was achieved. The research followed the guidelines of the Declaration of Helsinki for humans, and Ethical clearance was obtained from the University of Nigeria Teaching Hospital, Enugu, Nigeria (NHREC/05/01/2008B-FWA00002458-1RB00002323). Informed consent was obtained from all participants before commencement of the study.

Self-administered, pretested semi-structured questionnaires (online and onsite) adapted and modified from the World Health Organization (WHO) question and answer detail for adolescents and youth were used to collect relevant data.<sup>18</sup> The questionnaire was divided into two sections which included socio-demographic characteristics of participants (section A) and the Impact of the Pandemic on the Youth (section B- 21 items). Under section B, Item 1 asked participants' opinion of the effect of the pandemic on them, items 2 - 17 were on the negative effects of the pandemic, while item 18 was on the positive impact/effect of the pandemic to the participant. Responses were 'Yes', 'No' or neutral responses, or using the Likert scale. The study was mainly web-based because of

restrictions imposed by the pandemic. Onsite questionnaires were 100/328 (30%), while online questionnaires were 228 (70%). This was done to limit contact at the peak of the pandemic. Forms were sent through researchers and research assistants in the various states of the southeast zone to respondents/social media groups. Schools that still had physical attendance were sampled in states, and representative schools selected. Google form (which has the form limiter add-on that was 'enabled' to limit to one response), was used to distribute questionnaires online.

WhatsApp Messenger (Facebook, Inc., California, USA) the most prominent social media forum, and Email, were used to share the Google link of the online version of the questionnaires to researchers' associates and networks. The onsite version was administered to youths in batches at school/youth gatherings to ensure adherence to COVID protocols. Questions on effects and impact were coded into 'Yes', 'No' or neutral responses, or using Likert/Reverse Likert scale where appropriate in Microsoft excel before entry into STATA for analysis. Common themes from open4nded questions on the positive impact of the pandemic were identified, then coded before analysis. Downloaded data (Google form) were coded and cleaned up in Microsoft excel before data analysis.

**Data Analysis:** Data were analyzed using STATA software version 16.0. Numerical variables like age were summarized using mean and standard deviation. Further categorization of age was done during analysis into early adolescence (10-13 years), middle (14-16 years), late adolescence (17-19 years), young adult (20-24 years)<sup>19</sup>. Categorical variables such as gender, marital status, etc. were summarized using frequency and

percentages. Cross tabulation was used to determine the association between some of the socio-demographic variables (age group, gender, state of residence, who participant resided with, and average monthly income), and effect, using Chi-Square. Where applicable, Fisher’s exact test was used to test the association between these variables. The level of significance for tests of association was set at a *p*-value of less than 0.05.

**RESULTS**

A total of 328 youths participated, completed the questionnaires correctly, and were included in the analysis.

**Sociodemographic Characteristics**

The age range of participants was 10 years to 24 years, with a mean age of 16.8 ± 3.3 years. Middle adolescence comprised slightly more than a third of participants (n=121, 36.9%), while 99(30.2%) youths were in the late adolescence age group. There were 227 (69.2%) female participants with the ratio of female to male respondents being 2.2:1. About three-quarters 248 (75.6%) of all respondents resided with both parents, while 4(1.2%) resided with strangers. Responses from average monthly income showed that 33(10.1%) participants had an average monthly income of less than #30,000 (< \$100), 68(20.7%) had an income of #30,000- #60,000, 53(16.2%) earned #60,000- #90,000 monthly, 41(12.5%) earned between 90 and 120 thousand naira monthly, while 133(40.6%) earned above #120,000 {Table 1}.

**Effects of COVID-19**

One hundred and seventy-one participants (52.1%) responded that COVID-19 had affected them negatively, 56(17.1%) participants reported that they had experienced positive

effects, while 82(25.0%) of participants admitted to both positive and negative effects, whereas 19(5.8%) noted that there were no changes because of the pandemic.

**Negative Effects of COVID-19**

Under some negative effects elucidated, 211(64.3%) youths expressed fear of death, 285(86.9%) were afraid to lose loved ones and 210 (64.0%) were afraid to go to common places. Additionally, 168 (51.2%) of the youths reported difficulty sustaining themselves because of the COVID-19 pandemic. Two hundred and twenty-one participants (67.4%) reported being bored staying at home, 66 (20.1%) were neutral, while 41 (12.5%) did not experience boredom at home. Two hundred and sixty-three (80.2%) of youths stated that they missed school, 36 (11.0%) did not miss school, 29 (8.8%) were neutral. Also, 285 (86.9%) reported missing their friends, while 21(6.4%) did not. Forty-five participants (13.7%) felt unsafe at home.

**Table 1.** Sociodemographic profile of participants

Variable	Freq	%
<b>Age group</b>		
10-13	44	13.4
14-16	121	36.9
17-19	99	30.3
20-24	64	19.5
<b>Gender</b>		
Male	101	30.8
Female	227	69.2
<b>Average monthly income</b>		
<30,000	33	10.1
30,000-60,000	68	20.7
61000-90,000	53	16.2
91,000-120,000	41	12.5
>120,000	133	40.6
<b>Whom youth resides with</b>		
Both parents	248	75.6
Mother	19	5.8
Father	8	2.4
Alone	14	4.3
Relatives	35	10.7
Strangers	4	1.2

**Table 2.** Negative effects of COVID-19 on participants

Variable	Freq	%
<b>Fear of death</b>		
Yes	211	64.3
No	117	35.7
<b>Fear of loss of loved ones</b>		
Yes	285	86.9
No	43	13.1
<b>Fear of common places</b>		
Yes	210	64.0
No	118	36.0
<b>Difficulty sustaining oneself</b>		
Yes	168	51.2
Neutral	29	8.8
No	131	39.9
<b>Boredom</b>		
Yes	221	67.4
Neutral	66	20.1
No	41	12.5
<b>Miss school</b>		
Yes	263	80.2
Neutral	29	8.8
No	36	11.0
<b>Miss friends</b>		
Yes	285	86.9
Neutral	22	6.7
No	21	6.4
<b>Spend more time on the internet/games</b>		
Yes	225	68.6
Neutral	23	7.0
No	80	34.2
<b>Hurt by a virtual friend</b>		
Yes	110	33.5
No	218	66.5
<b>Unsafe at home</b>		
Yes	45	13.7
Neutral	11	3.4
No	272	82.9
<b>Parents argue more often</b>		
Yes	64	19.5
No	264	80.5
<b>Parents physically hurt each other</b>		
Yes	25	7.6
No	303	92.4
<b>Intrafamilial sexual abuse</b>		
Yes	62	18.9
No	266	81.1
<b>Total</b>	<b>328</b>	<b>100.0</b>

Sixty-four participants (19.5%) reported that parents argued more frequently than they

previously did, 25 (7.6%) reported that parents fought and physically harmed each other more often than they previously did, while 62 (18.9%) admitted to intra-familial sexual abuse. Two hundred and twenty-five respondents (68.6%) reported spending more time on social media, games, and the internet while 80 (24.4%) did not. One hundred and ten (33.5%) participants had been hurt by a virtual friend, while 228 (66.5%) had not experienced hurt by someone online (Table 2).

On cross-tabulation of some negative effects and socio-demographic factors, more participants (84.9%) whose monthly income was less than #30,000, reported fear of death compared to those whose income was more than #120,000 ( $p=0.046$ ) (Table 3).

Almost one-quarter of middle adolescents 30/121(24.8%), and 24/99(24.2%) of late adolescents had experienced intra-familial sexual abuse compared to 2/44(4.6%) of early adolescents, and 6/64(9.4%) of young adults. These observed differences were significant ( $p=0.003$ ). More participants who earned less than #30,000 (10/33 = 30.3%) had experienced intra-familial sexual abuse compared to 20/133(15.0%) of participants who earned more than #120,000. Average monthly income was found to be significantly associated with intra-familial sexual abuse ( $p=0.001$ ), See table 4.

**Positive Effects of COVID-19 on Participants**

One hundred and ninety out of the 328 participants (57.9%) mentioned the positive effects of the COVID 19 pandemic on them. Eighty-eight (46.3%) learned new things or acquired new skills, 39/190 (20.5%) reported spending time with family and loved ones, 29/190(15.3%) mentioned more time for

studies, while 34/190(17.9%) had time for rest and self-discovery.

Only 4/51(7.8%) of young adults compared to 14/48(29.2%) of middle adolescents spent time on studies. Age was significantly associated with time for studies ( $p=0.015$ ), See table 5. More males (18/64 =28.1%) than

females (16/126 =12.7%) reported that they had time for rest and self-discovery. This difference was statistically significant ( $p=0.009$ ). Fifteen of the 59 late adolescents (25.4%) had time for rest, compared to 3/48(6.3%) of middle adolescents. There was a significant association between age and rest ( $p=0.038$ ) (Table 6).

**Table 3.** Relationship between sociodemographic profile and fear of death

Variable	Frequency	Fear of death		X <sub>2</sub>	P-value
		Yes	No		
<b>Age group</b>					
10-13	44	28(63.6)	16(36.4)	7.704	0.06 <sup>a</sup>
14-16	121	76(62.8)	45(37.2)		
17-19	99	57(57.6)	42(42.4)		
20-24	64	50(78.1)	14(21.9)		
<b>Gender</b>					
Female	227	142(62.6)	85(37.4)	1.011	0.315
Male	101	69(68.3)	32(31.7)		
<b>Average Monthly Income</b>					
<30,000	33	28(84.9)	5(15.2)	9.683	0.046 <sup>a</sup>
30-60,000	68	41(60.3)	27(39.7)		
60-90,000	53	38(71.7)	15(28.3)		
90-120,000	41	23(56.1)	18(43.9)		
>120,000	133	81(60.9)	52(39.1)		
<b>Who youth resides with</b>					
Both parents	248	161(64.9)	87(35.1)	-	0.650 <sup>b</sup>
Mother	19	11(57.9)	8(42.1)		
Father	8	5(62.5)	3(37.5)		
Alone	14	10(71.4)	4(28.6)		
Relative	35	20(57.1)	15(42.9)		
Strangers	4	4(100.0)	0(0.0)		
<b>Total</b>	<b>328</b>	<b>211(64.3)</b>	<b>117(35.7)</b>		

a = significant P-value b = Fisher's exact test

**Table 4.** Relationship between sociodemographic factors and intra-familial sexual abuse

Variable	Frequency	Intra-familial sexual abuse		X <sup>2</sup>	P- value
		Yes	No		
<b>Age group</b>					
10-13	44	2(4.6)	42(95.4)	14.287	0.003 <sup>a</sup>
14-16	121	30(24.8)	91(75.2)		
17-19	99	24(24.2)	75(75.8)		
20-24	64	6(9.4)	58(90.6)		

<b>Gender</b>					
Female	227	45(19.8)	182(80.2)		
Male	101	17(16.8)	84(83.2)		
<b>Average Monthly Income</b>					
<30,000	33	10(30.3)	23(69.7)	18.622	0.001 <sup>a</sup>
30-60,000	68	21(30.9)	47(69.1)		
60-90,000	53	2(3.8)	51(96.2)		
90-120,000	41	9(22.0)	32(78.0)		
>120,000	133	20(15.0)	113(85.0)		
<b>Who youth resides with</b>					
Both parents	248	46(18.6)	202(81.4)		0.479 <sup>b</sup>
Mother	19	4(21.1)	15(78.9)		
Father	8	2(25.0)	6(75.0)		
Alone	14	1(7.1)	13(92.9)		
Relative	35	7(20.0)	28(80.0)		
Strangers	4	2(50.0)	2(50.0)		
<b>Total</b>	<b>328</b>	<b>62(18.9)</b>	<b>266(81.1)</b>		

a = significant P-value

b = Fisher's exact test

**Table 5.** Relationship between sociodemographic factors and spending time on studies

Variable	Frequency	Time for studies		X <sup>2</sup>	P-value
		Yes	No		
<b>Age group</b>					
10-13	32	5(15.6)	27(84.4)	10.532	0.015 <sup>a</sup>
14-16	48	14(29.2)	34(70.8)		
17-19	59	6(10.2)	53(89.8)		
20-24	51	4(7.8)	47(92.2)		
<b>Gender</b>					
Female	126	22(17.5)	104(82.5)	1.396	0.237
Male	64	7(10.9)	57(89.1)		
<b>Average Monthly Income</b>					
<30,000	22	1(4.5)	21(95.5)	7.335	0.119
30-60,000	30	6(20.0)	24(80.0)		
60-90,000	25	7(28.0)	18(72.0)		
90-120,000	30	2(6.7)	28(93.3)		
>120,000	83	13(15.7)	70(84.3)		
<b>Who youth resides with</b>					
Both parents	143	25(17.5)	118(82.5)	-	0.706 <sup>b</sup>
Mother	12	1(8.3)	11(91.7)		
Father	4	1(25.0)	3(75.0)		
Alone	9	0(0.0)	9(100.0)		
Relative	19	2(10.5)	17(89.5)		
Strangers	3	0(0.0)	3(100.0)		
<b>Total</b>	<b>190</b>	<b>29(15.3)</b>	<b>161(84.7)</b>		

a = significant P-value; b = Fisher's exact test

**Table 6.** Relationship between sociodemographic profile and time for rest/self-discovery

Variable	Frequency	Time for rest/self-recovery		X <sup>2</sup>	p-value
		Yes	No		
<b>Age group</b>					
10-13	32	4(12.5)	28(87.5)	8.442	0.038 <sup>a</sup>
14-16	48	3(6.3)	45(93.7)		
17-19	59	15(25.4)	44(74.6)		
20-24	51	12(23.5)	39(76.5)		
<b>Gender</b>					
Female	126	16(12.7)	110(87.3)	-	0.009 <sup>a</sup>
Male	64	18(28.1)	46(71.9)		
<b>Average Monthly Income</b>					
<30,000	22	6(27.3)	16(72.7)	6.777	0.148
30-60,000	30	3(10.0)	27(90.0)		
60-90,000	25	1(4.0)	24(96.0)		
90-120,000	30	6(20.0)	24(80.0)		
>120,000	83	18(21.7)	65(78.3)		
<b>Who youth resides with</b>					
Both parents	143	22(15.4)	121(84.6)	-	0.119 <sup>b</sup>
Mother	12	2(16.7)	10(83.3)		
Father	4	0(0.0)	4(10.0)		
Alone	9	3(33.3)	6(66.7)		
Relative	19	5(26.3)	14(73.7)		
Strangers	3	2(66.7)	1(33.3)		
<b>Total</b>	<b>190</b>	<b>34(17.9)</b>	<b>156(82.1)</b>		

a = significant P-value; b = Fisher's exact test

## DISCUSSION

The results from our study highlighted both positive and negative effects of the COVID-19 pandemic on young people living in Nigeria. Almost two-thirds of respondents experienced a fear of death which was significantly associated with meagre monthly earnings. Fear of death is part of human nature<sup>20</sup>, but should not be a frequent occurrence for young people, who are supposed to be filled with life and hope for the future. This fear of death becomes even more poignant with daily news of an increase in the death toll from COVID-19. This finding implies that there may be an upsurge in anxiety disorders and other mental health challenges among the youth. This could adversely affect the already fragile health system in a nation that barely caters for the

mental health of its citizens. Thus, in times of crisis like the COVID-19 pandemic, there should be deliberate and structured programs to meet the possible upsurge of mental health issues.

A significant association between meagre income and fear of death can be explained by the mental stress and anxiety caused by inadequate means of sustenance which to the young person experiencing a “novel pandemic”, may cause mental changes. Zaleskiewicz *et al.* found that money ameliorated death anxiety among Polish undergraduate students.<sup>21</sup> Pradhan *et al.* in a study conducted among young adult Indians reported death anxiety which was associated with “COVID19 induced stress”.<sup>22</sup> These may



reflect the impact of income on health and other social fabrics of the society.

Approximately 2 in 10(18.9%) of the participants reported intra-familial sexual abuse during the pandemic period. We also found that more middle and late adolescents had experienced intra-familial sexual abuse during this pandemic. This is higher than the 12.5% report of sexually abused youths estimated by WHO.<sup>23</sup> The current pandemic had exacerbated risk factors for sexual abuse, thus, making young people even more vulnerable. The lockdown and restrictions occasioned by COVID-19 offer assailants the opportunity of being nearer to their victims who otherwise may have been in schools or workplaces. This finding of intra-familial sexual abuse was significantly associated with meagre earnings. Poverty has reportedly been associated with varied forms of abuse including sexual abuse.<sup>24,25</sup> Intra-familial sexual abuse could lead to unwanted pregnancies and their complications, and psychosocial problems among participants during and after the pandemic. There should be mechanisms to protect this vulnerable group of the populace.

Despite the negative effects of the pandemic, there were reports of positive effects among some participants. These were acquiring new skills or learning something new, spending more time with family and loved ones, having more time for studies, and self-discovery, rest, and relaxation. These are similar to some authors' findings of the positive effects of the pandemic.<sup>14,15</sup> These positive effects should be reinforced because of the effects they may have in reducing the negative consequences of the pandemic. In our study, middle adolescence significantly influenced 'time for studies', in contrast to a report by Gugliemi *et al.* in Cox's bazaar which indicated that adolescents had

inadequate time for studies because most of their time was spent on chores.<sup>13</sup> This may be because adolescents in our study had more access to study materials and time, in contrast to Cox's bazaar, an overcrowded refugee camp.

The processes of adolescent development are characterized by the development of ideologies and making plans for the future.<sup>26</sup> Late adolescence had a significant association with self-discovery and relaxation. By late adolescence, young people may have finished secondary school, and are taking time out for rejuvenation and self-discovery. There was no association between sociodemographic profile, learning new skills, and spending time with family. This may affect adolescents and youth productivity especially as they are in an active phase of development. There should be local, national, and international strategies mapped to aid the youth during a crisis such as the COVID-19 pandemic and afterward.

## CONCLUSION

A significant number of youths experienced death anxiety and intra-familial sexual abuse significantly influenced by monetary poverty and age group. Mechanisms and checks should be put in place to monitor and improve the mental health and social well-being of youths. On the other hand, middle adolescents spent more time studying during the pandemic, while late adolescents and males engaged in self-discovery and relaxation, highlighting the need for collaborative strategies to aid the youth to acquire positive skills, during a crisis such as the COVID-19 pandemic, and afterward. We recommend that youth-centered programs and policies be instituted by governments and all relevant stakeholders, to target the negative effects of the pandemic, and strengthen positive ones. A

national survey needs to be conducted to evaluate the effects of the COVID-19 pandemic on youths from all regions of Nigeria.

### Limitation

The restrictions imposed by the pandemic made it difficult to reach youths from remote areas.

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### Data availability

The data used for this study is available on DOI: 10.17632/HCTBF2FKXW.1

### REFERENCES

1. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, *et al.* Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci* 2020;16(10):1745-1752.
2. Osayomi T, Adeleke R, Taiwo OJ, Gbadegesin AS, Fatayo OC, Akpoterai LE, *et al.* Cross-national variations in COVID-19 outbreak in West Africa: Where does Nigeria stand in the pandemic? *Spat Inf Res [Internet]* 2020; Available from: <https://doi.org/10.1007/s41324-020-00371-5> [date, month, year article was accessed]
3. Villani L, McKee M, Cascini F, Ricciardi W, Boccia S. Comparison of deaths rates for COVID-19 across Europe during the first wave of the COVID-19 pandemic. *Front Public Heal* 2020;8:1-5.
4. Pereira NL, Ahmad F, Byku M, Cummins NW, Morris AA, Owens A, *et al.* COVID-19: Understanding Inter-Individual Variability and Implications for Precision Medicine. *Mayo Clin Proc* 2021;96(2):446-463.
5. Impact of COVID-19 on people's livelihoods, their health and our food systems [Internet]. [cited 2021 Apr 1]. Available from:

<https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems>

6. International Labour Organization. Global impact and policy recommendations (COVID-19 and the world of work). ILO Monit first Ed [Internet]. 2020 [cited 2021 Apr 1];(March):1-15. Available from: <https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/lang-en/index.htm>
7. International Labour Organization. A policy framework for tackling the economic and social impact of the COVID-19 crisis. *Policy Brief. Int Labour Organ.* 2020;(May):1-17.
8. Lone SA, Ahmad A. COVID-19 pandemic-an African perspective. *Emerg Microbes Infect* 2020; 9(1):1300-1308. doi: 10.1080/22221751.2020.1775132. PMID: 32458760; PMCID: PMC7473237.
9. IBRD-IDA. Lower middle income data [Internet]. The World Bank. 2020 [cited 2021 Jun 9]. Available from: <https://data.worldbank.org/country/XN>
10. UNFPA - United Nations Population Fund. In: A Concise Encyclopedia of the United Nations [Internet]. 2010 [cited 2021 Jun 9]. p. 719-720. Available from: <https://www.unfpa.org/data/world-population/NG>
11. NCDC Coronavirus COVID-19 Microsite [Internet]. [cited 2021 Jun 9]. Available from: <https://covid19.ncdc.gov.ng/>
12. Julius A A. The Implications of Misconceptions about Coronavirus Disease (COVID-19) Pandemic in Relation to its Daily Increases from Nigerian Perspective. *J Infect Dis Epidemiol* 2020;6(5).
13. Guglielmi AS, Seager J, Mitu K, Baird S, Jones N. ' People won't die due to the disease; they will die due to hunger ': Exploring the impacts of covid-19 on Rohingya and Bangladeshi adolescents in Cox ' s Bazar. 2020;(August).
14. Hamad S, Hamra EA, Diab R, Hamad BA, Jones N, Malachowska A. Listening to young people's voices under covid-19: Exploring the impacts of covid-19 on adolescents in the Gaza Strip. *Policy brief*

- 2020;(June). Available from: <https://www.gage.odi.org/wp-content/uploads/2020/06/Exploring-the-impacts-of-covid-19-on-adolescents-in-the-Gaza-Strip.pdf>
15. Mazumder A, Bandhu Kalanidhi K, Sarkar S, Ranjan P, Sahu A, Kaur T, *et al.* Psychosocial and behavioural impact of COVID 19 on young adults: Qualitative research comprising focused group discussion and in-depth interviews. *Diabetes Metab Syndr Clin Res Rev [Internet]* 2021 Jan 1 [cited 2021 Apr 2];15(1):309–12. Available from: </pmc/articles/PMC7789934/>
  16. UNFPA-United Nations Population Fund [Internet]. [cited 2021 Jun 9]. Available from: <https://www.unfpa.org/data/world-population/NG>
  17. Lemeshow S, Hosmer Jr DW, Klar J, Lwanga SK (1990) Adequacy of sample size in health studies. In Lemeshow S, World Health Organization, editors. Part 1: Statistical Methods for Sample size Determination. Chichester: John Wiley & Sons Ltd. 1–47. Available from: [http://apps.who.int/iris/bitstream/10665/41607/1/0471925179\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/41607/1/0471925179_eng.pdf?ua=1)
  18. World Health Organization. Coronavirus disease (COVID-19): Adolescents and youth [Internet]. World Health Organization. 2020 [cited 2021 Apr 3]. p. 1. Available from: <https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-adolescents-and-youth>
  19. Fatiregun AA, Kumapayi TE. Prevalence and correlates of depressive symptoms among in-school adolescents in a rural district in southwest Nigeria. *J Adolesc [Internet]* 2014;37(2):197–203. Available from: <http://dx.doi.org/10.1016/j.adolescence.2013.12.003>
  20. Caprio FS. A study of some psychological reactions during prepubescence to the idea of death. *Psych Quar* 1950; 24:495–505. <https://doi.org/10.1007/BF02227106>
  21. Zaleskiewicz T, Gasiorowska A, Kesebir P, Luszczynska A, Pyszczynski T. Money and the fear of death: The symbolic power of money as an existential anxiety buffer. *J Econ Psychol [Internet]* 2013;36:55–67. Available from: <http://dx.doi.org/10.1016/j.joep.2013.02.008>
  22. Pradhan M, Chettri A, Maheshwari S. Fear of death in the shadow of COVID-19: The mediating role of perceived stress in the relationship between neuroticism and death anxiety. *Death Stud [Internet]*. 2020;0(0):1–5. Available from: <https://doi.org/10.1080/07481187.2020.1833384>
  23. World Health Organization. Adolescent and young adult health in Scotland [cited 2021 Mar 31]. Available from: <https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions>
  24. Runarsdottir E, Smith E, Arnarsson A. The effects of gender and family wealth on sexual abuse of adolescents. *Int J Environ Res Public Health* 2019;16(10).
  25. Lee C, Coe CL, Ryff CD. Social Disadvantage, Severe Child Abuse, and Biological Profiles in Adulthood. *J Health Soc Behav.* 2017;58(3):371–386. doi:10.1177/0022146516685370
  26. Christie D, Viner R. ABC of adolescence Adolescent development. *BMJ Br Med J [Internet]* 2005 [cited 2021 Apr 16];330(7486):301–4. Available from: <http://www.jstor.org/stable/25458847%5Cnhttp://about.jstor.org/terms>