




Emotional impact of COVID-19 lockdown and mitigation options: A cross-sectional survey of households in Ebonyi State, Nigeria

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Abstract

Background: Coronavirus disease 19 (COVID-19) has continued to plague households, leading to lockdown problems. Adopting appropriate mitigation strategies can reduce the impact on family members.

Purpose: To assess the emotional impact of COVID-19 epidemic lockdown and mitigation measures among households in Ebonyi State.

Methods: Cross-sectional survey design was used to study 516 participants. Emotional impact of COVID-19 lockdown ($r=0.73$) and mitigation options ($r=0.92$) questionnaire was used for data collection. Of the 516 copies of the questionnaire distributed, 493 copies (95.5% return rate) were used for data analysis. Data were analysed using descriptive statistics, standard deviations, and t -tests.

Results: The data showed the emotional impact of the COVID-19 epidemic was high (2.97 ± 0.48) on households. They embraced friendly communication and communication with their partners, maintaining regular contact with their loved ones by phone, email, social media, or video conference to alleviate the COVID-19 lockdown. No significant differences were found in the emotional impact for location ($p > 0.05$). Significant differences were not observed in many gender-based mitigation options. Conversely, a significant difference existed in the mitigation options based on location ($t=3.143$, $p < 0.05$). However, there was no significant difference in friendly interactions and communication with partners ($t=0.354$, $p > 0.05$), finding opportunities to develop excellent and promising news and images ($t=0.770$, $p > 0.05$) and maintaining regular communication with loved ones via phone, email, social media, and video conference ($t=0.448$, $p > 0.05$).

Conclusion: The emotional impact of COVID-19 confinement was significant on family life and was more prevalent among men and urban dwellers. There is need to organise an awareness campaign on fundamental ways to overcome emotional distress using media targeting family members to promote emotional health.

Keywords

Emotional, COVID-19, lockdown, mitigation, households, Ebonyi State

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Introduction

The novel coronavirus disease 19 (COVID-19) pandemic propelled many people to home-confinement that brought about a lockdown crisis. For example, the COVID-19 lockdown disrupted everyday human life. It promoted boredom, grief, anxiety, anger, a variety of neuropsychiatric symptoms, increased domestic abuse, child abuse, and unnecessary Internet use, leading to inappropriate browsing.¹ It imposed sudden and constant emotional problems on household members owing to the far-reaching alteration in the mode of life, lack of outdoor activity, change in sleeping habits, and mental fatigue.² The lockdown bears an excess of psychological load, varied neuropsychiatric symptoms, and emotional and social embarrassment.³ COVID-19 is a respiratory health problem caused by a new coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).⁴ It is a contagious respiratory disease that spreads through the eyes, nose, and mouth, droplets from coughing and sneezing, close contact with infected people, and contaminated surfaces.⁵ It has an incubation period of about 14 days. Symptoms include flu-like symptoms such as coughing, sore throat and tiredness, and shortness of breath and spreads from person to person. COVID-19 is diagnosed through laboratory tests.⁶ Infection can lead to severe respiratory distress or death, especially in the elderly and people with persistent ill-health. However, some infected people are asymptomatic, and some may have minor illnesses and recover without difficulty.⁷

In late December in Wuhan, China, the new coronavirus was discovered. COVID-19 ranks as the most prominent infectious disease in recent times and has surpassed the mortality rate from severe respiratory infections.^{6,8} Following the recommendation of the International Health Regulation Emergency Committee, COVID-19 was declared an epidemic on 30 January 2020, by the Director-General of the World Health Organization (WHO). WHO^{9,10} designated COVID-19 an epidemic on 11 March 2020. The disease has been reported in all continents; the index case in Africa was reported in Egypt in February 2020.¹¹

Nigeria is among the 210 countries affected worldwide at the onset of the disease. The first COVID-19 case was reported in Lagos State on 27 February 2020, on a 44-year-old man, a native of Italy. He returned to Milan, Italy, on February 24 and presented himself at the clinic on 26 February 2020.¹² Following the verification of the case, 216 people were admitted to the hospital. Of his contacts, 45 came from Nigeria, and one of the 176 prominent contacts became infected on 9 March 2020.¹³ Since then, there has been an increase in the number of episodes in Nigeria. Eventually, the epidemic spread over many countries. While most of the first cases were imported, most new infections had no history of travelling or contacting such people.

Previous studies have reported a weighty and wide range of psychosocial impact at the personal, societal, and international levels throughout the outbreak of the disease.^{14,15} A

survey that studied a non-infected community during the severe acute respiratory syndrome outbreak suggested these communities had a high risk of psychiatric morbidity associated with those at a younger age.¹⁶ In addition, older people, females, and highly educated people were more likely to take measures to be free from stress.^{17,18}

Information is scarce regarding the emotional impact caused by the COVID-19 outbreak on the general population. However, it is reasonable to assume that people are panicked, concerned, and fearful. Accordingly, research is needed to know the status of people's emotional state.¹⁹ Most current research into COVID-19, rather than focusing on individuals, is focused on the epidemiological and clinical aspects.^{14,20}

This survey was conducted to ascertain the emotional impact of COVID-19 lockdown and mitigation options. It may help the government, relevant agencies, and healthcare professionals safeguard the household's emotional/mental well-being. To curb the SARS-CoV-2 disease, the scientific communities and governments introduced a lockdown to reduce widespread infection.²¹ Lockdown refers to restrictions of people's movement to enter or leave a building or area freely because of the emergency until solutions are found. During lockdowns, public recreation areas are closed, out-of-home movements are controlled, and highways are closed, all affecting the health of family members adversely. A study reported 53.8% of the subjects studied in China indicated that the psychological impact of the epidemic was severe; 16.5% identified moderate symptoms; while 28.8% reported moderate to severe anxiety symptoms, 8.1% were found to have moderate to severe stress.¹⁵ The majority (84.7%) of participants spent 20–24 h a day at home; while 75.2% were concerned about COVID-19 infecting their relations, 75.1% were satisfied with the amount of health information available to them. It has been reported that these closure measures have weakened people's emotional health.^{3,15}

The depletion of COVID-19 has resulted in high levels of distasteful and unpleasant emotions, including panic, anxiety, depression, irritability, frustration, and dissatisfaction in many homes and communities. It has been reported that men may be concerned about the lack of resources and the unexpected need to take care of the whole family and maybe upset by the prospect of retaining their jobs and educating their children.^{2,9} Being shut down could make some people disturbed and might lead to unhealthy daily habits such as unhealthy sleep patterns, lack of self-discipline, and not knowing how to use time wisely which can lead to despair. This unhealthy pattern of behaviour may turn into a behaviour that can be transmitted before and after viral repression.²²

Combating this disease using lockdown, isolation, and social distancing may continue to produce an undesirable effect. Consequences such as emotional distress in particular and loneliness in general could be risk factors for many other emotional problems such as anxiety, drug use, insomnia,

depression, and suicidal thoughts among men, the elderly and people with underlying health problems.²² Lockdown tends to raise a significant level of anxiety and high anxiety can trigger the effects of specific mental health problems. Fear of being infected and spreading to others has been reported among households during the lockdown.²³ Contagion is often considered a social issue that could lead to stigmatisation, as several household members who were sick within the period expressed denial of treatment because of a correlation of the infection that is an indirect form of segregation.²⁴ The scenario explained above referred to the period of SARS-CoV-2 disease lockdown. It could also be replicated in this present era of COVID-19, in which the infected persons have been denied treatment, and the possibility of stigmatisation might be apparent.

The impact of the lockdown is still growing at an alarming rate on households, and as it escalates, it might jeopardise the lives and livelihoods of the citizens for years to come. Individuals and families should adopt mitigation actions to reduce the impact in the present and future. Mitigation implies taking action to lessen the effect of something, such as COVID-19, as in this study. Failure to mitigate might eventually lead to maladjustment because the magnitude of the impact is predicted to become too large to manage even with considerable investment. To mitigate the impact of COVID-19 pandemic lockdown, households are expected to adopt healthy options, especially the choice of friendly interaction and communication with spouse and adopting indoor physical exercise.² Mitigation options include encouraging offspring to take on more creative activities, including indoor games, crop growing and cartoon making, and playing with children in the neighbourhood. Other recommended options include, but not limited to, daily family chores, enhancing and strengthening family rapport, use of timetable to regulate sleep, play, online socialising, relaxation and minimising watching TV, reading, or listening to news about the pandemic that could cause anxiety and distress, have been suggested.⁹

Some personal variables such as gender and location of residence might play significant roles in the emotional impact of COVID-19 lockdown. For instance, studies reported that males tend to suffer higher emotional problems than females in the presence of COVID-19 lockdown because the restriction of movement may hamper family supplies and the unexpected need to care for the entire family.^{15,18} WHO reported that COVID-19 lockdown might have a high impact on males because the restrictions could reduce their social interactions, which might be risk factors for several emotional disorders. Such emotional disorders might include but not limited to anxiety, drug use, sleeplessness, despair, and suicidal ideation.⁹ However, female members of the family engaged in revenue-generating activities such as sewing, facemasks, hand sanitiser, manufacturing jobs, and greater involvement in agriculture which many male ones could not do during the period.

Regarding location of residence, the cumulative emotional impact as a result of COVID-19 pandemic lockdown could be low on most households in rural areas. Still, it might hit hard on those in urban clusters since cases manifested first in the urban areas.^{25,26} It was asserted that urban residents might be affected in particular ways, and in some areas, face more unenthusiastic impacts than rural residents.²⁷

COVID-19 lockdown restricted the movement of many households, preventing them from having regular access to basic needs of life and leaving them abandoned in the house. The researchers observed high rates of substance abuse, crime (e.g. robbery, kidnapping, and rape), and violence which negatively could affect the ability of different households to move around during the lockdown. Hence, there was a vital need to investigate the emotional impact of COVID-19 lockdown on household members and options adopted among the households in Ebonyi State, Nigeria, to mitigate the impact.

In Nigeria, the social life is flexible, with social distancing and lockdown appearing foreign. The pandemic lockdown triggered a societal shock reaction in Nigeria, especially in Ebonyi State, where the means of existence is through communal living. Due to the lockdown, the natives lost their independence for interaction and personal acquaintances, which elicited instantaneous and temporary responses not used as COVID-19 preventive measures. Since the beginning of the lockdown, most people have stayed at home and self-isolated to protect themselves from transmitting and contracting the virus.¹⁹ The impact of the restriction might be too enormous, especially on the emotional life of the people, which might need some level of personal mitigation.

The primary purpose of this study was to ascertain the emotional impact of COVID-19 lockdown and mitigation options adopted among households in Ebonyi State. Six specific objectives and related research questions provided a guide for the study.

Hypotheses

In order to establish whether there were differences in the dependent variables (emotional impact of COVID-19; Men vs Women, Urban vs Rural, and mitigation options; (Men vs Women, Urban vs Rural)) between each level of the independent variables of gender and location of residence, four hypotheses were postulated and tested.

Methods

Study design and setting

The cross-sectional survey was between April and July 2020 to ascertain the emotional impact of COVID-19 pandemic lockdown and mitigation options adopted among 516 household members in Ebonyi State, Nigeria. A multi-stage sampling procedure was applied in drawing participants. In the

first stage, the researchers identified the already existing clusters of three senatorial zones in Ebonyi State, namely: Ebonyi North, Ebonyi South, and Ebonyi Central. Simple random sampling technique was adopted at the second stage to choose two local government areas (LGAs) from each zone. The convenience sampling technique was used in the third stage to select 86 participants from one community in each LGA. This procedure yielded a total of 516 participants used in the study. The Taro Yamane²⁸ formula was used in determining the sample size is as follows.

Sample size determination

The Taro Yamane²⁸ formula with a 95.6% confidence level was used to determine the sample size. The calculation formula of Taro Yamane is presented as follows

$$n = \frac{N}{1 + N(e)^2}$$

where n is the sample size, N is the number of people in the population=931,246, and e is the allowable error (%)=4.4%=0.044.

Substituting figures in the formula

$$\begin{aligned} n &= \frac{931,248}{1 + 931,248 (0.044)^2} \\ &= \frac{931,248}{1 + 931,248 (0.001936)} \\ &= \frac{931,248}{1 + 1802.896128} \\ &= \frac{931,248}{1803.896128} \\ &= \frac{931,248}{1803.9} \\ &= 516.2 = 516 \end{aligned}$$

This sample size agrees with the rule of the thumb that suggests that when the population of a study is in several thousand, a proportion of 1% or less is acceptable for use.²⁹

Study tool

The tool used for assessment in the study was a 26-item survey entitled: Emotional Impact of COVID-19 Lockdown and Mitigation Options Questionnaire (EIC-19LMOQ) developed by the researchers. The questionnaire consisted of three partitions: A, B, and C. Partition A contains two items on personal characteristics (gender and location). Partition B contains 11 items that raised data on the emotional impact of COVID-19. The items were developed from literature and experience. Partition C contains 13 items that raised information on mitigation measures. The items were also developed from literature and through the consultation of experts. Study participants were required to indicate on a 4-point

scale of Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1), on the agreement level or otherwise in the study variables. The instrument (EIC-19LMOQ) was subjected to face validation using two health educators and one psychologist from the same tertiary institution in Ebonyi State. Copies of the questionnaire (30) were distributed and collected among household members at Abia State to determine the tool's reliability using Cronbach's Alpha method. The data showed reliable coefficients of 0.73 and 0.92, respectively. Reliability coefficients were higher than 0.60, a good indicator of fine instruments.³⁰

Ethical issues

Ethical approval was waived by the Ebonyi State University Medical School Research Ethics Committee and the Alex Ekwueme Federal University Teaching Hospital, Abakaliki. The reason for the waiver was that the study was not done in a laboratory. Written informed consent was obtained from the participants before responding to the questionnaire. The participants read the consent note and agreed to participate in the study before responding to the study survey.

Inclusion and exclusion criteria

Adult family members, mostly husband and wife, who read the consent note and agreed to participate in the study, were included. Only two demographic characteristics of gender and location of residence were included. Other characteristics such as age and educational status were not included because it was expected that the most critical household members are the husband and wife, who may or may not be educated and were capable of representing other household members.

Research procedure

To reach the respondents, the researchers went to the traditional ruler of each community used in the study to get his approval before visiting the households. Even though there was lockdown, researchers and other people on essential duties were allowed to carry on their duties while observing basic COVID-19 protocols. The traditional rulers provided human guards who lead the researchers to and around each community. The researchers then administered 516 copies of the survey to the respondents in their homes and immediately collected them. Out of 516 copies of the survey administered, 493 (95.5% return rate) copies were useable for data analysis. These comprised 244 (49.5%) males and 249 (50.5%) females; 257 (52.1%) urban and 236 (47.9%) rural household members.

Statistical analysis

IBM Statistical Package for Social Sciences (SPSS) 23rd edition was used for data analysis. The description was made

Table 1. Mean value and standard deviation of emotional impact of COVID-19 pandemic lockdown among households.

Serial number	Variables	\bar{x}	Standard deviation	Dec.
1.	Pre-occupied thinking about the future of my job	3.29	0.76	High
2.	Pre-occupied thinking about the education of my children and the associated delays during the lockdown	3.41	0.78	High
3.	Losing hope of surviving during the lockdown	2.94	0.97	High
4.	Thinking of committing suicide during the lockdown	2.20	1.18	High
5.	Fear of being infected and spreading infection to parents at home	2.82	1.04	High
6.	The lockdown lead me to sleeplessness	2.74	0.96	High
7.	During the COVID-19 lockdown I am bored and frustrated	2.93	0.83	High
8.	Experiencing fear and anger due to misinformation within the communities as a result of COVID-19 pandemic lockdown	3.10	0.79	High
9.	Spending too much time thinking about the outbreak	3.18	1.55	High
10.	Thinking of shortage or lack of food and need to care for the entire family	3.30	0.88	High
11.	Feeling of stigmatised and discriminated during the lockdown	2.73	1.98	High
	Overall mean	2.97	0.48	High

Dec.: decision.

using mean value and standard deviation. The cut-off point for the study was reached by adding up the scores assigned to the response options and dividing the sum by the number of the response options as follows

$$\frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$$

A criterion mean value of 2.50 and above was considered high emotional impact, and that a given mitigation option was adopted, respectively. However, a mean value below 2.50 was adjudged low emotional impact, and that a given mitigation option was not adopted. Inferential statistics of independent samples *t*-test was used in verifying the hypotheses. The alpha for the test of hypotheses was set at 0.05.

Results

Results show that all the items, except thinking of committing suicide during the lockdown (2.20 ± 1.18), have mean scores below 2.50. The overall ($2.97 \pm 0.48 > 2.50$) is above the criteria measure established for the study. This result could imply that the emotional impact of COVID-19 lockdown was high on the household members who participated in the study (Table 1).

The results in Table 2 show that male participants have a high emotional impact of COVID-19 pandemic lockdown score in all the items except on thinking of committing suicide during the lockdown (2.27 ± 1.19). At the same time, females have a high emotional impact score in all the items except on thinking of committing suicide during the lockdown (2.16 ± 0.18) and spending too much time thinking about the epidemic (2.11 ± 0.85). Overall, both male (2.99 ± 0.56) and female (2.96 ± 0.42) participants have high emotional impact of COVID-19 lockdown scores, but males have higher emotional impact scores than females.

When *t*-test analysis is conducted on overall impact scores, there is no significant difference ($t=0.690, p=0.490$) in the emotional impact of COVID-19 pandemic lockdown between male and female household members.

The data in Table 3 show that the emotional impact of COVID-19 pandemic lockdown was high on both urban and rural household subjects except in thinking of committing suicide during the lockdown (urban= 2.36 ± 1.23 ; rural= 2.05 ± 1.11). The overall mean scores for urban (2.97 ± 0.48) and rural (2.96 ± 0.49) areas indicate high impact. The results further indicate that differences exist on ‘pre-occupied thinking about the future of my job’, thinking of committing suicide during the lockdown, spending too much time thinking about the outbreak, and feeling stigmatised and discriminated. In summary, the $t=0.375, p > 0.05$ was not significant based on location.

The results in Table 4 show that mean scores for items 12 and 23 are above the cut-off mean of 2.50 set in the study. These results could suggest that household members mainly adopt friendly interaction and communication with spouse (2.79 ± 0.19) and keep regular contact with loved ones using telephone, email, social media, or video conferencing (2.51 ± 0.15) as mitigation options for COVID-19 pandemic during the lockdown.

The results in Table 5 show that both male and female household members adopted friendly interaction and communication with the spouse, seeking information updates and practical guiding principle at specific times from health professionals as mitigation options for COVID-19 pandemic lockdown. There is no significant difference in the mitigation options adopted except on two issues, namely: establishing strict social security chain to prevent hoodlums into the household ($t=1.942, p < 0.05$) and minimise watching TV, reading, and listening to news about the pandemic that could cause feeling of anxiety or distress ($t=1.933, p < 0.05$).

Table 2. Mean value, standard deviation, and summary of t-test analysis of emotional impact of COVID-19 pandemic lockdown among household based on gender.

Serial number	Variables	Gender				t	p
		Male		Female			
		\bar{x}	Standard deviation	\bar{x}	Standard deviation		
1.	Pre-occupied thinking about the future of my job	3.26	0.78	3.31	0.75	0.711	0.478
2.	Pre-occupied thinking about the education of my children and the associated delays during the lockdown	3.32	0.83	3.46	0.73	2.000*	0.046
3.	Losing hope of surviving during the lockdown	2.81	0.93	3.03	0.99	2.430*	0.015
4.	Thinking of committing suicide during the lockdown	2.27	1.19	2.16	1.18	1.040	0.299
5.	Fear of being infected and spreading infection to parents at home	2.93	1.03	2.75	1.05	1.833	0.067
6.	The lockdown lead me to sleeplessness	2.86	0.93	2.66	0.98	2.280*	0.023
7.	During the COVID-19 lockdown I am bored and frustrated	2.96	0.87	2.91	0.80	0.718	0.473
8.	Experiencing fear and anger due to misinformation within the communities as a result of COVID-19 pandemic lockdown	3.10	0.85	3.11	0.74	0.162	0.872
9.	Spending too much time thinking about the outbreak	3.29	0.21	2.11	0.85	1.236	0.217
10.	Thinking of shortage or lack of food and need to care for the entire family	3.28	0.89	2.78	1.01	0.514	0.608
11.	Feeling of stigmatised and discriminated during the lockdown	2.78	1.01	2.70	0.97	0.879	0.380
	Overall	2.99	0.56	2.96	0.42	0.690	0.490

*Significant at $p < 0.05$.

The results in Table 6 show that urban household participants adopted the following as mitigating options: friendly interaction and communication with the spouse; carefully and friendly monitoring the online activities of household members; engaging family members and other support networks in providing information, and helping them to practice preventive measures (e.g. hand washing, use of facemask, hand sanitiser, and avoid social gathering); prompt report of any violence, abuse, and exploitation to relevant authorities; and seeking information updates and practical course of action at specific times during the day from health professionals as mitigation strategies during COVID-19 pandemic lockdown. Rural household respondents adopted only friendly interaction and communication with spouse and children and sought information updates and practical guidelines at specific times during the day from health professionals. The results further show that significant differences exist cumulatively in the mitigation options adopted among household subjects based on location of residence ($t = 3.143$, $p < 0.05$). The following options did not show any significant difference: friendly interaction and communication with spouse ($t = 0.354$, $p > 0.05$), finding time to play with household and

engaging in daily rituals that would strengthen the family rapport and helps to pass the time ($t = 1.734$, $p > 0.05$), finding opportunities to increase positive and hopeful stories and imagery ($t = 0.770$, $p > 0.05$), and keeping regular contact with loved ones using telephone, email, social media, and video conferencing.

Discussion

The emotional impact of COVID-19 pandemic lockdown among household members

This study was the first descriptive investigation to ascertain the impact of COVID-19 lockdown on the emotions and mitigation options adopted among households in Ebonyi State, Nigeria. The findings showed that the emotional impact of the COVID-19 pandemic lockdown was high on the household members. This result was expected because the condition was felt as a threat to life, and this type of condition has always been acknowledged to place the individuals concerned on unpleasant emotions which could manifest into panic, worry, strain, pressure, sadness, sorrow, agitation, anger, dissatisfaction, and displeasure.^{18,22}

Table 3. Mean value, standard deviation, and summary of t-test analysis of emotional impact of COVID-19 pandemic lockdown among household based on location of residence.

Serial number	Variables	Location of residence				t	p
		Urban		Rural			
		\bar{x}	Standard deviation	\bar{x}	Standard deviation		
1.	Pre-occupied thinking about the future of my job	3.36	0.72	3.22	0.79	1.970*	0.049
2.	Pre-occupied thinking about the education of my children and the associated delays during the lockdown	3.45	0.72	3.35	0.83	1.391	0.165
3.	Losing hope of surviving during the lockdown	2.96	1.05	2.90	0.88	0.683	0.495
4.	Thinking of committing suicide during the lockdown	2.36	1.23	2.05	1.11	2.933*	0.005
5.	Fear of being infected and spreading infection to parents at home	2.76	1.16	2.86	0.91	0.752	0.452
6.	The lockdown lead me to sleeplessness	2.71	1.02	2.77	0.89	0.710	0.478
7.	During the COVID-19 lockdown I am bored and frustrated	2.96	0.88	2.91	0.77	0.634	0.526
8.	Experiencing fear and anger due to misinformation within the communities as a result of COVID-19 pandemic lockdown	3.09	0.76	3.11	0.82	0.219	0.827
9.	Spending too much time thinking about the outbreak	2.96	0.84	3.42	0.06	3.292*	0.001
10.	Thinking of shortage or lack of food and need to care for the entire family	3.24	0.90	3.36	0.86	1.596	0.111
11.	Feeling of stigmatised and discriminated during the lockdown	2.85	0.87	2.58	1.08	2.980*	0.003
	Overall	2.97	0.48	2.96	0.49	0.375	0.708

*Significant at $p < 0.05$.

The emotional impact of COVID-19 pandemic lockdown among household members based on gender

When male and female household members were compared, the study showed both genders reported high emotional impact, but no significant difference was observed in the emotional impact of COVID-19 lockdown. The results are not consistent with other previous findings. For instance, a survey conducted among Chinese showed differences between males and females on the impact of COVID-19 lockdown. The difference could probably be that males might be bothered when supplies in the home are insufficient and, of course, the need to provide for the entire family, which is not always the concern of females.² Similarly, WHO⁵ reported that COVID-19 lockdown had a higher impact on males than females because the lockdown restrictions that reduced males' social interactions might have increased the risk for several emotional disorders, including but not limited to nervousness, drug abuse, restlessness, despair, and suicidal ideation. The no significant difference reported by the participants in this study could be attributed to the fact that both male and female household members in the area under survey depend on each other for survival; hence, whatever affects one affects the other.

The emotional impact of COVID-19 pandemic lockdown among household members based on location of residence

High impact of COVID-19 lockdown was revealed on the emotions of both urban and rural resident participants. However, the difference observed on the emotional impact of COVID-19 lockdown regarding location of residence was not significant. The findings are indeed bizarre as they disagreed sharply with previous reports speculating that cumulative emotional impact due to COVID-19 lockdown shall be low in most rural areas but may probably hit high on those in urban clusters.²⁵⁻²⁷ In application, the findings of this research might help design educational intervention to mitigate the impact of COVID-19 pandemic lockdown with consideration on both urban and rural populations.

Mitigation options adopted during COVID-19 lockdown among household members

Household members in the area under survey mainly adopted 'friendly interaction and communication with spouse' and 'keeping regular contact with loved ones using telephone, email, social media, or video conferencing' as mitigation options to COVID-19 pandemic during the lockdown. These

Table 4. Mean value and standard deviation of mitigation options adopted during COVID-19 lockdown among households.

Serial number	Variables	\bar{x}	Standard deviation	Dec.
12.	Friendly interaction and communication with your spouse	2.79	1.19	A
13.	Adopting indoor physical exercise with my household	2.30	1.06	NA
14.	Carefully and friendly monitoring the online activities of your household	2.27	1.16	NA
15.	Engaging family members and other support networks in providing information and helping them to practice preventive measures (e.g. hand washing, use of facemask, hand sanitiser, and avoid social gathering)	2.38	1.30	NA
16.	Establishing strict social security chain to prevent hoodlum into the household	2.10	1.13	NA
17.	Encouraging my household to engage in more creative activities such as playing, gardening, or drawing	2.19	1.40	NA
18.	Finding time to play with my household and engage in daily rituals that will strengthen the family relationship and helps to pass time	2.27	1.76	NA
19.	Preparing a timetable by scheduling time for sleep, exercise, leisure, online socialising, and relaxation	2.25	1.17	NA
20.	Prompt report of any violence, abuse, and exploitation to relevant authorities	2.29	1.58	NA
21.	Minimise watching, reading, or listening to news about COVID-19 that causes you to feel anxious or distressed	2.24	1.13	NA
22.	Finding opportunities to amplify positive and hopeful stories and images	2.39	1.10	NA
23.	Keeping regular contact with loved ones using telephone, email, social media, or video conferencing	2.51	1.15	A
24.	Seek information updates and practical guidelines at specific times during the day from health professionals	2.40	1.14	NA

A: adopted; NA: not adopted; Dec.: decision.

findings were interesting based on the current use of social media in sending and receiving information to and from friends and well-wishers. For example, almost every household member owns a handset telephone, which could also be used by those who do not to send and receive messages. The same could apply to the use of email and other social media outfits that are available for the use of household members at convenience to mitigate COVID-19 pandemic lockdown. The practice of these options had been recommended to mitigate the pandemic lockdown.²²

Mitigation options adopted among household members during COVID-19 pandemic lockdown based on gender

This study reported that both male and female household members mainly adopted the following mitigation options for COVID-19 pandemic lockdown, namely: friendly interaction and communication with spouse to reduce the pandemic-related anxieties and seek information update and practical guidelines during the particular period. Adopting only two mitigation options, from all the options suggested therein, by household members was a very disappointing scenario since other mitigating options could be adopted. For instance, there are other mitigation options that the respondents could have adopted which include indoor physical exercise, encouraging children to engage in more imaginative behaviour, including indoor games, crop growing, and

minimising watching TV, reading, and listening to news about COVID-19.⁴ When the *t*-test was run, the results showed no significant differences existed in the mitigation options adopted based on gender except on establishing strict social security chain to prevent hoodlums into households and minimise watching TV, reading, and listening to information on COVID-19 that could cause one to feel anxious or distressed. Be that as it may, the options adopted were not out of place following the WHO's²² messages for the general population.

Mitigation options adopted among household members during COVID-19 pandemic lockdown based on the location of residence

Furthermore, the study's findings showed statistically significant differences existed in the mitigation options adopted during COVID-19 lockdown based on location of residence. On their own, urban household subjects adopted friendly interaction and communication with spouse; carefully and friendly monitoring the online activities of the household; engaging family members and other support networks in providing information and helping them to practice preventive measures (e.g. hand washing, use of facemask, hand sanitiser, and avoid social gathering); prompt report of any violence, abuse, and exploitation to relevant authorities; and seeking information update and sensible guidelines at precise times in the day from health professionals. However,

Table 5. Mean value, standard deviation, and summary of *t*-test analysis of mitigation options adopted among households during COVID-19 pandemic lockdown based on gender.

Serial number	Variables	Gender				<i>t</i>	<i>p</i>
		Male		Female			
		\bar{x}	Standard deviation	\bar{x}	Standard deviation		
12.	Friendly interaction and communication with your spouse	2.88	1.19	2.73	1.19	1.332	0.183
13.	Adopting indoor physical exercise with my household	2.30	1.09	2.30	1.04	0.012	0.990
14.	Carefully and friendly monitoring the online activities of your household	2.22	1.11	2.30	1.19	0.781	0.435
15.	Engaging family members and other support networks in providing information and helping them to practice preventive measures (e.g. hand washing, use of facemask, hand sanitiser, and avoid social gathering)	2.39	1.46	2.37	1.18	0.162	0.871
16.	Establishing strict social security chain to prevent hoodlum into the household	2.22	1.12	2.02	1.14	1.943*	0.048
17.	Encouraging my household to engage in more creative activities such as playing, gardening, or drawing	2.24	1.11	2.18	1.57	0.173	0.863
18.	Finding time to play with my household and engage in daily rituals that will strengthen the family relationship and helps to pass time	2.36	1.09	2.30	2.10	0.576	0.565
19.	Preparing a timetable by scheduling time for sleep, exercise, leisure, online socialising, and relaxation	2.22	1.11	2.28	1.21	0.600	0.549
20.	Prompt report of any violence, abuse, and exploitation to relevant authorities	2.24	1.15	2.33	1.82	0.632	0.528
21.	Minimise watching, reading, or listening to news about COVID-19 that causes you to feel anxious or distressed	2.36	1.11	2.16	1.13	1.933*	0.045
22.	Finding opportunities to amplify positive and hopeful stories and images	2.48	1.13	2.34	1.08	1.407	0.160
23.	Keeping regular contact with loved ones using telephone, email, social media, or video conferencing	2.54	1.18	2.50	1.14	0.448	0.654
24.	Seek information updates and practical guidelines at specific times during the day from health professionals	2.42	1.21	2.39	1.10	0.261	0.794
	Overall	2.36	0.90	2.32	0.91	0.435	0.664

*Significant at $p < 0.05$.

rural households adopted options that were not quite the same as those adopted by the urban participants.² No matter the differences in the mitigation options adopted by both urban and rural household members, the options seemed worthwhile as recommended by WHO.²² The outcome of this study calls on health promotion professionals to use different channels to reach rural areas to encourage them to adopt other available mitigation options at their doorsteps to cope with the situations.

Conclusion

The study established that the impact of COVID-19 lockdown on the emotions of household members surveyed was high. However, no significant variation was observed

relative to gender and location of residence. Both males and females adopted similar mitigation options. There is a clarification call on the government, health educators, health promotion professionals, psychologists, and other concerned experts to organise awareness campaigns to overcome emotional distress. This campaign could be achieved using media and community information outlets to promote emotional healthiness and respond to the current crisis considering the pre-existing conditions.

Limitations of the study

A paper and pencil questionnaire was used in collecting data for the study. There was no form of control by the researchers over the information supplied by the respondents. This

Table 6. Mean value, standard deviation, and summary of t-test analysis of mitigation options adopted among households during COVID-19 pandemic lockdown based on location.

Serial number	Variables	Location of residence				t	p
		Urban		Rural			
		\bar{x}	Standard deviation	\bar{x}	Standard deviation		
12.	Friendly interaction and communication with your spouse	2.82	1.23	2.78	1.14	0.354	0.724
13.	Adopting indoor physical exercise with my household	2.43	1.07	2.16	1.02	2.828*	0.005
14.	Carefully and friendly monitoring the online activities of your household	2.52	1.20	2.00	1.04	5.165*	0.000
15.	Engaging family members and other support networks in providing information and helping them to practice preventive measures (e.g. hand washing, use of facemask, hand sanitiser, and avoid social gathering)	2.65	1.36	2.10	1.16	4.783*	0.000
16.	Establishing strict social security chain to prevent hoodlum into the household	2.29	1.16	1.90	1.06	3.806*	0.000
17.	Encouraging my household to engage in more creative activities such as playing, gardening, or drawing	2.38	1.11	1.99	1.65	3.082*	0.002
18.	Finding time to play with my household and engage in daily rituals that will strengthen the family relationship and helps to pass time	2.40	1.14	2.13	0.27	1.734	0.084
19.	Preparing a timetable by scheduling time for sleep, exercise, leisure, online socialising, and relaxation	2.48	1.22	2.01	1.05	4.550*	0.000
20.	Prompt report of any violence, abuse, and exploitation to relevant authorities	2.57	1.77	1.98	1.28	4.181*	0.000
21.	Minimise watching, reading, or listening to news about COVID-19 that causes you to feel anxious or distressed	2.11	1.12	2.41	1.12	2.945*	0.003
22.	Finding opportunities to amplify positive and hopeful stories and images	2.36	1.08	2.43	1.13	0.770	0.441
23.	Keeping regular contact with loved ones using telephone, email, social media, or video conferencing	2.45	1.12	2.59	1.19	1.333	0.186
24.	Seek information updates and practical guidelines at specific times during the day from health professionals	2.57	1.20	2.23	1.06	3.307*	0.001
	Overall	2.46	0.59	2.21	0.83	3.143*	0.002

*Significant at $p < 0.05$.

omission inherent in survey research may have influenced the findings of the study to any direction. The number of participants used in the study could be regarded as a microcosm of the entire population, which may have also influenced the study's findings. Therefore, the study results might not generalise other resident groups in this country and elsewhere because these groups may be different to a great degree in social and other conditions. Household members studied characterised a significant assemblage of the Nigerian people. Data generated would be useful in planning potential education programmes on emotional and mental health in Nigerian schools and other developing countries in Africa that may have similar culture with

Ebonyi State. The programme so planned might be very beneficial to the school-aged child. Comparative studies need to be carried out using households in other parts of Nigeria.

Authors' note

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Author contributions

All the authors nursed the idea about the research. The authors were also involved in collecting data used for analysis. E.N.A., O.O.O., C.G.O., J.O.O., and C.O.E. collected the initial data used to establish the reliability of the study tool. N.A.E., I.O.N., S.O.E., D.N.A., and C.I.I. did the coding and analysis of data. The authors had a mini house conference moderated by I.O.N. during the compilation of the manuscript.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Informed consent

Written informed consent was obtained from the participants prior to responding to the questionnaire. The participants read the consent note and agreed to be part of the study before responding to the study survey.

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Supplemental material

Supplemental material for this article is available online.

References

1. Ghosh R, Dubey MJ, Chatterjee S, et al. Impact of COVID-19 on children: special focus on the psychosocial aspect. *Minerva Pediatr* 2020; 72(3): 226–235.
2. Wang G, Zhang Y, Zhao J, et al. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet* 2020; 395(10228): 945–947.
3. Brooks SK, Webster RK, Smith LE, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020; 395(10227): 912–920.
4. World Health Organization (WHO). WHO Director-General's opening remarks at the media briefing on COVID-19. *Soc Cognition* 2020; a35(4): 324–353.
5. World Health Organization (WHO). *Coronavirus disease (COVID-19) outbreak situation*. Geneva: WHO, 2020.
6. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 2020; 395(10223): 507–513.
7. Sauer LM. What is coronavirus? 2020, <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus> (accessed 14 June 2020).
8. Nishiura H, Jung SM, Linton NM, et al. The extent of transmission of novel coronavirus in Wuhan, China, 2020. *J Clin Med* 2020; 9(2): 330.
9. World Health Organization (WHO). *WHO announces COVID-19 outbreak a pandemic*. WHO, 2020, <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic> (accessed 9 August 2020).
10. Mahase E. China coronavirus: WHO declares international emergency as death toll exceeds 200. *BMJ* 2020; 368: m408.
11. Gilbert M, Pullano G, Pinotti F, et al. Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study. *Lancet* 2020; 395(10227): 871–877.
12. Nigeria Centre for Disease Control (NCDC). *First case of corona virus disease confirmed in Nigeria*, 2020, <https://ncdc.gov.ng/news/227/first-case-of-corona-virus-disease-confirmed-in-nigeria> (accessed 9 August 2020).
13. Nigeria Centre for Disease Control (NCDC). *COVID-19 outbreak in Nigeria situation*. Report S/N 54, 2020, <https://ncdc.gov.ng/diseases/sitreps/?cat=14&name=An%20update%20of%20COVID-19%20outbreak%20in%20Nigeria> (accessed 9 August 2020).
14. Hall RC, Hall RC and Chapman MJ. The 1995 Kikwit Ebola outbreak: lessons hospitals and physicians can apply to future viral epidemics. *Gen Hosp Psychiatry* 2008; 30(5): 446–452.
15. Wang C, Pan R, Wan X, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health* 2020; 17(5): 1729.
16. Sim K, Chan YH, Chong PN, et al. Psychosocial and coping responses within the community health care setting towards a national outbreak of an infectious disease. *J Psychosom Res* 2010; 68(2): 195–202.
17. Leung GM, Lam TH, Ho LM, et al. The impact of community psychological responses on outbreak control for severe acute respiratory syndrome in Hong Kong. *J Epidemiol Community Health* 2003; 57(11): 857–863.
18. Baral IA and Bhagawati KC. Post traumatic stress disorder and coping strategies among adult survivors of earthquake, Nepal. *BMC Psychiatry* 2019; 19(1): 118.

19. Xiang YT, Yang Y, Li W, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry* 2020; 7(3): 228–229.
20. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020; 395(10223): 497–506.
21. Leppin A and Aro AR. Risk perceptions related to SARS and avian influenza: theoretical foundations of current empirical research. *Int J Behav Med* 2009; 16(1): 7–29.
22. World Health Organization (WHO). *Mental health and psychosocial considerations during the COVID-19 outbreak*. Report no. WHO/2019-nCoV/MentalHealth, 18 March 2020. Geneva: WHO.
23. Rubin GJ and Wessely S. The psychological effects of quarantining a city. *BMJ* 2020; 368: m313.
24. Pappas G, Siozopoulou V, Saplaoura K, et al. Health literacy in the field of infectious diseases: the paradigm of brucellosis. *J Infection* 2007; 54: 40–45.
25. Ward D. *Sampling bias: explaining wide variations in COVID-19 case fatality rates*. Bern: Ward Environment, 2020.
26. Verity R, Okell LC, Dorigatti I, et al. Estimates of the severity of coronavirus disease 2019: a model-based analysis. *Lancet Infect Dis* 2020; 20(6): 669–677.
27. Alon TM, Doepke M, Olmstead-Rumsey J, et al. *The impact of COVID-19 on gender equality*. NBER Working Paper 26947. Cambridge, MA: National Bureau of Economic Research, 2020.
28. Yamane T. *Statistics: an introductory analysis*. New York: Harper & Row, 1973.
29. Nwana OC. *Introduction to educational research for student-teachers*. Ibadan, Nigeria: Heinemann Educational Books Ltd, 2014.
30. Ogbazi JN and Okpala J. *Writing research report: guide for researchers in education, the social sciences and the humanities*. 2nd ed. Enugu, Nigeria: Press Time Ltd, 2014.