MINISTRY OF HEALTH UGANDA

UNIPH Epidemiological Bulletin

Volume 6| Issue 1| January– March 2021

Quarterly Epidemiological Bulletin of the Uganda National Institute of Public Health, Ministry of Health

January - March 2021

Dear Reader,

We welcome you to Volume 6, Issue 1 of the Quarterly Epidemiological Bulletin of the Uganda National Institute of Public Health (UNIPH), Ministry of Health.

This bulletin aims to inform the district, national, and global stakeholders on disease outbreak investigations, public health surveillance, and interventions undertaken in detecting, preventing, and responding to public health events in the country.

In this issue, we present a variety of articles including; Psychological impact of COVID-19 on healthcare workers, A cluster of COVID-19 at a secondary hospital in Kampala, Incidence of preterm births admissions in Uganda, Adherence to and satisfaction with the use of face masks, and compliance to hand washing during the first stage of the COVID-19 outbreak in Uganda, and Gender-Based Violence during the COVID-19 lockdown.

For further information on anything in this bulletin please contact us on: jnamayanja@musph.ac.ug, poumo@musph.ac.ug, rmigisha@musph.ac.ug, OR lbulage@musph.ac.ug

We hope this will be a worth and informative read and shall appreciate all the feedback from you. Thank you.

Inside this issue:

Upcoming Health Events and News

World Immunization Week 2021, last week of April (Vaccines have brought us closer, and will bring us closer again)

While the world focuses on critically important new vaccines to protect against COVID-19, there remains a need to ensure routine vaccinations are not missed. Many children have not been vaccinated during the global pandemic, leaving them at risk of serious diseases like measles and polio. Rapidly circulating misinformation around the topic of vaccination adds to this threat. In this context, this year's campaign will aim to build solidarity and trust in vaccination as a public good that saves lives and protects health.

World Malaria Day, April 25

On 21 April, WHO will publish a new report highlighting successes and lessons learned among the "E-2020" group of malaria-eliminating countries. Despite the challenges posed by the COVID-19 pandemic, a number of these countries reported zero indigenous malaria cases in 2020, while others made impressive progress in their journey to becoming malaria-free.
Ahead of World Malaria Day slated for 25 April, country leaders, frontline health workers and global partners will come together in a virtual forum to share experiences and reflections on efforts to reach the target of zero malaria. The event will be co-hosted by WHO and the RBM Partnership to End Malaria on 21 April.

World No-Tobacco Day, May 31 (Commit to quit)

The Member States of the World Health Organization created World No Tobacco Day in 1987 to draw global attention to the tobacco epidemic and the preventable death and disease it causes. This yearly celebration informs the public on the dangers of using tobacco, the business practices of tobacco companies, what WHO is doing to fight the tobacco epidemic, and what people around the world can do to claim their right to health and healthy living and to protect future generations. The COVID-19 pandemic has led to millions of tobacco users saying they want to quit!

Psychological Impact of COVID-19 on Healthcare Workers during the Early Phase of the Epidemic in Uganda, April-May 2020

Richard Migisha[1*], Benon Kwesiga[1], Lilian Bulage[1], Daniel Kadobera[1], Steven N. Kabwama[1], Elizabeth Katana[1], Alex Ndybakyira[1], Ignatius Wadunde[1], Aggrey Byaruhanga[1], Geofrey Amanya[1], Alex Riolexus Ario[1,4],

[1]Uganda Public Health Fellowship Program Kampala, Uganda

[4]Ministry of Health, Kampala, Uganda

Summary

During the COVID-19 pandemic, healthcare workers (HCWs) working in COVID-19 treatment units may be subject to increased mental stress compared to 'normal' times. We assessed risk perception and immediate psychological state of HCWs in referral hospitals involved in management of COVID-19 patients in Uganda, and identified factors associated with psychological distress.

We distributed paper-based, self-administered questionnaires to HCWs in four referral hospitals from April 20–May 22, 2020. The questionnaire included questions on socio-demographics, COVID-19 risk perception, and psychological distress. Risk perception towards COVID-19 was assessed using several concern statements with a four-point Likert scale. We defined psychological distress as a total score >12 from the 12-item Goldberg's General Health Questionnaire (GHQ-12). We used modified Poisson regression to identify factors associated with psychological distress.

Of the 335 HCWs who received the questionnaires, 328 (98%) responded. Respondents' mean age was 36 (range, 18-59) years; 172 (52%) were male. Median duration of professional experience was eight (range 1-35) years; 116 (35%) were nurses, 52 (14%) doctors, 30 (9.0%) clinical officers, and 86 (26%) support staff. One hundred and forty-four (44%) had a GHQ-12 score >12. The most common concerns reported were fear of infection (89%), stigma from community and colleagues (79%), and inadequate availability of personal protective equipment (PPE) (56%). In multivariable analysis, moderate (aPR=2.2, 95% CI: 1.2-4.0) and high (aPR=3.8, 95% CI: 2.0-7.0) risk perception towards COVID-19 (compared with low risk perception) was associated with psychological distress.

Nearly half of HCWs surveyed in the early COVID-19 epidemic in Uganda reported psychological distress related to fear of infection, stigma, and inadequate PPE. Higher perceived personal risk towards COVID-19 was associated with increased psychological distress. Optimizing patient care during the pandemic and future outbreaks should include addressing concerns of HCWs by ensuring sufficient PPE and safeguarding morale of HCWs. Efforts to reduce infection-associated stigma should be enacted by supervisors and employers.

Background

After confirming the first COVID-19 case in Uganda on March 21, 2020 [1], the number of confirmed COVID-19 cases increased to 212 with no deaths as of May 24, 2020. Although no health care workers (HCW) in Uganda had been diagnosed with the disease at that time, there were widespread reports globally about HCWs who had contracted the disease and died [2, 3], and heightened tension and fear were anticipated among HCWs in Uganda. To understand more about potential psychological distress among HCWs in Uganda and design appropriate interventions, we assessed risk perception and immediate psychological state among HCWs with regard to the COVID-19 outbreak.

Methods

We conducted a cross-sectional survey from April 20–May 22, 2020 in Mulago National Referral Hospital, Entebbe Regional Referral Hospital, Kabale Regional Referral Hospital, and Arua Regional Referral Hospital.

Continues on next page

At the time of this study, these hospitals were the only hospitals managing active COVID-19 case-patients at the time in Uganda. By the time the study began, the hospitals had managed 212 cases [4].

We distributed the questionnaire to all consenting HCWs who were working at the facilities on day shifts when we visited the facilities (n=335). These included doctors, nurses, midwives, radiographers, cleaners, drivers, administrators, laboratory personnel, and support staff.

We designed a self-administered, structured questionnaire based on previous studies in outbreaks of respiratory infectious diseases, including COVID-19 in China [5]. We captured data on HCWs' socio-demographic and occupational characteristics, concerns and attitudes regarding COVID-19, and their immediate psychological status. Data collected included age, sex, professional cadre, level of education, years of professional experience, number of hours worked per week, number of children, persons with whom the HCW resided, and whether the HCW had ever provided care to a suspected or confirmed COVID-19 patient.

We assessed risk perception towards COVID-19 using 27 concern statements related to fear of contracting COVID-19, fear of spreading COVID-19, workplace-related conditions, and stigma. Each concern statement had four response options: 'strongly agree', 'agree', 'disagree', or 'strongly disagree'. We applied a scoring system using a four-point Likert scale from zero points ('strongly disagree') to three points ('strongly agree'). The possible range of total concern scores reported by our respondents was 0-81 points. Concern statements were negatively worded (e.g., "there is no adequate personal protective equipment (PPE) at my workplace"), so that a higher score signified a higher degree of risk perception.

We used the 12-item General Health Questionnaire (GHQ-12) proposed by Goldberg[6] to assess the psychological state of HCWs. The tool is multi-dimensional and has questions that assess social dysfunction, anxiety, and depression. The instrument includes 12 items (scored from 0-36); we classified respondents with scores greater than the cut-off point of 12 as having psychological distress.

We entered data into EpiData 3.1 (Odense, Denmark) and exported to STATA version 13 (Statacorp, College Station, Texas) for analysis. We summarized categorical data by frequencies, continuous normally-distributed data (risk perception score and GHQ-12 score) as means with standard deviations, and continuous non-normally-distributed data (hours worked, number of children) as medians with interquartile ranges. We dichotomized responses to concern statements into non-concern (strongly disagree and disagree) and concern (strongly agree and agree). We categorized respondents into three groups: low risk perception (at or below the first quartile of concern scores); moderate risk perception (in the second quartile); and high risk perception (third and fourth quartiles). We determined the prevalence of psychological distress as the percentage of respondents with total GHQ-12 score greater than 12. Finally, we performed bivariate and multivariate analyses with psychological distress as a binary outcome to identify factors associated with psychological distress among HCWs.

We reported prevalence ratios (PRs) with corresponding 95% confidence intervals as measures of association between psychological distress and associated factors. We obtained the prevalence ratios using a modified Poisson regression. We considered risk perception among HCWs as our main exposure variable of interest and adjusted for other variables including duration of professional experience, contact with confirmed COVID-19 case, and sex as potential confounders.

Results

Socio-demographic characteristics of study participants in tertiary referral hospitals during the early phase of COVID-19 epidemic in Uganda, April-May 2020

Among 335 HCWs who received questionnaires, 328 (98%) completed and returned them. Respondents' mean age was 36 (SD±9.9) years and ranged from 18-59 years; 172 (52%) were male and 242 (74%) were in the direct contact group. Approximately one-third (35%) were nurses, one quarter (26%) were support staff, 14% were doctors, and 9% were clinical officers (Table 1). Approximately half reported ever providing direct care to suspected (57%) or confirmed (46%) COVID-19 cases (Table 1).

Level of perceived risk towards COVID-19 among healthcare workers in tertiary referral hospitals during the early phase of COVID-19 epidemic in Uganda, April-May 2020

The mean risk perception score derived from the concern statements was 42 (SD±12) and ranged from 4-79 points (Figure 1). For the direct contact group (n=242), the mean score was 42 (SD±12) while for the indirect contact group the mean score was 43 (SD±11).

Of the 328 respondents, 293 (89%) said they would feel endangered if a colleague contracted COVID-19, 265 (81%) felt they were at risk of contracting COVID-19 at the workplace, 233 (71%) felt anxious at workplace, and 194 (59%) felt the outbreak had increased their workload (Table 2).

With regard to training and PPE, 139 (42%) reported not receiving adequate training on infection prevention and control (IPC) at their workplace, while 185 (56%) felt there was not enough PPE available at the workplace.

Thirty-nine percent felt being absent from the workplace would reduce their risk of contracting COVID-19, while 23% contemplated changing their jobs due to COVID-19 risk.

With regard to social aspects of COVID-19 and healthcare work, 196 (60%) were worried about transmitting the infection to their family members; 175 (53%) felt family members would not look after them if they contracted the infection; and 147 (48%) felt family members were avoiding them because they were HCWs. Of note, three-quarters (76%) felt they could easily disclose to family members if they contracted COVID-19, compared with only 21% who were comfortable disclosing to colleagues at work (Table 2).

Continues on next page

Psychological distress assessment among healthcare workers in tertiary referral hospitals during the early phase of COVID-19 epidemic in Uganda, April-May 2020

The mean GHQ-12 distress score of the HCWs was 12 (±7.2); 144 had a GHQ-12 score >12, for a prevalence of psychological distress of 44% (95%CI: 38-49%). The most commonly-reported indicators from the GHQ-12 questionnaire with score >1 were not enjoying day-to-day activities (54%), being under stress (50%), not feeling reasonably happy (43%), and feeling unhappy and depressed (40%) (Table 3).

Factors associated with psychological distress among healthcare workers in tertiary referral hospitals during the early phase of COVID-19 epidemic in Uganda, April-May 2020

In bivariate analysis, compared to respondents with low risk perception, the prevalence of psychological distress was 2.3 (95%CI: 1.3-4.1) and 4.0 (95%CI: 2.2-7.4) times higher among those with moderate and high risk perception, respectively. None of the demographic factors including age, sex, duration in service, HCW category by patient contact (direct vs indirect contact), or working hours were significantly associated with psychological distress.

In the multivariate model, compared to HCWs with low risk perception, the prevalence of psychological distress was significantly higher among those with moderate (aPR=2.2, 95% CI: 1.2 – 4.0) and high (aPR=3.8, 95% CI: 2.0 - 7.0) risk perception towards COVID-19.

Table 1: Socio-demographic characteristics of respondents during a study to assess psychological impact of COVID-19 on hospital-based healthcare workers in the early phase of COVID-19 epidemic, Uganda

Characteristic	Total (N=328)
	Frequency (%)
Health facility location	
Jinja	88 (27)
Entebbe	81 (25)
Arua	72 (22)
Kabale	57 (17)
Mulago	30 (9.1)
Age in years, mean (SD)	36 (9.9)
Sex	
Male	172 (52)
Female	156 (48)
Cadre of healthcare workers	
Nurse	116 (35)
Support staff	86 (26)
Doctor	52 (14)
Clinical officer	30 (9.0)
Midwife	21 (6.4)
Laboratory personnel	17 (5.2)
Pharmacist	5 (1.5)
Radiographer	1 (0.3)
Category by patient contact	
Direct contact group	242 (74)
Indirect contact group	86 (26)
Years of experience, median (IQR)	8 (2-16)
Hours worked per week, mean (SD)	52 (±17)
Highest level of qualification	
None	11 (3.4)
Certificate	77 (23)
Diploma	101 (31)
Degree	110 (34)
Masters	15 (4.6)
Others (Post-Masters' and PhD Fellowships)	14 (4.3)
Marital status	
Single	120 (36)
Married/living with a partner	199 (61)
Separated/divorced	9 (2.7)
Number of children, median (IQR)	2 (0-4)
With whom the healthcare worker stays at home	
Family	212 (65)
Alone	90 (27)
Others	26 (7.9)
Had provided direct care to suspected COVID-19 case	186 (57)
Had provided direct care to confirmed COVID-19 case	151 (46)

Continues on next page

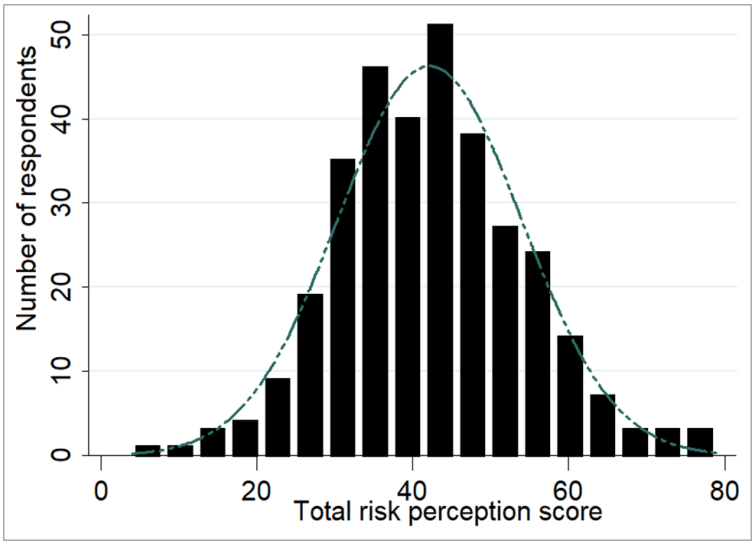


Figure 1: Distribution of total risk perception score derived from concern statements (N=328)

Table 2: Concerns of healthcare workers (HCWs) with regard to COVID-19 outbreak during the early phase of the epidemic,

Concern Question/Statement	Responses to concern statements, n (%)	
	High concern	Low concern
Fear of contracting COVID-19		
I would feel endangered if a colleague contracted COVID-19	293 (89)	35 (11)
I am at risk of contracting COVID-19 at workplace	265 (81)	63 (19)
I am unsafe at my workplace	232 (71)	96 (21)
I am anxious at my workplace	233 (71)	95 (29)
I will eventually get COVID-19 at work	137 (42)	191 (58)
Being absent will reduce my chances of contracting COVID-19 at workplace	127 (39)	201 (61)
I feel helpless about contracting COVID-19 at workplace	109 (33)	213 (67)
I feel I should avoid going to work to avoid contracting COVID-19	98 (30)	230 (70)
I do not feel safe even when I use standard IPC measures	83 (25)	245 (75)
I feel I should change my job in future due to COVID-19 risk	75 (23)	253 (77)
Fear of spreading COVID-19		
I feel I should practice more social distance compared to non-HCWs	246 (75)	82 (25)
I will likely transmit COVID-19 to family members	196 (60)	132 (40)
Perceived workplace risks and conditions		
My workplace would support me if I contracted COVID-19	208 (63)	120 (37)
COVID-19 outbreak has increased my workload	194 (59)	134 (41)
Workload is not matched with staffing needs	191 (58)	137 (42)
There is no adequate PPE at workplace	185 (56)	143 (44)
I have not received adequate training on infection prevention and control (IPC) at workplace	139 (42)	189 (58)
I am overwhelmed by new COVID-19 regulations at my workplace	135 (41)	193 (49)
There is no clear outbreak response plan at my workplace	85 (26)	243 (74)
I am not confident about IPC measures at my workplace	112 (34)	216 (66)
Stigma against self (internal) and others (external)		
I feel forced to care for COVID-19 patients	155 (47)	173 (53)
I would feel ashamed disclosing to my colleagues if I contracted COVID-19	259 (79)	69 (21)
Family will not look after me if I contract COVID-19	175 (53)	153 (47)
I would feel ashamed disclosing to my family if I contracted COVID-19	79 (24)	249 (76)

IPC: *Infection control and Prevention*; HCW: *Healthcare worker*; COVID-19: *Coronavirus Disease*
PPE: *Personal Protective Equipment*

Continues on next page

Table 3: Descriptive statistics for GHQ-12 items among healthcare workers in tertiary referral hospitals during the early phase of the epidemic, Uganda, April-May 2020 (N=328)

Item[ǂ]	Frequency of score responses, n (%)			
	0	1	2	3*
1. I am able to concentrate on whatever I was doing	128 (39)	98 (30)	66 (20)	36 (11)
2. I lost much sleep over worry about COVID-19	181 (55)	53 (16)	29 (8.8)	65 (20)
3. I feel I have been playing a useful part in society	241 (73)	62 (19)	11 (3.4)	14 (4.3)
4. I have been capable of making decisions	154 (47)	111 (34)	50 (15)	13 (4.0)
5. I have been feeling constantly under stress	121 (37)	45 (14)	71 (22)	91 (28)
6. I could not overcome difficulties	97 (30)	106 (32)	65 (20)	60 (18)
7. I have been enjoying my day-to-day activities	68 (21)	81 (25)	83 (25)	96 (29)
8. I have been able to face up to problems	135 (41)	110 (34)	51 (16)	32 (9.8)
9. I have been feeling unhappy and depressed	144 (44)	52 (16)	55 (17)	77 (23)
10. I felt I had lost confidence	200 (61)	49 (15)	38 (12)	41 (13)
11. I thought of myself as worthless	230 (70)	26 (7.9)	34 (10.4)	38 (11.6)
12. I have been feeling reasonably happy	67 (20)	120 (37)	70 (21)	71 (22)
Mean total GHQ-12[§] score (SD)	***12 (±7.2)***			

*A higher score signifies psychologically-distressed state;
[ǂ] All items were asked about for the period of the past one month
[§]GHQ-12 items as proposed by Goldberg[6]

Discussion

We assessed risk perception and psychological state of HCWs based in referral hospitals designated to manage COVID-19 patients in the early phase of the COVID-19 epidemic in Uganda. We detected psychological distress in nearly half (44%) of the HCWs surveyed in the first two months of the epidemic. The level of risk perception towards COVID-19 was directly and independently associated with psychological distress among HCWs.

Reports of psychological distress among HCWs during the COVID-19 pandemic have varied. The prevalence of distress reported in the current study is comparable to the prevalence of psychological distress of 39% reported among HCWs in China in the early phase of the pandemic [5], but much lower than the 72% prevalence reported among HCWs in high-risk situations in China when the total confirmed cases had already surpassed 10,000 in the country[7]. The lower prevalence of psychological distress in our study compared to China may be due to the fact that none of the HCWs in Uganda had contracted the disease at the time of survey, which was early (first two months) in the epidemic in Uganda.

We found a strong association between risk perception towards COVID-19 and psychological distress among HCWs in Uganda. This is both expected and consistent with studies of HCW distress during outbreaks of other respiratory infectious diseases [5].

Similarly, to these studies, we found that HCWs during the early phase of the COVID-19 epidemic in Uganda were mostly concerned about contracting COVID-19 and transmitting the virus to their family and friends. Concerns of contracting COVID-19 stemmed from concerns about availability of PPE, inadequate training, and anticipated lack of support from workplaces if they contracted the infection. Concerns about transmitting COVID-19 were likely exacerbated by anticipated stigma from community and colleagues, although most HCWs did not fear stigma from family. Additionally, HCWs' psychological distress can derive from managing the dynamics of challenges to personal safety, fear for others or oneself becoming infected, and altruism and professional responsibility. Concerns about safety of HCWs or their families and friends, changes in work dynamics, and being isolated can be major sources of distress. Notably, we found higher levels of psychological distress during the COVID-19 pandemic than the 7% and 29% prevalence reported in Hong Kong and Canada, respectively, during earlier SARS outbreaks [8, 9]. It is possible that the transmissibility of SARS-CoV-2 in the absence of symptoms, which prevents easy identification of infected persons, may have increased the level of concern among HCWs.

Our findings point towards potential interventions to address the concerns of HCWs in Uganda and improve their psychological well-being. Anticipated shortages of PPE may have heightened the fear for contracting infection among HCWs; adequate PPE supply and stock and ongoing training in infection prevention and control (IPC) and use of PPE should be assured to improve HCWs' well-being and safety.

Continues on next page

Some HCWs contemplated changing their jobs and being absent from duty because of the outbreak, suggesting the need to improve the morale of frontline HCWs, perhaps through setting shorter working hours for HCWs, rotating shifts for HCWs working in high-risk zones, and/or encouraging regular rest periods when possible[10].

Most respondents expressed perceived stigma from disclosing to colleagues. This may suggest a lack of support from colleagues and supervisors. Supervisors and employers should make deliberate efforts to render more psychosocial support to HCWs who may contract COVID-19 and to regard such as work-related injuries. Additionally, peer support systems for HCWs should be established and HCWs encouraged to utilize them for psychological distress to be identified and addressed in a timely manner without HCWs perceiving stigma or discrimination.

Our findings are subject to some limitations. We relied on self-report of psychological status and risk perception, so these findings may be prone to social desirability bias, although this was minimized by using self-administered questionnaires. We included only the day-shift employees available at our visits, which may not be representative of all employees at the hospitals. Despite these limitations, our survey provided useful information to the MoH on the psychological state of HCWs and highlighted their key concerns in the first two months of the outbreak in Uganda; this informed designing of evidence-based measures to improve HCWs' psychological well-being during the pandemic.

Conclusion

Nearly half of HCWs surveyed in the early phase of the COVID-19 epidemic in Uganda reported psychological distress. Attention needs to be given to the psychological health of HCWs and follow-up studies in different phases during and after the COVID-19 pandemic. Perceived personal risk of COVID-19 was associated with psychological distress; reducing risks might enhance HCWs' physical and psychological well-being. This might be accomplished by ensuring sufficient PPE and access to training on infection prevention and control, improving morale, addressing stigma in the workplace and in the community, and rendering more psychosocial support by employers and supervisors. Follow-up qualitative interviews might help further elucidate the nature and extent of the psychological impact of COVID-19 on HCWs.

References

1. Migisha, R., et al., Early cases of SARS-CoV-2 infection in Uganda: epidemiology and lessons learned from risk-based testing approaches–March-April 2020. Globalization and Health, 2020. 16(1): p. 1-9.

2. Bandyopadhyay, S., et al., Infection and mortality of healthcare workers worldwide from COVID-19: a scoping review. medRxiv, 2020.

3. Moorthy, A. and T.K. Sankar, Emerging public health challenge in UK: perception and belief on increased COVID19 death among BAME healthcare workers. Journal of Public Health, 2020. 42(3): p. 486-492.

4. Health, M.o. UPDATE ON THE COVID-19 OUTBREAK IN UGANDA. 2020 [cited 2020 May 25, 2020]; Available from: https://www.health.go.ug/covid/document/update-on-the-covid-19-outbreak-in-uganda-12/.

5. Dai, Y., et al., Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare workers in China. medRxiv, 2020.

6. Goldberg, D.P., The detection of psychiatric illness by questionnaire. Maudsley monograph, 1972. 21.

7. Lai, J., et al., Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA network open, 2020. 3(3): p. e203976-e203976.

8. Wong, T.W., et al., The psychological impact of severe acute respiratory syndrome outbreak on healthcare workers in emergency departments and how they cope. European Journal of Emergency Medicine, 2005. 12(1): p. 13-18.

9. Nickell, L.A., et al., Psychosocial effects of SARS on hospital staff: survey of a large tertiary care institution. Cmaj, 2004. 170(5): p. 793-798.

10. Ho, C.S., C.Y. Chee, and R.C. Ho, Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singapore, 2020. 49(1): p. 1-3.

A cluster of COVID-19 at a secondary hospital, Kampala, Uganda, during phase four of the epidemic

Elizabeth Katana[1, 2], Alex Ndyabakira[1, 2], Aggrey Byaruhanga[1], Daniel A. Okello[2], Ivan Kimuli[4], Maureen Kesande[3], Daniel Kadobera[1]

[1]Uganda Public Health Fellowship Programme, Kampala, Uganda

[2]Directorate of Public Health and Environment, Kampala Capital City Authority (KCCA), Kampala, Uganda

[3]Infectious Diseases Institute, Kampala, Uganda

[4]Makerere University Lung Institute, Kampala, Uganda

Summary

As of August 03, 2020, Uganda had confirmed 1,203 cases with 5 deaths and several health workers had been confirmed with a cumulative total of 250. Following the reports of several clusters of cases at hospitals in Kampala, we described the cases of COVID-19 identified at a secondary hospital in Kampala during phase 4 of the epidemic.

We conducted a descriptive study of cases that had a confirmed PCR positive test for COVID-19 at a secondary hospital in Kampala, August 19, to September 15, 2020. We described cases by demographic characteristics, symptoms, mortality, and distribution of overtime.

Of the 32 confirmed cases, whose mean age was 39.1, ranging from 20 to 72 years, majority 21 (66%) were males, 25 (78%) were asymptomatic, 16 (50%) health workers, 17 (53%) were either health workers rotating in the ICU or patients admitted in the ICU at the time of sample collection, and mortality was 6%, occurring in the ICU.

An equal proportion of health workers and patients were confirmed positive for COVID-19 at the hospital in the one-month period. Most cases were asymptomatic and either health workers rotating in the Intensive Care Unit (ICU) or patients admitted in the ICU at the time of sample collection. We recommended enforcement of Standard Operating Procedures, continued surveillance and vigilance in the most at-risk hospital departments including the ICU.

Introduction

On March 11, 2020, COVID-19 was declared a global pandemic. As of August 03, 2020, Uganda had confirmed 1,203 cases with 5 deaths and several health workers had been confirmed with a cumulative total of 250. Initial health worker COVID-19 infections were first detected in May 2020 at Lira Hospital and the infection has since affected several health workers all over the country with many clusters and the highest numbers reported from Kampala hospitals(1).

Following reports of several clusters of cases at hospitals in Kampala, we described the cases of COVID-19 identified at a secondary hospital and documented the response strategies undertaken by the hospital during phase 4 of the epidemic.

Methods

We conducted a descriptive study using both quantitative and qualitative approaches at a high-volume secondary hospital in Kampala, offering specialised services including general surgery, paediatrics, obstetrics, intensive care, and other supporting medical services. We defined a confirmed case as any health worker or patient that had a confirmed PCR positive test for COVID-19 at the secondary hospital from August 19, to September 15, 2020.

We reviewed health facility records and collected data on COVID -19 symptom status, sex, age, date and site of sample collection at the hospital, date of COVID-19 test confirmation and the patient or health worker status. We also conducted Key Informant interviews with the hospital staff including management, made observations at the hospital, and generated information on the response strategies.

We described cases by demographic characteristics, symptoms, mortality, distribution of overtime, and response strategies were performed. Content analysis was used to summarise findings from the interviews.

Results

Descriptive characteristics of confirmed COVID-19 cases at a secondary hospital in Kampala, August – September 2020

We identified 32 confirmed cases at the secondary hospital from August 19, to September 15, 2020. Of the 32 confirmed cases, whose mean age of was 39.1, ranging from 20 to 72 years, majority 21 (66%) were males, 25 (78%) were asymptomatic, 16 (50%) health workers, 17 (53%) were either health workers rotating in the Intensive Care Unit (ICU) or patients admitted in the ICU at the time of sample collection, and 2 (6%) were deceased, with the death occurring in the ICU.

The outbreak started on August 20, 2020, almost three months after the first health worker in Uganda had been confirmed positive at Lira hospital in May 2020. The index case was a symptomatic patient who was seen and tested from the emergency room of the secondary hospital on August 19, 2020. COVID-19 was suspected in the emergency room and the sample was collected immediately. The index case was isolated at the secondary hospital before being referred to a tertiary facility after COVID-19 confirmation. None of the 31 cases was a contact to the index case. Almost two weeks later, on August 31, the first health worker was tested and confirmed positive from the wards of the secondary hospital. More health workers tested positive in the subsequent days with cases peaking between September 8th and 14th and predominantly from the ICU, though none of them was a contact to the first confirmed health worker (Figure 1).

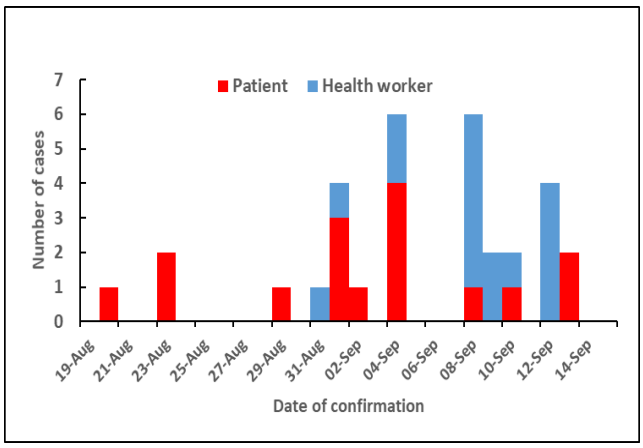


Figure 1

Continues on next page

Figure 1: Epidemic curve showing the number of confirmed COVID-19 cases at a secondary hospital, Kampala, patients versus health workers, by date of confirmation, August 19, to September 15, 2020

Through interviews and observations, we documented the following strategies implemented by the hospital in response to the COVID-19 Outbreak

Establishment of a COVID-19 task force: This was set up at the hospital to oversee COVID-19 related functions including Personal Protective Equipment (PPE) usage and stocks, facility-based contact tracing, maintaining the surveillance system including temperature checks and symptom monitoring, trainings for health workers, mandatory testing, and adherence to the Standard Operating Procedures (SOPs).

Minimising of staff rotation between hospital departments: The same group of health workers routinely rotated between the hospital departments. Predominantly, one group rotated between the ICU, and theatres while another between the out and inpatient departments. The hospital to review the rotation strategy in a way that reduced rotation of health workers between departments for at least a period of 3 weeks and enforce testing before rotations to other departments. Of note, some of the health workers took shifts in other city hospitals which made these efforts difficult.

Enforcement of mask use and physical distancing procedures at the hospital: Through observation, physical distancing was a challenge at the facility due to very limited waiting space at the OPD, nevertheless physical markings were put on seats to minimise crowding. Some health workers and patients were observed wearing masks incorrectly, a team of health workers on the hospital COVID-19 task force was assigned with ensuring compliance to mask use by both health workers and patients. The cafeteria being small, the health workers were encouraged to take their meals in shifts that could allow fewer people into the cafeteria at every hour.

Closure of the ICU: The ICU was deep cleaned, fumigated, and closed for two weeks, patients requiring intensive care were referred to Mulago National Specialised Hospital. Enforcement of adherence to SOPs in other departments including the theatre was ensured.

Infection Prevention and Control (IPC) trainings: A dedicated IPC committee with representatives from all the hospital departments was formulated and weekly IPC trainings for all the health workers were initiated. The trainings focused on ensuring that the health workers were routinely equipped with knowledge on the standard and required practices with regards to the COVID-19 preventive measures including hand washing, physical distancing, and mask use. The trainings also covered general IPC practices that should be observed in specific departments including the ICU, theatre, and wards. They also covered other general hospital IPC practises including waste management and disposal, quality control, scrubbing and draping, among others.

Mandatory COVID-19 testing: A test and treat policy was initiated for all the patients requiring an admission regardless of symptom status with the sample collection done by the hospital and the testing costs met by the patients while all health workers were required to test bi weekly with the costs met by the hospital management. The hospital developed a partnership with a COVID-19 testing laboratory to offer testing at a subsidised fee.

Immediate referral of confirmed COVID-19 cases: Upon confirmation of a positive PCR test for COVID-19 infection, cases including health workers were referred to a tertiary hospital for COVID-19 management.

Contact tracing and listing: a team on the hospital COVID-19 task force was entrusted with ensuring contacts were listed and traced with assistance from the surveillance teams from KCCA and MOH. However, it was noted that, given the high volume of patients seen at the hospital as well as movement and rotation of patients and staff between departments, and immediate referral of confirmed cases to tertiary hospital, it was difficult to list and test all the possible contacts of a confirmed case.

Discussion

Our investigation showed that an equal proportion of patients and health workers were confirmed positive in the one month. This is in agreement with previous assessments that have shown that the COVID-19 pandemic has placed a huge burden on hospitals globally with increased risk of nosocomial transmission and outbreaks to “non COVID” patients or residents including caretakers and health workers in hospitals(2).

The index case was a symptomatic patient seen in the emergency room of the secondary hospital. An investigation of an outbreak of COVID-19 in a South African hospital that also started in the emergency room found that it was due to lack of a separation between COVID-19 infected patients and other patients, low suspicion and awareness of the threat and frequent movements of both the patients and health workers within the hospital(3).

After this outbreak occurred, the secondary hospital increased its vigilance with implementation and adherence to SOPs between staff and patients.

None of the subsequent cases had been listed as a contact to the index case. This could have resulted from the immediate referral of the index case to a tertiary hospital upon confirmation as COVID-19 positive and the frequent rotation of staff between hospital departments that made it difficult to trace all possible contacts to a confirmed case.

Rotation of health workers in the hospital departments posed a challenge to the outbreak response and also some could have been exposed from outside the hospital including working shifts in other hospitals around Kampala. Therefore, from our investigation, it was unclear if these were community or hospital acquired infections.

Most of the confirmed cases were either working or admitted in the ICU and all the deaths occurred in the ICU. Researchers have shown that ICUs are associated with a greatly increased risk of nosocomial infections and also the risk of occupationally acquired infections among health workers is highest, among ICU personnel(4).

Continues on next page

In addition to this, the ICU is where the most vulnerable patients are kept and also the most invasive procedures including mechanical ventilation are done(5).

Most of the confirmed cases were asymptomatic and had only been tested as contacts in response to the outbreak at the hospital. Similar to this, an outbreak investigation of COVID-19 among hospital food service workers in USA found that the index case had continued working at the hospital with mild respiratory symptoms and serial asymptomatic testing had to be done to identify the additional cases(6).

Mandatory testing of all the patients prior to admission at the hospital and routine testing all health workers was adopted by the hospital. Expanding testing criteria to include widespread testing of patients, caretakers, and health workers regardless of presence of symptoms has been credited as being crucial in the response to viral respiratory outbreaks including SARS-COV-2(2). This outbreak highlights the importance of continued vigilance in the most at-risk areas within hospitals including ICUs and emergency rooms, and prompt implementation and monitoring of adherence to the recommended COVID-19 SOPs.

Limitations

Given the nature of the study design (a descriptive study), without analytical approaches, we were not able to establish why the outbreak occurred or how it came to be. However, this study casts light on the problems that can be faced by secondary hospitals in future similar outbreaks.

Conclusion

An equal proportion of health workers and patients were confirmed positive for COVID-19 at the hospital in the one -month period. Most cases were asymptomatic and either health workers rotating in the Intensive Care Unit (ICU) or patients admitted in the ICU at the time of sample collection. We recommended enforcement of Standard Operating Procedures (SOPs), continued surveillance and vigilance in the most at-risk hospital departments including the ICU.

References

1. MOH, Uganda. Press Release Archives [Internet]. COVID-19 | Ministry of Health. [cited 2021 Apr 5]. Available from: https://www.health.go.ug/covid/category/press-release/

2. Abbas M, Robalo Nunes T, Martischang R, Zingg W, Iten A, Pittet D, et al. Nosocomial transmission and outbreaks of coronavirus disease 2019: the need to protect both patients and healthcare workers. Antimicrob Resist Infect Control. 2021 Jan 6;10(1):7.

3. Hospital outbreak of COVID-19 in South Africa [Internet]. The Centre for Evidence-Based Medicine. [cited 2021 Mar 28]. Available from: https://www.cebm.net/study/covid-19-hospital-outbreak-of-covid-in-south-africa/

4. Maki DG, Crnich CJ, Safdar N. Nosocomial Infection in the Intensive Care Unit. Crit Care Med. 2008;1003–69.

5. Infection Control in the ICU [Internet]. Infection Control Today. [cited 2021 Mar 28]. Available from: https://www.infectioncontroltoday.com/view/infection-control-icu

6. Hale M, Dayot A. Outbreak investigation of COVID-19 in hospital food service workers. Am J Infect Control. 2021 Mar;49(3):396–7.

Incidence of preterm births admissions on the rise in Uganda: Implications for the health care system

Job Morukileng[1], Wilberforce Mugwanya[2], Robert Mutumba[2], and Maureen Katusiime[1]

[1]Uganda Public Health Fellowship Program, Kampala, Uganda. [2]Ministry of Health Uganda, Reproductive Health Department, Kampala, Uganda

Summary

Premature birth is a growing concern globally. Complications of preterm births are the single largest cause of neonatal deaths and the second leading cause of deaths among children aged <5 years globally. There is paucity of literature on the current trend of preterm births in Uganda. In this study, we described the trends and distribution of preterm births in Uganda between 2015 -2019 for advocacy and targeting of interventions.

We conducted a countrywide descriptive analysis of preterm birth admissions data,2015-2019 period Uganda. Preterm birth is defined as birth that occurs before 37 weeks of gestation. We abstracted data from the District Health Information System (DHIS2), disaggregated into national, regional, and district levels. We calculated the annual incidence rates by dividing the number of preterm births admissions by the total live birth (LB). We obtained the mean annual incidence rates by adding yearly incidence rates for the five years of study and dividing by five. We used line graphs to demonstrate the trend of incidence at national and regional levels and used choropleth maps to show district level distribution of incidence. We tested significance of the observed trends using logistic regression.

Nationally, the incidence rate of preterm births admissions/1,000 LB has significantly been increasing (OR=1.3, CI=1.32-1.33) by an annual average of 45.6%. Consistent with the national trend, the incidence rate significantly increased in all the four regions of Uganda. However, the central had the highest mean annual incidence of 12/1000 livebirths while the north and east had the lowest mean annual incidence rate of 7/1000 livebirths. We also observed minimal regional clustering in the distribution of incidence in Uganda.

The incidence of preterm births admissions is on the rise and is distributed across the country. As incidence rises, the Ministry of Health needs to understand the level of readiness of the health facilities to manage preterm births and plan accordingly as well as conduct further studies to understand contributors to the increasing trend for focused interventions.

Background

Premature birth is a growing concern globally[1]; with many countries reporting increasing trend [2]. Preterm Birth is birth that occurs before 37 weeks of pregnancy, sub-categorized as extremely preterm (<28 weeks), Very preterm (28 to <32 weeks) and moderate to late preterm (32 to <37 weeks)[3]. Every year, an estimated 15 million babies are born too early and approximately 1 million children die each year due to complications of preterm birth globally[4].

Continues on next page

Whereas 60-85% of preterm births occur in Africa and South Asia[3, 5], preterm birth is a global problem. In lower-income countries (LICs), 12% of babies are born too early compared with 9% in higher-income countries (HICs). Within countries, poorer families are at higher risk of preterm birth. Disparities exist in survival rates of preterm babies around the world[3]. In LICs, half of the babies born at or below 32 weeks die due to failure to provide feasible, cost-effective care, such as warmth, breastfeeding support, and basic management of infections and breathing difficulties while in HICs, almost all these babies survive[6].

Although the causes of preterm birth are unknown in about 50% of the cases, preterm birth can be caused by problems with the fetus, the mother, or both. Among the causes are the placental abruption, incompetent cervix, hormonal imbalances and infections. Untreated urinary infections and bacterial vaginosis are said to double the risk of premature birth. Other risk factors for premature birth are anemia, slow maternal weight gain, too soon or too late pregnancy, stressful work habits, smoking, drinking alcohol, and using drugs like cocaine [7].

Maternal risk factors for preterm birth include having a previous premature birth, being pregnant with twins or multiples babies and chronic conditions such as diabetes and high blood pressure[3]. Many mothers of twins and multiple babies go into premature labour spontaneously; about half of all twin pregnancies deliver at 36 weeks or less and a half of triplets deliver before 32 weeks of pregnancy[7]. Others may need to have premature labour induced because of complications during pregnancy or caesarean birth, whether for medical or non-medical reasons [3].

Uganda has a high preterm births rate of 14 per 1000 live births[4]. These preterm births are directly responsible for 8/27 neonatal deaths per 1,000 live births in Uganda[8] and remains among the top three causes of death during the neonatal period in Uganda[9]. Preterm birth underlies neonatal complications such as immature lungs, difficulty regulating body temperature, infections, poor feeding and slow weight gain. These complications lead to death or longer, more intense nursery care and sometimes surgery [10], implying that these babies need to be delivered under the care of a skilled health care provider to increase their chances of survival. However, in Uganda, 1 in 4 deliveries do not occur in a health care setting or under skilled health care personnel. Nevertheless, among babies delivered by skilled health care personnel, only 1 in 2 receive postnatal check-up within two days of delivery[11]. Survival rates for preterm babies are critically reduced if delivery occurs outside the health care facility. Current, local data are crucial to inform priorities and drive scale-up of effective interventions for preterm birth. However, there is paucity of literature about the current trends of premature births and its distribution in Uganda. We described the trends and distribution of preterm births in Uganda between 2015-2019 for advocacy and targeting of interventions.

Methods

We conducted a nationwide descriptive analysis of preterm birth (birth before 37 weeks of gestation) data among newborns from 2015 to 2019 in Uganda using the District Health Information System (DHIS2).

According to the World Health Organisation (WHO), a preterm birth is defined as birth that occurs before 37 weeks of gestation[1]. The preterm birth data are routinely generated at health facilities in Outpatients department (OPD) and inpatient department (IPD). The data from OPD and IPD registers are aggregated into a health facility monthly report (paper form) which is initially submitted to health sub-district, then to the district health offices. At district health office, the data from the paper-based reports submitted by health facilities is entered into DHIS2 (web-based reporting) which can be accessed by at Ministry of Health (MoH) and other stakeholders

We abstracted data from DHIS2 data elements "108-6 Premature baby as condition that requires management (preterm births admissions)" and "105-2.2d Deliveries in unit, (live births)" we disaggregated the data into national, regional, and district levels.

We calculated the incidence rates for preterm births admissions for each level (national, regional and district level), by dividing the total preterm births admitted during the year by the total live births that year and multiplying by 1000. Mean annual incidence rates were obtained by adding annual incidence rates for the five years of study by five. We drew line graphs by plotting preterm incidence against the period in years to present the trend of incidence rates for national and regional levels and used choropleth maps (generated using district specific incidences of preterm births in Quantum Geographic Information System (QGIS)) to present the distribution of the preterm births admissions at district level. We tested the significance of the trends of preterm births admissions at national and regional levels over the five years of study using logistic regression analysis.

Temporal trends of incidence rate of preterm births admissions, Uganda, 2015-2019

At the national level, there were a total of 2,678 preterm Birth admissions and 914,387 LBs in 2015; 7,508 preterm birth admissions and 959,078 LBs in 2016; 10,561 preterm birth admissions and 1,040,265 LBs in 2017; 13,662 preterm birth admissions and 1,123,279 LB in 2018 and 15,391 preterm birth admissions and 1,176,931 LBs in 2019. The mean national incidence of preterm birth admissions in Uganda was 9.4/1,000 livebirth.

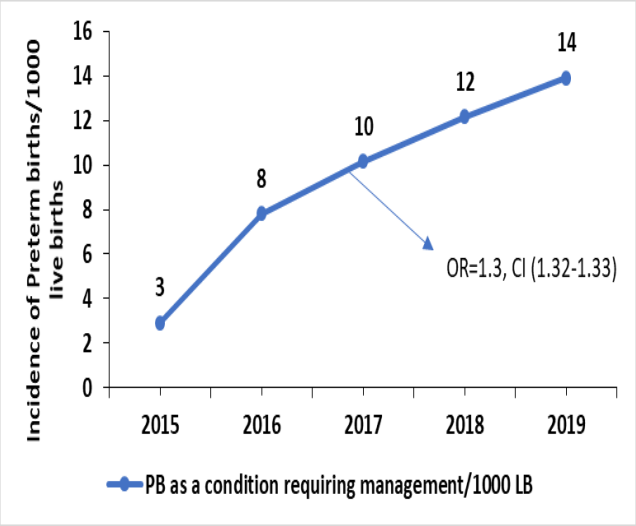
The incidence has steadily been increasing by an average of 45.6% annually from 2015 to 2019 (OR=1.3, CI=1.32-1.33) **(Figure 1).**

Temporal trend of incidence rate of preterm birth admissions at regional level, Uganda, 2015-2019

Consistent with the national trend, we observed a statistically significant **(Table 1)** increase in the incidence rates of preterm birth admissions/1,000 LB/year in all the four regions of Uganda, with eastern region being the only region to register a declining incidence between 2018 and 2019. Central region registered the highest mean annual incidence rate of 12 preterm birth admissions/1,000 LB over the 5years, while eastern and northern regions registered the lowest mean incidence rate of 7 preterm birth admissions/1,000 LB in the five years **(Figure 2).**

Continues on next page

Figure 1: Trend of preterm births admissions/1,000 Live Births, Uganda, 2015-2019



Spatial distribution of preterm births admission incidence rates at the district level, Uganda, 2015-2019

The geographic distribution of preterm birth admissions/1,000 LB in Uganda indicates minimal clustering of high burdened districts in particular regions. Nevertheless, we observe more of the districts with >30 preterm birth admissions/1,000 LB/year in the western and central regions. The years with the highest burden were 2017, 2018, and 2019 (Figure 3).

Discussion

We analysed the trends and geographic distribution of preterm births in Uganda from 2015 to 2019 period. Our study findings show a significant and steadily increasing trend of preterm birth admissions from 2015 and 2019. Similarly, regional trends show a steady and significant increase over the study period. Our study finding is consistent with the findings in over 60 countries in the world with reliable trends that have shown an increasing rate over the past two decades. [3, 4]. The reasons for the increasing trend in Uganda are not clearly understood. However, studies elsewhere have associated the increasing trend to increased use of fertility drugs, twin pregnancies, previous preterm birth, and several other factors [3, 7, 11, 12]. Managing extremely preterm newborns requires well-equipped health facilities and skilled health personnel. The increasing incidence therefore implies a need for the Ministry of Health (MoH) to do an assessment of the current level of preparedness of the health system to manage preterm birth and plan and prepare accordingly in terms of equipment and skills. There is also a need to determine the predictors of preterm birth for better preparedness and management.

Our results show that preterm birth is generally distributed all over the country with minor variations across regions. This result may be explained by the fact that the causes of preterm birth are multifaceted and that about 50% of the preterm birth occur with no known exposures[3]. As such, the preterm birth can occur to anyone-anywhere-anytime. This finding suggests planning a country wide programme such as, equipping and skilling all regional referral hospitals in the country.

Preterm birth as a condition that requires management has been steadily increasing. The increasing number of preterm births requiring management at the facility will require additional space and resources for management.

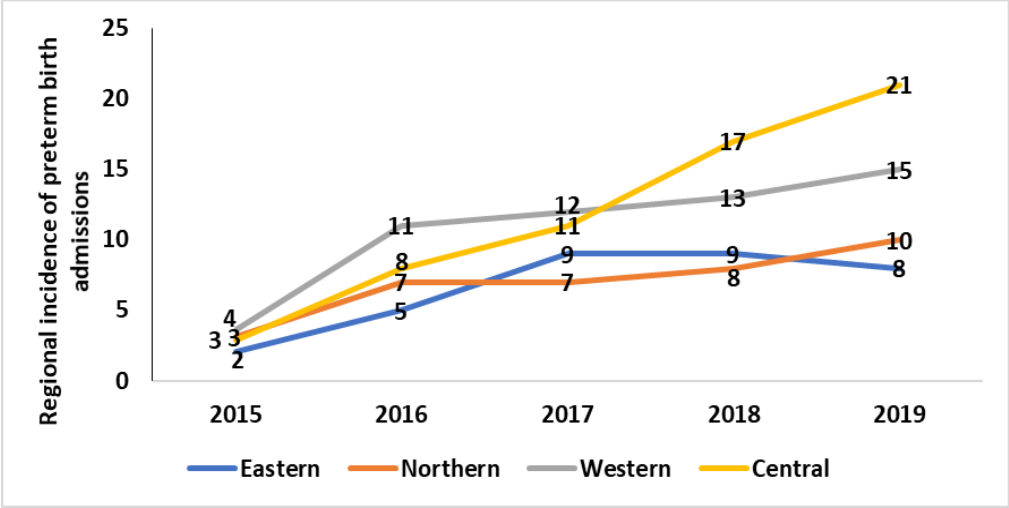


Figure 2: Regional trend of preterm birth admissions /1,000 Live Births, Uganda, 2015-2019

Region	Odds Ratio	95% CI	P-Value
Central Region 2015/2019	1.5	1.49-1.52	0.000
Eastern Region 2015/2019	1.3	1.26-1.30	0.000
Northern Region 2015/2019	1.2	1.20-1.24	0.000
Western region 2015/2019	1.2	1.20-1.25	0.000

Table 1: Significance of the trends of incidence of preterm births admissions at regional level, Uganda, 2015-2019

Continues on next page

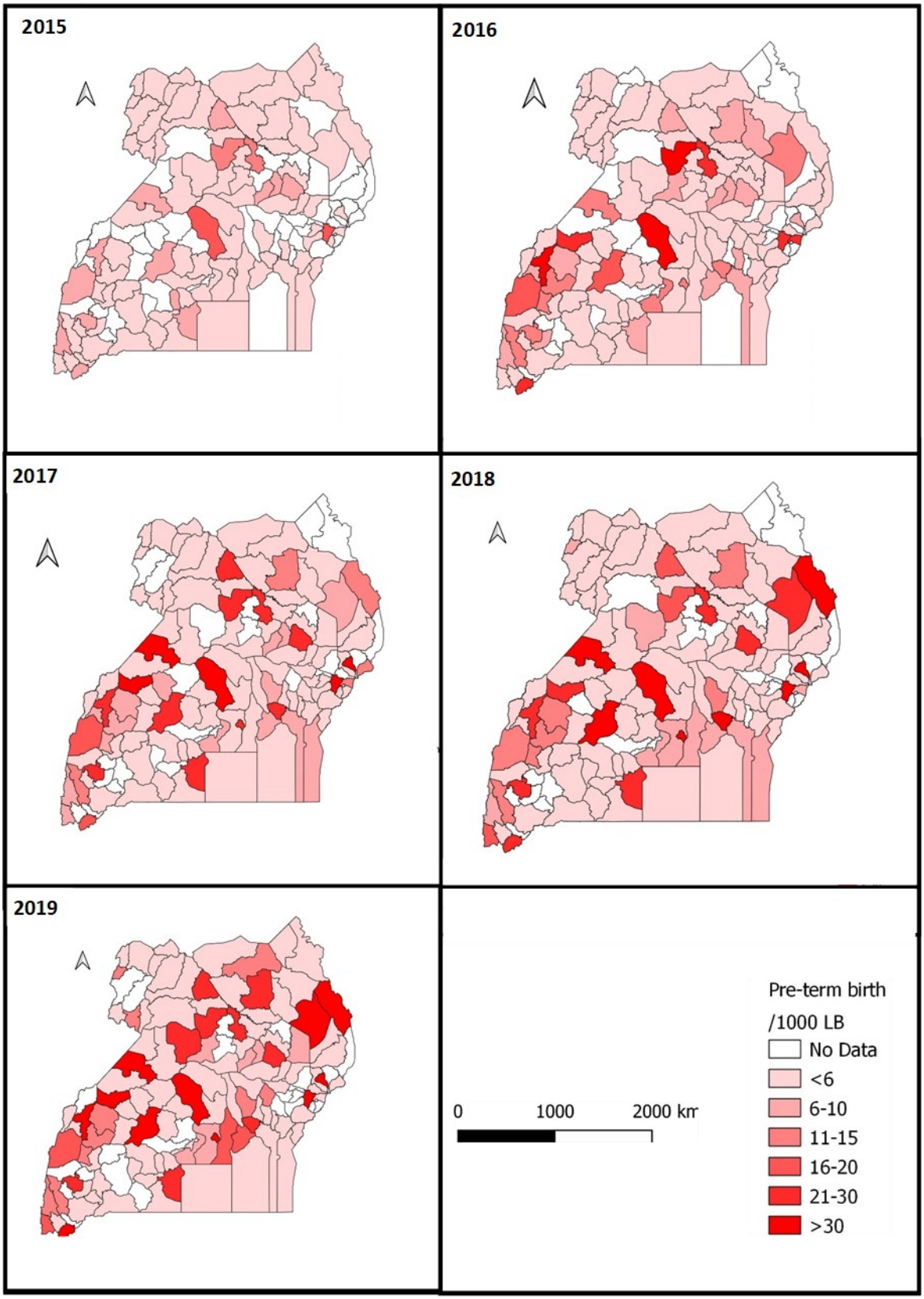


Figure 3: Spatial distribution of preterm births admissions/1,000 LB, Uganda, 2015-2019

Continues on next page

The ministry of health and health implementing partners need to closely monitor the trend of preterm births and forecast future trends to aid planning for space, equipment, and capacity building.

The study depended on secondary data limited to available data variables which may not allow for detailed exploration of the problem including the risk factors for the increasing preterm births. Further studies requiring primary data will need to be conducted for in-depth understanding of the problem.

The incidence of preterm births admissions is on the rise and is distributed across the country. We recommend the MoH to assess the current level of preparedness of the health system to manage preterm birth and to plan and prepare accordingly in terms of equipment and skills. Quality of care improvement projects should be initiated in facilities admitting preterm babies to ensure that the care delivered is of quality and improves chances of survival. We also recommend further studies to determine the predictors of preterm birth for better assessment and identification of mothers at risk of preterm birth for preparedness and timely management.

References

1. World Health Organization, Born too soon: the global action report on preterm birth. 2012.
2. Martin, J.A., et al., Births: final data for 2005. National vital statistics reports, 2007. 56(6): p. 1-103.
3. Soon, B.T., The global action report on preterm birth. Geneva: World Health Organization, 2012.
4. Blencowe, H., et al., National, regional, and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications. The lancet, 2012. 379(9832): p. 2162-2172.
5. Beck, S., et al., The worldwide incidence of preterm birth: a systematic review of maternal mortality and morbidity. Bulletin of the World Health Organization, 2010. 88: p. 31-38.
6. WHO. Preterm birth factsheet, accessed 30/09/2020, available at https://www.who.int/news-room/fact-sheets/detail/preterm-birth. 19 February 2018.
7. About kids Health. Preterm Babies, accessed on 30/09/2020, available at https://www.aboutkidshealth.ca/Article?contentid=1758&language=English. ND.
8. Ministry of Health, Situation analysis of newborn health in Uganda: current status and opportunities to improve care and survival. Kampala: Government of Uganda. Save the Children, UNICEF, WHO; 2008. Accesed on 1/10/2020, available at https://www.healthynewbornnetwork.org/hnn-content/uploads/Situation-Analysis-of-Newborn-health-in-Uganda.pdf
9. Kananura, R.M., et al., The neonatal mortality and its determinants in rural communities of Eastern Uganda. Reproductive health, 2016. 13(1): p. 13.
10. Ministry of Health, Reproductive Maternal, Newborn and Child Health Sharpened Plan for Uganda, accessed on 30/09/2020, available at http://speed.musph.ac.ug/wp-content/uploads/2015/05/Committing-to-Maternal-and-Child-Survival_A-Promise-Renewed.pdf November 2013.
11. Uganda Bureau of Statistics (UBOS) and ICF, Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF. 2018.
12. Wagura, P., et al., Prevalence and factors associated with preterm birth at kenyatta national hospital. BMC Pregnancy and Childbirth, 2018. 18(1): p. 107.

Level and determinants of adherence to and satisfaction with use of face masks as one of the COVID-19 preventive measures in the first stage of the outbreak, Uganda

Bob O. Amodan[1], Lilian Bulage[1], Elizabeth Katana[1], Alex Riolexus Ario[1,2]

[1]Uganda Public Health Fellowship Program, Kampala, Uganda
[2]Uganda National Institute of Public Health, Kampala, Uganda

Summary

Before confirmation of the first case of COVID-19 in Uganda, the President banned all public gatherings, and encouraged the public to use masks, observe physical distancing, and strict hygienic rules. We assessed the level of adherence and determinants of adherence to and satisfaction with masks use. We abstracted data from the International Citizen Project (ICP) survey that assessed adherence to preventive measures and their impact on the COVID-19 outbreak conducted between 16th and 30th April 2020.

Of the 1,726 respondents (mean age: 36 years) 59% were males. Only 566/1,726 (33%) adhered to face masks use. Determinants of adherence to face masks use included: Worrying about own health (Adj.PR: 1.1, 95%CI: 1.02-1.1) and being satisfied with face masks use as an appropriate COVID-19 preventive measure (Adj.PR: 1.4, 95%CI: 1.3-1.5). Staying with siblings (Adj.PR: 0.94, 95%CI: 0.91-0.97), and Living in cities/towns other than Kampala (Adj.PR: 0.94, 95%CI: 0.91-0.97) reduced the likelihood of adherence to mask use (AOR: 0.75, 95%CI: 0.61-0.93). Only 520/1,726 (30%) were very satisfied with masks use. Being female (AOR: 1.2, 95%CI: 1.1-1.5) increased satisfaction likelihood, while experiencing violence or discrimination at home (AOR: 0.47, 95%CI: 0.23-0.99) was associated with lower mask use satisfaction.

Relatively low proportions of respondents adhered to or were very satisfied with face masks use. Behavior change programs targeting men, those who experienced violence or discrimination, families with siblings, and people living outside Kampala City Centre need to be intensified to improve the level of adherence to and satisfaction with use of masks.

Introduction

The Coronavirus Disease 2019 (COVID-19) caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) was declared a pandemic by the World Health Organization (WHO) on March 11 2020 [1]. Countries were urged to institute preventive strategies including personal protective, environmental and social distancing interventions to minimize viral transmission [2].

The Ugandan government progressively implemented several stringent public health measures to prevent and contain local COVID-19 epidemic. On March 18th 2020, the government banned all public gatherings, closed the airport and points of entry, closed schools and all learning institutions and encouraged the public to use masks, observe physical distance, not to cough, sneeze without covering or spit in public, and to observe strict hygienic rules (hand washing with soap and water or using sanitizers, regularly disinfecting surfaces such as tables and door handles among others) [3].

Continues on next page

Uganda's first case of COVID-19 was reported on 21th March, 2020, and on 25th March, 2020, a partial lockdown was instituted following a ban on public transport.
A 14-day total lockdown was instituted on March 30th 2020 with a nationwide curfew from 7pm to 6.30am; the use of private cars was equally banned, except for essential services. The total lockdown was later extended until on June 2nd 2020 when a phased easing of the restrictions commenced. At the start of the phased lifting, there were fewer than 300 confirmed COVID-19 cases in Uganda, very low community transmission and no deaths had been recorded due to COVID-19 [4]. Due the economic hardships and collateral impact of the total lockdown, there was strong public pressure on the government to lift some of the lockdown restrictions [5].
However, the level of adherence to key recommended preventive measures for COVID-19 including public use of face masks had not been evaluated.
Understanding the level of adherence to and satisfaction with face mask use was essential for the containment of the COVID-19 epidemic in the long-term. There was need to determine if the public adherence to face mask use was good or bad, and subsequently devise ways to ensure it is maintained or improved as its level of adherence influences the effectiveness of containing the spread of COVID-19. Face mask usage by the public has remained controversial and hotly contested in most countries including Uganda with researchers questioning its potential for protection on both the public and individual levels [6].
Early in the epidemic some experts advised against community wide use of face masks citing their risk for self-contamination and depletion of stocks for the health workers and symptomatic cases who may have needed them most [7]. We assessed the level and determinants of adherence as well as the population's satisfaction with respect to the use of face masks as one of the key recommended COVID-19 preventive measures.

Methods

Study design and population

We abstracted data from an online cross-sectional national survey conducted as part of the International Citizen Project (ICP) to assess adherence to preventive measures and their impact on the COVID-19 outbreak. The ICP consortium created a generic questionnaire to investigate the impact of COVID-19 and associated restrictions on populations living in low and middle-income countries.
The questionnaire was modified based on the local situation in Uganda. The questionnaire collected information about socio-demographic characteristics; the impact of COVID-19 and associated restrictions on daily life, professional life, and personal well-being; adherence to and satisfaction with personal and community preventive measures; and acceptability of these measures. The questionnaire was hosted securely on the study website (https://www.icpcovid.com), and the web-link widely shared during the lockdown period via emails and social media platforms from April 16th to 30th, 2020. People with access to internet either on smart phones or computers were able to voluntarily participate in the study by clicking on the link and anonymously submitting their responses.

Study variables, data abstraction, and data analysis

We abstracted data on socio-demographics (including, age, marital status, sex, education, religion, residence, among others), daily personal health, and professional factors were abstracted as independent determinants of adherence to and level of satisfaction with mask use.

We extracted and cleaned the data using Microsoft Excel 2019, and used STATA 14/SE for analysis. We generated a composite variable on wealth index quintiles using household-item possession variables such as; possession of car, television set, radio, bicycle, mobile phone and motorcycle.

We generated descriptive statistics using means with standard deviation (SD) for continuous variables (Age), and percentages (%) for categorical variables (sex, education level, religion, marital status, residence, occupation, wealth quintiles and underly disease conditions). Specifically, to determine the level of adherence to and satisfaction with use of face masks as one of the preventive measures against COVID-19, we generated frequency tables and calculated the percentages.
To find the determinants of adherence to use of face masks as one of the preventive measures against COVID-19, we used modified Poisson regression because prevalence of adherence to mask use was more than 10%.

In addition, we used ordinal logistic regression to find the determinants of satisfaction with use of face masks as a preventive measure against COVID-19. We considered p-value of <0.05 to determine the level of significance and a stepwise approach to ascertain the best fitting model.

Results

Characteristics of study participants

A total of 1,726 persons participated in the study; mean age of 36 years (range = 12 to 72). Less than half (41%) of respondents in the category 29-39 years participated in the survey. Majority of the respondents [59%, (1,015/1,726)] were males. Only [47/1,726 (3%)] respondents were non-Ugandans. Half (50%) of the respondents had attained tertiary education. Kampala suburb had the highest number [40%, (688/1,726)] of respondents. Seventeen percent of the respondents had known underlying conditions.

Level of adherence to use of face masks as one of the COVID-19 preventive measures in first stage of the outbreak, Uganda

Of 1,726 respondents, only 566 (33%) adhered to face mask use. Face mask use was similar by sex [52% for males versus 48% for females). Thirty nine percent (219/566) of those who used face masks were in the age group of 29-39 years. Of the 566 who adhered to face mask use, 80 (86%) did not live alone. Adherence to mask use among those who lived as a couple was 30% (14/566). Level of adherence to face mask use decreased with low level of education i.e. those who had no education or studied up to primary level (3/566, 0.53%) versus those with tertiary level education (281/566, 50%) adhered to face mask use. Face mask use was highest [45% (253/566)] among Kampala suburbs. Nineteen percent (107/566) of those with underlying conditions adhered to mask use (Table 1).

Continues on next page

Determinants of adherence to use of face masks as one of the COVID-19 preventive measures in first stage of the outbreak, Uganda

In multivariable analysis, respondents who worried about their own health (Adj. PR: 1.1, 95% CI: 1.02-1.1), and those with high satisfaction in use of face masks (Adj. PR: 1.4, 95% CI: 1.3-1.5) were more likely to adhere to use of face masks as one of the preventive measures against COVID-19.

Staying with siblings (Adj. PR: 0.94, 95% CI: 0.91-0.97), and Living in cities/towns other than Kampala (Adj. PR: 0.94, 95% CI: 0.91-0.97) reduced the odds for adherence to mask use (AOR: 0.75, 95% CI: 0.61-0.93).

Sex, age, wealth index, marital status, getting COVID-19 information from leaders or health workers, being a health worker, living with siblings at home and possession of a TV set were not associated with use of face masks.

Level of satisfaction with use of face masks as one of the COVID-19 preventive health measures in first stage of the outbreak, Uganda

Of the 1,726 respondents, 520 (30%) were very satisfied with use of face masks as one of the appropriate COVID-19 preventive measures. Majority (51%) of those who were very satisfied with mask use were males. Fifty-two percent of those who were very satisfied with mask use were living as couples (Table 2).

Determinants of level of satisfaction with face masks as one of the COVID-19 preventive measures in first stage of the outbreak, Uganda

In multivariable analysis, females (AOR: 1.2, 95% CI: 1.1-1.5), and those in highest wealth index quintile (AOR: 1.7, 95% CI: 1.2-2.4) were very satisfied with mask use. Respondents who reported violence or discrimination at home during the lockdown period (AOR: 0.47, 95% CI: 0.23-0.99), and those moderately not worried about loved ones' health (AOR: 0.75, 95% CI: 0.57-0.99) were less likely to be very satisfied with mask use. Age, marital status, living with parents or spouse, possession of a TV set, working condition, worry about one's health or self, working condition and ever suffering violence were not associated with satisfaction to use a mask.

Discussion

This study assessed adherence to and satisfaction with face mask use as an appropriate COVID-19 prevention measure in the early phase of the outbreak in Uganda. Only 33% reported wearing a face mask when going out. Additionally, level of satisfaction with use of face masks has been reported low (30%). It has been estimated that proper face masks use with a coverage of 80% would halt the transmission of the virus [8].

However, like other countries in Africa, mask use is not commonly done, and was only introduced in response to the COVID-19 pandemic [9]. Low usage of face masks could also be a result of the initial inconsistency in information about the value of face mask use by the general population to prevent COVID-19 transmission [9]. Additionally, there was information that the threat of COVID-19 posed to Africa and Uganda will be mild given the tropical environment and the largely young population structure [10]. Furthermore, many Africans do not wear face mask because it is uncomfortable, or because they don't even think that it is necessary [11].

More sensitization regarding the importance of face mask use in containing the COVID-19 pandemic is clearly needed as well as subsidies and free face masks for those who may not be able to afford them.

Worry about one's health was associated with adherence to face mask use. This concurs with findings from a Canadian study, which described how concerns about health status may be associated with adherence to disease preventive measures [12]. Risk perception is an important determinant of adoption of health promotion and preventive measures. However, in Uganda health promotion to prevent COVID-19 transmission has been a major challenge due to widespread misinformation and disinformation, which downplayed the risk of COVID-19 [13].

Living in cities or towns other than Kampala city centre was associated with reducing adherence to face mask use. This is probably explained by the fact that the first cases of COVID-19 were reported in Kampala, and that congestion was perceived to be low in other cities/ towns. Respondents who reported living in a household with other siblings were less likely to adhere to face mask use. This could be because some of the siblings were young people, thus have a low risk perception to COVID-19 [13].

Satisfaction with use of face masks was associated with its adherence. This is not surprising, but also highlights the need to ensure that trust and satisfaction is maintained to sustain the adherence to government interventions [14].

This, coupled with perception of the effectiveness of COVID-19 preventive measures should be integrated within the COVID-19 risk communication and community engagement especially for the men who reported lower satisfaction and adherence levels compared to the women [14, 15]. Men generally have more challenges, poorer health seeking behaviors, and less contact with the healthcare system [16]. Of note, respondents who experienced violence reported lower satisfaction, perhaps because the violence could have been related to enforcement of the preventive measures [17]. Punitive measures in ensuring adherence to face mask use is an emerging area of concern that has not been fully explored and requires more research.

Limitations

The study was conducted online, and this required access to smart phones and internet connectivity for participation in the survey. The study could have therefore enrolled only educated people with a certain social standing and thus the findings could have overestimated the level of adherence and satisfaction.

Continues on next page

Table 1: Level of adherence to use of face masks as one of the COVID-19 preventive measures in first stage of the outbreak, Uganda

Characteristic	Wore face masks (n=566)
Age groups	
<18 years, n (%)	5 (0.88)
18-28 years, n (%)	158 (28)
29-39 years, n (%)	219 (39)
40-49 years, n (%)	110 (19)
50+ years, n (%)	74 (13)
Sex	
Female, n (%)	270 (48)
Male, n (%)	296 (52)
Nationality (n=566)	
Ugandan, n (%)	542 (96)
Foreigner, n (%)	24 (4)
Religion	
Muslim, n (%)	35 (6)
Catholic, n (%)	172 (30)
Protestant, n (%)	211 (37)
Pentecostal, n (%)	99 (17)
Seventh Day Adventist & others, n (%)	39 (7)
Non-religious, n (%)	10 (2)
Education level	
University Postgraduate Degree (Masters & PhD), n (%)	260 (46)
Tertiary (Certificate, diploma and degree), n (%)	281 (50)
Secondary, n (%)	22 (3.4)
Primary and No education, n (%)	3 (0.53)
Marital status	
Living as a couple, n (%)	305 (54)
Not living as couple, n (%)	261 (46)

Continues on next page

Characteristic	Wore face mask (n=566)
Place of residence	
Rural area/village, n (%)	66 (12)
Kampala suburb, n (%)	253 (45)
Kampala city center, n (%)	83 (15)
Other town/city suburb, n (%)	82 (11)
Other town/city center, n (%)	82 (12)
Occupation	
Jobless, n (%)	36 (6)
Self-employed, n (%)	100 (18)
Student, n (%)	76 (13)
Work for a person, institution or company, n (%)	229 (40)
Work for the government, n (%)	125 (22)
Being Health worker	
No, n (%)	343 (61)
Yes, n (%)	223 (39)
Living alone	
No, n (%)	486 (86)
Yes, n (%)	80 (14)
Wealth Index quintiles	
Lowest, n (%)	103 (18)
Second, n (%)	98 (17)
Middle, n (%)	111 (20)
Fourth, n (%)	122 (22)
Highest, n (%)	132 (23)
Underlying disease	
Known underlying disease, n (%)	107 (19)
No known underlying diseases, n (%)	459 (81)

Continues on next page

Table 2: Level of satisfaction with use of face masks as one of the COVID-19 preventive measures in first stage of the outbreak, Uganda

Variables (n=520)	Level of satisfaction on mask use				
	Very dissat-isfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Sex					
Male, n (%)	147 (61)	149 (69)	260 (62)	192 (58)	267 (51)
Female, n (%)	93 (39)	68 (31)	160 (38)	137 (42)	253 (49)
Age Group					
<18 years, n (%)	3 (1.3)	2 (0.92)	2 (0.48)	1 (0.3)	5 (0.96)
18-28 years, n (%)	74 (31)	46 (21)	91 (22)	89 (27)	145 (28)
29-39 years, n (%)	107 (45)	84 (39)	182 (43)	125 (38)	208 (40)
40-49 years, n (%)	34 (14)	57 (26)	95 (23)	64 (19)	97 (19)
50+ years, n (%)	22 (9.2)	28 (13)	50 (12)	50 (15)	65 (13)
Residence					
Rural/ village, n (%)	31 (13)	25 (12)	29 (6.9)	36 (11)	68 (13)
Other city/town suburbs, n (%)	34 (14)	44 (20)	103 (25)	67 (20)	86 (17)
Other cities/towns centre, n (%)	58 (24)	43 (20)	74 (18)	68 (21)	86 (17)
Kampala suburbs, n (%)	87 (36)	85 (39)	168 (40)	135 (41)	213 (41)
Kampala city centre, n (%)	30 (13)	20 (9.2)	46 (11)	23 (7)	67 (13)
Education level					
University Postgraduate Degree (Masters & PhD), n (%)	99 (41)	99 (46)	216 (51)	166 (50)	217 (42)
Tertiary (Certificate, diploma and degree), n (%)	131 (55)	109 (50)	194 (46)	157 (48)	272 (52)
Secondary, n (%)	9 (3.8)	8 (3.7)	10 (2.4)	5 (1.5)	31 (6.0)
Primary and No education, n (%)	1 (0.42)	1 (0.46)	0 (0.0)	1 (0.3)	0 (0.0)
Occupation					
Jobless, n (%)	19 (7.9)	13 (6.0)	31 (7.4)	24 (7.3)	37 (7.1)
Self-employed, n (%)	41 (17)	35 (16)	66 (16)	51 (16)	91 (18)
Student, n (%)	32 (13)	20 (9.2)	43 (10)	40 (12)	74 (14)
Work for a person, institution or company, n (%)	105 (44)	106 (49)	181 (43)	142 (43)	197 (38)
Work for the government, n (%)	43 (18)	43 (18)	99 (24)	72 (22)	121 (23)
Wealth Index Quintile					
Lowest, n (%)	72 (30)	53 (24)	70 (17)	59 (18)	96 (18)
Second, n (%)	54 (23)	43 (20)	79 (19)	67 (20)	108 (21)
Middle, n (%)	43 (18)	43 (20)	86 (20)	62 (19)	109 (21)
Fourth, n (%)	37 (15)	43 (20)	101 (24)	73 (22)	107 (21)
Highest, n (%)	34 (14)	35 (16)	84 (20)	68 (21)	100 (19)
Marital status violence					
Not living as a couple, n (%)	103 (43)	78 (36)	151 (36)	143 (43)	250 (48)
Living as a couple, n (%)	137 (57)	139 (64)	269 (64)	186 (57)	270 (52)
Underlying disease					
Known underlying disease, n (%)	198 (83)	189 (87)	350 (83)	270 (82)	412 (79)
No known underlying diseases, n (%)	42 (18)	28 (13)	70 (17)	59 (18)	108 (21)
Live with spouse/ partner					
No	119 (50)	106 (49)	193 (46)	180 (55)	287 (55)
Yes	121 (50)	111 (51)	227 (54)	149 (45)	233 (45)

Continues on next page

Conclusion

Relatively low proportions of respondents adhered to use of face masks. The proportion of respondents who were very satisfied with use of face masks was also low. Behavior change programs need to be intensified to improve the level of adherence and satisfaction with use of masks. Special messages and efforts should target men, large families, and people living outside Kampala city Centre.

References

1. WHO, Technical guidance, in Naming the coronavirus disease (COVID-19) and the virus that causes it. 2020.
2. WHO, Responding to community spread of COVID-19: Interim guidance, 7 March 2020 2020.
3. GoU, President Museveni COVIDC19 Guidelines to the Nation on Corona Virus, S. House, Editor. 2020: Entebbe.
4. GardaWorld. Uganda: Lockdown measures to be eased from June 2 /update 7. 2020 18th July 2020]; Available from: www.garda.com/crisis24/news-alerts/343631/uganda-lockdown-measures-to-be-eased-from-june-2-update-7.
5. Daily Monitor, Scientists speak out on easing lockdown, in Daily Monitor. 2020.
6. Lyu, W. and G.L. Wehby, Community Use Of Face Masks And COVID-19: Evidence From A Natural Experiment Of State Mandates In The US. Health Aff (Millwood), 2020. 39(8): p. 1419-1425.
7. Schünemann, H.J., et al., Use of facemasks during the COVID-19 pandemic. Lancet Respir Med, 2020. 8(10): p. 954-955.
8. Ngonghala, C.N., et al., Mathematical assessment of the impact of non-pharmaceutical interventions on curtailing the 2019 novel Coronavirus. Math Biosci, 2020. 325: p. 108364.
9. BRUCE, R., COVID-19 face masks, in The Independent. 2020.
10. Diop, B.Z., et al., The relatively young and rural population may limit the spread and severity of COVID-19 in Africa: a modelling study. BMJ Global Health, 2020. 5(5): p. e002699.
11. Ahmed, M.A., et al., COVID-19 in Somalia: Adherence to Preventive Measures and Evolution of the Disease Burden. Pathogens, 2020. 9(9): p. 735.
12. Canadian Mental Health Association. COVID-19 and Anxiety. 2020 29th June 2020]; Available from: https://www.heretohelp.bc.ca/infosheet/covid-19-and-anxiety.
13. Kasozi, K.I., et al., Misconceptions on COVID-19 Risk Among Ugandan Men: Results From a Rapid Exploratory Survey, April 2020. Frontiers in Public Health, 2020. 8 (416).
14. Duplaga, M., Perception of the Effectiveness of Health-related Campaigns among the Adult Population: An Analysis of Determinants. International journal of environmental research and public health, 2019. 16(5): p. 791.
15. Skinner, C.S., J. Tiro, and V.L. Champion, The Health Belief Model, in Health behavior: Theory, research, and practice, 5th ed. 2015, Jossey-Bass: San Francisco, CA, US. p. 75-94.
16. Usman, I.M., et al., Community Drivers Affecting Adherence to WHO Guidelines Against COVID-19 Amongst Rural Ugandan Market Vendors. Frontiers in Public Health, 2020. 8(340).
17. van Gelder, N., et al., COVID-19: Reducing the risk of infection might increase the risk of intimate partner violence. EClinicalMedicine, 2020. 21: p. 100348-100348.

High level of compliance to handwashing during the early phase of COVID-19 epidemic in Uganda: A nationwide cross-sectional survey

Richard Migisha[1*], Bob Omoda Amodan[1], Lilian Bulage[1], Elizabeth B. Katana[1], Joseph N. Siewe Fodjo[2], Robert Colebunders[2], Alex Riolexus Ario[1, 3], and Rhoda K. Wanyenze[4]

[1]Uganda Public Health Fellowship Program, Ministry of Health, Kampala, Uganda
[2]Global Health Institute, University of Antwerp, Doornstraat 331, 2610 Antwerp, Belgium
[3]Ministry of Health, Kampala, Uganda
[4]School of Public Health, College of Health Sciences, Makerere University, Kampala, Uganda

Summary

The World Health Organization recommends frequent handwashing with soap and water as the cheapest and most essential intervention in preventing the spread of COVID-19. We assessed the level of compliance to handwashing and associated factors among Ugandans in the first two months of the outbreak in the country to inform prevention measures.

We abstracted data from the International Citizen Project (ICP), a cross-sectional nationwide online survey conducted between 16th and 30th April 2020 using a self-administered questionnaire. We collected data on socio-demographic characteristics, the impact of COVID-19 on daily life, adherence to and satisfaction with personal and community preventive measures, and acceptability of these measures Handwashing compliance was defined as washing hands with soap and water for a minimum of 20 seconds, after touching surfaces, or having been in a public place. We performed multivariable logistic regression to identify factors associated with non-compliance to handwashing.

In total 1,726 participants responded with a mean age (SD) of 36 (±11) years (range: 12-76 years); most (59%) were male, and lived in apartments (84%). Nearly all participants (99.7%) had heard about COVID-19. Among the 1,726 participants assessed for handwashing compliance, 1,662 (96%) complied; only 64 (3.7%; 95%CI: 2.9-4.7%) were non-compliant. Respondents who stayed in huts/shacks or who were homeless (aOR=6.1, 95%CI: 2.0-18; P=0.002), and those who had not heard about COVID-19 (aOR=13, 95%CI: 2.4-72, P=0.003) were more likely to be non-compliant. Individuals with a high level of satisfaction with handwashing as an appropriate COVID-19 preventive measure were less likely to be non-compliant (aOR=0.26, 95%CI: 0.15-0.45, P<0.001).

The level of compliance to handwashing was very high in the first two months of COVID-19 epidemic in Uganda. Poor housing conditions, low level of awareness about COVID-19, and perceived low level of satisfaction with handwashing as an appropriate COVID-19 preventive measure were associated with non-compliance to handwashing. We recommend continued risk communication and public education especially targeting individuals with poor housing to sustain the high compliance to handwashing. There is need to avail handwashing facilities to individuals with poor housing conditions during the epidemic so as to improve epidemic control.

Continues on next page

Introduction

Coronavirus disease 2019 (COVID-19), the respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) remains a major health threat globally, and has overstretched health systems in many countries. In Uganda, the disease outbreak was first reported on March 21, 2020(1).

The disease may be transmitted from person-to-person through respiratory droplets and contact with infected surfaces. Frequent diligent handwashing with soap and water was recommended as key preventive strategy for COVID-19 in the early phase of the pandemic. Soap breaks down the outer layer of the virus. In addition, the slippery and mechanical motion that arises from handwashing with soap causes the virus to rip off from the skin surface(2). Handwashing has been viewed as an important intervention in the fight against the pandemic for a number of reasons: firstly, soap and water are cheap and readily available; secondly, handwashing is simple to practice by most individuals independently.

Despite the prescribed benefits of proper and frequent handwashing during the pandemic, compliance from individuals across many countries varied owing to the behavioral nature of the intervention(3). Whereas information dissemination and public education are necessary to change behavior, they may not necessarily be sufficient(3). We assessed the level of compliance to handwashing with soap and water, and associated factors, in the first two months of the COVID-19 epidemic in Uganda.

Methods

We abstracted data from the International Citizen Project (ICP), a cross-sectional nationwide online survey that assessed adherence to preventive measures and their impact on the COVID-19 outbreak conducted between 16th and 30th April 2020 using a self-administered questionnaire. The ICP survey collected data on socio-demographic characteristics; the impact of COVID-19 and associated restrictions on daily life, professional life, and personal well-being; adherence to and satisfaction with personal and community preventive measures; and acceptability of these measures. The questionnaire was circulated via WhatsApp, email, Facebook, and Twitter platforms. Individuals who got the questionnaire were asked to disseminate it further, share it with other persons in their networks.

For this study, we abstracted data on socio-demographic characteristics including age, sex, education, location, marital status, housing conditions, and professional life during the COVID-19 lock down. During the survey, frequency of handwashing was assessed using a close-ended question with the frequencies specified as a number per day. Additionally, participants were asked to respond ('yes' or 'no') whether they practiced handwashing after touching surfaces or being in public. Handwashing compliance was defined as, washing hands with soap and water for a minimum of 20 seconds, after touching surfaces, or having been in a public place (4, 5).

In addition, we abstracted data on participants' awareness of COVID-19, whether they smoked cigarettes or not, whether they had underlying medical conditions (e.g., diabetes, hypertension, HIV), and their level of satisfaction with the level of handwashing as an appropriate COVID19 preventive measure. The level of satisfaction with the handwashing as an appropriate COVID-19 preventive measure was assessed using a 5-item Likert scale-(1=very dissatisfied to 5=very satisfied). Participants with scores of 1-3 were considered to have low level of satisfaction, while those with scores 4-5 were considered to have high level of satisfaction (6).

Data were extracted and cleaned using MS Excel 2019, thereafter exported to STATA 13 (Statacorp, College Station. Texas) for analysis. Our outcome of interest was compliance to handwashing with 'yes' coded as '0' and 'no' coded as '1'. We first described participants' characteristics of the study participants, and compared their distribution among individuals who complied with handwashing and those who did not comply, using Chi-square or two-tailed Fischer's exact test. We then performed univariable and multivariable logistic regression to identify factors associated with non-compliance to handwashing.

Results

Characteristics of study participants

Overall, 1,726 participants responded with a mean age (SD) of 36 (±11) years (range: 12-76 years). Most of the participants were male (59%), married/living with partners (58%), and lived in apartments (84%). Nearly all participants had ever heard about COVID-19 (99.7%), and were Ugandans (97%) (Table 1). The distribution of sex (P=0.030), nationality (P=0.011), housing conditions (P<0.001), participants who had ever heard about COVID-19 (P=0.033), smoking and level of satisfaction with handwashing as an appropriate COVID-19 preventive measure (P<0.001) was statistically significant between participants who did not comply and those who complied with handwashing (Table 1).

Compliance to handwashing and frequency during the early phase of COVID-19 epidemic in Uganda

Among the 1,726 participants assessed for compliance to handwashing with soap and water, 1662 (96%) complied; the remaining 64 (3.7%; 95%CI: 2.9-4.7%) were not compliant. Of the total 1,726 participants, most washed their hands 6-10 times/day (41%), followed by 3-5 times/day (34%); Only 31 participants (1.8%) did not wash their hands at all; 30 participants (1.7%) washed their hands more than 30 times/day (Figure 1).

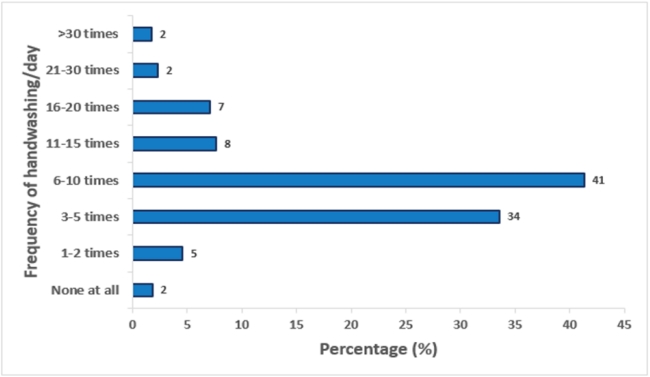


Figure 1: Percentage prevalence of handwashing by number of times of handwashing per day among 1,726 participants assessed for handwashing compliance in the early phase of COVID-19 outbreak, April 17-13, 2020

Continues on next page

Factors associated with non-compliance to handwashing during the early phase of COVID-19 epidemic in Uganda

In multivariable analysis, individuals who had significantly higher odds of non-compliance were those who stayed in huts/shacks or who were homeless (aOR=6.1, 95%CI: 2.0-18; *P*=0.002) and individuals who had not heard of COVID-19 (aOR=13, 95%CO: 2.4-72, *P*=0.003). Individuals with high level of satisfaction with handwashing as an appropriate COVID19 preventive measure were less likely to be non-compliant to handwashing (aOR=0.26, 95%CI: 0.15-0.45, *P*<0.001).

Discussion

We assessed the level of compliance to handwashing with soap and water and associated factors in the first two months of the COVID-19 outbreak in Uganda. Nearly all (96%) of the respondents were compliant to handwashing; poor housing conditions (being homeless, or staying in huts/shacks) and not being aware of COVID-19 were associated with non-compliance. Respondents who were highly satisfied with handwashing as an appropriate COVID-19 prevention measure were less likely to be non-compliant.

A recent demographic and health survey in Uganda, prior to the COVID-19 pandemic, reported handwashing compliance of 44% among household members whose households had soap and water available(7). The high level of compliance to handwashing with soap and water observed in this study emphasizes the fact that COVID-19 could have reinforced handwashing behavior(8). This may be attributed to the extensive messaging on different media platforms, emphasizing the importance of handwashing in the pandemic. Consistent with our findings, a study among Polish adolescents also reported a significant improvement in handwashing compliance with soap and water during the COVID-19 pandemic(9). Sustaining the high level of compliance to handwashing in Uganda will require sustained health promotion efforts aimed at improving hygiene, through mass media and social media in the different phases of the epidemic and in the post-COVID-19 era.

Our findings demonstrated that individuals who were homeless or staying in poor housing conditions were more likely to be non-compliant to handwashing with soap and water. Poor housing conditions is an indicator of poor socioeconomic status which is often coupled with water insecurity; under these circumstances of water scarcity, the scarce water is prioritized for other domestic needs such as cooking(10). The water insecurity most common in poor housing conditions in low-income countries may undermine the COVID-19 response efforts in the developing countries, and make water-insecure areas (e.g., slums) epicenters for disease transmission(10). We therefore recommend that designated handwashing points be availed in areas with poor housing conditions so that handwashing with soap and water is more easily accessible to all Ugandans given the wide health benefits of handwashing.

Our study revealed that respondents who had never heard about COVID-19 were more likely to be non-compliant to handwashing with soap and water. Persons unaware of a disease always have low knowledge levels about the disease; the low knowledge ultimately influences the perception of disease severity. According to the Health Belief Model (HBM), persons with perceived severity and susceptibility of being afflicted with life-threatening diseases including COVID-19 are more likely to practice personal preventive measures such as handwashing and facemasks use(11). Although awareness about COVID-19 was nearly universal among our study population, the fact that respondents who were not aware about the disease were less likely to practice handwashing, calls for the need to continue sensitization and risk communication among Ugandans. Similarly, respondents who were not highly satisfied with handwashing as an appropriate COVID19 preventive measure were less likely to be compliant. This is consistent with previous findings from research about the influence of perception of social campaigns by the general public on individual preventive measures(12). It is believed that the attitude towards public health measures practiced in a given society may influence one's behavior and readiness to accept such interventions(12).

Although our study generated valuable nationwide data on handwashing frequency and adherence to handwashing with soap and water by the Ugandan population, it is important to mention the study limitations. First, the study relied on self-report of handwashing behavior, making it susceptible to social -desirability bias. However, this was minimized by making the questionnaire self-administered. Second, data were collected online via internet; individuals who had no access to internet connection were unable to participate in our study. Therefore, our study sample is not a good representation of the general population in Uganda, and may have overestimated the prevalence of handwashing compliance.

Conclusions and recommendations

The level of compliance to handwashing with soap and water was much higher in the Ugandan population in the first two months of COVID-19 epidemic, compared to 'normal times'. Poor housing conditions, low level of awareness about COVID-19, and perceived level of satisfaction with handwashing by the public were associated with non-compliance to handwashing. We recommend continued risk communication and public education to sustain the high compliance to handwashing. There is need to avail designated handwashing points to individuals with poor housing conditions during the epidemic so as to improve epidemic control.

Disclaimer

The contents of this article are solely the responsibility of the authors and do not necessarily represent the official views of the Makerere University School of Public Health, the Ministry of Health Uganda, and Global Health Institute, University of Antwerp

References

1. Migisha R, Kwesiga B, Mirembe BB, Amanya G, Kabwama SN, Kadobera D, et al. Early cases of SARS-CoV-2 infection in Uganda: epidemiology and lessons learned from risk-based testing approaches–March-April 2020. Globalization and Health. 2020;16(1):1-9.

2. Roser M, Ritchie H, Ortiz-Ospina E, Hasell J. Coronavirus pandemic (COVID-19). Our world in data. 2020.

Continues on next page

Table 1: Characteristics of study participants by hand washing compliance status

Characteristic	Overall (N=1726)	Hand washing compliance		
		No (n=64)	Yes (n=1662)	p value
Age in years, mean(SD)	35.9 (±10.6)	36.0 (±10.6)	35.5 (±9.7)	0.069
Sex, n (%)				0.03
Female	711 (41.2)	18 (28.1)	693 (41.7)	
Male	1015 (58.8)	46 (71.9)	969 (58.3)	
Nationality, n (%)				0.011
Ugandan	1679 (97.3)	59 (92.2)	1620 (97.5)	
Non-Ugandan	47 (2.7)	5 (7.8)	42 (2.5)	
Level of education, n (%)				0.627
University graduate	797 (46.2)	32 (50.0)	765 (46.0)	
Tertiary (Certificate/Diploma)	863 (50.0)	29 (50.0)	863 (50.2)	
Secondary	63 (3.7)	3 (4.7)	60 (3.6)	
Primary	2 (0.1)	0 (0.0)	2 (0.1)	
None	1 (0.1)	0 (0.0)	1 (0.1)	
Marital status, n (%)				0.773
Single	725 (42.0)	28 (43.8)	697 (41.9)	
Married/living with partner	1001 (58.0)	36 (56.3)	965 (58.1)	
Residence, n (%)				0.713
Rural/village	189 (11.0)	8 (12.5)	181 (10.9)	
Kampala City Centre	334 (19.4)	8 (12.5)	326 (19.6)	
Kampala suburb	329 (19.1)	14 (21.9)	315 (19.0)	
Other town center	688 (39.9)	27 (42.2)	661 (39.8)	
Other town suburb	186 (10.8)	7 (10.9)	179 (10.8)	
Housing conditions, n (%)				<0.001
Apartment	1444 (83.7)	46 (71.9)	1398 (84.1)	
Room	259 (15.0)	13 (20.3)	246 (14.8)	
Hut/shack/homeless	23 (1.3)	5 (7.8)	18 (1.1)	
Ever heard about COVID-19 epidemic, n (%)				<0.001
Yes	1720 (99.7)	61 (95.3)	1569 (99.8)	
No	6 (0.4)	3 (4.7)	3 (0.2)	
Occupation, n (%)				0.206
Jobless	124 (7.2)	4 (6.3)	120 (7.2)	
Self-employed	284 (16.5)	13 (20.3)	271 (16.3)	
Student	209 (12.1)	12 (18.8)	197 (11.8)	
Private employed	731 (42.4)	19 (29.7)	712 (42.8)	
Government employed	378 (21.9)	16 (25.0)	362 (21.8)	
Currently smoking, n (%)				0.033
No	1686 (97.7)	60 (93.8)	1626 (97.8)	
Yes	40 (2.3)	4 (6.3)	36 (2.2)	
Underlying medical condition, n (%)				0.528
No	1426 (82.6)	51 (79.7)	1372 (82.7)	
Yes	300 (17.4)	13 (20.3)	287 (17.3)	
Level of satisfaction with hand washing as a preventive measure, n (%)				<0.001
Low	1511 (87.5)	42 (65.6)	1469 (88.4)	
High	215 (12.5)	22 (34.4)	193 (11.6)	

Continues on next page

3. Lunn PD, Belton CA, Lavin C, McGowan FP, Timmons S, Robertson DA. Using Behavioral Science to help fight the Coronavirus. Journal of Behavioral Public Administration. 2020;3(1).

4. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. Acta Bio Medica: Atenei Parmensis. 2020;91 (1):157.

5. Organization WH. Hand hygiene: why, how & when. World Health Organization online resource, retrieved February. 2009;10:2015.

6. Amodan BO, Bulage L, Katana E, Ario AR, Fodjo JNS, Colebunders R, et al. Level and Determinants of Adherence to COVID-19 Preventive Measures in the First Stage of the Outbreak in Uganda. International journal of environmental research and public health. 2020;17(23):8810.

7. Statistics UBo. Uganda demographic and health survey 2016. UBOS and ICF Kampala, Uganda and Rockville, Maryland, USA; 2018.

8. Alzyood M, Jackson D, Aveyard H, Brooke J. COVID-19 reinforces the importance of handwashing. Wiley Online Library; 2020.

9. Głąbska D, Skolmowska D, Guzek D. Population-based study of the influence of the COVID-19 pandemic on hand hygiene behaviors—Polish adolescents' COVID-19 experience (PLACE-19) study. Sustainability. 2020;12(12):4930.

10. Stoler J, Jepson WE, Wutich A. Beyond handwashing: Water insecurity undermines COVID-19 response in developing areas. Journal of Global Health. 2020;10(1).

11. Sim SW, Moey KSP, Tan NC. The use of facemasks to prevent respiratory infection: a literature review in the context of the Health Belief Model. Singapore medical journal. 2014;55(3):160.

12. Duplaga M. Perception of the Effectiveness of Health-Related Campaigns among the Adult Population: An Analysis of Determinants. International journal of environmental research and public health. 2019;16(5):791.

Effects of COVID-19 on Gender-Based Violence during the Covid-19 lockdown: January 1 to July 30, 2020 in Uganda

Peter Omms Oumo[1], Maureen Katusiime[1], Lilian Bulage[1], Geoffrey Amanya[1], [1]Benon Kwesiga[1], [1]Daniel Kadobera[1], Alex Riolexus Ario[2,3]

Uganda Public Health Fellowship Program[1], Kampala, Uganda, Uganda National Institute of Public Health, Kampala, Uganda[2], Ministry of Health, Kampala, Uganda[3]

Summary

After the president instituted a nationwide lockdown on 30 March 2020, in Uganda, emergency public health control measures requiring Ugandans to stay home for 14 days ('lockdown') were instituted as part of the public health interventions to stop the spread of COVID-19. Subsequently, police reports indicated a possible increase in gender-based violence (GBV). We evaluated changes in patterns, incidence, and risk factors for GBV before and during the lockdown period to inform GBV preventive interventions-and programming. We reviewed routinely-generated GBV records from reported incidences to police stations, district gender and probation offices in 6 Police divisions in Kampala Metropolitan, Lira, and Gulu Districts. We analyzed data from reported GBV cases (January-March) before and during (April-July) the lockdown. We determined incidence using population denominators for the population and region of interest and identified associated factors from reports. Of 390 GBV cases identified, Females 326 (84%) were more affected than males (16%) (p<0.001). Students and pupils were most affected (32) followed by business community (20). Age group 18-34 years most affected (41%) followed by 13-17 years old's (29%). GBV incidence was higher during the lockdown period compared to before (47.5 vs 24.4/100,000 (p=0.005)). Incidence more than doubled among both females (96 vs 230/100,000; p<0.0001) and males (21 to 43/100,000; p=0.006) and tripled among adolescents aged 13-17 years (26 to 86/100,000; p<0.0001) during lockdown compared to before. Two hundred seventy-six (71%) GBV reports during lockdown were reported as attributed to alcohol consumption compared to 31 (8.0%) before lockdown. We concluded that the incidence of GBV increased across all population groups during lockdown with women, adolescents and students experiencing the greatest burden. GBV associated with alcohol consumption increased substantially. Awareness and prevention efforts should focus on alcohol-associated GBV in any future lockdowns as well as identifying approaches to protect women, adolescents, and school going populations.

Introduction

The World Health Organization (WHO) defines Gender-Based Violence (GBV) as any act that is perpetrated against a person's will and is based on gender norms and unequal power relationships. It encompasses threats of violence and coercion and can be physical, emotional, psychological, or sexual in nature, and can take the form of denial of resources or access to services across ages and genders[1][2]. It is estimated that 35 percent of women worldwide have experienced either physical and/or sexual intimate partner violence, a form of GBV or non-partner sexual violence during their lifetimes[3]. Many countries around the world implemented lockdowns, stay-at-home, and physical distancing measures to contain the spread of Coronavirus disease 2019[4]. Evidence shows that violence can increase during and in the aftermath of disease outbreaks such as COVID-19[5] [7][8].

The President of the Republic of Uganda implemented emergency public health control measures requiring Ugandans to stay home for 14 days after WHO announced lockdowns on 10th January 2020; this was later extended by another 21 days. During this time, many people were undergoing economic hardships, as well as the unusual situation of being with their families full-time. Medical and police reports indicated an increase in GBV with children, girls, and women being the most affected[9]. We determined the scope and magnitude of GBV before and during the COVID-19 lockdown period; described the factors associated with increased GBV cases to assist the Ministry of Health with designing interventions to reduce GBV during the pandemic and future similar pandemics.

Methods

Study setting

We conducted the study at police stations in Kampala Metropolitan Region in the divisions of Kampala Metropolitan Police (KMP)-North, Old Kampala, KMP East, and Kiira.

Continues on next page

Kampala Metropolitan Region is found in the central part of Uganda and consists of the districts of Kampala, Mukono, and Wakiso. Kampala is the capital and largest city of Uganda and was estimated to have a population of 1,650,800 people on 31 July 2019 .We also conducted the study in Gulu and Lira districts. Gulu and Lira are located in Northern Uganda. Lira District is located approximately 337 kilometers by road. Gulu District is bordered by Lamwo District to the north, Pader District and Omoro District to the east, Oyam District to the south, Nwoya District to the southwest, and Amuru District to the west. The investigation was conducted in these districts and divisions based on the high burden of GBV incidents reported as per the Annual Police Crime Report 2019[10].

Study design, data source, and sample size
We conducted a cross-sectional descriptive study using routinely generated Gender-Based violence records from Uganda Police Force, District/divisional Probation offices, health facilities, and the National Gender-Based Violence data bank. We defined a GBV case as a report to the police of an act perpetrated against a person's will and based on gender norms and unequal power relationships between January 1 and July 30, 2020 in Kampala Metropolitan, Lira, and Gulu Districts. We defined the period of 'before lockdown' as January-March 2020, and 'during lockdown' as April to July 2020. We considered all GBV cases registered at Police stations and related authorities that met the case definition before and during the lockdown.

Study variables and data collection
We reviewed crime report books and case files from the gender unit in the Criminal Investigations Directorate (CID), the police Child and Family Protection Unit (CFPU), gender and probation offices and collected data on characteristics of GBV cases (socio-demographic variables such as: age, sex, education level, occupation, marital status, number of people in a household, type of housing and information on factors leading to the effects of GBV such as: frequency of abuse, known problems leading to abuse, types of abuse experienced and cause of abuse.We abstracted data to a standardized form.

Data Analysis
Data was captured into an excel sheet and analyzed using STATA version 14. We evaluated the person demographics using frequencies and percentages. We determined district incidence using population denominators for the population of interest. We also determined incidence of various demographic variables per 100,000. We used district populations as denominators and GBV case counts identified from records to calculate the monthly and average monthly incidence before and during the lockdown.

Results

Socio-demographic characteristics of Gender-Based Violence case-persons, Kampala Metropolitan Gulu and Lira districts, January - July 2020

We identified 390 reported cases during the lockdown. The mean age of GBV case-persons was 24 ± (12), while the median age was 24 years (1-77 years). Females reported more cases 326 (84%) and single people reported the highest number of cases 179 (46%) followed by the married - couples 175 (45%) compared to the widowed 5 (1.3%). Age groups 18-34 years 161 (41.2%) reported the most cases followed by age group 13-17 years 112 (29%). The least reported cases were in the age category of 0-12 years 49 (13%). By occupation, the most reported cases were among; students and pupils 128 (32%), and businessmen 79 (20%) compared to the civil servants 21 (5.4%).

By education status, those in primary school 131 (34%) suffered the most abuse, secondary 108 (28%). The least affected were those in University and above 29 (7.4%). Majority of the cases reported alcohol abuse 276 (71%) as a problem amongst most of the perpetrators. We also note that those in the category that had 3-4 people in their houses 164 (42%) and those that didn't have people in their houses 116 (30%) had reported the most cases. Homes that had more than 6 children living home reported the most abuse 195 (50%). (See Table 1).

Incidence of Gender-Based Violence before and during the lock down in Kampala Metropolitan, Gulu and Lira districts, January - July 2020

Although all groups experienced an increase in reports of GBV, the largest increase in reported GBV incidences occurred among students and pupils. Incidence of GBV was higher among the females before and during the lockdown (96 vs 230/100,000) compared to males (21 vs 43/100,000) (p=0.001). The incidence of GBV during COVID-19 lockdown was highest among 18-34year olds (107/100,000) followed by13-17-year olds (86/100,000). GBV Incidence tripled during COVID-19 lockdown compared to before among age group 13-17 years (26 vs 86/100,000; p<0.001), it almost tripled among 0-12-year olds (14 vs 35/100,000; p=0.003) while it doubled among 18-34 years (54 vs 107/100,000; p<0.001) and >35 years (23 vs 45/100,000; p=0.007)

All occupation groups experienced increment in GBV incidence during lockdown compared to before with students and pupils having the highest (30 vs 103/100,000) followed by Peasant farmers (13vs 31/100,000; p=0.006). By marital status, those who were single had the highest incidence during the lockdown (7 vs 138/100,000) although all the groups had significant increment during the lockdown.

Pupils in primary school reported the highest increase in GBV incidence, five times higher during lockdown compared to before (38 vs 193/100,000; p<0.001) when compared to their counterparts with other levels of education. Those that lived in houses that were connected to others (164 vs 57/100,000) had reported a high incidence compared to those that lived in apartments (19 vs 7/100,000) (Table 2).

The average monthly incidence increased in all districts except Mukono. Gulu district had the highest average monthly incidence (both before and during lockdown) while the GBV incidence rate in Wakiso increased by 10-fold during the lockdown (Table 3).

Continues on next page

Table 1: Socio-demographic characteristics of Gender-Based Violence cases, Kampala Metropolitan, Gulu, and Lira districts, January - July 2020

Characteristic	Frequency (N=390)	Percentage (%)
Age		
0-12 years	49	13
13-17 years	112	29
18-34 years	161	41.2
>35 years	68	17.4
Sex		
Male	64	16
Female	326	84
Marital status		
Single	179	46
Married	175	45
Widowed	5	1.3
Separated	22	5.6
Others	9	2,3
Occupation status		
Student/Pupil	128	32
Housewife	50	13
Businessman	79	20
Peasant Famer	44	11
Civil servant	21	5.4
Others	27	6.9
Education level		
Primary	131	34
Secondary	108	28
Tertiary	32	8.2
University and above	29	7.4
Known problems		
Alcohol use	276	71
Drug abuse	26	6.7
Psychiatric disorder	5	5
Violent person/anger	79	20
Household population		
None	116	30
3-4 people	164	42
5-6 people	52	52
More than 6 people	20	20
No. of children living at home		
1-2	135	34.6
3-4	44	11.3
5-6	16	4.1
More than 6	195	50

*Mean and standard deviation: Mean age 24 ± (12), median age 24 (IQR 1-77 years)

Continues on next page

Table 2: Incidence of Gender-Based Violence before and during the lock down, Kampala Metropolitan, Gulu, and Lira districts, January - July 2020

Characteristic		1R Before (100,000's)	IR During (100, 000's)	p-values
Sex	Male	21	43	p=0.006
	Female	96	230	p<0.0001*
Age	0-12 years	14	35	p=0.003
	13-17 years	26	86	p<0.0001*
	18-34 years	54	107	p<0.0001*
	>35 years	23	45	P=0.0076
Occupation				
	Civil servant	6	16	p=0.0330
	None	13	24	p=0.0705
	Peasant farmer	13	31	p=0.0066
	Business Man	33	60	p=0.0051
	House wife	22	39	p=0.0295
	Student/Pupil	30	103	p<0.0001*
Marital status				
	Married	2	117	p<0.0001
	Separated	61	15	p<0.0001
	Single	7	138	p<0.0001
	Widowed	47	3	p<0.0001
Education				
	University and above	8	21	p=0.0158
	Primary	38	93	p<0.0001*
	Secondary	33	75	p=0.0001*
	Tertiary	15	17	p=0.7237
	None	23	67	p<0.0001
Housing type	House connected to others	164	57	p<0.0001*
	A free-standing house	65	43	p=0.0342
	Others	25	10	p=0.0112
	An apartment	19	7	p=0.0186

**P-values were significant at 0.05 LSF*

Table 3: Monthly incidence rates of Gender Based Violence before and during the lockdown, Kampala Metropolitan, Gulu, and Lira districts, January - July 2020

District	Population	Abused before	Abused During	IR Before	IR During	Monthly IR before	Monthly IR during
Gulu	325,600	56	102	17.2	31.3	5.7	7.8
Kampala	1,680,600	28	70	1.7	4.2	0.6	1.1
Lira	478,500	19	45	4	9.4	1.3	2.4
Mukono	701,400	10	11	1.4	1.6	0.5	0.4
Wakiso	2,915,200	4	30	0.1	1	0.03	0.3
Overall incidence	6,101,300	117	258	1.9	4.2	0.63	1.4

*3 months before and 4 months during the lockdown

Continues on next page

Types of Gender-Based Violence, consequence, place and cause of abuse before and during the lockdown, Kampala Metropolitan, Gulu, and Lira, January- July 2020

Psychological torture/ mistreatment (29%) followed by physical assault (25%) and sexual/ defilement (23%) were the most prevalent forms of abuse identified both before and during COVID-19 lockdown. Being psychologically tortured (48%), fear after abuse (38%) and having wounds/bruises (22%) were the common consequences of abuse faced by GBV victims. Gender-Based Violence occurred mostly at home (51%) followed by in the neighbourhood.

Most of the GBV cases were perpetrated by husbands 139 (35.6%) and male intimate partners 91 (23.3%) who were either ex-partners, partners they cohabited with or boyfriends who abused them most recently. Having no reason for being abused (17 vs 29%) followed by anger (11 vs 17.5%) and alcohol abuse (8 vs 12%) were the main reasons highlighted for being abused by the victims

Table 4: Types of Gender-Based Violence, consequence, place and cause of abuse before and during the lockdown, Kampala Metropolitan, Gulu, and Lira, January- July 2020

Characteristic	Before lockdown	During lockdown
	Freq (%)	Freq (%)
Type of abuse experienced		
Psychological torture /mistreatment	89 (23)	115(29)
Experienced beating/assault	66 (17)	97 (25)
Experienced defilement	50 (13.6)	90 (23)
Experienced food starvation	42 (11)	46 (12)
Denied money by spouse	28 (7.1)	38 (10)
Experienced stigmatis4ation and isolation	27 (7.0)	25 (6.0)
Experienced rape/marital rape	10 (3.0)	13 (3.0)
Consequences of abuse		
Psychologically tortured	132 (34)	186 (48)
Fear after abuse	99 (25)	148 (38)
Bruises and wounds	61 (16)	84 (22)
Depressed	55 (14)	69 (18)
Shock	39 (10)	62 (16)
Left home	26 (7.0)	39 (10)
Loss or injury to body part	24 (6.0)	28 (7.2)
Anxiety	15 (4.0)	25 (6.4)
Unwanted pregnancy	17 (4.0)	23 (6.0)
Place of abuse		
Home	145(37)	196 (51)
Neighbourhood	5 (1.0)	38 (10)
Public place	4 (1.0)	7 (2.0)
Workplace	6 (2.0)	6 (2.0)
Bush	2 (1.0)	2 (1.0)
Reason for abuse		
No reason given	65 (17)	153 (39)
Anger	44 (11)	68 (17.5)
Alcohol abuse	31 (8.0)	47 (12)
Failure to provide money	32 (8.0)	30 (8.0)
Failure to provide food	17 (4.0)	28 (7.2)
Gender superiority	20 (5.0)	27 (7.0)
Drug/substance abuse	9 (2.0)	15 (4.0)
Denial of sex by wife	9 (2.0)	8 (2.0)

Continues on next page

DISCUSSION

Globally, Gender-Based violence is a very big challenge among the married partners more so in developing countries, Uganda inclusive. It became a very challenging turmoil during the period of Covid-19 lockdown. Global lockdowns have resulted in a horrifying surge in gender-based violence incidences[8]. This study described the patterns, incidence, and factors for GBV occurrence during the lockdown period of the COVID-19 pandemic. Our study found out that Gender-Based Violence increased during the COVID-19 lockdown, up to 10-fold in some districts with women, students and pupils reporting the biggest increase in incidences. Psychological torture, beatings or assault and defilement increased more than other forms of GBV[11].

We also observed that most of the abusers of the women, students and pupils were husbands and intimate partners [2]. A similar study conducted in Eastern Uganda found out that 54% of women suffered from Intimate Partner violence perpetrated by their husbands, ex-partners and intimate partners[12][13]. During this time when many men and women were seated at home, some men still felt that the woman should provide, and when she failed she would be ridiculed as supported by another study in Ghana[14].

We further observed that students and pupils reported the highest increase in incidences of gender-based violence by occupation amongst their counterparts. Several of the incidences reported by this group included teenage girls who had reported incidence of defilement against them. Another study similarly agrees that a total of 77.7 per cent adolescent girls in primary school and 82 per cent in secondary school have been subjected to sexual abuse[15]. Our study notes that during this time, many girls were getting defiled by their Intimate partners or boyfriends[8].

Other forms of violence experienced included beating and assault. We noted that many incidences of physical assault were being reported since most of the victims were locked up with their abusers at home. Pre-existing toxic social norms such as the excess consumption of alcohol and gender inequalities have led to an exponential increase in GBV[2]. Many social norms which among others included beating had affected many women and girls in 'lockdown' at home with their abusers as this was socially acceptable[5].

Most of the victims were psychologically tortured and were experiencing mistreatment this could have been more prominent with the married couples experiencing violence from their spouses leading to a lot of fear both before and during the lockdown. From our findings, many of the perpetrators were known alcohol. Studies have shown that it is common during such stressful times for many perpetrators of GBV to carry out such acts with the influence of alcohol[16].

Anger perpetrated by the stress the people were going through this lockdown period also contributed to the outcomes of GBV. Emotional stress is a form of violence that is usually experienced when people are undergoing challenging situations[16].

We acknowledge that whereas our study obtained data from records of vital statistics from mainly Police records, this was limited by difficulty in obtaining complete information from files since there were no physical respondents to be interviewed. Furthermore, most of the files were still in courts of law especially those that pertained Sexual Gender Based offences. To ensure that we had representative information, the investigating team had to identify the police officers who initially investigated these cases to provide some of the of missing information leading to the events in question which was quite difficult.

Conclusion

The spread of SARS-COV-2 has created several problems for the people to grapple with. In the absence of a vaccine and effective treatment for this virus, the governments are forced to impose lockdowns to quarantine people at home to reduce the spread of the virus. However, this has resulted in a paradox of problems, which includes issues such as economic instability, mental health problems, and a series of degenerated social habits.

The incidence of GBV increased across all population groups during lockdown with women, adolescents, single people and pupils in primary school experiencing the greatest burden. GBV associated with alcohol consumption increased substantially. Awareness and prevention efforts should focus on alcohol-associated GBV in any future lockdowns as well as identifying approaches to protect women, adolescents, and school going populations.

Recommendations

To prevent and address GBV, we must work on dedicated actions and strategies, which contribute to addressing GBV by enhancing the protective factors to prevent GBV. Different stakeholders such as ministry of health, ministry of gender, labour and social development together with Uganda police should put emphasis of strengthening psychosocial support systems both at community and institutional level. Laws and policies against physical abuse especially to the women and children should be enacted and existing ones toughened. Psychosocial capacity building to Local council authorities, child and family protection units and gender offices of police and ministry of gender, the psychosocial department of ministry of health need to be given capacity in handling traumatised victims. A need to increase efforts to raise massive social awareness of the criminal nature of domestic violence and services available to victims.

References

[1] M. A. Onyango, "Preventing and Responding to Gender-based violence," pp. 1–47, 2016.

[2] WHO, "Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence," vol. 2008, 2013.

[4] A. Assessment and A. During, "Violence Crisis Services During Lockdown:," no. August, pp. 1–6, 2020.

[5] W. H. O. General and T. Adhanom, "WHO-2019-nCoV-Violence_actions-2020.1-eng," no. June, pp. 1–7, 2020.

Continues on next page

[6] Uganda Bureau of Statistics, “GOVERNMENT OF UGANDA Uganda Demographic and Health Survey 2016,” Udhs 2016, p. 625, 2016, [Online]. Available: www.DHSprogram.com.

[7] E. Katana, L. Bulage, and A. R. Ario, “Violence and Discrimination Among Ugandan Residents During the COVID-19 Lock-down,” pp. 1–19.

[8] L. Johnbosco and N. S. Ggoobi, “COVID-19 AND THE RISING LEVELS OF DOMESTIC VIOLENCE IN UGANDA Policy Brief 005 By September 2020 COVID-19- A DOMESTIC VIOLENCE TRIGGER IN UGANDA,” no. September, 2020.

[9] C. Coordination, C. Management, F. Security, R. Communications, and C. Engagement, “Identifying & Mitigating Gender-based Violence Risks within the COVID-19 Response Last updated:,” 2020.

[10] Uganda Police, “Annual Crime Report 2019,” SAPS Annu. Rep., p. 184, 2020.

[11] UBOS and MoGLSD, “Gender Issues in Uganda: An analysis of gender based violence, asset ownership and employment,” p. 50, 2019, [Online]. Available: https://www.ubos.org/wp-content/uploads/publications/03_2019UBOS_Gender_Issues_Report_2019.pdf.