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Patient Experience at Endoscopy Centers in Three West African Countries during the COVID-19 Pandemic

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Abstract

Corona virus infection and the risk of contagiousness to medical personnel or patients during endoscopy necessitated further measures in the endoscopy rooms. The objective of this study was to assess the experience of patients in endoscopy rooms during the COVID-19 epidemic in West Africa. **Patients and Methods:** This was a multicenter cross-sectional study that took place over a period of 3 months (June to August 2020) in endoscopy centers in Burkina Faso, Benin and Niger. An online questionnaire was sent to patients who had performed upper digestive endoscopies, in 8 digestive endoscopy centers including private, public and religious structures. Depending on the choice of patients, questionnaires were either sent electronically or completed in the endoscopy room with the help of field investigators. The choice of centers was random from the list of centers and descriptive analyses were carried out. **Results:** A total of 294 patients responded to the online questionnaire. There were 37 lower and 257 upper gastrointestinal endoscopies. The female sex represented 52.1%. The wait times for obtaining an endoscopy appointment were considered satisfactory by 281 patients 95.6%. In the endoscopy departments, 112 patients, or 38.1%, were questioned about the risk factors for contamination of SARS-CoV-2. Among the risk factors found, 6 patients

(2.0%) would have traveled abroad in the 2 weeks preceding the examination, 4 patients 1.4% had already been in contact with a subject at risk. The most frequent symptoms were chest pain (80 cases; 27.2%), flu-like syndrome (29 cases; 9.9%), cough (40 cases; 13.6%), fever (46 cases; 15.6%). In contrast, ageusia (7 cases; 2.4%) and anosmia (5 cases; 1.7%) were only found in very few patients. Twenty-two patients (7.5%) felt highly exposed to COVID-19 during the endoscopy examination and 144 patients (48.9%) rated the examination as satisfactory. **Conclusion:** Gastrointestinal symptoms initially described as rare are being reported with increasing frequency in studies and may motivate the request for endoscopy examinations. However, the risk associated with infection with SARS-CoV-2 does not seem to have been sufficiently taken into account in endoscopy centers in the 3 countries.

Keywords

Endoscopy, COVID-19, Patients, Exposure, Symptoms

1. Introduction

In December 2019, the outbreak of several cases of pneumonia of unknown origin in Hubei province in China led to the identification in January 2020 of a new coronavirus [1], named SARS-CoV-2 by the Coronavirus Working Group of the International Committee on Taxonomy of Viruses [2]. SARS-CoV-2 causes sometimes a severe respiratory disease, named "COVID-19" by the World Health Organisation (WHO). After Asia, Europe, the United States and Iran are the most affected regions of the world [3].

COVID-19 is rapidly creating great concern in African countries [4] where health systems are not sufficiently prepared to deal with health crises [5]. The exposure of health workers to infection in the context of the COVID-19 epidemic has been discussed in several studies. Indeed, the Center for Disease Control and Prevention in China (CDC-China) confirmed in a report that less than two months after the outbreak of COVID-19, a total of 1716 health care workers had been infected with the virus, and five of them had died [6].

Burkina Faso recorded its first case on 09 March 2020 [7] and as of 02 January 2021 the number of cases was still increasing with 7126 confirmed cases including 86 deaths [8]. The outbreak of COVID-19 and the risk of contagiousness of medical staff or patients during endoscopy required new measures in endoscopy rooms. As health workers are in the front line of the fight against the epidemic and are highly exposed, they themselves can become a source of COVID-19 contamination for the population if not properly protected. The highly contagious COVID-19 is transmitted from person to person, mainly by direct contact or by droplets spread by coughing or sneezing from an infected person [9]. Although this risk of contagiousness was considered low in Europe, it was important to better understand the realities in West Africa. The aim of this study was

to assess the experience of patients in endoscopy rooms in three West African countries during the COVID-19 epidemic.

2. Patients and Methods

This was a multicenter cross-sectional study that took place over a 3-month period (June to August 2020) in endoscopy centers in Burkina, Benin and Niger. An online questionnaire was either sent electronically to the patients at the end of the endoscopic examination or filled in the endoscopy room with the help of field investigators. The study took place in 8 digestive endoscopy centers including private, public and faith-based facilities. During the study period all patients received in health centers during the period were surveyed after giving their informed consent. The data studied concerned sociodemographic and clinical variables, risk factors for COVID-19 infection, indications for endoscopy examination, difficulties in having an appointment at this time, the existence of a triage center in the structure, means of protection, barrier measures used in the health structure, the feeling of exposure to COVID-19 and the suggestions made by patients. The perception of risk (level of exposure) of the respondents was explored and each response was scored from 0 (low) to 10 (high) for the level of exposure during the examination. The maximum score that patients could obtain was 10, the minimum was 0. For the level of exposure: people with a score of 0 to 3 were classified as having low exposure, a score of 4 to 6 moderately exposed and a score of 7 to 10 highly exposed. Descriptive analyses were conducted using SPSS software.

3. Results

In total, 294 patients responded to the online questionnaire. The maximum number of patients was found in Burkina Faso with 106 respondents or 36% of cases (**Figure 1**).

There were 37 lower and 257 upper gastro-intestinal endoscopies. The average age of the patients was 41 years with extremes of 11 and 76 years. Females represented 52.1%.

In Niger and Burkina Faso we found a male predominance with 49 patients (51.6%) and 54 patients (50.9%) while in Benin, woman were more represented with 48 patients (51.6%). The patients came from religious structures 147 (50%), public 101 (34.4%) and private 46 (14.6%) (**Figure 2**).

For all three countries, the waiting time for an endoscopy appointment was considered satisfactory by 281 patients (95.6%). They were fairly short, *i.e.* within 48 hours for 111 patients (37.7%) and within 72 hours for 70 patients (23.8%). In Niger 89 patients (93.7%) were satisfied with the time taken to obtain an appointment, in Benin 88 or 94.6% and in Burkina Faso 104 or 98.1%.

One hundred and eight patients (108), or 36.7%, stated that there was no sorting center in the health facilities before they went to the endoscopy departments for their examination and 143 patients, or 48.6%, had not used the sorting

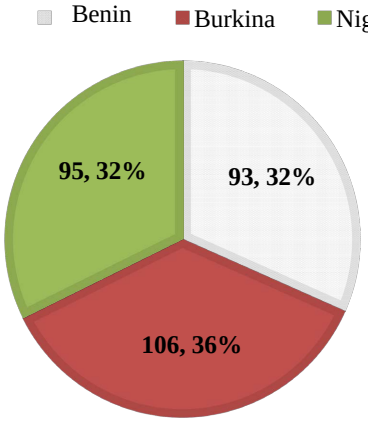

Figure 1. Breakdown of patients by country.

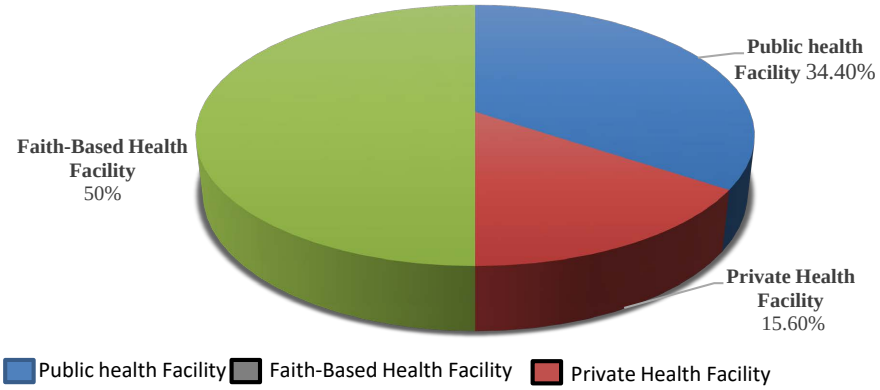

Figure 2. Distribution of patients by type of health facility.

center when it existed. Only 23 patients in Burkina Faso (21.7%) had used the screening center, while in Niger and Benin no patient had done so.

In the three countries, very few patients were questioned during endoscopy about risk factors for SARS-CoV-2 infection, with 27 patients (25.5%) in Burkina Faso, 75 patients (80.6%) in Benin and 10 patients (10.5%) in Niger.

Among the risk factors found in the three countries, 6 patients (2.0%) had travelled abroad in the 2 weeks preceding the examination, 4 patients (1.4%) had already been in contact with a subject at risk.

In all three countries, when asked about clinical signs that might be suspicious for COVID-19, 67 patients (22.8%) reported having none of the symptoms. The most frequent symptoms were chest pain (80 cases; 27.2%), flu-like syndrome (29 cases; 9.9%), cough (40 cases; 13.6%), fever (46 cases; 15.6%). On the other hand, ageusia (7 cases; 2.4%) and anosmia (5 cases; 1.7%) were found in very few patients.

The indications for examination were dominated by digestive signs with abdominal pain in all three countries (156 patients; 53.1%). Only in Benin were other signs such as chest pain found in 15 patients (16.1%).

Regarding the digestive signs encountered by patients in the three countries, abdominal pain (162 patients; 55.1%) and nausea (48 patients; 16.3%) were the

two most common signs.

In Niger and Burkina, respectively 31 patients (32.6%) and 70 patients (66%) were afraid of the endoscopy but the reasons given were all related to the endoscopic procedure and not to the risk of COVID-19 infection. In Benin 34 patients (36.5%) who were afraid of the examination, only 8 patients reported a link with the COVID-19 infection

A total of 56 patients (19.1%) in the three countries felt highly exposed to COVID-19 at the end of the endoscopy examination. In Niger 7 patients (7.4%), in Benin 13 patients (14%) and in Burkina Faso 36 patients (34%). **Table 1** summarises the exposure levels of the patients.

For the suggestions that could improve management in the three countries, 133 patients gave their opinion, and the emphasis was mainly on compliance with barrier measures and awareness rising for 26.10% and 11.53% of patients respectively.

4. Discussion

A total of 294 patients responded to the questionnaire. We believe that the low number of patients could be explained on the one hand, by the fact that online surveys generally have a lower participation rate than face-to-face surveys [10] and on the other hand by the fact that the COVID-19 crisis led to a significant drop in the use of health services in several countries of the world due to the fear of infection [11]. Indeed, according to a global survey conducted by WHO, 90% of countries have suffered disruptions to their essential health services since the start of the COVID-19 pandemic [11].

Thirty-seven lower and two hundred and fifty seven upper gastro-intestinal endoscopies have been achieved. In general, in endoscopy centers, lower endoscopies are less frequent than upper endoscopies, partly due to the much greater difficulty in performing lower gastro-intestinal endoscopies (Much longer examination time and need for prior colonic preparation).

The average age of the patients was 41 years with extremes of 11 and 76 years. The young age of our population can also be explained by the fact that the elderly had been identified as being at high risk of death in the event of infection, and

Table 1. COVID-19 exposure levels during the examination.

COVID-19 exposure levels	Frequence	Pourcentage
1 - <3	109	37.1%
3 - <5	47	15.9%
5 - <7	82	27.9%
7 - <9	34	11.6%
9 - <10	10	3.4%
>10	12	4.1%
TOTAL	**294**	**100.00%**

it was only in emergencies that they went to the health centers at that time. In Niger we found a male predominance with 49 patients (51.04%) while in Benin and Burkina Faso women were the most represented with respectively 48 patients (51.61%) and 52 patients (55.91%). The predominance of females in our study population is also reported by other African authors [12] [13] [14] and may be related to the high level of attention women pay to their health status. On the other hand, in a hospitalized SARS-CoV-2 infected population, there was a clear male predominance (63.7%) in univariate analysis in the study by Wu *et al.* and 58.1% and 62% in the studies by Guan *et al.* and Zhou *et al.* respectively [15] [16] [17]. This difference is possibly explained by the higher frequency of risk factors for disease severity in the male population.

The patients came from religious facilities 147 (50%), public facilities 101 (34.3%) and private facilities 46 (14.6%). Our sample is fairly representative of the different types of facilities existing in our working context.

Regarding the delays in obtaining appointments for examination, the availability of hepato-gastroenterologists in our study allowed more than half of the patients to undergo digestive endoscopy within a short waiting period (less than 72 hours). We believe that this can be considered as a near-normal continuation of activity in the three countries given the good level of patient satisfaction. In Niger 89 patients (92.71%) were satisfied with the time taken to obtain an appointment, in Benin 88 patients (94.62%) and in Burkina Faso 104 patients (98.11%).

One hundred and eight patients (39.2%) stated that there was no sorting center in the health facilities before they went to the endoscopy departments for their examination and 143 patients (52%) had not used the sorting center when it existed. Only 23 patients in Burkina Faso (21.7%) had used the screening center, while in Niger and Benin no patient had used it.

The absence of triage centers in health facilities remains a major shortcoming given the existing risk of infection with COVID-19. Despite the fact that COVID-19 has rapidly created great concern in African countries [4], very little concrete action has been observed on the ground. The health systems in our countries were not prepared to deal with this health crisis [5]. This should challenge us to prepare ourselves in order to be able to better respond to other possible health crises.

However, exposure of health care workers to infection during the COVID-19 epidemic has been reported in the literature, according to CDC-China, less than two months after the outbreak of COVID-19, a lot of health care workers had been infected with the virus

Health care workers are on the front line in the management of the COVID-19 epidemic. Through case surveillance and patient care, they are exposed to the risk of contagion on a daily basis. In case of infection, they can become potential transmitters of the virus. They therefore play an essential role in the implementation of adequate infection prevention and control measures in health care facilities [5]. But in all the three countries of our study, very few patients were

asked during endoscopy about risk factors for SARS-CoV-2 infection. In African countries, 40% of healthcare workers are infected with the SARS-CoV-2 virus. In comparison, the infection rate of healthcare workers in Europe is 20% in the most affected countries [6]. Although this risk of contagiousness was judged to be low during endoscopy in Europe, we believe that precautions are still necessary as this infection has not yet revealed all its secrets.

Among the risk factors found, 6 patients (2.0%) had travelled abroad in the 2 weeks preceding the examination, 4 patients (1.4%) had already been in contact with a subject at risk. The awareness of the population at the beginning of the COVID-19 pandemic about the risk of contamination by travelling to certain destinations and the closure of borders have considerably reduced the mobility of the population in our regions. The majority of patients (98.7%) had any contact with a person at risk in the 15 days preceding the examination. This result could be explained by the lack of knowledge of people at risk (sometimes asymptomatic disease), or by the fear of being exposed to stigma and isolation. Indeed, these figures may be underestimated because some patients may hide this information for fear that it will be an obstacle to obtaining care. The psychosis associated with COVID-19 infection at this time could justify such attitudes.

In all three countries, the most common suspected symptoms of COVID-19 were chest pain (80 cases; 27.2%), flu-like illness (29 cases; 9.9%), cough (40 cases; 13.6%), and fever (46 cases; 15.6%). In the three studies by Wu *et al.*, Guan *et al.* and Zhou *et al.*, the cardinal signs of COVID-19 combined fever greater than 37.5˚C (88.7% - 4%), cough (67.8% - 81.1%), sputum (23% - 41.3%) and dyspnoea (18.7% - 39.8%), occurring within the first few days of infection [13] [14] [15]. These relatively low rates in our study could be explained by the fact that our population was not diagnosed as COVID-19 positive but just at risk.

On the other hand, very few patients had ageusia (2.3%) and anosmia (1.6%). An increase in medical consultations for anosmia/ageusia without nasal obstruction has been reported in the context of the SARS-CoV-2 pandemic, reminiscent of the olfactory impairment that was reported for SARS-CoV-1. [18] [19]. These are symptoms that often go unnoticed and may be underestimated in our study.

The presence of asymptomatic patients 22.7% in our study, could not eliminate the possibility of SARS-CoV-2 infection in these patients. Indeed this has already been demonstrated in a study in Japan, where among 634 confirmed cases of SARS-CoV-2 infection, 17.9% were asymptomatic [20]. A confirmatory test for infection in these asymptomatic patients will have proved the existence of infection in some of them.

Abdominal pain was the most frequent reason for the examination. The same observation has also been reported in the literature by several authors in the pathologies of the upper digestive tract outside the health crisis [12] [21].

In Niger and Burkina Faso, respectively 31 patients (32.29%) and 70 patients (66.04%) were afraid of endoscopy but the reasons given were all related to the endoscopic procedure and not to the infectious risk linked to COVID-19. We

believe that the population did not clearly perceive the risk of COVID-19 infection in our context. For some it was just another infection and for others their daily difficulties went beyond "this disease of Europe". Indeed, the low rate (7.46%) of patients who felt that they were heavily exposed to COVID-19 during endoscopy attests to this.

Compliance with barrier procedures and awareness were the suggestions of some patients. This should alert us to the need to reinforce preventive measures in digestive endoscopy centers in our African context.

5. Conclusion

Gastrointestinal symptoms initially described as rare are increasingly reported in studies and could be the reason for requesting endoscopic examinations. However, the risk related to SARS-CoV-2 infection does not seem to have been sufficiently taken into account in the endoscopy centers of the 3 countries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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