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Impact of COVID-19 on Libyan Laboratory Specialists: A Cross-Sectional Survey

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ABSTRACT

Background and objectives: Coronavirus disease 2019 (COVID-19) is a global health problem. Laboratory professionals are at a higher risk of contracting the disease during the COVID-19 pandemic. This study was conducted to examine lab professionals' perceptions and satisfaction with organizational processes during the COVID-19 outbreak.

Methods: This cross-sectional survey was carried out on 53 medical laboratory professionals working at laboratories in Tripoli (Libya) between November 2020 and January 2021. Data were collected via face-to-face questionnaire. Responses to questions were scored based on a five-point Likert scale (1=strongly disagree, 2= disagree, 3=neutral, 4=agree and 5=strongly agree). Data were presented as frequency and percentages using the Microsoft Excel 2016.

Results: Most participants were female (81.2%) and with less than five years of work experience (39.6%). The majority of respondents (79.3%) had a bachelor's degree. Most healthcare workers (75.5%) were unaware whether the lab would provide medical care if they were tested positive for COVID-19, while 13.2% of them perceived that they will get free medical care. Owing to social distancing, 20 subjects (37.7%) felt that their social activities have been altered during break time. Only 3.7% of the participants believed that their motivation level decreased due to the COVID-19 outbreak.

Conclusion: The outcomes of this study provide laboratorians' perspective in the COVID-19 crisis as well as specific lessons for future unpredicted crises.

Keywords: COVID-19, Laboratories, Libya.

INTRODUCTION

In early January 2020, a novel RNA coronavirus known as the SARS-CoV-2 was reported as the cause of a pneumonia outbreak in Wuhan, the capital of Hubei Province in China, from which it quickly spread across the globe (1). It is unclear how laboratory medicine can effectively contribute to counteracting this and future viral outbreaks (2). In vitro laboratory testing can assist diagnosis and management of patients with suspected or confirmed SARS-CoV-2 infection. The coronavirus disease (COVID-19) has triggered an unanticipated and unprecedented global emergency, which has imposed a significant financial burden on many organizations, including clinical laboratories (3). According to the World Health Organization report on 11 September 2021, there have been 219 million confirmed cases of COVID-19, including 4.55 million deaths around the globe. The United States has the highest number of affected individuals with 40.9 million cases and the highest number of deaths (1,487,033 deaths) (4). While Africa was among the least affected regions with 8,083,000 cases and 202,000 deaths, the number of cases is growing (4). Libya has so far reported 322,487 confirmed cases of COVID-19 with 4,410 deaths as of 11 September 2021 (4).

Healthcare workers, as the first line of defense, and the elderly are more vulnerable to COVID-19 (5). Compared with other Arabic countries, Libya has lower healthcare standards, an unstable economy and insufficient resources to combat the pandemic (6). As a consequence, most cities, including Tripoli, were put on lockdown to prevent the local spread of the virus.

In the midst of the COVID-19 crisis, medical laboratories played a critical role by contributing to diagnosis, prognosis and epidemiologic surveillance studies (7). Nevertheless, unlike most laboratories in developed countries, which have the necessary set-up and financial resources, the existing circumstances present great challenges for laboratories in developing countries (8). Medical laboratory facilities have suffered greatly in recent years as a result of the global financial collapse as well as substantial, repetitive and sometimes unfair cost-cutting policies, resulting in the suffering of laboratory specialists (9). In addition, there are rising concerns about the spread of the disease among healthcare workers. The purpose of this study was to investigate lab professionals' perceptions of the challenges, financial consequences, concerns, motivation and satisfaction with organizational processes during the COVID-19 emergency. We believe that the findings of our study could be helpful for future planning of health education programs.

MATERIALS AND METHODS

This cross-sectional study was carried out on laboratory professionals working in various medical laboratories in Tripoli (Libya) from November 2020 to January 2021, when the local spread of the pandemic was on the rise. The ethics committee of the Department of Medical Laboratories at the University of Tripoli Alahlia approved the study. Participants read and signed an informed consent form that explained the research methodology.

A structured, face-to-face questionnaire was used to collect information about medical laboratory professionals' social and financial well-being, stress from the COVID-19 pandemic and satisfaction with organizational policies and practices. The questionnaire comprised of 10 items grouped into three sections. The first section was about demographic characteristics including, role in the laboratory, work experience and the level of education. The second section was more concerned with satisfaction and awareness about organizational policies, practices and measures undertaken as part of the pandemic emergency as well as resources suitability and the extent of training. The next section was directed to the social, mental and financial impact of COVID-19 on employees.

Thereafter, the questionnaire was distributed via face-to-face interaction. Both full-time lab professionals, including technologists and managers (n=53), completed the questionnaire promptly. The sample size was not predetermined, so a focused method of simultaneous data collection and analysis was used until full-time load was reached based on the survey's pre-determined end date. Since support staff and trainee technologists were assured of non-essential services during the outbreak, they were excluded from the study.

Participation in the study was entirely

voluntary, and the participants could withdraw from the study upon request. The participants were also assured about the confidentiality of their personal information. The answers were scored based on a five-point Likert scale (1=strongly disagree, 2= disagree, 3=neutral, 4=agree and 5=strongly agree). Statistical analysis was done using the SPSS software (version 22). Data were expressed as frequency and percentages. The data were analyzed using t-test, and p-values less than 0.05 were considered statistically significant.

RESULTS

A total of 53 respondents completed the face-to-face questionnaire. Table 1 summarizes the sociodemographic characteristics of the respondents.

Most participants were female (81.2%) and with less than five years of work experience (39.6%). The majority of respondents (79.3%) had a bachelor's degree. Most healthcare workers (75.5%) were unaware whether the lab would provide medical care if they were tested positive for COVID-19, while 13.2% of the employers perceived that they will get free medical care.

The majority of employees (56.6%) thought that the pre-COVID-19 days were better than the current life.

Table 1-Sociodemographic characteristics of laboratory professionals (n=53)

Characteristics	Frequency	Percentage
Gender		
Male	10	18.8
Female	43	81.2
Work experience (years)	21	39.6
1 – 5	20	37.7
6 – 10	12	22.7
>10		
Workplace	28	52.8
Private	25	47.2
Government		
Education Level	11	20.7
Diploma	42	79.3
Bachelor's degree		
Will the hospital provide medical treatment if you or your dependents have been tested positive for COVID-19?		
Completely free of charge		
Employer will bear 85% expenditure	7	13.2
Don't know	6	11.3
	40	75.5
Do you think that the pre-COVID-19 days were better than current life?		
Yes		
No	23	44.0
	30	56.6

Table 2- Knowledge and attitudes of laboratory professionals toward COVID-19

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Are you afraid of being laid off from your job due to COVID-19?	12 (22.6%)	26 (49.1%)	6 (11.2%)	5 (9.4%)	4 (7.7%)
Are you facing financial challenges due to outbreak of COVID-19?	5 (9.4%)	9 (17%)	9 (17%)	12 (22.6%)	18 (33.9%)
Does the lockdown and the limited level of social activities lead to mental health deterioration?	6 (11.2%)	13 (24.6%)	12 (22.7%)	12 (22.7%)	10 (18.8%)
Your social activities (meetings, break time, human interaction) at workplace have suffered due to COVID-19?	3 (5.7%)	15 (28.4%)	6 (11.2%)	20 (37.7%)	9 (17%)
Do you feel the same level of motivation and activity to come to work as before?	2 (3.7%)	12 (22.7%)	13 (24.6%)	20 (37.8%)	6 (11.2%)
With reduced workload, do you devote more time to laboratory quality monitoring and sterilization?	0 (0.0%)	7 (13.3%)	10 (18.8%)	13 (24.5%)	23 (43.4%)
Did your laboratory take safety measures during the pandemic?	0 (0.0%)	2 (3.7%)	13 (24.6%)	8 (15.1%)	30 (56.6%)
Are you satisfied with the method of sterilizing the laboratory seats and equipment during the pandemic?	5 (9.5%)	4 (7.5%)	13 (24.5%)	20 (37.8%)	11 (20.7%)
Have you become more careful with patients?	0 (0.0%)	3 (5.7%)	2 (3.8%)	9 (16.8%)	39 (73.7%)
Have you read about the danger of COVID-19 and how it can be prevented?	0 (0.0%)	0 (0.0%)	8 (15.2%)	40 (75.4%)	5 (9.4%)

The difference between all categorize was no statistically significant (p>0.05)

Table 2 exhibits the current knowledge of laboratory professionals about COVID-19. Based on the results, 26 subjects (49.1%) were not afraid of being laid off from their job due to the outbreak. In addition, 33.9% of the participants agreed that they are facing financial challenges due to the outbreak. Moreover, 13 (24.5%) participants perceived that their lives were not compromised by staying at home as a result of the COVID-19 shutdown. Only 3.7% of the participants felt that their level of motivation and activity dropped during the outbreak. Of 53 subjects, 39 (73.5%) became more careful with patients during the pandemic. Furthermore, 40 subjects (75.4%) perceived that they were aware about the implications of COVID-19 and how to prevent its spread.

DISCUSSION

Since the first confirmed case of COVID-19 in Tripoli was announced on March 24, 2020, rising fear and concern have spread to other cities of the country due to the possibility of contracting COVID-19 and its outbreak. Healthcare workers, as the first line of defense, and older people are more vulnerable to COVID-19 than other people. Therefore, it is crucial to understand the level of preparedness of laboratory specialists in order to deal with the COVID-19 outbreak. In this study, we investigated the knowledge and attitude of laboratory workers toward safety measures and the impact of the COVID-19 outbreak on the country.

In this study, we found that 54.7% agree that their social activities changed as a consequence of social distances during the break time, which is in line with results of a previous study (3). In addition, 90.5% of the participants became more careful with patients and 84.8% were more interested to read about the COVID-19 dangers and prevention methods.

Different studies around the world have investigated the impact of COVID-19 on healthcare professionals' physical, mental and social wellbeing, but there is limited data on medical laboratorians (10,11). As a valuable instrument for high participation and providing valid databases, well-structured research can be used to link policies and practices with employee involvement during the COVID-19 pandemic (12,13). Most respondents believed t that their social activities changed in the laboratory because of social distancing.

In the pre-COVID-19 era, due to the country's economic crisis, clinical laboratories already adopted cost-saving practices, halting new hires and various financial incentives. In our study, the rate of respondents with financial concerns was in line with results of a previous study (3). In addition, the lockdown and the decline in social activities affected mental health and increased stress levels of the subjects. About 26% of the employees felt that their motivation levels have gone down due to the implications, despite, timely and repeated re-assurance from their senior management.

There was no significant safety concern regarding contact with the infection as 90.5% of the respondents felt that laboratory facilities were adequately and timely sterilized. In contrast, 5.7% were dissatisfied with the lab management's response to the outbreak. Most subjects experienced significant stress because they, too, have families and were naturally concerned that they would bring the virus home with them. Owing to the risk of direct contact with COVID-19 patients, the study had a limited sample size, which might affect the validity of the results.

CONCLUSION

Based on the results, laboratory specialists in Libya have a high level of knowledge and a positive attitude toward COVID-19. The financial implications, declining motivation and additional mental and physical stress during the lock down amid the COVID-19 crisis are major concerns that must be addressed immediately by management, as they may have an impact on efficiency and productivity. Although it is too early to predict when this pandemic will end and the unanticipated consequences that may follow, the findings of this survey provide us with certain lessons to prepare for such unanticipated crises in the future.

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DECLARATIONS

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Ethics approvals and consent to participate

The ethics committee of the Department of Medical Laboratories at the University of Tripoli Alahlia approved the study. The participants were assured about the confidentiality of their personal information. Written informed consent was taken from all volunteers prior to participation.

Conflicts of interest

The authors declare that there is no conflict of interest

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