

Original article

Impact of COVID-19 on Medical Laboratory Workers in Libya: A Cross-Sectional Study

Eman Abdulwahed *, Eida Elmansorry

Department of Medical Laboratories Sciences, Faculty of Medical Technology, Tripoli University, Tripoli, Libya.

Corresponding Email: E.Abdulwahed@uot.edu.ly

ABSTRACT

Background and objectives. Healthcare workers are more vulnerable to COVID-19 infection than the general population due to frequent contact with infected individuals. However, Medical Lab workers at a higher risk of this contagious disease than those who work in other departments. This study aimed to analyze the perspectives of medical lab workers, in terms of the challenges, financial implications, fears, motivation, and satisfaction from organizational processes and policies adopted, amid the COVID-19 crisis. **Methods.** A cross-sectional study was conducted from March 25 to April 9, among Libyan Medical Lab workers in three public hospital laboratories. Data on participant characteristics were collected with a specifically designed questionnaire. The responses were recorded on a five-point Likert Scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). The statistical analysis was performed using the Microsoft Excel 2019. Frequency and percentages were calculated for gender, experience, and designation while descriptive results based on the responses were also recorded. **Results.** The study yielded a sample size of 90 participants. Of these 66 (73%) reported that the current lifestyle adopted during the pandemic was not better than the traditional one. Around 72 (80%) of the responses were not fear of employment termination amid the COVID-19 crisis. However, financial challenges were being faced by 63 (70%) respondents. The quality of family life was improved in 48 (53%) cases while 54 (60%) were of the view that their social activities at work have suffered. Furthermore, 60 (67%) did not feel the same level of motivation to come to work every morning during the outbreak, as before. Similarly, 60 (67%) were not satisfied with the measures taking by the management during the outbreak. **Conclusion.** The results of this survey provide a laboratorians perspective during times of crisis and provide us certain lessons to plan for such unexpected circumstances in the future.

Keywords: COVID-19, Health, Workers, Financial.

Citation: Abdulwahed E, Elmansorry E. Impact of COVID-19 on Medical Laboratory Workers in Libya: A Cross-Sectional Study. Khalij-Libya J Dent Med Res. 2021;5(1):81–86. <https://doi.org/10.47705/kjdmr.215111>

Received: 18/04/21; **accepted:** 30/05/21

Copyright © Khalij-Libya Journal (KJDMR) 2021. Open Access. Some rights reserved. This work is available under the CC BY-NC-SA 3.0 IGO license <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>

INTRODUCTION

Corona virus disease 2019 (COVID-19) was detected in 2019 in Wuhan, China. A Pandemic disease with Covid-19 has been confirmed by World Health Organization (WHO). It has a relationship with acute respiratory syndrome corona virus -2 (SARS-CoV-2)

and Middle East Respiratory Syndrome (MERS) virus [1]. Till April 14, 2021 this virus caused over 2, 972,000 deaths and 138, 57,000 confirmed cases. It is an infectious disease and initiates by flue with fever, dry cough, muscular pain with inflamed lymph nodes. It also causes infection of the lower respiratory tract,

bronchitis and pneumonia [2]. A large number of risk factors such as age, chronic diseases (diabetes mellitus, hypertension, cardiovascular disease) are major factors that effect on Covid-19 outcome [3]. The incubation period of this virus is about 2 to 14 days and the severity of the disease depends upon the immunity state of the person [4, 5].

The COVID-19 has activated an unexpected worldwide emergency, which has totally affected many foundations especially in financial crisis and revenue generation, also including clinical laboratories [6].

Healthcare workers, particularly those working in contact with COVID-19 patients, are at a high risk of this infectious disease because they are at the frontline of the outbreak [7]. They suffer from stress because of the scare of infecting their families and co-workers [8, 9]. In addition, the increasing number of cases is placing healthcare workers worldwide under massive pressure [10].

Outbreak has been widely determined [11]. The laboratory helps by diagnosis the COVID-19 by detecting the pathogen in biological samples with reverse transcriptase-polymerase chain reaction (RT-PCR), measuring the immunoglobulin response [12], therapeutic drug monitoring and random screening of population [13]

The aim of this survey was to analyze the lab professionals' perspectives serving at the clinical laboratories, in terms of the challenges, financial implications, fears, motivation level and satisfaction from organizational process.

METHODS

Study design and patients

This was a multi-laboratory, cross-sectional study conducted from March to April, 2021, on Libyan Medical Lab workers in three public hospital laboratories including Tripoli Central hospital, National Heart institute, and Aljalla Maternity hospital in Tripoli, Libya. The study was approved by the Department of Medical Laboratories Sciences at

Tripoli University. All participants provided consent before participating in the study.

Questionnaire development and distribution

A specifically designed questionnaire based on the previous studies was used and distributed to participants in paper form. In order to elicit information about social and financial well-being, stress due to COVID-19 pandemic, satisfaction with organizational policies and practices among laboratory workers [19].

The survey consisted of 22 items grouped into two sections. The first section contained demographic data, marital status, years of experience, employment status, specialized departments, smoking history, and educational level. The second section was more concentrated about social, physical, and financial impact of COVID-19 on the laboratory professionals regarding their satisfaction with organizational policies and protective procedures taken for pandemic resistance. Participants who submitted incomplete questionnaire were excluded from the analysis. Informed consent for participation was acquired at the initial page of the survey. The participation in the survey was totally voluntarily.

Statistical analysis

The answers were recorded on a five-point Likert Scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). The statistical analysis was performed using the Microsoft Excel 2019. Frequency and percentages were calculated for gender, experience, and designation while descriptive results based on the responses were also recorded.

RESULTS

This study provides data from ninety medical laboratory workers at different levels in their professional careers at three public hospital laboratories in Tripoli, Libya. After an informed consent, a total of 100% (n=90) answers were received (Table 1).

Table 1. Description of the participants (n=90).

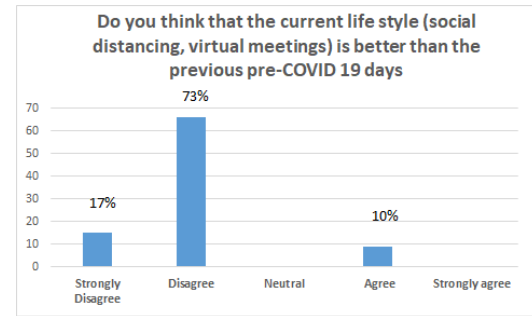
Variables	Number (n)	Parentage (%)
Gender:		
Male	39	43%
Female	51	57%
Education Level:		
Junior college	9	10%
Bachelor	57	63%
Master	9	10%
Doctor/Ph.D	15	17%
Employment type:		
Governmental	63	70%
Private sector	0	0
Both	18	30%
Department:		
Clinical chemistry	33	37%
Hematology	18	20%
Microbiology	21	23%
Serology	18	20%
Years of experience:		
<3	9	10%
3-5	18	20%
5-15	42	47%
>15	21	23%

Social and financial challenges

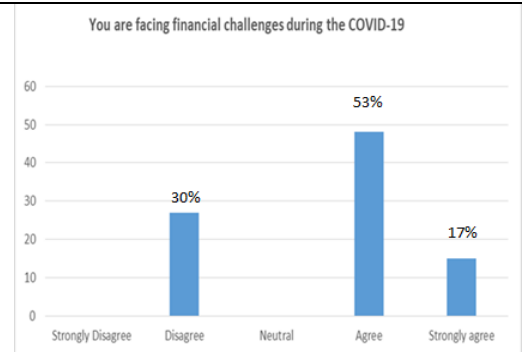
Effects of Social and financial challenges included the participant’s quality of social life at home and laboratory and whether they were facing financial challenges during the pandemic. Majority Of the answers 73% (n=66) reported that the current lifestyle adopted during the pandemic was not better than the traditional one, before COVID-19 times.

Around 70% (n=63) of the medical laboratory workers were facing financial challenges during the pandemic. 53% (n=48) of answered that the quality of family life at home was improved. Whereas 60% (n= 54) of participants were of the view that their social activities at work have suffered. All the information about Social and financial challenges based on likert scale are shown on fig. 1 (A-D)

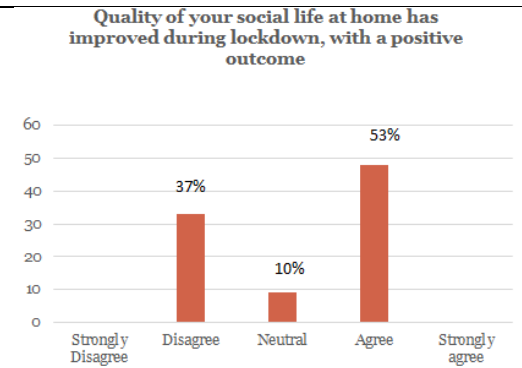
A



B



C



D

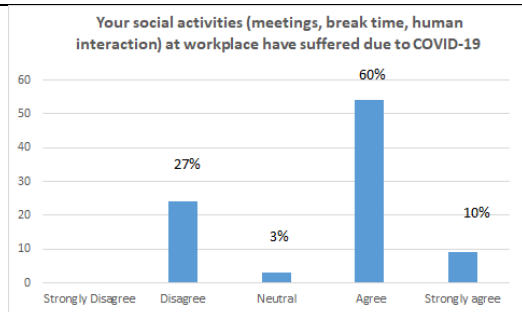


Fig 1. Financial and social implication

Stress because of COVID-19 crisis

More than half 66% (n=60) did not feel the same level of motivation to come to work every morning during the outbreak, as before. 47% (n=42) lab professionals agreed and 3% (n=3) were strongly agreed that the reduced workload has given them enough time to improve the quality control activities. Around 80% of the participants (n=72) disagreed and 7% of them (n=6) were strongly disagreed that during COVID-19 crisis they were dreading job lay off. Furthermore, the information about elements of stress is displayed in Fig 2 (A, B, and C).

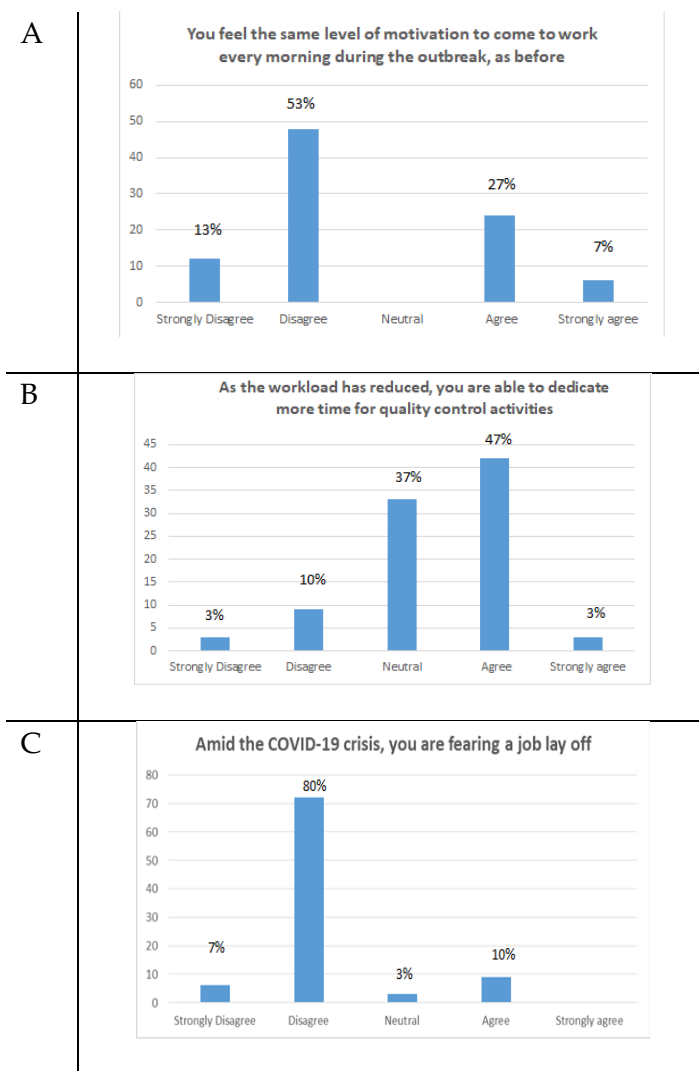
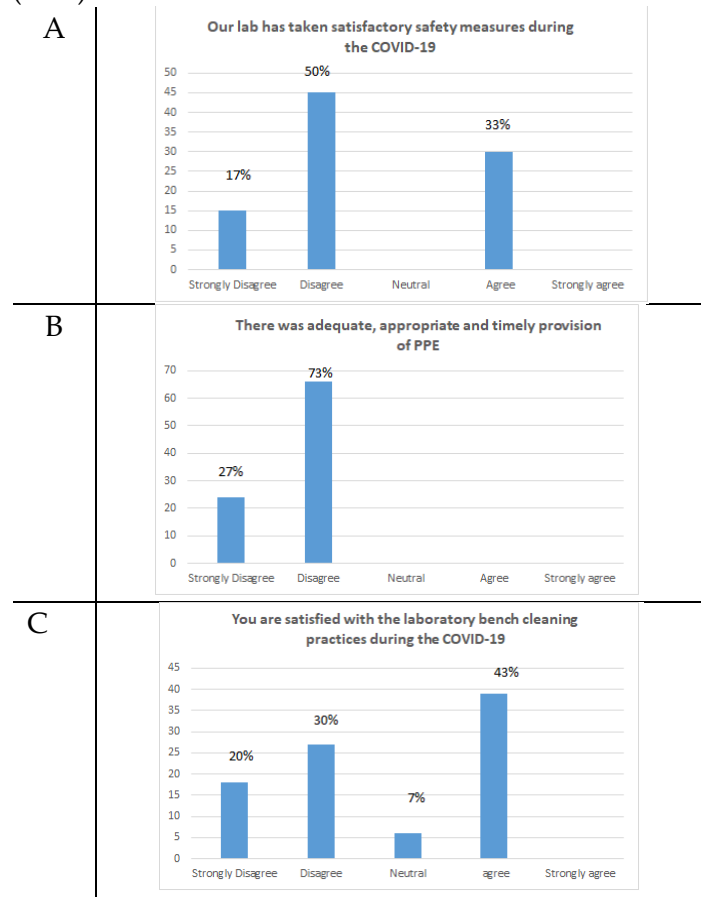


Fig 2. Indicators of stress due to COVID-19 pandemic

Satisfaction with organizational measures

50% (n=45) of the participants were disagreed and 17% (n=15) were strongly disagreed that their laboratories have taken satisfactory safety measures during COVID-19 pandemic whereas only 33% of the respondents (n=30) were agreed that their laboratories have taken satisfactory safety measures during COVID-19 pandemic. All of the participants were not satisfied with the provided personal protective equipments (PPE). Apart from 7% (n=6) neutral respondent, 43% (n=39) of the respondents were satisfied with the laboratory bench cleaning practice during COVID-19 crisis. Only 3% (n=3) of the participants were satisfied with the level of safety training during COVID-19 pandemic, 80% (n=72) of them were not satisfied with the provided safety training, whereas stayed 17% (n=15) neutral. The indicators of satisfaction measures are clarified in Fig. (A-D).



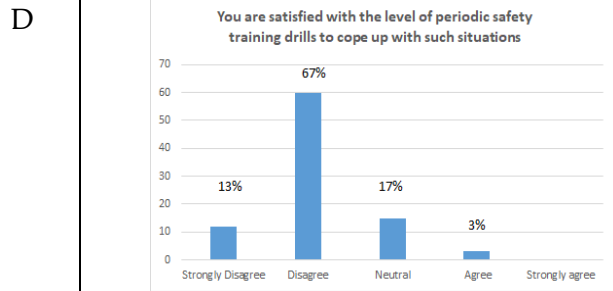


Fig 3. Satisfaction from policies and practices

DISCUSSION

Many studies have found that the COVID-19 pandemic has a negative psychological impact on healthcare workers, such as stress associated with fear of infection, facing financial challenges during the pandemic [14]. This study evaluated the effect of COVID-19 crisis on the medical laboratory workers in Libya. The aim of this study was to determine the factors that affect laboratory professionals during this pandemic outbreak. A well-structured survey, help as a valuable tool collecting high rate of participation and proper database to evaluate the impact of the challenges, financial implications, fears, motivation, and satisfaction from organizational processes and policies adopted, amid the COVID-19 crisis [15].

The response rate was 100%. As anticipated, most of the respondent reported that the current lifestyle adopted during the pandemic was not better than the traditional one, before COVID19 times. As medical laboratories have already adopted cost keeping practices before COVID-19 days due to inflation, elevated exchange rates and economic crisis in the country haling addition financial challenges during the pandemic. The rate of respondents fearing being laid off from their positions, amidst the COVID-19, was lower comparing with global literature [16].

Moreover, the lockdown decreed in the country and the decreasing level of social activities affecting mental health and increasing stress levels [17]. Around 60% of Lab workers were of the view that their social activities have suffered due to COVID-19 pandemic and this result is consistent with the study conducted among medical laboratory professionals in Pakistan [18].

On the other hand, slightly more than a half 53% of the participant answered that the quality of family life at home was improved during the lockdown.

Furthermore, approximately 66% of the employees felt that their motivation levels to come to work every morning during the outbreak have gone down, which is much higher than the findings from other study conducted by Atia et al, where the level of motivation was about 26% [19].

In this study, a half of the respondents were agreed that the reduced workload has given them enough time to improve the quality control activities. Additionally, there were potential safety procedures as well regarding contacting the infection, as the majority of lab workers were not satisfied with the provided personal protective equipments (PPE), amid short supplies and cost saving practices limiting their usage. Whereas, 67% were disagreed that their laboratories have taken satisfactory safety measures during COVID-19 pandemic. This finding support previous cross-sectional study conducted among healthcare workers in Libya, the study absorbed very limitations in PPE, and because of the inadequate supply provided by Libyan hospitals the most hospital workers independently purchase their own PPE [20].

Furthermore, 43% of the respondents were satisfied with the laboratory bench cleaning practice during COVID-19 crisis, whereas, only 3% of them were satisfied with the level of safety training during COVID-19 outbreak. The results are limited because all work elements were collected from only three public hospitals and further research is needed to collect more information for a thorough comparison. The sample size was relatively small for some occupational groups.

CONCLUSION

Like other health care workers, laboratory professionals suffer from novel challenges and fears. The financial challenges, the decreasing motivation levels and inadequate personal protective equipments (PPE) during the COVID-19 pandemic are the major interests requiring quick management as they have impact on the efficiency and productivity. The result of this survey provides a laboratorians perspective during times of crisis and provide us certain lessons to plan for such unexpected circumstances in the future.

Funding

None.

Declaration of competing interest

None.

REFERENCES

1. Perlam S. Another decade, another coronavirus. *N Engl J Med.* 2020; 382(8): 760-762.
2. Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *nature.* 2020 Mar;579(7798):270-3.
3. World Health Organization. Novel Coronavirus (2019-nCoV): situation report, 11.
4. Wan Y, Shang J, Graham R, Baric RS, Li F. Receptor recognition by the novel coronavirus from Wuhan: an analysis based on decade-long structural studies of SARS coronavirus. *Journal of virology.* 2020 Mar 17;94(7):e00127-20.
5. Paraskevis D, Kostaki EG, Magiorkinis G, Panayiotakopoulos G, Sourvinos G, Tsiodras S. Full-genome evolutionary analysis of the novel corona virus (2019-nCoV) rejects the hypothesis of emergence as a result of a recent recombination event. *Infection, Genetics and Evolution.* 2020 Apr 1;79:104212.
6. Sohrabi C, Alsafi Z, O'neill N, Khan M, Kerwan A, Al-Jabir A, et al. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International journal of surgery.* 2020 Apr 1;76:71-6.
7. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychotherapy and psychosomatics.* 2020;89(4):242-50.
8. Chong MY, Wang WC, Hsieh WC, Lee CY, Chiu NM, Yeh WC, et al. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *The British journal of psychiatry.* 2004 Aug;185(2):127-33.
9. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The lancet psychiatry.* 2020 Mar 1;7(3):228-9.
10. Chew NW, Lee GK, Tan BY, Jing M, Goh Y, Ngiam NJ, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, behavior, and immunity.* 2020 Aug 1;88:559-65.
11. Lippi G, Plebani M. The critical role of laboratory medicine during coronavirus disease 2019 (COVID-19) and other viral outbreaks. *Clinical Chemistry and Laboratory Medicine (CCLM).* 2020 Jul 1;58(7):1063-9.
12. Lippi G, Plebani M. Laboratory medicine resilience during coronavirus disease 2019 (Covid-19) pandemic.
13. Lippi G, Plebani M. Laboratory abnormalities in patients with COVID-2019 infection. *Clinical Chemistry and Laboratory Medicine (CCLM).* 2020 Jul 1;58(7):1131-4.
14. Rana W, Mukhtar S. Mental health of medical workers in Pakistan during the pandemic COVID-19 outbreak. *Asian journal of psychiatry.* 2020 Jun;51:102080.
15. Tomlinson G. Building a culture of high employee engagement. *Strategic HR review.* 2010 Apr 20.
16. Presti G, Mchugh L, Gloster A, Karekla M, Hayes SC. The dynamics of fear at the time of covid-19: a contextual behavioral science perspective. *Clinical Neuropsychiatry.* 2020 Apr 1;17(2).
17. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry.* 2020 Apr 1;7(4):e15-6.
18. Jafri L, Ahmed S, Siddiqui I. Impact of COVID-19 on laboratory professionals-A descriptive cross-sectional survey at a clinical chemistry laboratory in a developing country. *Annals of Medicine and Surgery.* 2020 Sep 1;57:70-5.
19. Atia A, Abdullah H, Bazza A. Impact of COVID-19 on Libyan Laboratory Specialists: A Cross-Sectional Survey. *Medical Laboratory Journal.* 2021 Nov 10;15(6):8-12.
20. Elhadi M, Msherghi A, Alkeelani M, Zorgani A, Zaid A, Alsuyihili A, et al. Assessment of healthcare workers' levels of preparedness and awareness regarding COVID-19 infection in low-resource settings. *The American journal of tropical medicine and hygiene.* 2020 Aug;103(2):828.