

## Studying the Pharmacist Behavior and Response towards Covid-19 in Benghazi Private Pharmacies

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### Abstract

Pharmacists are the most accessible healthcare professionals to the general public who provide healthcare services during pandemic conditions including patients care services, guiding patients, and minimizing the patient's health risk. This study aims to investigate pharmacists' awareness; their behavior regards the management of the coronavirus pandemic. A survey comprising several questions for the pharmacists at private pharmacies in Benghazi-Libya included items to collect demographic data. The rest of the questions were about the pharmacist's education about COVID-19, to evaluate the levels of knowledge and attitude regarding COVID-19 among the pharmacists. The SPSS program (Statistical package for social science students, version 2012) analyzed data collected from the questionnaire. Most of the participants believed that they got enough education previously about pandemics. The majority of the pharmacists who participated in this study appear to have a major role in the management of pandemics through their pharmacies. This study elucidates that, better awareness is related to the higher educational level of the pharmacist, which is a satisfactory and expected finding.

**Keywords:** *Pharmacists; Coronavirus; Awareness; Education; Pandemic*

### Introduction

Coronaviruses (CoVs) are a group of viruses that infect humans and other vertebrate animals. CoV infections affect the respiratory, gastrointestinal, liver, and central nervous systems of humans, and many other wild animals [1]. Coronaviruses are enveloped by positive single-stranded large RNA viruses. As well as coronaviruses were first described in 1966. In addition, four subfamilies, namely alpha  $\alpha$ , beta  $\beta$ , gamma  $\gamma$ , and delta  $\delta$  coronaviruses exist; the beta [ $\beta$ ] coronaviruses may cause severe disease and fatalities, whereas alpha [ $\alpha$ ] coronaviruses cause asymptomatic or mildly symptomatic infections [2]. In December 2019, a series of acute atypical respiratory diseases occurred in Wuhan, China. This rapidly spread from Wuhan to other areas [3]. Therefore, The World Health Organization (WHO) officially named the disease resulting from infection with severe acute respiratory syndrome coronavirus-2 SARS-CoV-2 as coronavirus disease 2019 (COVID-19) [4].

Respiratory droplet and contact transmission are the main transmission routes for the person-to-person spread of SARS-CoV-2. Infected individuals can transmit viruses during both the incubation and recovery periods [4]. Many risk factors have been identified in the

progression of COVID-19 into a severe and critical stage. Including old age, male gender, underlying comorbidities such as hypertension, diabetes, obesity, chronic lung diseases, heart, liver, kidney diseases, tumors, clinical apparent immunodeficiency, and pregnancy [5]. Most, epidemiological studies have shown that mortalities are higher in the elder population and the incidence is much lower in children [6].

COVID-19 is a newly discovered virus and there are currently no approved drug therapies [6]. However, the mainstay of clinical treatment consists of symptomatic management and oxygen therapy, with mechanical ventilation for patients with respiratory failure, in addition to several antiviral drugs, inflammation inhibitors, low- molecular-weight heparins, plasma, and hyperimmune immunoglobulin [7].

In the crisis caused by the COVID-19 pandemic, pharmacists from different settings such as: the community, hospitals, industries, and other organizations can support the system as a vital healthcare provider [8]. Providing pharmaceutical care is one of the main tasks of clinical pharmacy. During the pandemic, community pharmacists are the patients' access point to health care and medical supplies, such as masks, over-the- counter (OTC) drugs, thermometers, disinfectants, etc. They also provide education and consultations on proper hygiene techniques and offer emotional support as needed [8,9].

### Aim of the Study

Therefore, this study aimed to explore the level of education of the pharmacists in response to this outbreak; the different types of medicines that can easily be prescribed and dispensed to corona patients during the pandemic, the possibilities of treating corona attacks, and the behavior of the pharmacists to relief corona symptoms in private pharmacies in Benghazi-Libya towards the COVID-19 pandemic.

### Materials and Methods

This study was carried out at the faculty of pharmacy, Benghazi University to assess the pharmacist behavior towards the Corona drug dispensing scheme at Benghazi private pharmacies. Participation in the study was voluntary and answered a survey comprised of 11 questions. The questionnaire was organized to include items to collect demographic data concerning the participating pharmacists and questions concerning the role of the pharmacists in giving information about corona diseases to the patient visiting their pharmacies. The answers to the survey were analyzed using the SPSS program [Statistical package for social science students, version 2012].

### Results and Discussion

Pharmacists had an important role in taking actions to address during the COVID-19 pandemic, including drug information for health-care professionals, patient counseling, suggestion for change in therapy, monitoring results reports, drug supply management, safety measures for infection control, and application of tools to evaluate a disease [9].

This study was carried out on 50 pharmacists at private in Benghazi-Libya to collect information on the role of pharmacists during the covid-19 pandemic.

The demographic data of the participants are summarized and shown in figure 1.

As shown in Error! Reference source not found., the pharmacist experience increase with the increase of the age. Additionally, the young pharmacists ranged between 25 - 35 years have a few years in the pharmacy work experience. In contrast, the pharmacists' age between 45 - 65 had about 15 - 20 years of experience. This shows that, the pharmacist's experience change with the age increase. In addition, those pharmacists aged between 45 and 65 years have 15 - 20 years of experience. This result comes in agreement with Kambayashi's study, the average number of years of work experience as a pharmacist was 17 years since a pharmacist's behavior and experience change with age [10]. While, another study indicated that knowledge was significantly lower among older, less educated, low-income, and rural participants, most of whom were concerned about the risk of infection [11]. In Gondar, Ethiopia, pharmacists with more than

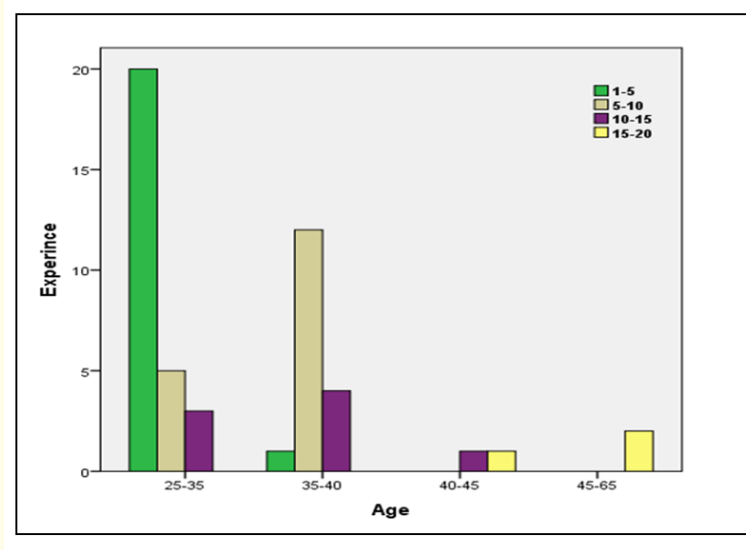


Figure 1: Pharmacist experience related to age.

six years of experience had better knowledge of COVID-19 than their counterparts with less than six years [12]. In the UAE, the cognitive score of pharmacists with more than five years of experience was significantly higher than that of pharmacists with less than two years of experience [13].

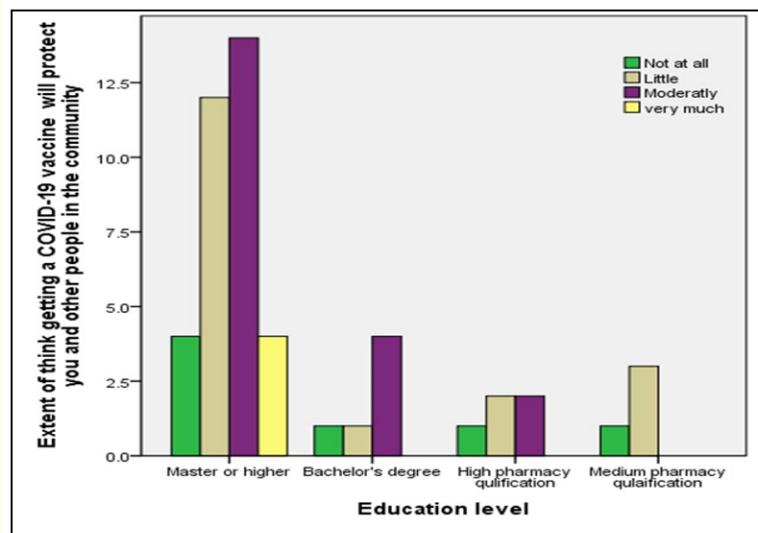


Figure 2: Education level and the protection extent of the COVID-19 vaccine to the community.

Figure 2 clarifies the extent to which getting a COVID-19 vaccine will protect the other people in the community from the coronavirus attack. The highest responses of the pharmacists holding master’s degrees in pharmaceutical sciences and higher pharmacy qualifications indicate that the coronavirus vaccine has moderately protected the community from the corona attack, as the results obtained by the Al- Daghastani study [14].

According to the World Health Organization (WHO), vaccination has substantially decreased the burden of certain infectious diseases, and the CDC [Center for disease control] has declared vaccinations to be one of the top 10 public health achievements of the 20<sup>th</sup> century. The CDC also notes that vaccines are responsible for preventing nearly 2.5 million deaths annually. The incidence, prevalence, morbidity, and mortality associated with vaccine-preventable diseases have considerably diminished since vaccinations became available [15].

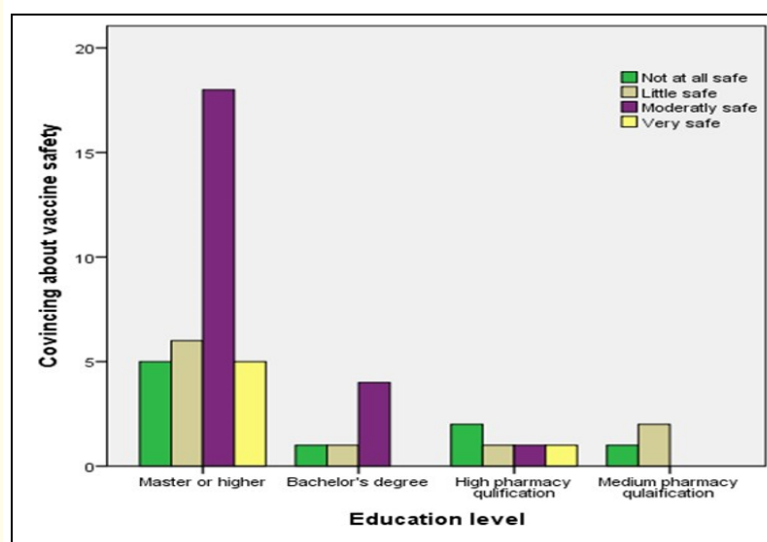


Figure 3: Education level related to COVID-19 vaccine safety.

Figure 3 shows the relationship between pharmacist’s education level and their suggestion for COVID-19 vaccine safety. The pharmacists holding a master’s degree and bachelor’s holder in pharmaceutical science showed more responses to the COVID-19 vaccine safety. Those highly qualified pharmacists mean that the COVID-19 vaccine was moderately safe than those pharmacists with high and medium pharmacy qualifications.

In the Tanzi study, pharmacists are well positioned to improve vaccination rates and can act as patient educators, advocates, and preventers [16].

The ability to inform patients about COVID-19 depends mainly on the communication skills that the pharmacists have, which are improved via the pharmacist’s increased experience and learning. Figure 4 shows that pharmacists with a master’s in pharmaceutical science were highly motivated toward giving detailed information to the patient about COVID-19. While pharmacists with lower academic pharmacy qualifications show low motives to communicate with patients about COVID-19. Those results indicated that, the direct pharmacist’s ability to inform patients about COVID-19 increases with the pharmacist’s education levels.

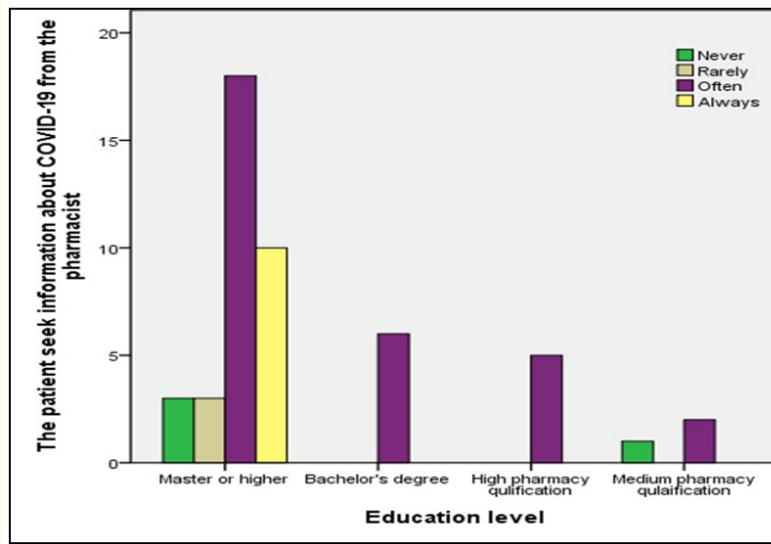


Figure 4: Education level related to the ability to inform patients about COVID-19 via the pharmacist.

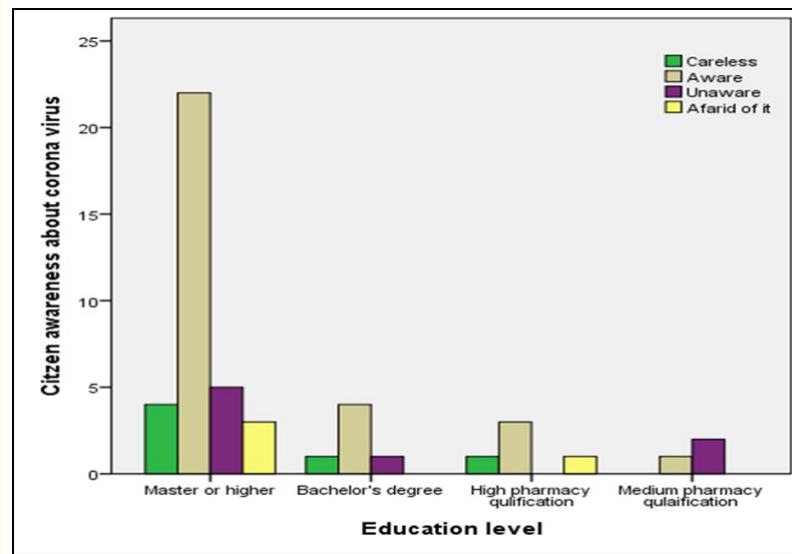


Figure 5: Education level and citizen awareness about coronavirus.

The relationship between citizen awareness of coronavirus and pharmacist education levels is shown in figure 5. The pharmacists holding master`s degrees in pharmaceutical sciences, bachelor`s degrees, and high and medium pharmacy qualifications agree that most

citizens were aware of COVID-19 and its symptoms. Additionally, the pharmacists who participated in this study with different qualifications suggested that some citizens ignore the coronavirus and its consequences. Pharmacists with a master’s degree in pharmaceutical sciences, a bachelor’s degree, and high and intermediate pharmacy qualifications agree that most citizens were familiar with COVID-19 and its symptoms. In addition, pharmacists who participated in this study with different qualifications indicated that there were some citizens who ignored the Coronavirus and its consequences. The results showed that the pharmacists who participated in this study with different qualifications frequently visited the private pharmacies in which they work during the pandemic. Those visits were mainly to get detailed information from a citizen about symptoms, treatment, and ways to prevent the attack of the coronavirus. Additionally, another study concludes that pharmacy education providers and pharmaceutical professional bodies have a strong role in preparing citizens to deal with epidemics [17].

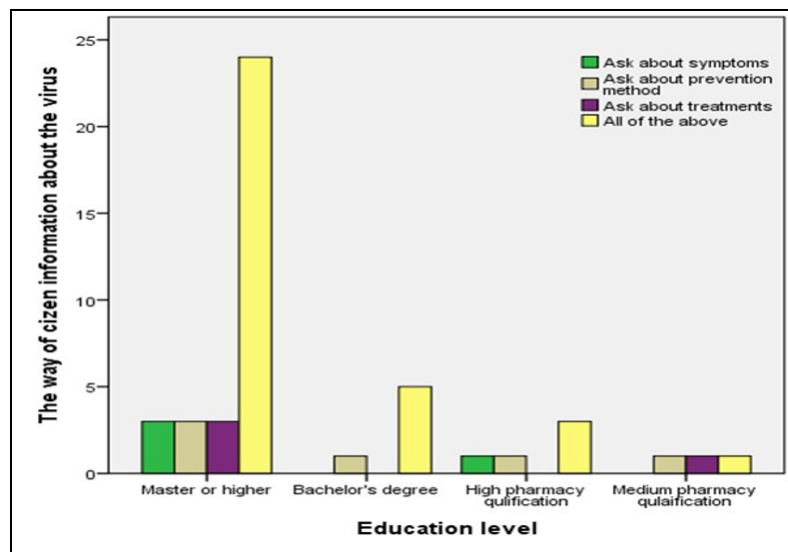


Figure 6: Education level and the way of citizen information about coronavirus.

The pharmacists who participated in this study with different qualifications mentioned the high frequency of visits to the private pharmacies where they work during the pandemic. Those visits were mainly to get detailed information by a citizen from the pharmacist about symptoms, treatment, and prevention methods of coronavirus attack. Those questions and frequent visits reflect the trust between the pharmacists and the patients. Subsequently may reflect the patient’s growing confidence in self-care via the pharmacist (Figure 6).

Figure 7 shows, the frequency of patient’s visits to the private pharmacy during the pandemic and the response of the pharmacists with different pharmacy qualifications. Pharmacists with a master’s degree in pharmaceutical science and high pharmacy qualifications mention few visits of the infected patient to the pharmacy, while, pharmacists with bachelor’s degrees mention a high number of infected who visit their private pharmacies during the pandemic.

The pharmacist education level related to which kind of medicines was in high demand during the COVID-19 epidemic is shown in figure 8. The pharmacists who participated in this study with different pharmacy qualifications mentioned the highest number of patients who request the antibiotics, followed by the anticoagulants and analgesics. This high tendency of requesting antibiotics might be related

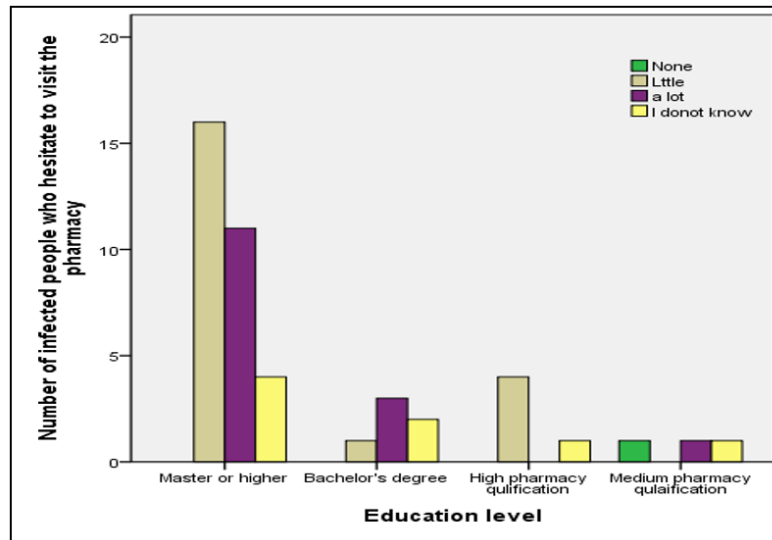


Figure 7: Education level and the number of infected people visiting the pharmacy.

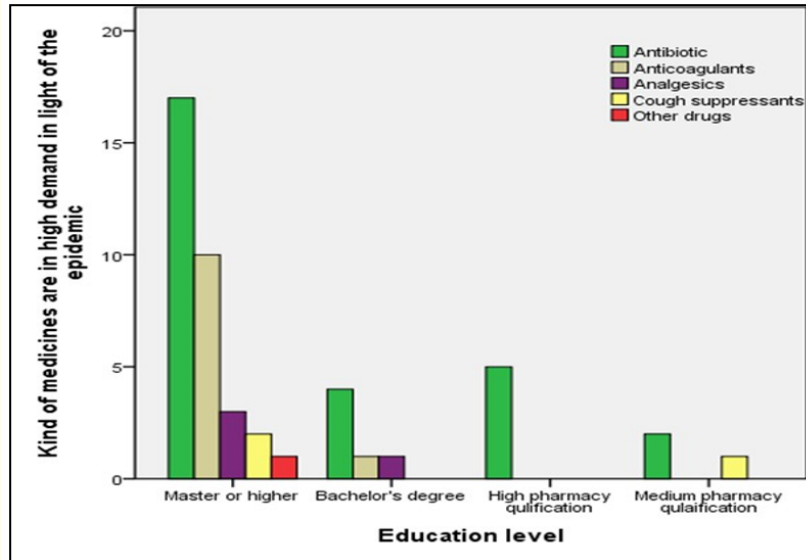


Figure 8: Education level and the kind of medicines in high demand during the COVID-19 epidemic.

to the ease of access to antibiotics and availability in the pharmacy. The pharmacists in the Alnajjar study, appear approximately 25.7% have educated their patients and 17.0% have advised the public about treatment options currently available to manage symptoms of CO-

VID-19. Most of the hospital pharmacists (17.4%) were exploring new drug treatments or uses, while a few hospital pharmacists (13.0%) were involved in antimicrobial stewardship programs and monitoring of antibiotic uses for COVID-19 and co-infections [18].

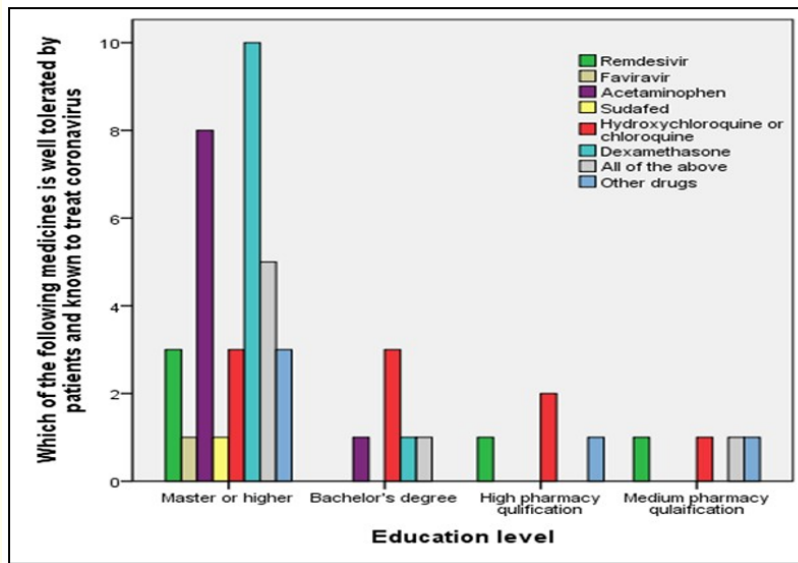


Figure 9: Education level and the well-tolerated medicine by a patient in treating the coronavirus.

Figure 9 shows that dexamethasone, followed by acetaminophen is more frequently dispensed medicines by pharmacists with master`s in pharmaceutical sciences than the other pharmacists who participated in this study. While, pharmacists with Bachelor`s degrees mean that, Hydroxychloroquine is more requested by the patient than other drugs. For treatment, dexamethasone, followed by acetaminophen, was dispensed more frequently by pharmacists with MSc degrees than by other pharmacists who participated in this study.

The WHO declared on March 18, 2020, under a post titled ‘Anti-inflammatory drug has been subjecting to conflicting reports that ‘there’s no evidence to suggest that using ibuprofen to manage symptoms of COVID-19 will worsen the condition. The use of corticosteroids by COVID-19 patients has also been a confusing issue for many pharmacists. Corticosteroids were widely used during previous outbreaks of similar types of infection such as the Middle East respiratory syndrome (MERS)-CoV [19]. However, although there appeared to be some evidence that corticosteroids may be beneficial if used in the early acute phase of infections, conflicting evidence from the WHO surrounding corticosteroid use in certain viral infections means this evidence is not conclusive [20].

As shown in figure 10 the major part of the pharmacists who participated in this study with different pharmacy qualifications meaning the citizen was aware of the vitamins that strengthen patient immunity against the coronavirus. This result reflects the citizen awareness to take vitamins and enhance their body`s immune system was high.

A demand for masks, gloves, and alcohol during the COVID-19 epidemic related to pharmacists` education level was shown in figure 11. The pharmacists who participated in this study with different pharmacy qualifications were divided into 2 groups. The largest group means there is a high patient response to request gloves, masks, and medical alcohol. On the other hand, a small group of participants mentions a low tendency among the patients toward buying protective tools. This finding is consistent with several previous studies,



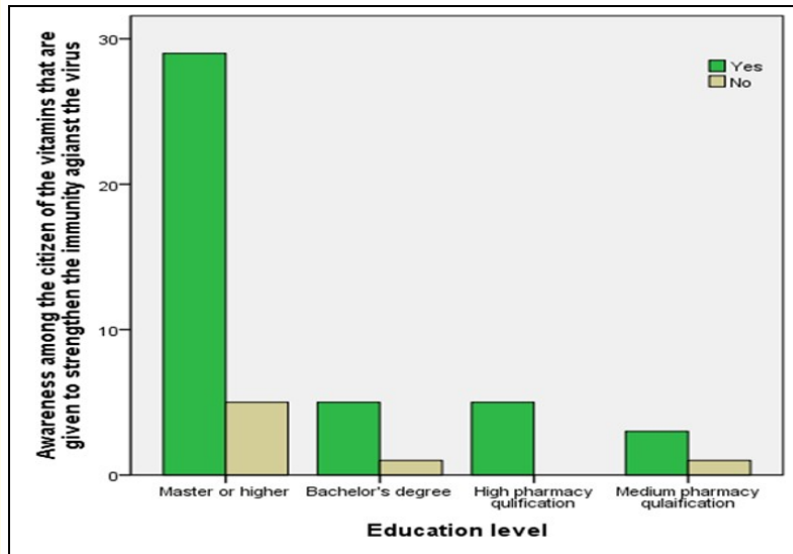


Figure 10: Education level and awareness of the citizen about the vitamins that strengthen immunity.

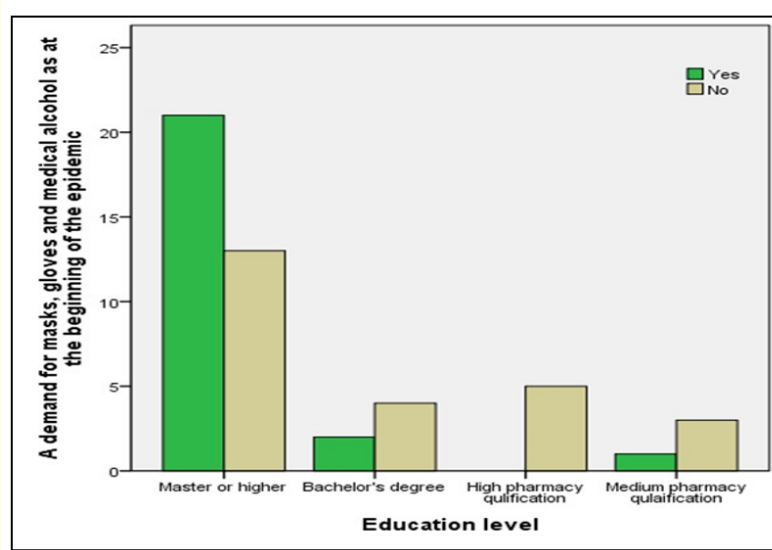


Figure 11: Education level and demand for masks, gloves, and alcohol use during the COVID-19 epidemic.

which indicated the critical role of community pharmacists in counseling patients about COVID-19 and raising public awareness about preventive measures such as a safe hygiene practice to reduce the rate of transmission [20].

### Conclusion

In the COVID-19 pandemic response, the pharmacy profession played an essential role in assuring continued medication supply and access, supporting public health measures, and assisting to identify and manage cases. Although there was a visible variance in knowledge level among the participants in this study, the pharmacists with master's degrees have an active role during the corona crisis and have contributed strongly to responding to the COVID-19 epidemic by ensuring the continuity of pharmaceutical services, providing examination and testing services and encouraging new vaccinations. Their roles and responsibilities during the COVID-19 health crisis suggest that they can play an important role in managing emerging infectious diseases.

Masters and high-level pharmacy education providers and pharmaceutical professional bodies play a strong role in preparing pharmacists to deal with epidemics. Therefore, the importance of providing prior epidemiology/epidemiological management training programs, workshops, lectures, and online information resources for such conditions is highly important for young pharmacists.

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