

Community Drug Retail Outlets Readiness Amid COVID-19 Pandemic Emergency Response in Ethiopia

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Abstract

Introduction: Controlling the unprecedented novel Coronavirus (COVID-19) pandemic is nowadays the priority of every nation, including Ethiopia. The objective of this survey was to evaluate the readiness of community drug retail outlets amid COVID-19 emergency response efforts in Ethiopia.

Methods: A cross-sectional survey was conducted in April 2020 at community drug retail outlets in Jimma town, Jimma, Southwest Ethiopia. An observational checklist, containing 13-items with yes/no options, adapted from International Pharmaceutics Federation was used for facility preparedness, while self-administered structured questionnaire adapted from international guidelines on COVID-19 prevention deployed to collect baseline knowledge (12-items), practice (six-items) and attitude (five-items) of individual pharmacy staff at the surveyed facilities. Descriptive statistics were computed using SPSS.

Results: Forty-six community drug retail outlets and their pharmacy workforce participated in the survey. The respondents prevailed good awareness with regard to means of transmission (90%) and incubation period (76%) and how to proceed with suspected cases (80%). In this intent, most of them reported disinfect their hands regularly and cover their nose and mouth when they sneeze or cough (96%), keep a distance of 1 to 2 meters between them and clients (98%) and avoided hand shaking (80%). Nevertheless, only just over half of the practitioners (56%) correctly mentioned the cardinal symptoms of the disease adequately and only about 21% wear personal protective equipments.

Conclusion: Overall knowledge on COVID-19 and personal practice of control measures by community pharmacists was unsatisfactory. Collectively, facility preparedness of the drug outlets was good but with a number of specifics areas that require improvements.

Keywords: COVID-19 Pandemic; Community Pharmacies; Readiness; Preparedness; Drug Retail Outlets; Jimma; Ethiopia

Introduction

The novel corona virus disease 2019 (COVID-19) is a new strain of coronaviruses outbreak which has a similarity with the recent past severe acute respiratory syndrome-corona virus (SARS-CoV) and the Middle East respiratory syndrome-corona virus (MERS-CoV) outbreaks. SARS-CoV-2 outbreak, first reported in late December 2019 in Wuhan state of China, spread abruptly around every corner of the globe knocking in 215 countries as of May 26, 2020 [1,2].

According to the World Health Organization (WHO) [3] and US Center for Diseases Control (CDC) recommendations, [4] COVID-19 spreads mainly from person-to-person by close contact (6 feet) via respiratory droplets when a person coughs or sneezes, or through touching contaminated surface of an object [5] Strict adherence to the lifestyle modifications suggested by public health organizations helps to avoid being exposed to COVID-19 and will greatly delay spread of the disease in the community [6]. This will be achieved by washing hands with soap and water, and disinfecting contaminated surface of the objects, using hand sanitizers, using face masks, isolating confirmed and suspected cases [5,7]. With this mode of transmission, healthcare workers are among the high risk of getting the infection and the source of transmission in the community [8].

Evidences also suggest that healthcare professionals across all settings are now caring for and communicating with patients in a context of high uncertainty [6], the case that pose another risk of amplifying the outbreak by the health care facility itself, unless otherwise strict infection control precautions are followed. This may be due to lack of knowledge and attitude of healthcare workers toward corona-virus, limited training in emergency preparedness and response and lack of adequate supplies of personal protective equipments (PPEs) in the facility [9].

These challenges also affect pharmacists and pharmacy workforce who are among the frontline healthcare workers [10]. Pharmacists are the most accessible healthcare providers, and so understanding the epidemiology of COVID-19, its transmission and how to prevent its spread, and being aware of informative federal resources regarding COVID-19 strategies are important considerations [11]. Efficient pharmaceutical practices at each facility could enhance safety of their workers as well as safety of their clients and the public by large.

Therefore, health facilities and their working staff need to make adequate preparations and reveal critical elements of readiness, as essential tools for actions needed in such emergency conditions [12]. Efforts are going on strengthening health systems, recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of COVID-19 outbreak. However, information on the degree of readiness achieved in this endeavor is scarce in most settings. This survey aimed to contribute towards addressing this gap by assessing baseline readiness of community pharmacies in Jimma town in terms of facility preparedness and knowledge, practice and attitude of their workforce towards COVID-19. As the scientific knowledge on the pandemic is at infancy yet, the survey findings can be used as an input for the ongoing programmatic activities of COVID-19 rapid response in the survey area or elsewhere in the country or beyond.

Materials and Methods

Survey area and setting

A cross-sectional survey was conducted from April 07 to 21, 2020 at community pharmacy facilities in Jimma town, as part of the ongoing Jimma University COVID-19 Rapid Response Program (JU-RRP) activities, by the Community Pharmacy Team in collaboration with Jimma town health bureau and other stakeholders. The Community Pharmacy Team is self-initiated voluntary group of staff members from a variety of disciplines interested to dedicate commitment to support the national and regional efforts towards combating the COVID-19 outbreak, by implementing different integrative approaches. Since its inception, the team is operating in strong collaboration with pharmacists, pharmacy workforce and the private sectors at facility level. The current report is the outcome of initial rapid assessment to evaluate the preparedness, knowledge, practice and attitude of community drug outlets and their workforce conducted at the beginning of the project implementation.

Survey methodology and tools

At the planning stage of the project, relevant information on the number and distribution of active community pharmacies in Jimma town were sought from the town health office. As successful community engagement and participation is important for success of any health program and the same is true for the current pandemic, efforts were made to gain the private owners active participation and dedication and thrust on the program. Fortunately, the team held incidental brief meeting with community pharmacy representatives in the town health office compound that created an opportunity not only to communicate the apparent outbreak and the purpose of the planned activities, but also to hear their views and discuss the possible ways of their participation in the emergency response. Their feedback was positive and appreciable, that affirmed their readiness to do all what they can to support the ongoing COVID-19 prevention and control activities.

Although several interventional activities are going on by the team since then (April 2020), for the purpose of this paper, we focus on the findings regarding the baseline readiness of these facilities as well as the awareness and practice of their working staff with regard to preventing COVID-19 transmission. An observational checklist, containing 13-items with yes/no options, adapted from International Pharmaceutical Federation (FIP) were used for facility preparedness assessment [13]. Furthermore, self-administered structured questionnaire adapted from international and local vetted guidelines on COVID-19 prevention and control were used to collect baseline knowledge, practice and attitude of individual pharmacy staff at the facility level. The questionnaire comprised of three parts. The first part consisted of 12-items that assessed knowledge of community pharmacists on sign and symptoms, mode of transmission, incubation period and preventive measures of COVID-19. The second section included six questions related to personal practices of community drug outlets practitioners to the best of worldwide recommendations on precautionary measures for SARS-CoV-2 transmission prevention. The last part of the questionnaire comprised five-items associated with the participant's attitude towards ongoing programmatic strategies to contain the COVID-19 pandemic.

Data analysis

Information collected was checked for completeness and inconsistencies, coded and entered into Microsoft Excel, and then exported to Statistical Package for Social Sciences (SPSS) version 23 for further analysis as necessary. Descriptive statistics (frequencies and percentage for discrete, and mean, standard deviation or median for continuous data) were computed.

Each of the 13 items used in evaluation of community drug outlets preparedness was treated as a discrete outcome with present/absent or done/not done options; the frequency (proportion) of facilities abiding to the standard practice was then computed. Each of the 12 knowledge questions was valued 1 point for correct answer and 0 for wrong. The overall knowledge score of each respondent was then treated as continuous data ranging between 0 (for all wrong answers) and 12 (for all right answers); scoring less than 10 was considered inadequate, while scoring 10 or more was designated adequate knowledge. Regarding practice related questions each correct practice was given one point. The five attitude related items were scored on 5 points Likert scale, in which the score of 1 to 5 was given from strongly disagree to strongly agree respectively, the higher the score indicating the more positive attitude and vice versa.

Results

Knowledge of pharmacy professionals working at community drug retail outlets

Forty-six community drug retail outlets were active in Jimma town during the survey period and successfully visited by the survey team. Knowledge of the pharmacy professionals who were working at these community drug retail outlets in the town at the time of our visits and who were willing to participate in the survey was assessed using self-administered structured questionnaire. Complete questionnaires were obtained from 46 practitioners. Their responses were then aggregated into a 12 point knowledge score which assesses the knowledge of the pharmacy practitioners about the symptoms, infectivity, disease course, severity, modes of transmission, and infection prevention measures of COVID-19 (See table 1).

The average knowledge score (mean ± SD) of our respondents was found to be 8.20 ± 2.20. For this study, we have set a score of 80% as the cutoff point to categorize knowledge of participants as adequate or inadequate. Participants who correctly answered 10 or more of the 12 items (≥ 80%) were classified as professionals with adequate knowledge while those with less than 10 correct responses (< 80%) were labeled as professionals with inadequate knowledge. Accordingly, 22 (47.8%) of the respondents were found to have adequate knowledge, while 24 (52.2%) of the respondents were found to have inadequate knowledge (Table 1).

A closer examination of participants’ responses per individual knowledge questions has revealed that over 90% the respondents knew about the main modes of transmission of COVID-19. Similarly, around 80% also well informed about the actions they need to take when encountering suspected cases. Furthermore, over 70% of participants discerned the right incubation period as 2 - 14 days, the ability of pre-symptomatic, symptomatic or asymptomatic individuals to transmit the disease as well as the contagiousness of patients well after resolution of symptoms.

On the contrary, just over half of the pharmacy professionals were able to correctly answer questions concerning the most common symptoms and virus stability and viability on different surfaces. Although 26 (56.5%) respondents identified the three cardinal symptoms of COVID-19 (fever, cough and breathing difficulty), only 8 (17.4%) were able to identify additional important symptoms albeit less frequent in comparison. The lowest proportion of correct responses of knowledge was recorded for the question inquiring if masks alone provide adequate protection from COVID-19 infection. Only 18 (39.1%) of participating practitioners were able to point out that the use of face mask alone as a preventive measure to be insufficient (Table 1).

Items (N= 46)	Responses	
	Yes, n (%)	No, n (%)
Identified all the three cardinal symptoms (Fever, cough and breathing difficulty)	26 (56.5)	20 (43.5)
Identified at least one symptom other than the three cardinal symptoms	8 (17.4)	38 (82.6)
Identified the correct incubation period of COVID-19 (2 - 14 days)	35 (76.1)	11 (23.9)
Most often, COVID-19 spreads from person to person among close contacts	42 (91.3)	4 (8.7)
COVID-19 spreads through respiratory droplets produced when an infected person speaks, coughs or sneezes	43 (93.5)	3 (6.5)
COVID-19 spreads through touching one’s mouth, nose or eyes with hands that have come in contact with contaminated surfaces	43 (93.5)	3 (6.5)
COVID-19 virus remains stable and viable on materials (such as metal, steel, paper, wood board and plastics) for several hours	17 (37.0)	29 (63.0)
Transmission can occur while patients are pre-symptomatic, symptomatic or asymptomatic	33 (71.7)	13 (28.3)
Patients may remain contagious up to two weeks after resolution of symptoms	34 (73.9)	12 (26.1)
The use of a face mask alone is insufficient to provide an adequate level of protection	18 (39.1)	28 (60.9)
The risk of disease severity increases with the presence of underlying health problems	31 (67.4)	15 (32.6)
Identified at least one correct course of action for handling suspected cases	37 (80.4)	9 (19.6)
Knowledge score summary (12 points)		
Mean ± SD	8.20 ± 2.20	
Adequate knowledge level ^a	22 (47.8)	
Inadequate knowledge level ^b	24 (52.2)	

Table 1: Knowledge of pharmacy professionals practicing at community drug retail outlets in Jimma town on COVID-19, Jimma, Southwest Ethiopia, April 2020.

^a: Knowledge score ≥ 10 (≥ 80%); ^b: Knowledge score < 10 (< 80%); *value=frequency (percentage).

Attitudes of pharmacy professionals working at the community drug retail outlets

To evaluate the attitude of the pharmacy workforce in taking shared responsibility in the ongoing programmatic strategies to contain the COVID-19 pandemic, respondents were allowed to rate their view using 5 points Likert scale response options ranging from strongly disagree to strongly agree (score ranging from 1 to 5). Table 2 shows the summary of the participants’ responses on attitude questions.

The result showed that most of our community pharmacy professionals had positive attitude towards the preventability of COVID-19, the preventive measures needed to be exercised by professionals and, their roles in protecting the public and their perceived contribution to the ongoing fight so far. The mean ± SD of the overall attitude score, 4.517 ± 0.893, indicates that, generally, participants’ attitudes fall between agreeing to strongly agreeing. The expected values of individual attitude questions also reveal a similar trend where participants’ attitude falls on a scale between agreeing and strongly agreeing (Table 2).

However, it is also worth noting that a not small proportion of professionals harbor unhelpful attitudes to the fight against COVID-19. For instance, 5 (11.4%), 5 (11.4%) and 5 (11.7%) participants were either unsure, opposed or strongly opposed to the idea of being responsible for protecting the public against infection, maintaining physical distance and avoiding physical contact at work place and taking measures to protect oneself from contracting COVID-19 from clients, respectively (Table 2).

Items	Responses	n (%)	E value ± SD
I believe COVID-19 infection is preventable (n = 44)	Strongly agree	22 (50.0)	4.357 ± 0.556
	Agree	21 (47.7)	
	Not sure	1 (2.3)	
As a healthcare worker, I am responsible for protecting the public from COVID-19 infections (n = 44)	Strongly agree	24 (54.5)	4.226 ± 1.146
	Agree	15 (34.1)	
	Disagree	1 (2.3)	
	Strongly disagree	4 (9.1)	
All professionals should maintain appropriate physical distance and avoid physical contact while practicing in their respective retail outlets (n = 44)	Strongly agree	26 (59.1)	4.386 ± 0.910
	Agree	13 (29.5)	
	Not sure	1 (2.3)	
	Disagree	4 (9.1)	
Pharmacy professionals working at community drug retail outlets should take appropriate measures to avoid risk of contracting COVID-19 from clients who may be infected (n = 43)	Strongly agree	29 (67.4)	4.463 ± 0.976
	Agree	9 (20.9)	
	Not sure	3 (7.0)	
	Strongly disagree	2 (4.7)	
As a healthcare worker, I believe I am doing all my part to combat COVID-19 (n = 43)	Strongly agree	27 (62.8)	4.585 ± 0.581
	Agree	14 (32.6)	
	Not sure	2 (4.7)	
Overall attitude score (n = 218)	Strongly agree	128 (58.7)	4.517 ± 0.893
	Agree	72 (35.3)	
	Not sure	7 (3.2)	
	Disagree	5 (2.3)	
	Strongly disagree	6 (2.8)	

Table 2: Attitudes of pharmacy professionals of community drug retail outlets of Jimma town in COVID-19 prevention and control, Southwest Ethiopia, April 2020.
E: Expected; SD: Standard Deviation.

Practice of pharmacy professionals working at community drug retail outlets

Individual level enactment of six core components of infection prevention and control measures were assessed among 46 drug outlet practitioners. Forty-four (95.7%) respondents provided their experiences in full and included in the analysis for which summarized results are provided in table 3. Most practitioners (95.5%) reported that they disinfect their hands regularly and cover their nose and mouth when they sneeze or cough, while 97.7% keep a distance of 1 to 2 meters between him/her and clients and 79.5% avoided shaking hands or other physical contacts. Similar to the observation survey result only few practitioners reported that they disinfect surfaces that may be touched by clients regularly (11.4%) and use of personal protective equipment (a combination of face masks, gloves, and gowns) (20.5%) (Table 3).

S. No	Items (N= 44)	Responses	
		Yes, n (%)	No, n (%)
1	Do you disinfect your hands regularly?	42 (95.5)	2 (4.5)
2	Do you keep a distance of 1 to 2 meters between you and clients?	43 (97.7)	1 (2.3)
3	Do you cover your nose and mouth when you sneeze or cough?	42 (95.5)	2 (4.5)
4	Do you avoid shaking hands or other physical contacts?	35 (79.5)	9 (20.5)
5	Do you regularly disinfect surfaces that may be touched by clients?	5 (11.4)	39 (88.6)
6	Do you use face masks, gloves, and gowns?	9 (20.5)	35 (79.5)

Table 3: Practices of community drug retail outlet pharmacy professionals in COVID-19 prevention, Jimma, Southwest Ethiopia, April 2020.

Preparedness of community drug retail outlets in Jimma town

The result of the survey during the observational period showed that majority of the community drug outlets in the town had shown good preparedness practices in availing hand washing areas in front of their drug outlets for the clients (84.1%), avoiding hand shaking and physical contacts (79.5%) and by keeping 1 - 2 meters distance between practitioners and clients (75%). There were also valued practices observed during the survey period; 39 (88.6%) maintained the FIP recommended distance (1 - 2 meter) among clients while waiting (88.6%) and 38 (86.4%) of the drug outlets allowed limited number of clients to enter at a time. Further, practitioners in 42 (95.5%) and 35 (79.5%) of the drug outlets wore gowns and disinfected their hands with alcohol or sanitizer during their practice respectively. In contrast to these, only 22.7% and 20.5% of the practitioners used face mask and wore gloves respectively (Table 4).

As depicted in table 4, the finding of this survey also identified inadequacies in disinfecting surfaces that are touched by clients and using a tray while collecting prescriptions, handing over medicines and processing payments (only 1 in 10 (9.1%) drug outlets comply with each of these recommendations). In addition, only few drug outlets displayed poster about COVID-19 on the wall or notice board (18.2%) and clearly marked on the floors to indicate where clients should stand on a queue (6.8%) (Table 4).

No	Items (N = 44)	Yes, n (%)
	Availability of hand washing area in front of the Pharmacy for the use of clients	37 (84.1)
	Poster about COVID-19 posted on the walls or notice board of the Pharmacy	8 (18.2)
	No hand shaking and physical contact observed	35 (79.5)
	1 - 2 meters distance maintained between practitioners and clients	33 (75.0)
	1 - 2 meters distance maintained among clients while waiting	39 (88.6)
	Limited number of clients enter the drug outlet at a time	38 (86.4)
	Floors clearly marked to indicate where clients should stand on a queue	3 (6.8)
	Used a tray while collecting prescriptions, handing over medicines and processing payments	4 (9.1)
	Disinfected any surfaces that may have been touched by clients	4 (9.1)
	Practitioner/s used face mask/s	10 (22.7)
	Practitioner/s wore gown/s	42 (95.5)
	Practitioner/s disinfected their hands with alcohol or sanitizer	35 (79.5)
	Practitioner/s wore gloves	9 (20.5%)

Table 4: Preparedness of community drug retail outlets for COVID-19 infection prevention and control, Jimma Town, Southwest Ethiopia April, 2020.

Discussion

This survey evaluated community drug retail outlets readiness to contribute their share amid COVID-19 rapid response efforts in Ethiopia. Readiness was evaluated in terms of facility preparedness and knowledge, attitude and practice of the pharmacy workforce in protecting people and themselves from infection with COVID-19, based on sound scientific evidence and rational behaviors.

To make practically meaningful assessment of participants' overall knowledge, we have categorized knowledge level with a cutoff point extrapolated from score rules used for issuing certificates for online COVID-19 trainings by the WHO and the Federal ministry of Health, Ethiopia [14,15]. Given observed passing score rules of 70-80% and the very basic nature of our knowledge assessment questions, we have set an 80% cutoff point to qualify the knowledge level of participants as adequate or inadequate. Accordingly, we have found over half our community practitioners (52.2%) to possess inadequate level of knowledge with regard to COVID-19. A similar study conducted in Pakistan reported an a good overall knowledge of 94.7% which is about two times higher than observed in this study [16]. Another study which surveyed 1018 community pharmacies in Egypt also reported knowledge of percentage of pharmacists in the high nineties [17].

Findings on specific knowledge questions are also in sharp contrast with reports of similar studies from other countries. For instance, in our study only 26 (56.5%) participants were able to point out the three most common symptoms of COVID-19 and a far lower 8 (17.4%) responders were able to identify at least one symptom beyond the three cardinal symptoms. However, a community pharmacy-based survey conducted in Egypt reported 97.6% and 91.0% familiarly with the common symptoms and with 10 symptoms of COVID-19, respectively [17]. Moreover, the number of professionals who knew about the insufficiency of masks alone for infection prevention and the viability of the novel coronavirus on different materials is below 40%. These findings and comparisons suggest a knowledge gap that needed to be urgently addressed for our community drug outlets to provide safe services and play their share in our national response against the spread of SARS-CoV-2.

Another parameter considered in this survey was the attitude of the pharmacy workforce with regard to the prevention of COVID-19 and their sense of shared responsibility to play part in the emergency response. The result shows that most of the pharmacy personnel had positive attitude to contribute towards combating the pandemic. But, some participants showed reservation or negative attitude with regard their responsibilities in the emergency response. For successful containment of the transmission, the role and commitment of each and every individual is needed. As a healthcare worker, understanding the rights, roles and responsibilities and contributing accordingly is not only the expectation that the employer and the public anticipate for, but also a professional obligation [18].

With regard to implementation of preventive measures, most of the respondents self-reported their commitment to practicing as recommended. But, significant number of practitioners still does not comply with existing precautionary recommendations. These findings are comparable with the practice level reported among other populations in different settings [13,19]. Poor practice was associated with low level of awareness on the disease, in most cases. Among the core recommendations, failure to use PPEs was the major poor practice reported. This is in contrary to the available global recommendations, including the United States occupational safety and health administration stated that pharmacy staff can be considered to be at medium exposure risk for COVID-19 and they may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles [20]. Although it is too early for generalization, lack or shortage of such equipment at hand could be the reason for not using them. Although literature commentaries on such issues are lacking, worldwide shortage of high quality facemasks is echoed in every daily updates of governmental reports. Worldwide recommendation is that "all pharmacy staff shall be provided with effective and sufficient PPEs for self-protection" [19]. In the current setting however, this seems impractical due to inaccessibility and low financial capacity to avail the equipment adequately.

With regard to facilities preparedness, majority of the community drug outlets in Jimma town are in a good position of preparedness with regard to availing hand washing areas, in agreement with existing the FIP recommendations [13]. There were also other valued

practices of the workers observed during the facility visits; avoiding hand shaking and other physical contacting, and maintaining the recommended distance between practitioners and clients and among clients while in the drug outlets, entering to the drug outlets or at waiting areas.

Despite these valuable premises, a number of critical gaps were also identified in the use of face mask and gloves among practitioners even though better practice were observed in wearing gowns and disinfecting their hands with alcohol or sanitizer during their practice. The survey participants agreed on the essence but raised issues of accessibility and affordability. Other remarkable problems identified were inadequacies in disinfecting surfaces that might be touched by clients, using marking tapes on the floor to indicate waiting areas and disuse of a tray while collecting prescriptions, handing over medicines and processing payments. This issue is once again a critical problem in the current community pharmacy settings against available advices on COVID-19 infection prevention [13]. In case use of tray is infeasible, Pakistan COVID-19 guidance for pharmacy teams [21] advise workers to use disposable gloves that could be changed every time after handling a new prescription or cash. In spite of these recommendations, majority of pharmacies observed in the current survey use neither tray nor gloves to hand over prescriptions or cashes.

Vetted international guidelines recommend [13] informative visual notices or posters that alert the visiting customers on the symptoms, mode of transmission and preventive precautions on COVID-19 infections the survey team noted absence of such notices in nearly all of the facilities visited. Although there is a bloom of literature [4,13] acknowledging the key roles community pharmacies and pharmacists play at the frontline in beating the COVID-19 pandemic, research reports on the level of community pharmacies readiness and/or preparedness are lacking. Due to this reason we could not compare our survey results with any similar research report. Cognizant with this issue is the subject of ongoing scientific update, there is no reason to devalue the preliminary baseline evidence obtained in this survey.

It is worthy to mention potential Limitations of this survey. First, the primary intent of our project, from which this report emanated, is non-research health intervention that could be methodologically less rigorous and may lack some components of inherent procedural research protocols, including sample size calculation and hypothesis formulation. Secondly, the analysis is explanatory descriptive without stringent statistical inference. Further, the survey was facility based with small number of respondents that could limit generalizability of the result for the wide range of populations over wider geographical area.

Conclusion

According to the survey results, level of awareness of the community pharmacists in drug outlets in Jimma town on COVID-19 and individual level personal practice of control measures were not satisfactory. With regard the community pharmacists' attitude to contribute towards combating the pandemic, substantial number of the workforce was either unsure or lack motivation in protecting themselves and the public from COVID-19 infections. Overall preparedness of the community drug retail outlets was good, but there were also a number of areas that need improvements, including use of PPEs, availing notices for public sensitization and marking floors, and facility hygiene.

To mitigate the prevailing knowledge and practice gap, educational intervention is recommended. Equipping the pharmacy staff with effective and sufficient PPEs may enhance protection of both the health workers and the public. Future surveys should evaluate impact of the ongoing interventions and document the lesson learned.

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Competing Interests

No competing interest to declare.

Ethics Approval and Consent to Participate

The study was approved by the Institutional Review Board of Jimma University. The study respected freedom to participate and adhered to research principles pertaining to privacy and confidentiality and written consent was sought from all the study participants.

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Authors' Contributions

All authors contributed equally to the work. Elias Ali supervised the data collection process. EM and GM involved in data interpretation, analysis, manuscript revision and write up. Biniam Girma, Tilahun Alemayehu and Shewatek Gedamu also shaped up the manuscript for publication. All authors reviewed and approved the final manuscript.

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