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Original article

Implementation of Personal Protective Measures by The Public During COVID-19 Pandemic in Damietta Governorate, Egypt

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ABSTRACT

Background: In Egypt, the arrival of COVID-19 pandemic triggered national preparedness and integrated response including public commitment to personal protective measures [PPM].

The aim of the work: To investigate the public implementation of PPM in Damietta Governorate – Egypt during COVID-19 pandemic.

Patients and Methods: This was a cross-sectional study based on web-based survey. A total of 500 adult participants [59% female: 18–72 years] were selected between April 10 and July 15, 2020, from Damietta, Egypt to complete a questionnaire. Participants were asked about their sources of knowledge and to indicate how often they implemented PPM recommended by World Health Organization [WHO] including hand hygiene, respiratory hygiene & etiquette, social distancing, and self-isolation.

Results: The best practices were frequent hand washing [38.2%] followed by covering nose & mouth [23.6%] while avoiding hand greeting, self-isolation, social distancing and wearing face mask ranged only from 10%–15%. In total, only 11.6% reported accepted implementation of all PPM representing the overall prevalence. Reliable sources of information were represented by 13%–43.5% while 66% depended on social media. Participants with older age, female, married, university education or higher, urban residents, nonsmokers and working in health field were more likely to report accepted implementation of overall PPM.

Conclusion: The protective measures implemented by ordinary citizens in Damietta are insufficient and further public awareness activities are required.

Keywords: Implementation; Personal Protective Measures; COVID-19; Pandemic; Damietta.

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* Main subject and any subcategories have been classified according to the research topic.

INTRODUCTION

Recently, emerging zoonotic diseases have caused considerable global health problems. These include newly recognized or newly evolved diseases, or that have occurred previously but shows an increase in incidence or expansion. Avian flu, swine flu, severe acute respiratory syndrome [SARS] and newly recognized novel coronavirus [COVID-19] are a few examples [1]. On December 31st, 2019, numerous cases of vague pneumonia were detected in Wuhan, China and reported to WHO Country Office. Upon investigation, such strain of coronavirus was never seen before [2]. The outbreak then crossed borders and spread worldwide and was announced as a public health emergency of international concern on January 30, 2020 [3]. The WHO situation report on January 24th, 2021 confirmed over 97 million cases with about 2.12 million deaths globally with greatest prevalence reported in Western Pacific region. In Egypt, according to MOH, the first confirmed case was announced on February 14th, 2020, and the first case in Damietta Governorate [in the northeastern part of the country] was announced on March 7th, 2020 while the first case died on March 23rd, 2020 [4]. Cases officially confirmed in Egypt were 161817 with 8959 deaths reported. The number of cases and deaths is increasing daily [5].

The containment of pandemic influenza is of widespread interest. Efforts are being made worldwide to reduce the spread of different influenza strains and various control measures have been announced by international agencies as well as national and international government bodies to curtail COVID-19 pandemic spread [6]. It is important to the public to adopt personal protective measures [PPM] and non-pharmaceutical interventions to mitigate the epidemic, especially before an effective vaccine would become available [7]. Early detection of COVID-19 cases requires effective disease surveillance system that, unfortunately, faces many operational challenges in Egypt, including a lack of precise and timely information exchange at different levels, lacking human resources and laboratory capacity for rapid diagnosis and poor community support. These challenges highlight the need for community involvement in surveillance, behavioral change interventions and joint efforts to accept the idea of personal responsibilities in curbing the pandemic spread & to prevent human-to-human transmission[8]. How well the public engage and implement these measures is a critical issue.

The main PPM against COVID-19 recommended by WHO include hand hygiene, respiratory hygiene & etiquette, social distancing measures, self-isolation and getting information from a reliable source to avoid misinformation and impact of infodemics [9]. There may be a conflict of interest concerning some protective measures, which should be balanced against ability of local government to make them available within the community and potential to compromise public's economic status. Authorities should take every measure to ensure that this experience is as tolerable as possible for people [10].

Raising public awareness has shown positive outcomes in containing past outbreaks. State of public implementation of PPM would help authorities and decision-makers to address the gaps between perception and actual practice and to measure national awareness and commitment to these measures to recognize any lacks by suitable interventions

AIM OF THE WORK

We investigated the implementation of PPM by the public in Damietta Governorate [Egypt] during COVID-19 pandemic. We hope our findings will provide data support for the targeted interventions to stand on community readiness to positively participate in preparedness efforts for COVID-19 pandemic.

PATIENTS AND METHODS

Study design: An analytical web-based cross-sectional survey using a snowballing sample was designed to assess public implementation of PPM in Damietta Governorate – Egypt during COVID-19 pandemic. It was part of a wider project targeting different public health aspects relevant to the pandemic.

Sampling: The minimum sample size required was 385 [set as 500] according to Raosoft sample size calculator [http://www.raosoft.com/samplesize.html] based on standard deviation set at 1.96 for 95% confidence interval, 5% margin of error, anticipated response of 50% and total population size of

1,565,252 [according to 2020 estimate, central agency for public mobilization and statistics: https://www. capmas. gov.eg/ Pages/ population Clock.aspx#].

Population and inclusion criteria: The study included 500 participants from the general population at Damietta aged 18 – >60 years [categorized into five 10-years age groups with 100 participants in each group considering gender weighing and geographical districts as possible, except for the 1st group ranged from 18–30 years with total 132 subjects and 68 from last group] who were social media users, not having fever or cold symptoms within previous 2 weeks and agreed to take part in this survey.

Study tool: A web-based questionnaire was developed for wider and rapid distribution and to avoid any social contact - while curfew and social distancing measures were implemented - during the period from April 10, 2020 till we reached the desired sample size fulfilling inclusion criteria by July 15, 2020. It was prepared in Arabic according to WHO and Egyptian Ministry of Health [MOH] guidelines [9, 11]. The initial draft was sent to a group of multidisciplinary specialists in related fields to authenticate and validate the questions in terms of relativity, simplicity and significance. A pilot trial was conducted on 25 subjects with different age groups and gender to test the validity of the survey or any required modifications and questionnaire was finalized after a series of group discussions. The pilot information were removed from the final analysis. The questionnaire included the following:

- Socio-demographics of participants, history of fever or cold symptoms within the last 2 weeks, current or previous work in the health field and history of chronic illness or seasonal flu vaccination.

- Sources of knowledge about COVID-19 [reliable sources include WHO, healthcare workers [HCWs] and/or MOH].

- Their frequency of self-reported practices [10 items] toward COVID-19 PPM during the last 2 weeks including 1] Hand hygiene: if they wash hands frequently, wash for recommended duration [> 20 seconds], avoid hand greeting and wear gloves when outside home; 2] Respiratory hygiene & etiquette: if they wear face mask when outside home or in crowds as supermarkets & transportation, avoid touching eyes, nose and mouth, cover nose and mouth when sneezing or coughing and throw the used tissue in the trash; 3] Social distancing: the frequency to avoid crowded places. Their responses scaled as “Always”, “Sometimes”, “Rarely” or “Never”; and 4] Self-isolation: if they can self-isolate at home if experienced fever or cold symptoms. Their responses scaled as “Definitely can”, “Probably can”, “Probably can’t” or “Definitely can’t”.

Scoring system: Two points were given for “always/definitely can” practices, one point for “sometimes/probably can” practices and no points for “rarely, never/probably can’t, definitely can’t” practices. The total score was 20 [range from 0 – 20]. Participants with scores ≥10 or <10 were considered to have accepted or poor implementation. Choosing “always/definitely can” reflects perfect adherence to protective measure and was used to describe the prevalence of that measure. The overall prevalence was denoted by the accepted implementation score.

The web-based questionnaire was distributed through official faculty deanship to various governmental and private sector within Damietta. In addition, personal communications helped to rapidly distribute the survey and broadcast on the Internet through national websites and different social media platforms. All participants could see the questionnaire and answered the questions by clicking the relevant link. To overcome the possibility of weak or improper responses from participants, several ways verified in research studies were tried such as; using a cover letter, clear instructions, follow-up reminders, asking to distribute through family, relatives and friends, pre-notification of the aim of the survey, plain design and easier formats. In addition, technical support helps avoid multiple responses, some items needed to be answered in reverse and questionnaires that were completed <3 or more than 30 minutes were excluded from analysis.

Ethical approval: It was obtained from Damietta Faculty of Medicine IRB, Al-Azhar University [IRB# 00012367-20-3-007; 21/3/2020]. An electronic informed consent from anonymous participants was added as an initial page before their online survey started with emphasis on voluntary participation and withdrawal at any time without giving any justification.

Statistical analysis: It was performed using SPSS computer package version 25.0 [IBM Corp., Armonk, NY, USA]. For descriptive statistics: mean ± SD was used for quantitative variables while numbers and percentages were utilized for qualitative variables. For analytic statistics: Fisher's exact test was used to assess differences in frequency of qualitative variables. Association between implementing all PPM [dependent variable] with socio-demographic variables [independent variables] was explored using multivariate logistic regression model. The statistical methods were verified, assuming a significance level of $p< 0.05$ and a highly significant level of $p< 0.001$.

RESULTS

The study included 500 completed questionnaires fulfilling inclusion criteria. About participants, the mean age was 42.6±14.8 ranged 18–72 years, 59% were females, 73.8% were married, 70.6% had university or higher education and about three-fourths were working. The vast majority [98.8%] didn't receive seasonal flu vaccine and 65.8% were not being affected by chronic diseases [Table 1]. The sources of information about COVID-19 are illustrated in figure 1. Reliable sources such as HCWs, MOH and WHO were represented by 43.5%, 22%, and 13% respectively, while about two-thirds [66%] depended on social media [Figure 1]. Table [2] showed the frequency of implementing PPM against COVID-19. The best practices, though insufficient, were frequent hand washing [38.2%] followed by covering the nose & mouth when sneezing or coughing [23.6%], then avoid touching eyes, nose, and mouth [21.6%]. The proper practices of avoiding hand greeting, self-isolation, social distancing and wearing a face mask ranged only from 10%–15%. Wearing gloves was the least practice to be implemented [2.6%].

The overall mean practice score was 6.1 ± 2.8 [range 0 – 16]. Only 11.6% of participants reported accepted implementation of PPM, representing the overall prevalence and 88.4% reported poor implementation [Figure 2]. The implementation of PPM was stratified by each socio-demographic variable. Accepted implementation was significantly higher among older ages > 50 years, females, married, those with higher education, urban residents, nonsmokers, and those working in the health field. Poor implementation was significantly obvious among those with low family income, not received seasonal flu vaccine and those without a history of chronic illness [Table 3].

With respect to overall implementation of PPM, multivariate logistic regression of each practice showed that participants with older age, female gender, married, university education or higher, urban residents, nonsmokers and working in the health field were more likely to report accepted implementation of overall PPM. Alternatively, those with family income <3000 pounds, not received seasonal flu vaccine and those without a history of chronic illness were more likely to report poor implementation of overall PPM [Table 4].

Table [1]: General characteristics of the studied sample

Variables	n=500	%
Age [years] mean ± SD [min-max]	42.6 ± 14.8 [18 – 72]	
Gender [female]	295	59.0
Marital status [married]	369	73.8
Education [university or higher]	353	70.6
Working status [working]	374	74.8
Residence [urban]	226	45.2
Family income/month [< 3000 pounds]	354	70.8
Smoking habits [non-smokers]	424	84.8
Work in health field[1] [yes]	71	14.2
Seasonal flu vaccine [no]	494	98.8
History of chronic illness [no]	329	65.8

[1]: Includes current or previous work.

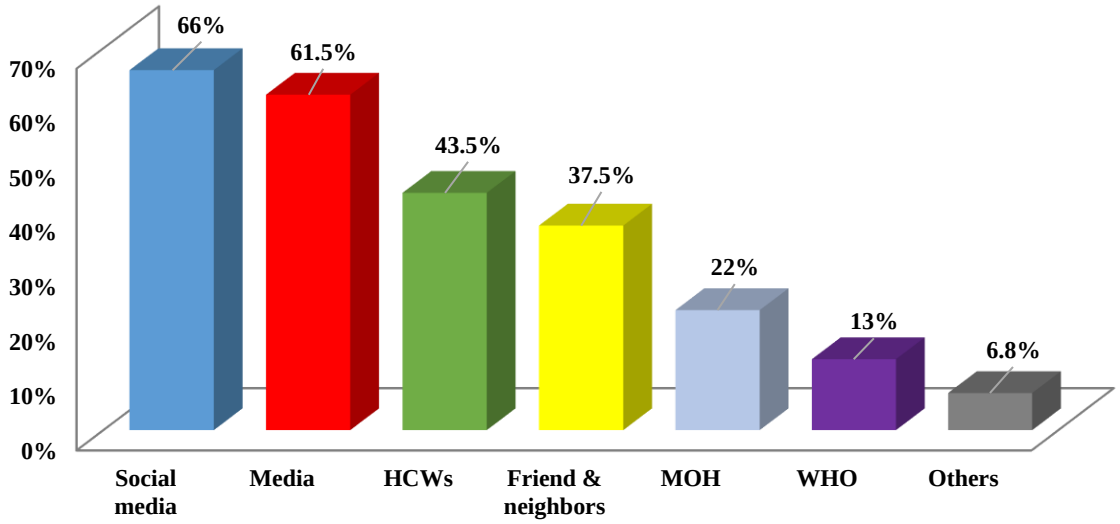

Figure [1]: Sources of information about COVID- 19.

Table [2]: Implementation of personal protective measures against COVID-19.

Variables	Always n [%]	Sometimes n [%]	Rarely/Never n [%]
Wash hands frequently	191 [38.2]	271 [54.2]	38 [7.6]
Wash hands for recommended duration	93 [18.6]	237 [47.4]	170 [34.0]
Avoid hand greeting	48 [9.6]	90 [18.0]	362 [72.4]
Wear gloves [1]	13 [2.6]	85 [17.0]	402 [80.4]
Wear face mask [1]	72 [14.4]	103 [20.6]	325 [65.0]
Avoid touching eyes, nose and mouth	108 [21.6]	143 [28.6]	249 [49.8]
Cover nose & mouth when sneezing or coughing	118 [23.6]	126 [25.2]	256 [51.2]
Throw the used tissue in the trash	85 [17.0]	114 [22.8]	301 [60.2]
Social distancing [1]	70 [14.0]	99 [19.8]	331 [66.2]
	Definitely can	**Probably can**	**Probably/ definitely can't**
Self-isolation	51 [10.2]	78 [15.6]	371 [74.2]

[1]: When outside home or in crowds as supermarkets & transportations.

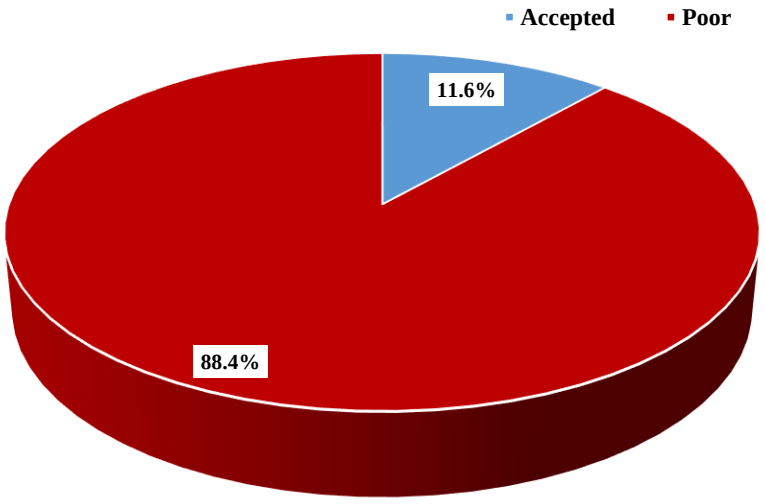

Figure [2]: Overall implementation score among the studied sample.

Table [3]: Socio-demographic stratification of overall personal protective measures implemented against COVID-19.

Variables	Overall implementation		P-value
	Accepted n=58 [%]	Poor n=442 [%]	
Age [older >50 years]	31 [53.4]	137 [31.0]	0.001*
Gender [female]	42 [72.4]	253 [57.2]	0.033*
Marital status [married]	50 [86.2]	319 [72.2]	0.025*
Education [university or higher]	48 [82.8]	305 [69.0]	0.032*
Working status [working]	38 [65.5]	336 [76.0]	0.083
Residence [urban]	34 [58.6]	192 [43.4]	0.035*
Family income/month [< 3000 pounds]	28 [48.3]	326 [73.8]	<0.001*
Smoking habits [non-smokers]	55 [94.8]	369 [83.5]	0.020*
Work in health field [yes]	48 [82.8]	23 [5.2]	<0.001*
Seasonal flu vaccine [no]	53 [91.4]	441 [99.8]	<0.001*
History of chronic illness [no]	25 [43.1]	304 [68.8]	<0.001*

Values present as number and percent & analyzed by Fisher's exact test. *: Significant.

Table [4]: Logistic regression analysis of association between socio-demographic variables and implementing all personal measures against COVID-19.

Variables	Coefficient	OR	95% CI	P-value
Age [>50 years]	0.78	1.39	[0.95 – 2.28]	0.001*
Gender [female]	0.67	1.96	[1.07 – 3.59]	0.029*
Marital status [married]	0.88	2.40	[1.37 – 4.22]	0.002*
Education [university or higher]	0.76	2.15	[1.06 – 4.39]	0.034*
Residence [urban]	0.61	1.84	[1.06 – 3.21]	0.031*
Income level/month [< 3000 pounds]	-1.10	0.33	[0.19 – 0.58]	<0.001*
Smoking habits [non-smokers]	0.78	2.18	[1.14 – 4.16]	0.018*
Work in health field [yes]	0.93	2.56	[1.47 – 4.45]	<0.001*
Seasonal flu vaccine [no]	-3.93	0.02	[0.002 – 0.16]	<0.001*
History of chronic illness [no]	-1.07	0.34	[0.19 – 0.60]	0.001*

OR: Odds ratio, CI: confidence interval. *: Significant.

DISCUSSION

With difficulties in vaccine production timely and absence of proven therapeutics, control measures and hygienic precautions should be considered to hamper the pandemic spread. The effectiveness of this strategy generally depends on public adherence to and compliance with containment and intervention measures [12]. Therefore, it might be necessary to assess the state of public implementation of containment measures as the efficacy of control measures would be reduced if implementation is delayed.

Sources of information about COVID-19:

Getting accurate and easy-to-understand information from reliable sources is important in pandemic control. HCWs, MOH or WHO, as reliable sources, were represented by 43.5%, 22%, and 13% of our participants, respectively, while about two-thirds [66%] depended on social media. Therefore, establishing an early warning system to provide accurate data and to preserve communication with the public via social media channels, besides traditional sources, is important. However, a substantial amount of social media information, was found to be incorrect leading to "infodemics" with rapid spread of unproven techniques for prevention [13].

Reliable sources were represented by 78.2%, 59%, and 38.1% of Saudi, UK and Japanese citizens, respectively, while most respondents in Hong Kong and 35% in UK depended on social media [14–17]. In the

US, people primarily prefer HCWs as a source of information on COVID-19 and least favor social media, friends, and family [18].

In a survey covering respondents from the Netherlands, Germany and Italy, their most frequently utilized sources included television [53%-82%], newspapers or news applications [31%-63%], social media [40%-56%] and official health websites [39%-54%]. Other people [e.g. friends, family, and colleagues, 24%-27%] and radio [5%-27%] were reported less frequently while HCWs [4.3%- 7.6%] and official health hotlines [1.2%-1.6%] were the least reported sources [19].

Personal protective measures

Voluntary response and public engagement to PPM, combined with other approaches, may play a vital role in pandemic control and have been documented in previous pandemics such as SARS, influenza A and current COVID-19 pandemic [20, 21].

Only 11.6% of our participants reported accepted implementation of PPM representing the overall prevalence. Similar low adoption of PPM by ordinary Japanese citizens was reported by Machida et al. [6.5%-34.7%] during COVID-19 outbreak.[16] Contrary to our results, Bazaid et al. reported that 90% of Saudi participants exhibited accepted practice scores [>3 out of 6] related to adherence to PPM outside home, although only 14% scored 6 out of 6 [22].

In Europe, 53%-63% of adult public in UK and higher percentages in Netherlands, Germany and Italy reported actual implementation of certain protective measures. In fact, comparing the prevalence among different countries might be inconclusive taking into account variation between population characteristics, state of epidemic curve and preparedness efforts in each country [15, 19].

One of the most cost-effective ways to control COVID-19 spread is probably public adherence to hand hygiene [23]. Among questions targeted hand hygiene, only frequent hand washing was reported by 38.2% of our participants, which is still insufficient with only 18.6% wash hands for the recommended time. Similarly, Bazaid et al. found that one in seven of Saudi participants reported disinfecting their hands for less than the recommended time and nearly 7% did not follow the recommended method that may impair disinfection [22].

Alternatively, most participants from Germany and Netherlands reported hand washing with soap and water more often than usual [range: 95%-95.7%] [19].

Avoiding hand greeting was low [9.6%] which might be ascribed to cultural customs with feeling of non-respect toward others and/or doubts in its effectiveness in controlling the spread that should be addressed by relevant authorities [22, 24].

Use of gloves by public is controversial and only 2.6% use gloves when outside homes or in crowds. In fact, it might give a false sense of protection whereas, it might increase the risk of self-contamination if proper precautions are not followed, especially if touching face and using mobile phones [25].

Wearing face mask was reported only by 14.4% of our participants, while 58.7% and 52% were reported in Japan and KSA respectively [16, 22].

The interest of individuals with respect to PPM had been centered on wearing face masks, and it activated soaring demand, panic buying, accumulating and abuse of face masks. In contrast, the WHO states that wearing medical masks may create a wrong sense of security, leading to the neglect of other fundamental preventive measures [26].

Among the most effective measures for mitigating viral pandemics is social distancing, which may reflect a mixture of people' own willingness to follow measures and mandatory governmental restrictions [12].

It was properly implemented by only 14% of our participants reflecting that social distancing may still leave much to be desired in Damietta. Our finding was comparable to other studies as 16%–31% of UK citizens reported avoid going to shops, schools, work or going out while 29.6% of Japanese citizens reported social distancing [15, 16].

In the same context, social distancing measures among public in Italy, Netherlands and Germany ranged from 67.5%–99.3% as reducing going to shops, cancelling or postponing social events, avoiding people

with flu-like symptoms, avoiding crowded places and reducing public transportation use [19].

The potential outcomes of self-isolation and quarantine periods were studied in the literature. Emotional, psychological, social and mental problems, sleep disorders, increased levels of stress, worry and nervousness, difficulty in getting supplies, loss of income and finding someone to cover caring responsibilities were reported [27].

About one of every ten of our participants reported ability and willing to self-isolate. Better results to prepare for potential self-isolation were reported among UK adults [57%-87%] and in Japan [38%] [15, 16].

During the 2009 pandemic, about 80% of people in the US and Australia were willing to stay home from work or school, whereas 53%–76% were willing to self-isolate [28, 29].

Many issues may determine willingness to comply with quarantine period and affect public' behavior to self-isolate during flu pandemic, including inter-personal, social, environmental, risk perception, literacy and health-related factors. The theory of planned behavior may explain the intention to self-isolate when facing pandemic hazard [30].

Overall PPM stratified by socio-demographics

It is crucial to analyze different socio-demographic factors that might affect public implementation of recommended PPM to stand on the gaps, their way of response and to make future social assistance more precise. The prevalence of implementing overall PPM was higher among females, older adults, married urban residents and nonsmokers. It is not surprising that members with lower levels of education and income reported less implementation. This might be ascribed to insufficiently distribute simple data and the cost of purchasing personal protective equipments [16, 31].

Poor compliance of the young age group with PPM may favor spreading infection within families in Egyptian community. Thus, outreaching youth and young age group with community involvement strategies and awareness campaigns are important. Similarly, several factors were reported in literature to influence the implementation of PPM including age[22,32], gender differences [16,19,31], marital status as married individuals enjoy better physical and mental wellbeing that affect their behavior [33], urban residents[22,34], education as high educated groups receive more information about pandemic and more likely to understand the importance of implementation of protective measures [19,35] and participants without chronic illness or no history of seasonal flu vaccine less frequently reported exhibiting protective measures that coincide with other studies [19].

Study limitations

The study has some limitations. First, the cross-sectional design does not allow interpretation of causality, the snowball method does not result in random sampling of general population and the use of web-based survey may lead to selection bias and under estimation of the current situation. Second, the previous implementation status of PPM could not be assessed before the outbreak so we cannot exclude preexisting effect. Third, oversampling of New Damietta province as the largest distribution efforts occurred there. Besides, possible over-representation of health-oriented people and those more concerned about the outbreak. Forth, self-reported information may not be totally accurate [recall bias] and should be seen with caution [social desirability bias]. Fifth, exposure to COVID-19 cases or being close contacts could exaggerate their responses. In addition, we were unable to monitor their practices over time. Finally, the possibility of residual confounding caused by unmeasured covariates can't be excluded and the prevalence of PPM may vary in other populations with distinctive cultural, ethnic, and geographical foundations. We plan to reevaluate our participants if the current pandemic further exaggerates "the second wave" in the country, as well as after it subsides to obtain reliable explanations.

CONCLUSION

The overall prevalence of implementing PPM among public in Damietta was low. Participants with older age, female gender, married, university education or higher, urban residents, nonsmokers and working in health field were more likely to report accepted implementation of overall PPM. Targeted awareness programs and public health campaigns on sustained

compliance of protective measures are important to improve the overall practice of PPM.

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REFERENCES

1. Halton K, Sarna M, Barnett A, Leonardo L, Graves N. A systematic review of community-based interventions for emerging zoonotic infectious diseases in Southeast Asia. JBI Database System Rev Implement Rep 2013; 11[2]:1–235. doi: 10.11124/jbisrir-2013-801.
2. Jiang S, Shi Z, Shu Y, Song J, Gao G, Tan W, et al. A distinct name is needed for the new coronavirus. The Lancet 2020; 395 [10228]: 949. doi:10.1016/S0140-6736 [20] 30419-0.
3. Eurosurveillance editorial team. Note from the editors: World Health Organization declares novel coronavirus [2019-nCoV] sixth public health emergency of international concern. Euro Surveill 2020; 25 [5]: 200131e. doi: 10.2807/1560-7917.ES.2020.25.5. 200131e.
4. World Health Organization. WHO Coronavirus Disease [COVID-19] Dashboard. Available at: https://covid19. who.int/. [accessed December 20, 2020].
5. World Health Organization. WHO Coronavirus Disease [COVID-19] Dashboard: Egypt. Available at: https:// covid19. who.int/region/emro/country/eg. [accessed December 20, 2020].
6. Ebrahim SH, Ahmed QA, Gozzer E, Schlagenhauf P, Memish ZA. Covid-19 and community mitigation strategies in a pandemic. BMJ 2020; 368: m1066. doi: 10.1136/bmj.m 1066.
7. Qualls N, Levitt A, Kanade N, Wright-Jegede N, Dopson S, Biggerstaff M, et al. Community mitigation guidelines to prevent pandemic influenza – United States, 2017. MMWR Recomm Rep 2017; 66[No. RR-1]:1–34. doi: 10.15585/ mmwr.rr6601a1external icon.
8. Elhakim M, Hafiz Rasooly M, Fahim M, Sheikh Ali S, Haddad N, Cherkaoui I, et al. Epidemiology of severe cases of influenza and other acute respiratory infections in the Eastern Mediterranean Region, July 2016 to June 2018. J Infect Public Health 2020; 13[3]:423–9. doi: 10.1016/j.jiph. 2019.06.009.
9. World Health Organization. Coronavirus disease [COVID-19] advice for the public. Available at: https://www. who.int/ emergencies/diseases/novel-coronavirus-2019/advice-for-public. [accessed December 29, 2020].
10. Nicola M, Alsafi Z, Sohrabi C, Kerwan A, Al-Jabir A, Iosifidis C, et al. The socio-economic implications of the coronavirus pandemic [COVID-19]: A review. Int J Surg 2020; 78:185–93. doi: 10.1016/j.ijsu.2020.04.018.
11. Presidency of the council of ministers. Center for information and decision support 2020. Available at: https://www.care. gov. eg/EgyptCare/index.aspx
12. Anderson R, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation measures influence the course of the COVID-19 epidemic? The Lancet 2020; 395[10228]:931–4. doi: 10.1016/S0140-6736[20]30567-5.
13. Vaezi A, Javanmard SH. Infodemic and risk communication in the era of CoV-19. Adv Biomed Res 2020; 9[1]:10. doi: 10.4103/abr.abr_47_20.
14. Aldarhami A, Bazaid SA, Althomali WO, Binsaleh KN. Public Perceptions and Commitment to Social Distancing "Staying-at-Home" During COVID-19 Pandemic: A National Survey in Saudi Arabia. Int J Gen Med 2020; 13:677–86. doi: 10. 2147/IJGM. S269716.
15. Atchison C, Bowman L, Eaton JW, Imai N, Redd R, Pristera P, et al. Public response to United Kingdom Government Recommendations on COVID-19: Population Survey, 17-18 March 2020. Imperial College London [20-03-2020]. doi: 10. 25561/77581.
16. Machida M, Nakamura I, Saito R, Kojima T, Watanabe H, Inoue S. Adoption of personal protective measures by ordinary citizens during the COVID-19 outbreak in Japan. Int J Infect Dis 2020; 94:139–44. doi: 10.1016/j.ijid.2020. 04.014.
17. Kwok KO, Li KK, Chan HH, Yi YY, Tang A, Wei WI, et al. Community responses during the early phase of the COVID-19 epidemic in Hong Kong: risk perception, information exposure and preventive measures. Emerg Infect Dis 2020; 26[7]:1575–9. doi: 10.3201/eid2607. 200500.
18. McFadden SM, Malik AA, Aguolu OG, Willebrand KS, Omer SB. Perceptions of the adult US population regarding the novel coronavirus outbreak. PLoS One 2020; 15[4]: e0231808. doi: 10.1371/journal.pone. 0231808.
19. Meier K, Glatz T, Guijt MC, Piccininni M, van der Meulen M, Atmar K, et al. Public perspectives on protective measures during the COVID-19 pandemic in the Netherlands, Germany and Italy: A survey study. PLoS One 2020; 15[8]: e0236917. doi: 10.1371/journal. pone.0236917.
20. Durham DP, Casman EA. Incorporating individual health-protective decisions into disease transmission models: a mathematical framework. J R Soc Interface 2012; 9[68]:562–70. doi: 10.1098/rsif.2011.0325.
21. Bayham J, Kuminoff NV, Gunn Q, Fenichel EP. Measured voluntary avoidance behaviour during the 2009 A/H1N1 epidemic. Proc Biol Sci 2015; 282[1818]: 20150814. doi: 10.1098/rspb.2015.0814.
22. Bazaid AS, Aldarhami A, Binsaleh NK, Sherwani S, Althomali OW. Knowledge and practice of personal protective measures

during the COVID-19 pandemic: A cross-sectional study in Saudi Arabia. PLoS ONE 2020; 15[12]: e0243695. doi: 10.1371/journal.pone. 0243695].

23. Yang C. Does hand hygiene reduce SARS-CoV-2 transmission? Graefes Arch Clin Exp Ophthalmol. 2020; 258 [5]:1133–4. doi:10.1007/s00417-020-04652-5.
24. Abdulmun'im A-N. The Social Function of Greetings in Arabic. Zeitschrift Für Arabische Linguistik. Harrassowitz Verlag 1993; [26]:15–27. [http://www.jstor. org/ stable/ 43525613].
25. Yadav DK, Shah PK, Shah SP, Yadav AK. The Use of Disposable Gloves by General Public During COVID-19 Increases the Risk of Cross-Contamination. Asia Pac J Public Health 2020; 32[5]:289–91. doi: 10.1177/ 10105395209 32704.
26. World Health Organization [WHO]. Rational use of personal protective equipment for coronavirus disease [COVID-19] and considerations during severe shortages. https://www. who.int/publications/i/ item/ rational- use- of- personal-protective- equipment- for-coronavirus- disease-[COVID-19]-and-considerations-during-severe-shortages. [accessed December 23, 2020].
27. Ahmed MZ, Ahmed O, Aibao Z, Hanbin S, Siyu L, Ahmad A. Epidemic of COVID-19 in China and associated psychological problems. Asian J Psychiatr 2020; 51: 102092. doi: 10.1016/j.ajp.2020.102092.
28. Loustalot F, Silk BJ, Gaither A, Shim T, Lamias M, Dawood F, et al. Household Transmission of 2009 Pandemic Influenza A [H1N1] and Nonpharmaceutical Interventions among Households of High School Students in San Antonio, Texas. Clin Infect Dis 2011; 52[1]:146–53. doi: 10.1093/ cid/ciq057.
29. Kavanagh AM, Bentley RJ, Mason KE, McVernon J, Petrony S, Fielding J, et al. Sources, perceived usefulness and understanding of information disseminated to families who entered home quarantine during the H1N1 pandemic in Victoria, Australia: A cross-sectional study. BMC Infect Dis 2011; 11:2. doi: 10.1186/1471-2334-11-2.
30. Katz R, May L, Sanza M, Johnston L, Petinaux B. H1N1 Preventive Health Behaviors in a University Setting. J Am Coll Health 2012; 60[1]:46–56.
31. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci 2020; 16[10]: 1745–52. doi: 10.7150/ijbs. 45221.
32. Bults M, Beaujean DJ, de Zwart O, Kok G, van Empelen P, van Steenbergen JE, et al. Perceived risk, anxiety, and behavioural responses of the general public during the early phase of the Influenza A [H1N1] pandemic in the Netherlands: Results of three consecutive online surveys. BMC Public Health 2011; 11:2. doi: 10.1186/1471-2458-11-2.
33. Schoenborn CA. Marital status and health: United States, 1999–2002. Adv Data 2004; 351:1-32. PMID: 15633583.
34. Buda AS, Mekengo DE, Lodebo TM, Sadore AA, Mekonnen B. Knowledge, attitude and practice on hand washing and associated factors among public primary schools children in Hosanna town, Southern Ethiopia. J Public Health Epidemiol 2018; 10[6]:205–14. doi: 10.5897/JPHE2017. 0987.
35. Wong LP, Sam I-C. Public Sources of Information and Information Needs for Pandemic Influenza A [H1N1] J Community Health 2010; 35[6]:676–82. doi:10.1007/ s10900-010-9271-4.

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