






BMJ Open Impact of biosecurity measures, social pressure and bullying on attitudes, perceptions, and job satisfaction levels among healthcare workers during the COVID-19 pandemic: a cross-sectional survey

Azza Sarfraz,^{1,2} Zouina Sarfraz,^{1,3} Genesis Camacho-Leon ,¹ Geovanny Efraín Alvarado-Villa ,⁴ Derly Madeleiny Andrade-Molina ,⁵ Juan Carlos Fernandez-Cadena,^{4,6} Arjola Agolli,¹ Zeynep Yukselen ,⁷ Miguel Felix,^{4,8,9} Juan Carlos Gallardo Bastidas,¹⁰ Fernando Espinoza-Fuentes,⁴ Jack Michel,¹ Ivan Cherez-Ojeda ^{4,8}

To cite: Sarfraz A, Sarfraz Z, Camacho-Leon G, *et al.* Impact of biosecurity measures, social pressure and bullying on attitudes, perceptions, and job satisfaction levels among healthcare workers during the COVID-19 pandemic: a cross-sectional survey. *BMJ Open* 2022;**12**:e056952. doi:10.1136/bmjopen-2021-056952

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-056952>).

AS and ZS are joint first authors.

Received 28 September 2021
Accepted 27 June 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to
Dr Ivan Cherez-Ojeda;
ivancherez@gmail.com

ABSTRACT

Introduction The extent and nature of social pressure and bullying towards healthcare workers (HCWs) during the COVID-19 remains unclear. The following study identifies the effect of social pressure and bullying directed towards HCWs when using biosecurity measures during the COVID-19 pandemic; further, the impact on perceptions, attitudes and job satisfaction level is also explored.

Methodology We conducted a cross-sectional survey-based study among 684 Ecuadorian HCWs. The survey consisted of 38 questions related to the frequency, attitudes, and perceptions of biosecurity measures during the COVID-19 pandemic. Exploratory factor analysis was performed to assess the validity of the questionnaire. Associations between variables were analysed using χ^2 and Fisher's exact test. Using SPSS V.25, qualitative and quantitative data were analysed.

Results Of the 684 participants, 175 (25.59%) experienced or felt bullying or social pressure during the COVID-19 pandemic associated with the use of biosecurity measures. Of these, 40.6% believed it was due to an imbalance of power in the workplace. The perception that HCWs wearing personal protective equipment resulting in bullying was noted in 12% of the respondents. Job satisfaction was positive among 73% of the respondents. Gender (female) and type of institution (public) were noted to contribute towards job satisfaction and bullying experiences.

Conclusion Exposure to social bullying and pressure due to the use of biosecurity measures during the COVID-19 pandemic may result in reduced job satisfaction and thoughts about quitting work.

INTRODUCTION

The COVID-19 pandemic has posed great challenges to healthcare systems and healthcare workers (HCWs) worldwide. The

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Insight into the stigmatisation against healthcare workers (HCWs) has demonstrated COVID-19-related significant bullying risk.
- ⇒ Different confounding factors have been controlled when observing the rates of stigma and bullying among HCWs during the pandemic.
- ⇒ Our findings shed light to the association of personal protective equipment with bullying within healthcare settings.
- ⇒ We identify important demographic contributors and report the impact of bullying on job satisfaction, attitudes and perceptions of HCWs within a cohort.
- ⇒ With these results, we explore the direct impact of biosecurity measure use on HCWs to shed light to a critical contributor of violence and stigma in health-care settings.

phenomenon of workplace bullying and job dissatisfaction is not uncommon, which is detrimental to both organisations and individuals as the number of witness distractions and the physical/emotional health of victims worsen.¹ The stress and psychological burden owing to workplace bullying have been very high, particularly among HCWs.²⁻³ Workplace bullying concerns the repeated, disruptive, inappropriate, emotionally or physically abusive, intimidating, disrespectful, insulting and/or threatening behaviour targeted at a specific individual or a group of individuals. It can be manifested from a real or perceived power imbalance and is often, but not always, intended to control, embarrass, undermine,

threaten or otherwise harm the target.⁴ Bullying in the healthcare workplace may be initiated by both men and women.⁴ Bullying has been conceptualised as a systematic exposure to hospital, aggressive behaviour and humiliation and unethical oppressive communication against an individual or a group spanning at least once a week for 6 months.⁵ Across occupational settings such as healthcare settings, the exploration of workplace bullying and the association to job dissatisfaction is a relatively new phenomenon that has serious consequences for HCWs, patients and stakeholders.⁵ The novel threat of the COVID-19 pandemic has presented insurmountable challenges potentiating harmful consequences, especially for front-line HCWs.⁶ On identifying that 33% of the Ecuadorian population is experiencing negative mental health outcomes due the pandemic, there may be proportional or exponential rise of anxiety, depression, isolation and other mental health symptomatology among HCWs.^{7,8}

Since March 2020, when the WHO declared the COVID-19 as a pandemic, there had been an overwhelming need for personal protective equipment (PPE), while the supply was limited and scarce. While there is ongoing production and supply of PPE, the healthcare administration had implemented essential steps to conserve the resource by cancelling all elective, non-emergent procedures, outpatient encounters requiring PPEs during the early stages of the COVID-19 pandemic.^{9,10} Healthcare bodies also implemented re-use of the PPEs where possible.¹⁰ Reported in May 2020, 27% of nurses reported they had been exposed to confirmed COVID-19 patients without wearing appropriate PPE and 87% of nurses reported having to reuse a single-use disposable mask or N95 respirator.¹¹ In August 2020, the International Committee of the Red Cross reported increased incidents of workplace violence in healthcare settings, owing to the COVID-19 pandemic since February 2020, identifying that 67% of this violence (including assaults and discrimination) was directed towards HCWs.¹² Workplace interventions that reduce mental health stigma and promote support for HCWs struggling with any form of workplace pressure and bullying difficulties may improve their perceptions and attitudes.^{12,13}

Various cadres of HCWs in a myriad of settings are occupationally exposed to different infectious diseases. Acknowledging this work hazard, the Occupational Safety and Health Administration has set standards and directives to protect HCWs.¹⁴ However, there is limited data to examine the extent, nature, and perpetrators of bullying, and social-pressure towards HCWs specifically using PPEs. Our cross-sectional survey intends to bridge this gap, in an effort to provide data for healthcare bodies and administrations for policy-making and decisioning. This study will also aid in providing protection, and safety for HCWs. The aims include: (1) to identify the effect of social pressure and bullying when using biosecurity measures among HCWs during COVID-19 across Ecuador and (2) to evaluate the perceptions, attitudes, and job satisfaction

of HCWs during COVID-19 in correlation with social pressure and bullying due to biosecurity measures.

MATERIALS AND METHODS

Study design and population

The questionnaire was distributed to HCWs across Ecuador and the responses were recorded anonymously. The cross-sectional survey was made on Google Forms and the response rate was documented (online supplemental appendix A). A 38-item questionnaire was developed and reviewed by all authors who evaluated potential items to be included. The questionnaire was divided into 6 sections for a total of 95 points based on a 5-point Likert scale to assess the nature and frequency of social pressure or bullying, as well as the attitudes, perceptions and job satisfaction levels of participants.

In this study, social pressure is defined as 'the exertion of influence on HCWs by other persons (HCWs, or general population members) and groups'.¹⁵ Social pressure includes rational argument and persuasion (informational influence), direct reforms of influence (demands, personal attacks or threats), and calls for conformity (normative influence), and promises of rewards or social approval (interpersonal influence).¹⁵ Bullying is defined as 'repeated, health-harming mistreatment by government authorities, supervisors/managers, partners/colleagues, patients, employees, relatives, friends and/or strangers; the abusive conduct may take the form of verbal abuse, or behaviours that are otherwise perceived as threatening, intimidating or humiliating'.¹⁶

Section A explored baseline characteristics including gender, race, age, position, involvement in COVID-19 management, type of institution, years of experience and hours of work per week. Section B assessed the frequency of implementation of necessary precautions based on a 5-point Likert scale and the type of PPE used at the workplace. Section C categorised the frequency of witnessing bullying, having been bullied or experienced social pressure due to the use of PPE. The identity of those who had been involved in any form of social pressure or bullying was further explored in section C. Section D assesses the factors associated with social pressure and bullying including gender and perceived power imbalance. Section E explores the nature, frequency and perceptions towards social pressure and bullying. Finally, section F assesses the attitudes and job satisfaction levels of HCWs who have witnessed or experienced any form of social pressure or bullying.

Data analysis

The data were analysed using SPSS V.25. Qualitative variables were presented as percentages; quantitative data were shown as mean and SD. Associations between variables were performed using the χ^2 test and Fisher's exact test with a 95% CI. Exploratory factor analysis (EFA) was performed on the whole sample to find the number of factors and the distribution of the items within them.

EFA was used to reduce the overall number of observed variables into latent factors based on the commonalities within the data. Bartlett's sphericity test and Kaiser-Meyer-Olkin test were performed to assess if the sample was suitable for the EFA. The extraction method performed was a maximum likelihood and it was done an oblique rotation (oblimin rotation). Finally, correlations between items from the obtained model were assessed using the Spearman correlation test.

Patient and public involvement

The survey was only distributed to HCWs across Ecuador, wherein no patient involvement was noted.

RESULTS

Summary of the findings

The surveys were distributed to 1014 participants; however, 684 surveys were completed. The response rate in this investigation was 67.46% (684 of 1014). The characteristics of the participants are described in [table 1](#). A tabulated summary of key findings is attached in [tables 2–5](#). More than half participants were women (56.1%). The mean age was 38.7 (SD: 11.96), the ages ranged from 20 to 80 years old. Regarding the type of institution where participants worked, 64.2% of the participants worked in private institutions, and 24.6% worked in public institutions. A third of the participants were odontologists (33.6%) and 21.6% were doctors. Almost a third had less than 5 years of experience (32.3%) and more than half of participants worked 40–80 hours per week (63.6%). Finally, the majority treated COVID-19 patients (76.3%) and almost a third of the participants were infected (36.4%) ([table 1](#)).

Concerning the use of PPE, 66.7% (n=456) of the respondents had used surgical masks of equivalents, 82.2% (n=562) had used N95, self-filtering type 2 protective masks or equivalent mouthpieces, with 78.5% (n=537) and 76.2% (n=521), respectively, having used gloves and long-sleeve waterproof gowns respectively. Of all, 50.9% (n=348) of the respondents used eye protection, with 64.8% (n=443) having used face shields. The results are detailed in [table 2](#).

While 80.7% (n=552) of the respondents never witnessed bullying, and 9.2% (n=63) almost never witnessed bullying, 69 of the 684 HCWs (10.1%) occasionally-sometimes/almost all the time/all the time witnessed bullying. Social pressure or bullying inside or outside the workplace was either occasionally/sometimes, or almost all the time or all the time led by government authorities (n=28, 4.1%), supervisors/managers (n=31, 4.5%), partners/colleagues (n=50, 7.3%), patients (n=35, 5.1%), employees (n=30, 4.4%), relatives (n=36, 5.3%) and friends (n=46, 6.7%). Concerning the gender, the following genders occasionally-sometimes/almost all the time/all the time led social pressure/bullying: males (n=46, 6.7%), females (n=43, 6.3%), and others (n=20, 2.9%) ([table 3](#)).

Table 1 Baseline characteristics of the participants

Variable	n (%)
Sex	
Female	384 (56.1)
Male	300 (43.9)
Ethnic group	
Multiracial	642 (93.9)
Afrodescendant	15 (2.2)
Do not want to say	9 (1.3)
Other	18 (2.6)
Type of Institution	
Private	439 (64.2)
Public	168 (24.6)
Other	101 (14.8)
Management of patients with COVID-19	
Yes	522 (76.3)
No	162 (23.7)
Highest academic qualification	
Doctor of medicine	148 (21.6)
Medical associate	8 (1.2)
Respiratory therapist	62 (9.1)
Pharmacist	8 (1.2)
Resident	48 (7)
Bachelor in nursing	50 (7.3)
Nursing assistant	60 (8.8)
Dentist	230 (33.6)
Other	70 (10.2)
Years of experience	
<5 years	221 (32.3)
5–10 years	139 (20.3)
10–20 years	176 (25.7)
>20 years	148 (21.6)
Working hours per week	
Less than hours	209 (30.6)
40–80 hours	433 (63.3)
More than 80 hours	42 (6.1)
Have you been infected with COVID-19?	
Yes	249 (36.4)
No	435 (63.6)

In total, 112 HCWs (64%) had no concerns about social pressure or bullying due to PPE use. On asking respondents about how often they feel victim to social pressure or bullying due to PPE use, 62.3% (n=109) never felt victim, whereas 17.7% (n=31) felt victims monthly, 13.7% (n=24) weekly and 6.3% (n=11) felt victims daily. The feeling of being a victim lasted less than a minute among 63.4% (n=111) respondents, 31.4% (n=55%) lasted for

Table 2 Personal protective equipment use

	Yes n (%)	No n (%)
Surgical mask or equivalent	456 (66.7)	228 (33.3)
N95, self-filtering type 2 (FFP2) protective mask or equivalent mouthpiece	562 (82.2)	122 (17.8)
Self-filtering protective mask type 3 (FFP3)	55 (8)	629 (92)
Powered air purifying respirator	16 (2.3)	668 (97.7)
Eye protection: protective eyewear	348 (50.9)	336 (49.1)
Eye protection: face shield	443 (64.8)	241 (35.2)
Apron	165 (24.1)	519 (75.9)
Long sleeve waterproof gown	521 (76.2)	163 (23.8)
Gloves	537 (78.5)	147 (21.5)
Hat	538 (78.7)	146 (21.3)
Other	47 (6.9)	637 (93.1)

a few minutes, 4.6% (n=8) for days and 0.6% (n=1) for weeks (table 4).

While 96.1% (n=657) had not considered quitting current jobs due to social pressure or bullying during the COVID-19 pandemic, 3.9% (n=27) had considered it. A slightly larger proportion (n=33, 4.8%) had sought other employment during the pandemic. Finally, 11.8% (n=81) had noticed members of the community outside the workplace being bullied due to PPE use (table 5).

Prevalence of bullying, social pressure, job satisfaction and use of biosecurity measures

The majority of participants had never witnessed bullying, felt social pressure or been bullied in their workplace

(74.4%). However, 175 participants (25.6%) reported social pressure or bullying during the COVID-19 pandemic. Of the 25.6% who had witnessed or suffered bullying, 40.6% presumed it was due to an imbalance of power whereas 28.6% disagreed and 30.9% were unsure. Concerning job satisfaction, 44.9% of the 684 participants were satisfied, 28.1% were very satisfied, 11.4% were unsure, 6.7% were dissatisfied and 8.9% were very dissatisfied. For social pressure/bullying as a factor for the reduced use of protection, of the entire sample, 12% thought that bullying influenced the use of biosecurity measures; 68% thought that bullying was not an influential factor in the use of biosecurity measures; finally, 16.1% were not certain.

Table 3 Burden of social pressure/bullying

	Never n (%)	Almost never n (%)	Occasionally/sometimes n (%)	Almost all the time n (%)	All the time n (%)
Took precautions during the pandemic	1 (0.1)	0 (0)	4 (0.6)	100 (14.6)	579 (84.6)
Witnessed bullying	552 (80.7)	63 (9.2)	59 (8.6)	5 (0.7)	5 (0.7)
Felt the social pressure of bullying	561 (82)	67 (9.8)	40 (5.8)	9 (1.3)	7 (1)
Suffered bullying at the workplace	587 (85.8)	55 (8)	37 (5.4)	4 (0.6)	1 (0.1)
Observed or received social pressure or bullying inside or outside your workplace by:					
Government authorities	121 (69.1)	26 (14.9)	18 (10.3)	4 (2.3)	6 (3.4)
Supervisors/managers	117 (66.9)	27 (15.4)	24 (13.7)	4 (2.3)	3 (1.7)
Partners/colleagues	82 (46.9)	43 (24.6)	41 (23.4)	7 (4)	2 (1.1)
Patients	110 (62.9)	30 (17.1)	26 (14.9)	5 (2.9)	4 (2.3)
Employees	112 (64)	33 (18.9)	23 (13.1)	4 (2.3)	3 (1.7)
Relatives	106 (60.9)	33 (18.9)	24 (13.7)	9 (5.1)	3 (1.7)
Friends	87 (49.7)	42 (24)	34 (19.4)	10 (5.7)	2 (1.1)
Strangers	103 (58.9)	38 (21.7)	27 (15.4)	3 (1.7)	4 (2.3)
Gender of individuals, making respondents feel social pressure/bullying					
Male	77 (44)	52 (29.7)	37 (21.1)	5 (2.9)	4 (2.3)
Female	79 (45.1)	53 (30.3)	35 (20)	5 (2.9)	3 (1.7)
Other	120 (68.6)	35 (20)	16 (9.1)	2 (1.1)	2 (1.1)

Table 4 Concerns and feelings about social pressure/bullying in the workplace

	No concerns n (%)	A little concerned n (%)	Somewhat concerned n (%)	Moderately concerned n (%)	Extremely concerned n (%)
Concerned about social pressure/ bullying due to PPE use	112 (64)	23 (13.1)	21 (12)	14 (8)	5 (2.9)
	Daily n (%)		Weekly n (%)	Monthly n (%)	Never n (%)
Frequency of feeling a victim of social pressure/bullying due to PPE use	11 (6.3)		24 (13.7)	31 (17.7)	109 (62.3)
	Less than a minute n (%)		Few minutes n (%)	Days n (%)	Weeks n (%)
Length of feeling victim episodes	111 (63.4)		55 (31.4)	8 (4.6)	1 (0.6)

PPE, personal protective equipment.

The factorial validity of biosecurity measures, social pressure, and bullying on attitudes, perceptions, and job satisfaction

EFA was performed in the whole sample. The KMO was 0.718 and Bartlett's sphericity test was significant ($\chi^2=1420,049$; $p<0.001$), which indicates the sample was appropriate to perform factor analysis. The EFA suggested a two-factor model. This two-factor model explained 70.38% of the variance. The first factor explains 43.84% and the second factor explains 26.54% of the variance. The goodness of fit test was appropriated ($\chi^2=7.262$; $p=0.123$).

The items that make up these two factors are the following. The three subheadings from question 11 build up the first factor, and the second factor was confirmed by questions 26, 28 and 32. The loadings of the items are above 0.3 for each factor. The lower loading was from question 32 (0.511) and the highest one was from the third item of question 11 (0.886). The factors negatively correlate with each other (correlation coefficient=-0.279), which indicates an inverse relation between them. Finally, interitem correlation shows the inverse relation between items from factors 1 and 2. Also, it shows a moderate-high correlation between items from the same factor.

Associations between gender, bullying, institution type and quitting work ideologies

Associations between variables were found. Gender and social bullying were statistically associated ($\chi^2=4.827$; $p=0.028$) with more social bullying in females (figure 1).

Work satisfaction and the type of institution were associated with more work satisfaction in private institutions ($\chi^2=10.289$; $p=0.029$) and non-public institutions ($\chi^2=14.279$; $p=0.006$) (figure 2). Association between the level of agreement about institutions taking care of their employees and the type of institution, showing more level of agreement in private institutions ($\chi^2=29.070$; $p<0.001$) and non-public institutions ($\chi^2=24.389$; $p<0.001$) (figure 3). Finally, an association between the thought about quitting work was found with employees in public institutions ($\chi^2=6.718$; $p=0.010$) (figure 4).

DISCUSSION

In our study, we found that a large proportion of HCWs in Ecuador did not witness bullying, social pressure or been bullied in their workplace (74.4%). Our findings contrast with a previous study in Iraq by Lafta and colleagues where 87.3% of HCWs had experienced violence during the COVID-19 pandemic.^{17 18} Historically, infectious disease outbreaks have witnessed powerful stigma as a concern of public health. Furthermore, potentially deadly conditions, new diseases and illnesses without a known treatment or cure are other factors associated with an increased risk of experiencing stigmatisation.^{17 19} A global cross-sectional survey of 7411 people from 173 countries finds that HCWs significantly face more COVID-19-related bullying for the confounding effects of personal,

Table 5 Quitting considerations, employment and out-of-workplace bullying

	Yes n (%)	No n (%)
Considered quitting your current job due to social pressure/bullying during the COVID-19 pandemic	27 (3.9)	657 (96.1)
Sought other employment due to social pressure/bullying during the COVID-19 pandemic	33 (4.8)	651 (95.2)
Noticed members of the community outside your workplace being bullied because of wearing PPE	81 (11.8)	603 (88.2)

PPE, personal protective equipment.

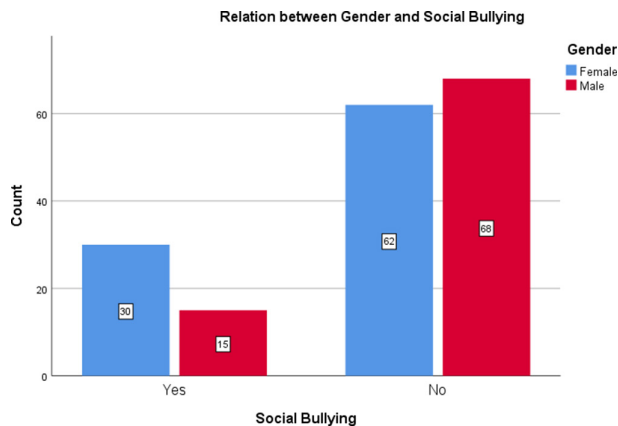


Figure 1 Relation between gender and social bullying due to PPE use. PPE, personal protective equipment.

geographical, job-related and sociocultural variables.¹⁷ It is also reported that the lived experiences of COVID-19 related bullying is related to the public identities of HCWs that traverse through the community and intersect with domains such as racism and violence.¹⁷ A qualitative study conducted in Lahore, Pakistan finds that female HCWs who were present at the time of the patient’s death in the hospital were afraid of being bullied by the patient’s family, which led to traumatic experiences.²⁰ The widespread use of PPEs in an effort to improve biosecurity measures have reportedly led to the discrimination and abuse in off-duty hours against HCWs who have been stigmatised in public spaces in forms of social pressure and bullying. Anecdotes from Japan have shed light to social pressures against HCWs in the country where children of HCWs were discriminated as ‘you are COVID-19’ in their schools.²¹ It can be inferred that the tension between the social factors, work-related measures, and the social sanctions have led to dents in the health systems’ capacities.²¹

Current literature presents that bullying is more prevalent in public hospitals with physical violence not uncommon as compared with private hospitals due to overcrowding, easy access to the HCWs and resource constraints.²² The trends observed during this pandemic based on reports from low-income and middle-income countries report almost none to minor reports from private hospitals.²² Our study finds that HCWs from private institutions were more satisfied with their workplace ($p=0.029$). Private institution HCWs also agreed that they were taken care of well as compared with the public counterparts. We also found that workers from

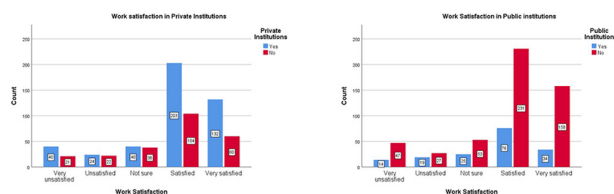


Figure 2 Satisfaction levels in private institutions (left) versus public institutions (right).

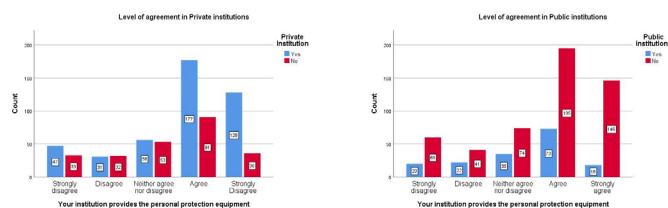


Figure 3 Level of agreement regarding PPE availability in private (left) versus public (right) institutions. PPE, personal protective equipment.

public institutions thought about quitting work in the wake of social pressures and bullying in their workplace.

In our study, gender and social bullying were reported mainly in females, especially in public institutions. An association between the thought about quitting work and private institutions were reported in the study population. It is essential to provide continuous support to HCWs trying to diminish the burden on them. Media can have a strong positive effect by portraying HCWs as ‘heroes’, while the negative psychological burden on the HCWs themselves can be enormous and exhausting.²³ Considering this survey data collected during the COVID-19 pandemic and given the majority of participants were front-line HCWs (76.3% of them treated COVID-19 patients before), 67.5% response rate of this study with 684 responded participants should not be underestimated. Response rates approximating 60% or higher, being considered as good, was the goal of this survey to ensure that the results are representative of the target population.²⁴ Additionally, this study should be considered a pioneer to address some critical knowledge gaps in the literature on exposure to social bullying and pressure due to the use of biosecurity measures during the current pandemic. Bullying within healthcare has been identified as a serious problem where one in four respondents recognised bullying in the healthcare workplace in our study. This outcome is higher than the study conducted among family physicians, where the bullying rate in the workplace was reported as one in 10 respondents.²⁵ The high rate of bullying in our study might be due to stressful conditions that occurred during the COVID-19 pandemic, and it might be specific to the use of PPE.

In this study, both male and female HCWs reported experiencing social bullying. However, a significantly

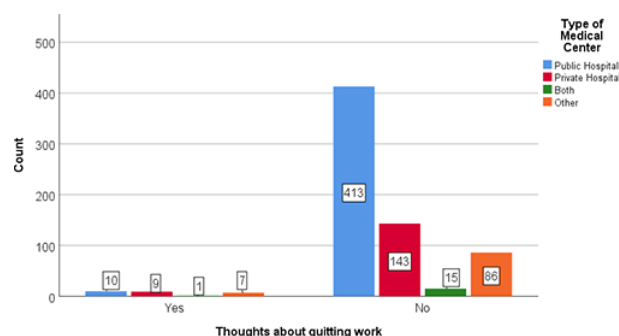


Figure 4 Thoughts about quitting work in public and private institutions.

higher percentage of female participants reported social bullying than males. This finding is of extreme importance and requires attention. Previous studies support the gender gap in bullying in the medical workplace. Female HCWs are likely to be victims of bullying in hospital settings.^{26–28} However, our survey cannot explain the reason for the gender difference or causal mechanism of bullying among female workers. Our study revealed that private institution HCWs have primarily considered quitting jobs due to social pressure and bullying due to PPE use. During the COVID-19 pandemic, physicians', nurses', and other hospital staff' working hours considerably increased. Facing stressful conditions during the pandemic outbreak, conflicts and workplace bullying in hospitals may result in decreased job satisfaction among HCWs and more likely to cause them to leave their jobs.²⁹

Limitations

Despite having attempted to address limitations present in previous studies, this research was conducted in the presence of other types of limitations. We could not assess the level of dissatisfaction before the COVID-19 pandemic and compare it to the findings of the current study. It should also be noted that the level of tolerance of bullying in the workplace according to the place where the study was conducted was not addressed, leaving aside the cultural perspective towards bullying within the Ecuadorian society.³⁰ Despite evaluating the years of professional experience, this was not taken into account to determine whether bullying or the absence of it, was directly related to the rank within the work environment. In addition, since this is a survey conducted virtually and anonymously, we are relying on entirely self-reported data. Likewise, some items (social pressure, bullying that may have started since the pandemic, presence of the respondent when bullying others) were evaluated retrospectively, so the results are vulnerable to certain degrees of recall bias.

Recommendations

HCWs are notably in close contact with a large number of people, which increases the risk of COVID-19 infection. Low job flexibility, the presence of various family or social responsibilities, and increased medical risk put HCWs at risk of feeling stigmatised for probably being exposed to COVID-19. Although the sample population reveals a decrease in the levels of perception of bullying due to the use of biosecurity equipment in the Ecuadorian population, concerning other global studies, it is important to evaluate in future studies the cultural acceptance of the practice of bullying within the global population. Likewise, it is necessary to promote the culture of acceptance at all levels, so that it prevails at all times, including in cases of health emergencies.

The data obtained also show a substantial difference between the availability of PPE in public hospitals to private hospitals, so we recommend that access to biosecurity equipment should be facilitated at all levels of healthcare,

regardless of their type of funding, to increase the quality of work and in turn reduce stress levels and the chances of developing or exacerbating any type of mental health problem, thus bridging the gap that could be the cause of some kind of bullying at work. Also, the promotion of health measures that create awareness, rather than those that indirectly promote fear, is essential to face any type of current or future health emergency. Finally, it is important to establish lines of emotional support for all HCWs to mitigate bullying in the workplace.

CONCLUSION

During the COVID-19 pandemic, the effective use of biosecurity measures is known to slow the spread of SARS-CoV-2 infection. Exposure to social bullying and pressure due to the use of biosecurity measures during the COVID-19 pandemic may result in reduced job satisfaction and thoughts about quitting work. Our study addressed some important knowledge gaps in the literature on exposure to social bullying and pressure due to the use of biosecurity measures and their potential effects. Given the limited evidence for this topic, this study is important and timely and has identified the perception and attitudes of HCWs towards bullying and pressure due to PPE use during the COVID-19 pandemic. Bullying for the use of PPE might have detrimental consequences since it has the potential to create a negative and tense work environment among hospital staff. It might affect the safe use of PPE, which in turn has an impact on patient and healthcare safety. Considering the increased work hours and facing stressful conditions during the pandemic outbreak, conflicts and workplace bullying in hospitals has the potential to result in decreased job satisfaction among HCWs and more likely to cause them to leave their jobs. This study highlights these potential negative results of bullying in the hospital environment, which might be useful to address and recognise social bullying and pressure towards HCWs.

Author affiliations

¹Research and Academic Affairs, Larkin Community Hospital, South Miami, FL, USA

²Pediatrics and Child Health, The Aga Khan University, Karachi, Pakistan

³Research and Publications, Fatima Jinnah Medical University, Lahore, Pakistan

⁴Universidad Espíritu Santo, Samborondón, Ecuador

⁵Omics Sciences Laboratory, Faculty of Health Sciences, Universidad Espíritu Santo, Samborondón, Guayas, Ecuador

⁶INTERLAB Laboratory, Guayaquil, Ecuador

⁷Public Health and Health Sciences, University of Massachusetts, Amherst, Massachusetts, USA

⁸Respiralab Research Group, Guayaquil, Ecuador

⁹Department of Medicine, New York City Health + Hospitals/Lincoln, Bronx, New York, New York, USA

¹⁰Carrera de Odontología, Universidad Católica de Santiago de Guayaquil, Guayaquil, Guayas, Ecuador

Twitter Geovanny Efrain Alvarado-Villa @Geovann59684936

Acknowledgements We wish to express our gratitude to Universidad Espíritu Santo, Ecuador and the Division of Clinical and Translational Research at Larkin Community Hospital, USA for their continuous support in promoting our research endeavors.

Contributors AS and ZS conceptualised the paper, wrote and reviewed the manuscript, and contributed to methodology. AS and ZS are cofirst authors for their



contribution. GC-L was a major contributor to data analysis, writing and reviewing the draft. GA-V, AA, ZY, DA-M, F-CJ, JCG, FE-F worked on methodology, presentation of findings and contributed to writing the draft. MF and JM provided critical insight to the methodology, conceptualisation, and writing-reviewing. IC-O was the guarantor of this study and was a major contributor in methodology, and writing of the manuscript.

Funding This work was funded and supported by Universidad Espiritu Santo (Grant # 2021-MED-001).

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval The study was approved by the Expedited Ethics Committee of the Ecuadorian Health Ministry (approval no 024–2020). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as online supplemental information.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Genesis Camacho-Leon <http://orcid.org/0000-0003-0744-1872>

Geovanny Efrain Alvarado-Villa <http://orcid.org/0000-0001-5928-9812>

Derly Madeleiny Andrade-Molina <http://orcid.org/0000-0002-2651-5884>

Zeynep Yuksele <http://orcid.org/0000-0002-4875-6355>

Ivan Cherez-Ojeda <http://orcid.org/0000-0002-1610-239X>

REFERENCES

- Ariza-Montes A, Muniz NM, Montero-Simó MJ, *et al.* Workplace bullying among healthcare workers. *Int J Environ Res Public Health* 2013;10:3121–39.
- Li Y, Wang Y, Jiang J, *et al.* Psychological distress among health professional students during the COVID-19 outbreak. *Psychol Med* 2021;51:1–3.
- Raudenská J, Steinerová V, Javůrková A, *et al.* Occupational burnout syndrome and post-traumatic stress among healthcare professionals during the novel coronavirus disease 2019 (COVID-19) pandemic. *Best Pract Res Clin Anaesthesiol* 2020;34:553–60.
- AMA. *Bullying in the healthcare workplace*, 2021.
- Awai NS, Ganasegeran K, Abdul Manaf MR. Prevalence of workplace bullying and its associated factors among workers in a Malaysian public university hospital: a cross-sectional study. *Risk Manag Healthc Policy* 2021;14:75–85.
- George CE, Inbaraj LR, Rajukutty S, *et al.* Challenges, experience and coping of health professionals in delivering healthcare in an urban slum in India during the first 40 days of COVID-19 crisis: a mixed method study. *BMJ Open* 2020;10:e042171.
- Organization WH. *Mental health and psychosocial considerations during the COVID-19 outbreak, 18 March 2020*. World Health Organization, 2020.
- Mautong H, Gallardo-Rumbea JA, Alvarado-Villa GE, *et al.* Assessment of depression, anxiety and stress levels in the Ecuadorian general population during social isolation due to the COVID-19 outbreak: a cross-sectional study. *BMC Psychiatry* 2021;21:1–15.
- Bauchner H, Fontanarosa PB, Livingston EH. Conserving supply of personal protective Equipment-A call for ideas. *JAMA* 2020;323:323.
- Livingston E, Desai A, Berkwitz M. Sourcing personal protective equipment during the COVID-19 pandemic. *JAMA* 2020;323:1912–4.
- Cohen J, Rodgers YvanderM. Contributing factors to personal protective equipment shortages during the COVID-19 pandemic. *Prev Med* 2020;141:106263.
- Bagcchi S. Stigma during the COVID-19 pandemic. *Lancet Infect Dis* 2020;20:782.
- Galbraith N, Boyda D, McFeeters D, *et al.* The mental health of doctors during the COVID-19 pandemic. *BJPsych Bull* 2021;45:93–7.
- Chughtai AA, Seale H, Rawlinson WD, *et al.* Selection and use of respiratory protection by healthcare workers to protect from infectious diseases in hospital settings. *Ann Work Expo Health* 2020;64:368–77.
- Apa dictionary of psychology. Available: <https://dictionary.apa.org/social-pressure> [Accessed 18 Feb 2022].
- Workplace bullying Institute. Available: <https://workplacebullying.org/> [Accessed 18 Feb 2022].
- Dye TD, Alcantara L, Siddiqi S, *et al.* Risk of COVID-19-related bullying, harassment and stigma among healthcare workers: an analytical cross-sectional global study. *BMJ Open* 2020;10:e046620.
- Lafta R, Qusay N, Mary M, *et al.* Violence against doctors in Iraq during the time of COVID-19. *PLoS One* 2021;16:e0254401.
- Brewis A, Wutich A, Mahdavi P. Stigma, pandemics, and human biology: looking back, looking forward. *Am J Hum Biol* 2020;32:e23480.
- Shahbaz S, Ashraf MZ, Zakar R, *et al.* Psychosocial, emotional and professional challenges faced by female healthcare professionals during the COVID-19 outbreak in Lahore, Pakistan: a qualitative study. *BMC Womens Health* 2021;21:1–10.
- Shimizu K, Lin L. Defamation against healthcare workers during COVID-19 pandemic. *Int J Health Policy Manag* 2020;11:720–1.
- Bhatti OA, Rauf H, Aziz N, *et al.* Violence against healthcare workers during the COVID-19 pandemic: a review of incidents from a lower-middle-income country. *Ann Glob Health* 2021;87:41.
- Cox CL. 'Healthcare heroes': problems with media focus on heroism from healthcare workers during the COVID-19 pandemic. *J Med Ethics* 2020;46:510–3.
- Fincham JE. Response rates and responsiveness for surveys, Standards, and the Journal. *Am J Pharm Educ* 2008;72:43.
- Rouse LP, Gallagher-Garza S, Gebhard RE, *et al.* Workplace bullying among family physicians: a gender focused study. *J Womens Health* 2016;25:882–8.
- Iqbal A, Khattak A, Malik FR. Bullying behaviour in operating theatres. *J Ayub Med Coll Abbottabad* 2020;32:352–5.
- Chatziioannidis I, Bascialla FG, Chatzivalsama P, *et al.* Prevalence, causes and mental health impact of workplace bullying in the neonatal intensive care unit environment. *BMJ Open* 2018;8:e018766.
- Sellers KF, Millenbach L, Ward K, *et al.* The degree of horizontal violence in rns practicing in New York state. *J Nurs Adm* 2012;42:483–7.
- Gordon A, Lyons C, Rao S, *et al.* Health care workers' challenges in the care of a COVID-19 patient. *Crit Care Nurs Q* 2020;43:400–6.
- Power JL, Brotheridge CM, Blenkinsopp J, *et al.* Acceptability of workplace bullying: a comparative study on six continents. *J Bus Res* 2013;66:374–80.