

Pharmacists' mental health during the SARS-CoV-2 pandemic in Italy

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Abstract. – OBJECTIVE: The year 2020 was characterized by the outbreak of a new pandemic caused by a novel coronavirus named SARS-CoV-2. To face the pandemic, many countries worldwide imposed general lockdowns, closing all non-essential businesses. As primary care services, pharmacies had to remain open, thus putting pharmacy staff at significant risk of viral infection and overwork. This study aimed to assess the mental health of Italian Pharmacists, considering demographic and occupational characteristics, lifestyle, and habits, during the SARS-CoV-2 outbreak and the subsequent lockdown period (March-May 2020).

MATERIALS AND METHODS: A web-based survey was created using Google® Forms to collect data from March 30, 2020, to June 1, 2020. The questionnaire consisted of three sections investigating: (1) demographic and occupational variables, (2) lifestyle and habits variables, (3) psychological distress and perceived well-being.

RESULTS: A total of 401 participants completed the questionnaire. Older workers and those with more work experience reported more psychological stress. Older and female workers, who felt lonely at home and reported psychological stress, perceived poor well-being.

CONCLUSIONS: Our findings demonstrate that the Sars-CoV-2 outbreak and subsequent lockdown rules affected pharmacists' mental health and that it is important to put in place preventive measures against the occurrence of mental disorders among them.

Key Words:

Pharmacy, SARS-CoV-2 outbreak, Pharmacists' mental health, Psychological distress, Perceived well-being, Lockdown.

el coronavirus named "severe acute respiratory syndrome coronavirus 2" or SARS-CoV-2. The infection, after an incubation period of 2–14 days, causes symptoms that can range from mild to severe and include fever, shortness of breath, dry cough, and muscle ache. The syndrome is called "COVID-19" and can lead to death in 2/3% of people affected, in particular elderly patients and patients with comorbidities (e.g., diabetes, hypertension, obstructive lung disease, cardiovascular disease etc.)¹.

That event stressed health systems around the world, often finding them unprepared. The SARS-CoV-2 demonstrated a high infectious capacity and rapid spread, reaching almost every country and causing millions of deaths, with a high percentage of victims among healthcare workers (HCWs). This category includes not only doctors, paramedics, nurses, and auxiliary staff but also pharmacists, both working in hospitals and in community pharmacies.

From March 2020, many countries worldwide imposed general lockdowns in order to reduce the spread of the virus. That measure lasted until May 2020 and provided for the closure of all non-essential activities (schools, shops, clubs, factories, universities, offices, restaurants, cinemas, theatres, churches, sporting venues etc.). In addition, transports were limited, and people were not free to move from their homes except for justified reasons (i.e., essential job activities, shopping for food/medicines or taking exercise). The limitation of social contacts, sporting/recreational, religious, economic, and cultural activities has posed a threat to people's mental health and represented a further source of stress for individuals who were forced to continue working in direct contact with the public, thus putting themselves at risk of infection.

Introduction

The year 2020 was characterized by the outbreak of a new pandemic caused by a nov-

As primary care services, pharmacies were essential resources that had to remain open during the lockdown. In particular, community pharmacists have been front-line and accessible health-care providers, with an important role in counselling individuals regarding hygiene practices needed to reduce infection spread and to advise patients on the correct use of drugs. Many pharmacies faced an increased demand for services, including the furnishing of personal protective equipment (PPE) and sanitizers, home deliveries, the administration of rapid COVID-19 tests, as well as the usual client care.

Those changes in the working organization, together with the PPE shortage, the need to continue working, and the growing demand from customers, have been important sources of stress and anxiety. In addition, the inability to do recreational and motor activities, the fear of contracting the virus and infecting family members, and the uncertainty about the protocols and measures to be adopted, represented considerable risks to the mental health of pharmacists during the SARS-CoV-2 outbreak². Since the beginning of the crisis, many studies have been published about pharmacists' role during the pandemic^{3,4}. Therefore, while many studies have shown how severely the pandemic affected healthcare workers' and physicians' mental health and well-being^{5,6}, few have been carried out on pharmacists. This study is aimed to assess the mental health of these workers, in relation to demographic and occupational characteristics, lifestyle, and habits, during the SARS-CoV-2 outbreak and the subsequent lockdown period that lasted from March to the end of May 2020.

Materials and Methods

Study Design and Participants

A web-based survey was created by Google[®] Forms to collect data. The survey was available from March 30, 2020, to June 1, 2020. The survey was sent by email to 563 Italian pharmacists subscribed to the mailing list of the Department of Public Health and Infectious Diseases of "Sapienza" University of Rome. Participation was voluntary and anonymous and was available for pharmacists practicing in community or hospital pharmacies in Italy. The STROBE Statement has been adopted to report the results of the study⁷.

Questionnaire Sections

The questionnaire consisted of three sections. The first section investigated demographic and occupational variables (age, gender, job seniority, role, contract type, changes in working organization and workload, availability, and use of PPE). The second part explored lifestyle and habits variables (cohabitants, feelings linked to the lockdown, smoking, eating, and drinking habits); the screening for alcohol use disorders has been performed by the abbreviated version of the Alcohol Use Disorders Identification Test (AUDIT-C)⁸.

The final section aimed to assess psychological distress and perceived well-being; it consisted of two questionnaires: the 12-item version of the General Health Questionnaire (GHQ-12) to evaluate psychological distress and the World Health Organization 5-item well-being index (WHO-5) to explore subjective well-being. GHQ-12 is a self-report indicator of psychiatric disorders currently experienced by the responder within the last 14 days⁹. The questions have 4 possible answers: 1) less than usual, 2) no more than usual, 3) rather more than usual or 4) much more than usual, in relation to the symptoms indicated. A dichotomous scoring method (0-0-1-1, as suggested by the original author) has been adopted, and a score ≥ 4 has been considered as an indicator of psychological distress. The GHQ-12 derives from an original version of 60 items; it is not able to identify a specific psychiatric problem (depression, anxiety, etc.), but represents a general indicator of distress and/or potential mental disorders, demonstrating a sufficient psychometric value and a good ability to assess work-related stress amongst HCWs¹⁰. The WHO-5 is a questionnaire that measures current mental well-being (referred to the previous two weeks)¹¹. It consists of 5 questions, rated by the respondent from 0 to 5, with higher scores indicating better conditions; a score below 13 indicates poor well-being. Both questionnaires have been adopted because of their shortness, simplicity, and validity.

Ethical Statement

This study was conducted in conformity with the Declaration of Helsinki. An electronic informed consent was obtained from each participant before the start of the investigation. In addition, the participation was completely anonymous and voluntary, and it did not induce undue psychological stress or anxiety. For these reasons, no Ethical approval was requested. As required by the Institutional Review Board (IRB) of Sapienza

enza University, a self-certification was provided about the respect of ethical principles.

Statistical Analysis

Quantitative variables were expressed as the median and interquartile range (IQR), qualitative variables were indicated as frequency and percentage. Two multiple linear regressions were performed to assess the association between demographic and occupational variables, lifestyle, and habits, both at the baseline and in relation to total GHQ-12 scores and total WHO-5 scores (dependents variables). Assumptions for the linear regression model were assessed, including normality of residuals, collinearity of covariates, and heterogeneity of variance. Results were expressed as β -coefficients and their 95% confidence intervals (CIs). Statistical significance was set at two-sided $p < 0.05$. All analyses were performed using STATA® software (version 14; Stata Corp LP, College Station, TX, USA).

Results

A total of 401 participants completed the questionnaire (response rate of 71.2 %). The characteristics of the population studied, and the univariate analysis are shown in Table I.

Univariate Analysis Results

Demographic and Occupational Variables

Three fourth of the respondents were females (75.3%) with a median age of 36 years (IQR: 31-44). Most of them (352, 87.8%) were employees and had a permanent contract (78.3%). The median job seniority was 8 years (IQR: 3-16). Only 59 responders (14.7%) worked in shifts, while for almost all of them (397, 99%), organizational changes because of the pandemic occurred. Similar response rates were obtained regarding the availability of PPE, which was declared by 396 pharmacists (98.8%). Regarding workloads, 39 workers (9.7%) declared to work less than before the pandemic, 44 (11.0%) the same as before, and 318 (79.3%) more than before.

Lifestyle and Habits Variables

Sixty-five responders (16.2%) declared to live alone, 326 lived with a family (81.3%), and 10 (2.5%) with roommates. Few participants said they felt sheltered at home (n.35, 8.7%), while most of

Table I. Characteristics of the population studied and univariate analysis.

	N (%)
Total	401 (100)
Females	302 (75.3)
Males	99 (24.7)
Age (median, IQR)	36 (31-44)
Role	
Employer	49 (12.2)
Employee	352 (87.8)
Contract type	
Permanent	314 (78.3)
Fixed term	87 (21.7)
Job seniority (median, IQR)	8 (3-16)
Shift work	
No	341 (85.3)
Yes	59 (14.7)
Organizational changes because of pandemic	
No	4 (1.0)
Yes	397 (99.0)
Workload	
Lower than before	39 (9.7)
Same as before	44 (11.0)
Higher than before	318 (79.3)
PPE availability	
No	5 (1.2)
Yes	396 (98.8)
Cohabitants	
Alone	65 (16.2)
Family	326 (81.3)
Mates	10 (2.5)
Feeling sheltered at home	
No	210 (52.4)
Yes	35 (8.7)
Sometimes	156 (38.9)
Feeling alone	
No	285 (71.0)
Yes	58 (14.5)
Sometimes	58 (14.5)
Feeling safe at home	
No	29 (7.2)
Yes	284 (70.8)
Sometimes	88 (22.0)
Smoking habit	
No	332 (82.8)
Yes	69 (17.2)
N. of cigarettes (median, IQR)	9 (3-15)
Smoking more than before	
No	35 (50.7)
Yes	34 (49.3)
Food intake	
Less than before	97 (24.2)
More than before	117 (29.2)
Same as before	187 (46.6)
Drinking more than before	
No	356 (88.8)
Yes	45 (11.2)

Continued

Table 1 (Continued). Characteristics of the population studied and univariate analysis.

	N (%)
Audit-C	
No risk	345 (86.0)
At-risk	56 (14.0)
GHQ	
No psychological distress	25 (6.2)
Psychological distress	376 (93.8)
WHO-5	
Good well-being	127 (31.7)
Poor well-being	274 (68.3)

IQR: interquartile range; PPE: Personal Protective Equipment
GHQ: General Health Questionnaire; WHO-5: World Health Organization 5-item Questionnaire; AUDIT-C: Alcohol Use Disorders Identification Test.

them were not (n.210, 52.4%) or were only sometimes (n.156, 38.9%). In contrast, 284 (70.8%) stated to feel safe at home, 88 (22.0%) only sometimes, and just 29 (7.2%) did not feel so. Loneliness was perceived by 58 people (14.5%) the most part (n.285, 71.0%) didn't feel it, and 58 (14.5%) only sometimes.

More than two-thirds of the sample declared they were non-smokers (n.332, 82.8%), 69 people (17.2%) smoked a median of 9 cigarettes (IQR: 3-15) and about half of them (n. 34, 49.3%) declared that they smoked more than before during the pandemic. Food intake was the same as before the pandemic for 187 responders (46.6%), 97 (24.2%) declared to eat less and 117 (29.2%) to eat more. Regarding drinking, 45 workers (11.2%) declared to drink more alcohol than before the pandemic. When checking for their drinking behaviours by the AUDIT-C, 345 (86.0%) resulted not to be at risk from drinking.

Psychological Distress and Perceived Well-Being

The overall results of the evaluation of psychological distress by GHQ-12 showed that the vast majority of the study sample experienced high levels of stress (n.376, 93.8%). Similarly, albeit to a slightly lesser extent, most respondents (n.274, 68.3%) showed to perceive poor well-being, when evaluated by the WHO-5 questionnaire.

Bivariate Analysis Results

The results of the bivariate analysis are shown in Table II.

- The results of the GHQ-12 showed that workers:
- Older ($p: 0.008$) and with more work experience ($p:0.011$)
 - living with roommates ($p: 0.022$)

- with low perceived well-being ($p: <0.001$) reported more psychological stress. On the other hand, workers:
 - Who felt ($p: 0.004$) or sometimes felt ($p:0.018$) safe at home
 - Who ate the same amount of food as before the pandemic ($p: 0.045$)
 - With risky alcohol consumption ($p: 0.040$) reported less psychological stress.
- The results of the WHO-5 questionnaire showed that:
- Older ($p:0.006$) and female ($p:0.010$) workers,
 - Workers who felt lonely at home ($p:0.011$),
 - Workers who reported psychological stress ($p: <0.001$), perceived poor well-being while greater well-being was experienced by those workers:
 - Who ate the same amount of food as before the pandemic ($p:0.029$)
 - Who felt (or sometimes felt) safe at home ($p:<0.001$).

Discussion

The SARS-CoV-2 outbreak, and subsequent lockdown measures, had a strong impact on HCW's wellbeing and mental health. Little was known, instead, about pharmacists, a first-line category of workers engaged in fighting SARS-CoV-2. The study was carried out to assess the effects of the SARS-CoV-2 outbreak and lockdown rules on pharmacists' mental health in relation to demographic and occupational characteristics, lifestyle, and habits.

Lockdown rules, on the one hand, have been decisive in reducing the diffusion of the contagion, but on the other, caused serious damage to economies and societies. Previous studies demonstrated a deep psychosocial impact of the pandemic on these workers¹². Pharmacies, on the contrary, have been forced to reorganize their activities, continuing to remain open in a context of closures and travel restrictions, becoming reference points for users who appreciated the efforts made by pharmacies to meet their new and increased needs¹³.

The replies to the questionnaire demonstrate that, to this end, pharmacies have made a number of changes in work organization to face challenges related to the SARS-CoV-2 outbreak. For example, they adopted telehealth to provide chronic care management, started COVID-19 testing, and training in medication use, so contributing to es-

Table II. Results of the bivariate analysis.

Variable	GHQ			WHO-5I		
	β	95% CI	p-value	β	95% CI	p-value
Male vs. Females	0.25	-0.25; 0.75	0.329	-1.23	-2.17; -0.29	0.010
Age	-0.06	-0.11; -0.01	0.008	0.12	0.03-0.21	0.006
Role						
Employer	Ref			Ref		
Employee	0.19	-0.49; 0.87	0.586	0.26	-1.01;1.53	0.688
Contract Type						
Permanent	Ref			Ref		
Fixed term	-0.18	-0.73; 0.35	0.496	0.20	-0.81;1.21	0.694
Job Seniority	0.06	0.01-0.11	0.011	-0.08	-0.17;0.01	0.068
Shift Work						
No	Ref			Ref		
Yes	0.07	-0.54; 0.70	0.808	-0.62	-1.79;0.53	0.290
Organizational changes because of pandemic						
No	Ref			Ref		
Yes	-0.04	-2.14; 2.06	0.969	-1.73	-5.64;2.17	0.384
Workload						
Lower than before	Ref			Ref		
Same as before	0.07	-0.83; 0.98	0.872	-0.82	-2.51;0.87	0.342
Higher than before	0.01	-0.70; 0.72	0.978	-0.62	-1.21;0.73	0.362
PPE availability						
No	Ref			Ref		
Yes	1.46	-0.44; 3.36	0.134	-0.12	-2.72;2.47	0.928
Cohabitants						
Alone	Ref			Ref		
Family	0.54	-0.04; 1.13	0.071	0.29	-0.79; 1.38	0.597
Mates	1.68	0.23-3.13	0.022	-1.82	-4.55; 0.81	0.172
Feeling sheltered at home						
No	Ref			Ref		
Yes	-1.22	-2.06; -0.38	0.004	5.45	3.98; 6.91	< 0.001
Sometimes	-0.59	-1.07; -0.10	0.018	3.24	2.40-4.08	< 0.001
Feeling alone						
No	Ref			Ref		
Yes	0.54	-0.14; 1.22	0.125	-1.64	-2.92; -0.37	0.011
Sometimes	-0.01	-0.64; 0.62	0.966	-0.62	-1.80; 0.55	0.301
Feeling safe at home						
No	Ref			Ref		
Yes	-0.79	-1.65; 0.07	0.072	0.76	-0.83; 2.36	0.064
Sometimes	-0.55	-1.46; 0.35	0.228	0.03	-1.65; 1.71	0.971
Smoking habit						
No	Ref			Ref		
Yes	-0.45	-1.04; 0.13	0.129	-0.51	-1.60; 0.57	0.352
Food intake						
Less than before	Ref			Ref		
More than before	-0.10	-0.67; 0.46	0.712	0.48	-0.56; 1.54	0.364
Same as before	-0.55	-1.09; -0.01	0.045	1.11	0.11; 2.12	0.029
Drinking more than before						
No	Ref			Ref		
Yes	0.35	-0.41; 1.13	0.364	-1.16	-2.60; 0.28	0.114
Audit-C						
No risk	Ref			Ref		
At-risk	-0.73	-1.42; -0.03	0.040	-0.22	-1.50; 1.06	0.737
GHQ						
No psychological distress	-	-	-	Ref		
Psychological distress	-	-	-	-3.90	-5.54; -2.26	< 0.001
WHO-5						
Good well-being	Ref			-	-	-
Poor well-being	2.26	1.73-2.80	< 0.001	-	-	-

β : beta coefficient; IQR: interquartile range; PPE: Personal Protective Equipment; GHQ: General Health Questionnaire; WHO-5: World Health Organization 5-item Questionnaire; AUDIT-C: Alcohol Use Disorders Identification Test.

sential patient care and well-being¹⁴. That resulted in higher workloads for most of the respondents, and that certainly contributed to worsening working conditions. That is one of the main determinants of occupational stress, and early studies demonstrated its role among HCWs¹⁵.

The population of pharmacists involved in this study is quite young (median age: 36 years) and with less than 10 years of work experience. That could have contributed to increasing the psychological impact of the pandemic because they can be generally considered at greater risk of suffering from an economic crisis¹⁶. The results of this research, surprisingly, contrast with this assumption, showing that older workers and those with more work experience reported more psychological stress. Equally, those who didn't report living with family but with roommates experienced more psychological distress. No relationships have been found with the contract type even if other studies reported that job insecurity, in the form of temporary contracts, influences the perception of psychosocial risks and increases worker's vulnerability to work-related stress (WRS), in a gender-independent way¹⁷.

Three questions of the survey were about the feelings linked to the lockdown (feeling alone, sheltered or comfortable at home). The answers given indicate that feeling alone, unsafe, or well at home is equivalent to perceiving less well-being and being at greater risk of psychological stress. That agrees with the previous literature^{18,19}.

Our results indicate that unhealthy behaviours were raised among the respondents during the pandemic. About half of them who were smokers reported having increased the number of daily cigarettes during the lockdown. That is consistent with the "coping effect" of tobacco *vs.* psychological stress and with the known increase in smoking and drinking alcohol during stressful experiences²⁰⁻²². Moreover, for many people, smoking was perceived as a risk of harm from SARS-CoV-2, but probably that was not sufficient to induce any attempt to quit²³.

Eating habits changed for most of the participants (63.4%), but the results of the survey suggest that those who ate the same amount of food as before the pandemic reported less psychological distress and more perceived well-being. Food is also known as a mechanism to cope with stress, which can alter both the quantity and quality of eating habits^{24,25}; very recent research about this topic reached similar conclusions to our study²⁶.

Our finding of a statistically significant correlation between better mental health and maintenance of eating habits, confirms this hypothesis. In addition, our results uphold how demanding conditions such as a pandemic and a lockdown can negatively affect lifestyles²⁷.

Regarding drinking habits and SARS-CoV-2 lockdown, the actual evidence is conflicting. Recent findings of an Italian survey report a reduction in alcohol intake, probably due to reduced social/recreational drinking²⁸. Other authors reported an increase in alcohol consumption in approximately 14% of participants²⁹, and this corresponds quite well with our data.

This study, based on a web survey, has a few limitations. First of all, cross-sectional studies are limited in assessing the temporal relationship between exposure and outcome. Secondly, because of the method of recruiting participants, the raw results could lack generalization and could not be immune from possible responding bias. Therefore, it should be considered that a web-based survey is the most rapid and reliable method to collect data in a short period, in particular, if social interactions are forbidden (i.e., lockdown). The strengths of the research are the use of validated assessment tools and the good study sample that can reflect the entire population of workers studied. In addition, the statistical analysis enforces the validity of the results. Despite this, recall bias could occur because of the self-reporting kind of assessment tools.

Conclusions

To the best of our knowledge, our study is one of few that explored the effects of the SARS-CoV-2 outbreak on pharmacists' mental health. This study underlines the need to preserve the well-being and mental health of pharmacists, deeply affected by the SARS-CoV-2 outbreak and subsequent lockdown measures.

In the light of our findings, it is important to put in place preventive measures against the occurrence of mental disorders among pharmacists. Occupational physicians, who have the task of collaborating with the employer to assess the risk of work-related stress, should provide the application of policies of psychological support and well-being preservation. That is more and more important to ensure the protection of the health of workers, but also for the health system.

This pandemic emphasized the fundamental role of pharmacies, thanks to their widespread distribution and proximity to citizens, in preserving public health, together with individual ones.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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Ethical Committee Approval

No Ethical approval is requested for this study.

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