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Vaccine hesitancy among nurses in the Marche Region

Corinna Fortunato[1], Beatrice Gasperini[1], Davide Mengarelli Rinaldini [1], Chiara Peconi[1], Alice Lanari[2], Donatella Sarti[1], Gilda Pelusi[2]

Keywords: COVID-19 vaccination; nurse; vaccine hesitancy
Parole chiave: Vaccinazione anti COVID 19; personale infermieristico; esitazione vaccinale

Abstract

Background. *Vaccine hesitancy is considered one of the top ten threats to global health by the World Health Organization due to the potential public health consequences. Since April 1, 2021, the Italian Government has made COVID-19 vaccination mandatory for healthcare workers. Those who refused to undergo vaccination were suspended from activities involving patient care. This study aims to describe vaccine hesitancy among nurses in the Marche Region one year after the start of the COVID-19 vaccination campaign.*
Study design*. Observational study.*
Methods. *All nurses belongijg to the National Federation of Nursing Professions Orders of the Marche Region were included in the study. Data from December 27, 2021, to January 1, 2022, were provided by the FNOPI Presidents of provincial FNOPI for Pesaro-Urbino, Ancona, Macerata and Fermo.*
Results. *Among the 9,611 registered nurses, 1.34% were suspended because they refused to be vaccinated. The majority of suspended nurses were women (73.6%), 35.7% aged 50-59 years, and 29.4% aged 40-49 years, 21.7% aged 30-39 years, 10.1% aged ≥60 years and 3.8% aged <30 years. Vaccination hesitancy exhibited a north-south gradient: in particular, there was a prevalence of 1.73% suspended workers in Pesaro-Urbino, 1.46% in Ancona, 1.05% in Macerata and 0.71% in Fermo province.*
Conclusions. *Our study confirms the existence of vaccine hesitancy among nurses. The mandate imposed by the Government favored a higher adherence compared to the general population in the Marche Region, although it failed to reach full coverage by the entire nursing staff.*

[1] *Department of Biomedical Sciences and Public Health, Section of Hygiene, Preventive Medicine and Public Health, Marche Polytechnic University, Ancona, Italy*
[2] *School of Nursing Science, Università Politecnica delle Marche, Ancona, Italy*

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Introduction

Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services. It is a relevant issue in public health policies and a major concern worldwide, notwithstanding the large evidence on vaccine safety and effectiveness in preventing communicable diseases (1-4). Vaccine hesitancy is influenced by several factors, such as trust in importance, personal beliefs about safety and effectiveness of vaccines and perceived need for vaccination along with compatibility of vaccination with religious beliefs (1,2). Vaccine hesitancy is a problem in particular for the achievement of COVID-19 vaccination campaigns and policies in facing the pandemic, indeed, COVID-19 vaccination is considered the most effective measure to prevent the novel coronavirus spread and to reduce the hospital admission rates and deaths (5).

After the approval by the European Medicines Agency (EMA) of the first SARS-Cov-2 vaccines, the vaccination campaign started in Italy and in Europe in December 27, 2020 (6). The vaccines were offered free of charge to the entire population, with a priority according to the risk of developing severe symptoms, as well as the risk of exposure due to occupation, comorbidities and age. Following these guidelines, healthcare workers (HCWs) were among the first to benefit from the vaccine.

HCW are at higher risk of infection and their adherence to vaccination is a critical topic since they care for vulnerable people and play a key role in promoting health behaviors that encourage trust and adherence to vaccination among population (7). In our country, as vaccination coverage advanced, vaccine hesitancy grew among the general population and HCWs, mainly due to lack of trust or fear towards vaccines (8-12). Because of these critical issues and the ongoing spread of the virus, the Italian Government introduced mandatory COVID vaccination for all healthcare workers starting on April 1, 2021 (Decree Law 44/2021) which was later replaced by the Law n. 76 on May 28, 2021 (G.U. 31/05/2021, n. 128).

Italy was the first European country to make this decision, followed by France and Greece. According to this decree, the HCWs who chose not to get vaccinated were subject to job reassignment or unpaid suspension. The aim of our study was to describe the vaccination hesitancy of registered nurses in the Marche Region (Central Italy) one year after the start of the vaccination campaign.

Methods

Study design

This was an observational descriptive study carried out among the registered nurses members of the National Federation of Nursing Professions Orders (FNOPI) of the Marche Region. Data were provided by the FNOPI Presidents of Pesaro e Urbino, Ancona, Macerata and Fermo. For our purpose, we considered data from 27 December 2021 to January 1, 2022. Information on gender, age, province of membership and suspension status were recorded anonimously.

Statistical analysis

Categorical variables were presented as frequency and percentage and comparison was made using Chi square test. To assess a possible association of age and vaccination hesitancy, nurses were divided into two groups (over and under 40 years old, the median age of the sample) and a bivariate analysis was performed; statistical significance was set at 0.05. The analyses were conducted using STATA version 18 (Stata Corp. College Station, Texas, USA)

Results

Of the total 9,611 registered nurses, 129 (1.34%) were suspended for choosing not to be vaccinated. Examining the individual Provinces, a decreasing north-south gradient was observed: in the Order of Pesaro e Urbino (the northernmost province), the prevalence of suspended nurses was 1.73% (41 out of 2,368 registered nurses). This rate decreased to 1.46% (56 out of 3,832) in Ancona, 1.05% (24 out of 2,242) in Macerata, and down to 0.781% (8 out of 1,122) in the Province of Fermo (the southernmost province) (Figure 1). Fermo had a significantly lower percentage of suspended nurses compared to Pesaro-Urbino (0.71% vs 1.73%, $p<0.05$). The differences for the other Provinces were not statistically significant.

The ratio females/males and the age distribution of suspended nurses were similar in each Province. The majority of suspended nurses were females (95/129 or 73.6%) in the total sample, 30/41 (73.2%) in Pesaro-Urbino, 42/56 (75%) in Ancona, 18/24 (75%) in Macerata, 5/8 (62.5%) in Fermo Province. As concerning the age group, median age of the sample was 40 years, most suspended nurses were 50-59 years old, followed by those 40-49-year-old (Table 1).

The bivariate analysis showed that the differences between suspended nurses over 40 years of age and

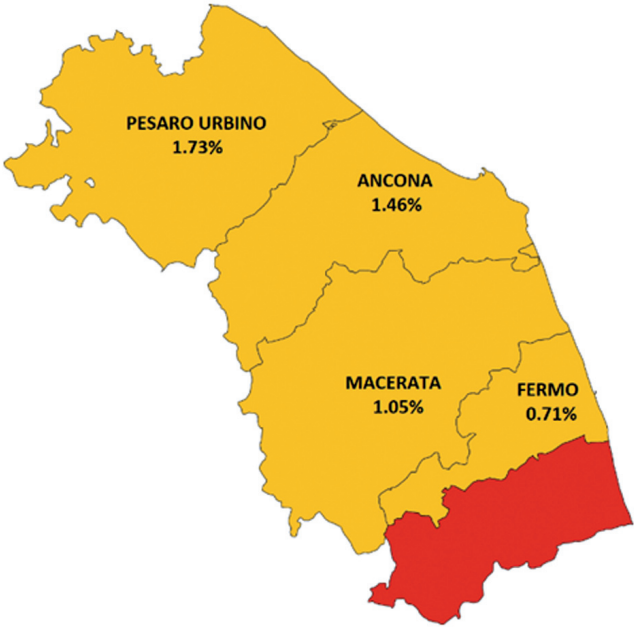

Figure 1 - Prevalence of suspended nurses by provincial orders. (In red: the province of Ascoli Piceno that did not provide data for the study and was therefore not included)

Table 2 - Bivariate analysis by age groups

	Suspended nurses		Registered nurses	p
Pesaro e Urbino				
<40 years (%)	11	(1.42%)	773	>0.05
≥ 40 years (%)	30	(1.88%)	1595	
Ancona				
<40 years (%)	12	(0.86%)	1400	<0.05
≥ 40 years (%)	44	(1.81%)	2432	
Macerata				
<40 years (%)	8	(0.93%)	857	>0.05
≥ 40 years (%)	16	(1.16%)	1385	
Fermo				
<40 years (%)	1	(0.21%)	479	>0.05
≥ 40 years (%)	7	(1.09%)	643	
Total sample				
<40 years (%)	32	(0.91%)	3509	<0.05
≥ 40 years (%)	97	(1.60%)	6055	

*total registered nurses/province

those under 40 were statistically significant only in Ancona Province and in the total sample (Table 2).

Discussion

Among the general population in the Marche Region, 11% refused vaccination for SARS-Cov-2, which corresponds to 136,595 out of 1,246,208 as of January 1, 2022 (13). This study showed that 1.34% of nurses in the Marche Region were suspended for choosing not to be vaccinated. This was in agreement with previous Italian studies reporting 1.1%-1.82% COVID-19 vaccine hesitancy (11,12).

Consistent with other studies, female gender and older population exhibited a higher degree of vaccination hesitancy. This could be attributed to greater confidence a/o stronger sense of responsibility among younger age groups, as well as differences in educational backgrounds (11, 14-17).

When examining the individual provinces, a decreasing north-south gradient was observed: Fermo (South of Marche) had a significant lower percentage of suspended nurses than Pesaro-Urbino in the

Table 1 - Characteristics of the suspended nurses

	Marche Provinces			
	Pesaro Urbino (N=41)	Ancona (N=56)	Macerata (N=24)	Fermo (N=8)
Gender				
Male (%)	11 (26.8%)	14 (25.0%)	6 (25.0%)	3 (37.5%)
Female (%)	30 (73.2%)	42 (75.0%)	18 (75.0%)	5 (62.5%)
Age Groups				
<30 (%)	2 (4.9%)	0 (0%)	3 (12.5%)	0 (0%)
30-39 (%)	9 (22.0%)	12 (21.4%)	5 (20.8%)	1 (12.5%)
40-49 (%)	11 (26.8%)	16 (28.6%)	8 (33.3%)	3 (37.5%)
50-59 (%)	13 (31.7%)	24 (42.9%)	5 (20.8%)	4 (50.0%)
≥60 (%)	6 (14.6%)	4 (7.1%)	3 (12.5%)	0 (0%)

north (0.71% vs 1.73%, p=0.03). Differences across Provinces might suggest different strategies to promote vaccination, and further studies may help clarify this point.

Among the determinants of vaccine hesitancy, communication and media environment may have played a key role, both at the individual and community level (18). Educational and communication interventions were the most commonly used strategies to increase COVID-19 vaccine uptake or decrease vaccine hesitancy across different Countries (19). Ledda et al (20) carried out interviews to HCWs who refused to get vaccinated, including physician (15.4 %), physiotherapist (11.5 %), nurse (40.4%), midwife (1.9 %), dentist (1.9 %), radiology technician (5.8 %), laboratory technician (7.7 %) and social health operator (15.4%). They found that these workers had a good knowledge of the Italian Vaccination Plan on COVID-19 (98%). Despite this, they developed a strong anti-vaccination belief, indeed only 6% of them were in favour of mandatory COVID-19 vaccination.

The obligation imposed by the Italian decree influenced the adherence to the vaccination program, although it failed in bringing coverage to the entire nursing staff. Previous Italian data showed a decrease in the vaccine refuse after the introduction of the compulsory vaccination (12). However, there is an open debate about the effectiveness of mandatory vaccinations.

In order to address the issues related to vaccine hesitancy, the identification of determinants of COVID-19 vaccine uptake is essential for developing effective strategies for promoting vaccination, including the Vaccine Literacy (VL) that has been proposed to allow vaccination to be understood as a social practice by the entire community (21-23).

Limitations

Our study has several limitations. Marche region is quite small (1,5 million persons) and the local findings give a small picture of the Italian Situation. Moreover, one Province decided not to provide their data, influencing the assessment at the regional level. Another limitation was that data were recorded anonymously and did not include the actual workplace, for this reason it was not possible to identify a possible correlation of vaccine exitancy to a type of hospital ward. Other investigations should be conducted to further analyze the phenomenon of vaccine hesitancy.

Conclusion

This study confirmed that vaccine hesitancy among nurses exists also in Marche Region. Socio-demographic factors (gender, age, Province) seem to be associated with the decision to not get vaccinated.

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Riassunto

Esitazione vaccinale tra gli infermieri della Regione Marche

Introduzione. L'esitazione vaccinale è considerata una delle dieci principali minacce alla salute globale dall'Organizzazione Mondiale della Sanità a causa delle potenziali conseguenze sulla salute pubblica. Dal 1° aprile 2021 il Governo Italiano ha reso obbligatoria la vaccinazione anti-COVID per gli operatori sanitari. Gli operatori sanitari che hanno rifiutato di sottoporsi alla vaccinazione sono stati sospesi dal lavoro di assistenza ai pazienti. Lo studio si propone di descrivere l'esitazione vaccinale tra gli infermieri della Regione Marche ad un anno dall'inizio della campagna vaccinale.

Disegno dello studio. Studio osservazionale.

Metodi. È stato incluso nello studio tutto il personale infermieristico iscritto alla Federazione nazionale degli ordini delle professioni infermieristiche della Regione Marche. I dati dal 27 dicembre 2021 al 1° gennaio 2022 sono stati forniti dai Presidenti dell'Ordine di Pesaro-Urbino, Ancona, Macerata e Fermo.

Risultati. Tra 9.611 infermieri registrati, l'1,34% è stato sospeso perché ha rifiutato di farsi vaccinare. La maggioranza erano donne (73,6%), il 35,7% aveva un'età compresa tra 50 e 59 anni e il 29,4% tra 40 e 49 anni, 21.7% aveva 30-39 anni, 10.1% aveva ≥60 anni e 3.8% aveva <30 anni. L'esitazione vaccinale ha un gradiente nord-sud, in particolare si registra una prevalenza dell'1,73% dei lavoratori sospesi nella provincia di Pesaro-Urbino, dell'1,46% a Ancona, dell'1,05% a Macerata e dello 0,71% a Fermo.

Conclusioni. Il nostro studio conferma l'esistenza di un'esitazione vaccinale tra gli infermieri. L'obbligo imposto dal Governo ha influito sulla maggiore adesione rispetto alla popolazione generale nella Regione Marche, pur non essendo riuscito a portare la copertura a tutto il personale infermieristico.

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Corresponding author: Gilda Pelusi, School of Nursing Science, Università Politecnica delle Marche, Via Tronto 10/A, 60121 Ancona, Italy
e-mail: g.pelusi@staff.univpm.it