European Journal of Occupational Health Nursing

EJOHN is the scientific journal of FOHNEU

www.ejohn.eu

European Journal of Occupational Health Nursing

EJOHN is the scientific journal of FOHNEU

SUMMARY

Volume 2 Issue 1 2021

Editorial

Javier González-Caballero
The challenge of research in occupational health nursing: the elephant in the room? . . 1

Original articles

Celia Ortiz-Tomé
Evaluation of the consequences of burnout and occupational stress on the physical health of teachers in schools and institutes in Málaga (Spain) . . . 6

Eva Sánchez-Testillano, Elda Colino-Romay, Fátima Alcañiz-Martín, Paloma Lamas-Delgado, Jesica Manzanares-Rocha, Luis Mazón-Cuadrado
Effect of covid-19 on the flu vaccine coverage in the staff of the Hospital Universitario de Fuenlabrada (Spain) 28

Review articles

Marja Hult, Kirsie Lappalainen, Mari Kangasniemi
Living a calling in precarious employment: an integrative review of consequences on professional and personal lives 39

Short Report

Juan Vega-Escaño, Carmen Fernández-Garrido, Sonia Repullo-Leiva, Rocío de Diego-Cordero
NANDA-I Diagnosis risk of occupational injury (00265): Clinical Case 54

Desde SERLOMED os deseamos nuestros mejores augurios para el este 2022, con la esperanza y confianza puesta en la superación de esta pandemia

LA ESTRATEGIA
EL SUMINISTRO INTEGRAL

Cliente

Empresa/mutua/centro/ servicios de prevención

Salud y trabajo

European Journal of Occupational Health Nursing
EJOHN is the scientific journal of FOHNEU

European Journal of Occupational Health Nursing

Editorial

The challenge of research in occupational health nursing: the elephant in the room?

Javier González-Caballero

OHN, PhD, RN, MSc

Occupational Health and Prevention Service. National Institute of Social Security. Bilbao, Spain.

Research is an inherent fact to every professional that allows not only reflection on the daily reality where they work, but also provides knowledge for its subsequent application. In this context, nursing research is defined as a scientific process that validates and improves the existing knowledge and generates new information that influences professional practice (1). From this perspective, once incorporated and recognized as a university discipline, nursing competencies have evolved into a position that provoque an exercise of the profession with full technical and scientific autonomy. However, this professional practice is subject to the limitations of the principles and values included in the legal and deontological system, basing the criteria for action on access to the necessary means and the best available scientific evidence. In a complementary way, professional practice must be based on two pillars: guidelines and protocols for clinical and care practice. Therefore, aiming to achieve efficiency and good work in research, the principles of interdisciplinarity and multidisciplinarity applicable to occupational health professional teams must constitute a maxim (2).

In the first study carried out in the European Union that analyzes the opinion and perception of occupational health nurses about their own competences, teaching and research constitute the least developed field. In fact, in the activity that invites us to propose and intervene in research projects aimed at improving professional activity, there is a clear oscillation between the importance assigned and its execution (3). Occupational health nursing specialists attribute this reality to several reasons: absence of time during the working day, professional isolation, limited academic training and experience in this field (4), low

consumption of scientific literature (5), lack of role integration researcher in daily practice (6), the lack of knowledge of research groups and the low number of doctors in this area of knowledge (7). All of those aspects generate insecurity in a potential approach to a project and that favor distancing from the initiative.

In the context of organizations, the presence of occupational health nursing plays a key role in identifying the needs of the working population, an issue closely linked to the development of research projects and the improvement of the quality of life at work. Among the priority lines of research related to occupational health, professionals express preferences that focus on the following areas: analysing the effects of technological applications and new ways of work, estimating the socioeconomic impact and the cost/benefit ratio of the initiatives established, assessing the consequences of exposure to psychosocial risks, identifying occupational diseases related to the activity and the adaptation of workers with limitations. They also show interest in occupational reinsertion after a prolonged absence, the presence of vulnerable or especially sensitive workers, the incorporation of migrants into companies, the prolongation of working life in healthy conditions and cancer related to professional activity. Once these preferences have been analysed, they show consistency with the proposals of the National Occupational Research Agenda of the National Institute for Occupational Safety and Health (NIOSH) (8). However, less interest appears in the following areas: musculoskeletal disorders, health promotion at work, management of absenteeism and presenteeism related to illness and gender aspects in the context of occupational risk prevention (9, 10). Even so, in this scenario caused by the COVID-19 pandemic, new approaches identified by the Federation of Occupational Health Nurses within the European Union (FOHNEU), made their debut: the impact of this situation on the role of occupational nursing, the access of the working population to the portfolio of services it provides, the level of autonomy in the development of their professional role, the relationship with other members of the occupational risk prevention service, stressful situations caused by the pandemic and the approach to long COVID syndrome in organizations.

This in-depth approach to these professional concerns and needs makes it possible to value the benefits of research. In this way, the development of a research activity generates scientific evidence that influences decision-making and contributes to better care,

encourages a critical look at the observation of reality, stimulates an approach to ask research questions, allows seeking possible solutions to problems and provokes reflective thinking about our behaviour. It also helps to be more rigorous and rational and also stimulates working in groups, increasing sociability and the relationship between professionals.

In this process of research and innovation in health, the training and learning effort in the various stages of the research process are crucial, and among other aspects it includes the following: generating an idea, carrying out an adequate design, having a methodology, searching and capturing a source of funding and considering ethical responsibilities. In addition, in order to develop this type of initiative it is necessary to deepen the leadership capacities.

The exposed approaches are in line with the ideology of the World Health Organization: *nursing should investigate to help the population achieve healthy lifestyles and adequate care*. From this premise, it corresponds to the health professions to actively participate in projects that can benefit the health and wellbeing of people in situations of health and disease, especially in the field of disease prevention, health education, research and exchange of information with health authorities and other professionals (1). Undoubtedly, considering this reality, the full development of the competencies of the teaching and research area within the training program of this specialty takes more value (11), an issue that constitutes a challenge for current and future specialists in occupational health nursing.

Acknowledgements.

To Alfonso Lourido Fernández, Isabel López García, Gema Arévalo Alonso y Manuel Romero Saldaña, reviewers with a constructive view.

Refererences

1. Boletín Oficial del Estado. Ley 44/2003 de 21 de noviembre de Ordenación de las profesiones sanitarias. BOE núm. 280 de 22/11/2003. [Cited 22 Nov 2021]. Available from: http://www.boe.es/boe/dias/2003/11/22/pdfs/A41442-41458.pdf

2. González J. Estudio sobre las competencias profesionales de Enfermería del Trabajo en España. Arch Prev Riesgos Labor. 2020; 23(1):34-51. doi:10.12961/aprl.2020.23.01.4.
3. González J. Evolución y desarrollo de las competencias profesionales de Enfermería del Trabajo. Bizkaia: Universidad del País Vasco/Euskal Herriko Universitatea; 2017. Available from: https://addi.ehu.es/bitstream/handle/10810/30604/TESIS_GONZALEZ_CABALLERO_JAVIER.pdf?sequence=1&isAllowed=y
4. Mizuno-Lewis S, Kono K, Lewis DR, Gotoh Y, Hagi N, Sato M, Yoshikawa E, Higashikawa K, Yamazaki M, Naito M, Kondo N. Barriers to continuing education and continuing professional development among Occupational Health Nurses in Japan. Workplace Health Saf. 2014;62(5):198-205. doi: 10.1177/216507991406200504.
5. García AM. Investigación en enfermería en la Comunidad de Madrid: perfil del investigador de las enfermeras y situación actual en los hospitales del Servicio Madrileño de Salud. Madrid: Universidad Rey Juan Carlos; 2011. Available from: https://dialnet.unirioja.es/servlet/tesis?codigo=94078
6. Moreno-Casbas T, Fuentelsaz-Gallego C, de Miguel AG, González-María E, Clarke SP. Spanish nurses' attitudes towards research and perceived barriers and facilitators of research utilization: a comparative survey of nurses with and without experience as principal investigators. J Clin Nurs. 2011;20:1936-47. doi:10.1111/j.1365-2702.2010.03656.x
7. Durán F, Benavides FG. Informe de salud laboral: los riesgos laborales y su prevención. España 2004. Barcelona: Atelier; 2004.
8. Wachs JE. The American Association of Occupational Health Nurses. Seventy-five years of education, practice and research. Workplace Health Saf. 2017;65(4):148-153. doi:10.1177/2165079917701139.
9. Gagliardi D, Rondinone BM, Mirabile, Buresti G, Ellwood P, Hery M, Paszkiewicz P, Valenti A, Iavicoli S. The perspective of European researchers of national occupational safety and health institutes for contributing to a European research agenda: a modified Delphi study. BMJ Open 2017; 7: e015336. doi:10.1136/ bmjopen-2016-015336.

10. Lalloo D, Demou E, Smedley J, Madan I, Asanati K, Macdonald EB. Current research priorities for UK occupational physicians and occupational health researchers: a modified Delphi study. Occup Environ Med. 2018;75(11):830-6. doi:10.1136/oemed-2018-105114.
11. Boletín Oficial del Estado. Orden SAS/1348/2009 de 6 de mayo por la que se aprueba y publica el programa formativo de la especialidad de Enfermería del Trabajo. BOE núm. 129 de 28/5/2009. [Cited 22 Nov 2021]. Available from: http://www.boe.es/boe/dias/2009/05/28/pdfs/BOE-A-2009-8880.pdf

European Journal of Occupational Health Nursing
EJOHN is the scientific journal of FOHNEU

European Journal of Occupational Health Nursing

Original Article

Evaluation of the consequences of burnout and occupational stress on the physical health of teachers in schools and institutes in Málaga (Spain)

Celia Ortiz-Tomé

OHN, RN. Occupational Risk Prevention Center of Malaga. Spain

ABSTRACT

Introduction. To compare the level of stress and burnout of school and high school teachers in the province of Malaga (Spain) and to identify the association between the level of stress and burnout of school and high school teachers and the presence of cardiovascular, digestive and skin diseases; musculoskeletal pain and headaches; toxic habits; and alterations in physiological and biochemical variables.

Methods. Comparative cross-sectional observational study. The scope of the study was the Occupational Risk Prevention Center of Malaga (Spain). The estimated sample was 201 teachers (91 teachers of secondary education and/or baccalaureate and 110 teachers of infant and/or primary education).

Results. The mean figures for occupational stress and burnout were higher in those teachers who taught secondary education and/or high school [(M=3,04; SD=0,7) (M=2,08; SD=0,67)] than in those who taught infant and/or primary education [(M=2,67; SD=0,59) (M=1,71; SD=0,43)], and these differences were statistically significant ($p<0.05$). A significant association was found between belonging to secondary education and/or baccalaureate levels and the variables role stress and musculoskeletal pain ($p<0.05$). For the remaining variables related to the presence of health disorders, toxic habits and alteration of physiological parameters, no statistically significant mean differences were found.

Conclusions. This work represents an approach to the knowledge of how stress and burnout affect the physical health of teachers, offering itself as a tool for the development of specific prevention strategies adapted to the reality of teachers in the province.

Keywords: Stress; Burnout; Teachers; Health

Article history

Received: 13-Oct-2021

Revised: 27-Nov-2021

Accepted: 06-Dec-2021

Corresponding author

Celia Ortiz Tomé

celia.ortiz@juntadeandalucia.es

Ortiz-Tomé C. Evaluation of the consequences of burnout and occupational stress on the physical health of teachers in schools and institutes in Málaga (Spain). *Eur J Occ Health Nurs*. 2021; 2(1): 6-27

Introduction

Occupation and health are strongly related [1]. Although work has positive influences on health, continuous exposure to certain occupational hazards can have negative consequences [2].

Both the conditions of an organization and current labor relations [2] place psychosocial risk factors as one of the main determinants of workers' health [3]. The association between these and the affectation of the state of well-being of employees is increasingly evident, being such the magnitude that this problem reaches nowadays that it is considered as one of the most important causes of disability, placing among its negative health manifestations occupational stress and burnout [4, 5].

Sometimes, the stress situation becomes chronic and the organism is not able to respond satisfactorily to the demands generated, which can have repercussions on people's health from various perspectives [6]: cardiovascular [1,7], musculoskeletal [7-9], respiratory [7], gastrointestinal [7-9], dermatological [7], mental and behavioral [9], alteration of biochemical and physiological parameters [1, 8, 10] and acquisition of toxic habits [11,12], among others.

Hans Selye [13] describes stress as "non-specific response of the organism to any demand made on it". If stress is prolonged over time, it can lead to burnout [14]. This syndrome is characterized by the presence of emotional exhaustion, depersonalization and lack of personal and professional fulfillment, and is especially prevalent in individuals who work with people.

In Europe, about 25% of workers suffer from stress, which accounts for 55% of absenteeism [15]. In Spain and according to data from the National Survey of Working Conditions conducted during 2015, 36% of respondents reported suffering "sometimes" work-related stress and 30% "always" or "almost always" [16]. The European Commission estimated in 2002 the costs associated with occupational stress at 20 billion euros per year. In Spain it is estimated that the health cost of psychosocial problems is around 150-372 million euros. Between 11% and 27% of mental disorders can be attributed to working conditions [3].

The experience of stress is lived by each person differently and can be influenced by several variables, such as gender or age and family, social or personal

environment. All of them condition the genesis of this phenomenon and therefore it should not be treated in isolation but in all its aspects [1]. With regard to the workplace, not all professions are equally prone to generate work-related stress and burnout among their workers. Health, social and educational professions are particularly susceptible to developing this work-related problem [17].

Teachers are one of the groups most affected by problems arising from exposure over a long period of time to psychosocial risks [18] and 80% of them indicate that the most worrying risks of their work are psychosocial, being one of the professional groups with the highest incidence of sick leave [19]. Psychiatric illnesses are the third cause of sick leave in this group [20].

The hypothesis was: Teachers who teach secondary education and/or baccalaureate have worse physical health than pre-school and/or primary education teachers because they are subjected to higher rates of stress and burnout.

The general objective was to determine the areas of repercussion that stress and burnout have on the physical health of teachers according to the level of education they teach (early childhood and/or primary education versus secondary education and/or baccalaureate).

Besides, the following specific objectives were established: i) To determine the prevalence of stress and burnout among teaching workers according to the level of education (early childhood and/or primary education and secondary education and/or baccalaureate). ii) To identify the association between the levels of stress and burnout of teachers according to the level of education to which they belong and the presence of: cardiovascular, digestive and skin disorders; musculoskeletal pain; toxic habits and alterations of physiological variables.

Methods

Design. Population and sample

Comparative cross-sectional observational study. The scope of the study was developed in the Occupational Risk Prevention Center of Malaga (Spain).

The study population consisted of those teaching workers at non-university levels of education, belonging to the Delegation of Education of the Andalusian Regional

Government who attended the Health Surveillance Area of the Occupational Risk Prevention Center of Malaga (Spain) from June 2018 to April 2019.

They included:

- Early childhood and/or primary education teachers and secondary and/or baccalaureate teachers.

Excluded were:

- Vocational training teachers, teachers of applied arts and crafts, conservatory teachers, educators (special and auxiliary technicians), continuing education teachers and teaching staff in special regime, because studies with an appropriate population that would allow comparisons to be made were not found.
- All those who did not complete the questionnaire in its entirety.
- Those who had less than one year of seniority as a teacher.
- Those classified as particularly sensitive workers.

To calculate the sample size, it was necessary to know the total population of teachers in Malaga. According to official data, the total population of teachers in Malaga during the 2017/2018 academic year was 19,000 teaching professionals, of which 55% were pre-school and/or primary education teachers and 45% were secondary and/or baccalaureate education teachers. The confidence level was set at 95% and the precision level at 3%. The total estimated sample was 201 teachers (91 secondary and/or high school teachers and 110 kindergarten and/or elementary school teachers). The statistical program used to calculate these data was Epidat (version 3.1).

Finally, the study participants were selected by non-probabilistic consecutive sampling.

Variables and measurements

- Variables of presence of health disorders, musculoskeletal pain and toxic habits:
    - Cardiovascular disorders
    - Digestive disorders
    - Skin disorders
    - Pain
    - Toxic habits

- Physiological variables:
    - Blood pressure (BP).
    - Body Mass Index (BMI)
    - Heart rate (HR)
- Sociodemographic and job-related variables:
    - Age
    - Sex
    - Number of children
    - Years of teaching experience
    - Work center
    - Level of education provided
    - Employment status
- The psychosocial variables (outcome variables) were as follows:
    - Burnout
        - Emotional exhaustion
        - Depersonalization
        - Lack of self-fulfillment
    - Role stress

Data collection took place at the Malaga Occupational Risk Prevention Center during the health examination (initial or periodic). The variables were collected from the data obtained in the questionnaire administered and from the worker's clinical history.

All workers were given an information sheet explaining the nature and importance of the study, as well as the treatment of the data to guarantee the confidentiality of the information provided and the anonymity of the participants. Subsequently, written informed consent was requested from all the workers who voluntarily agreed to participate in the study.

Variables related to the presence of health disorders, pain and toxic habits, as well as those related to alterations in physiological parameters, were obtained from the worker's clinical history. Those whose origin was prior to the start of the current employment relationship were not included.

For the collection of psychosocial, sociodemographic and job-related variables, a questionnaire was used, the use of which was previously authorized by its author.

The questionnaire used was the Teacher Burnout Questionnaire-Revised (CBP-R) [22]. It is a self-administered, closed-ended questionnaire that assesses teachers' stress and burnout processes, in addition to other variables that could act as antecedents.

The questionnaire is composed of 66 items assessing 3 areas:

- Factor I. Stress and burnout. This first factor is composed of 32 items, which were the only ones evaluated in this study in order to present a reduced number of items while maintaining a satisfactory level of consistency. The responses to the questions were determined on a Likert-type scale (1 = strongly disagree, 2= disagree, 3= undecided, 4= agree and 5= strongly agree).
- Factor II and III. Disorganization and administrative problems. These two factors were not included in the present study because they were not the object of the study.

For the evaluation of the results obtained from the questionnaire, the highest scores in each section (role stress and burnout) were related to greater problems. Like other authors [23], Likert-type scale scores were used as cut-off and diagnostic points:

- Low: 1 to 1.99 points.
- Medium: 2 to 3.99 points.
- High: 4 to 5 points.

Ethical considerations

The development of this study was authorized by the Research Ethics Committee of Malaga in the session of May 24, 2018 (code: ESTRESDOCENTES001).

The standards of good clinical practice and ethical principles established for research on human subjects in the Declaration of Helsinki, revised in Brazil 2013, were maintained at all times. Data were processed in accordance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such

data. Informed consent was requested from all participants prior to completion of the questionnaire.

Statistical analysis

Descriptive statistics were performed on the variables, with measures of central tendency and dispersion for quantitative variables, and frequency distribution for qualitative variables. To contrast the normality of the data set, goodness-of-fit was calculated using the Kolmogorov-Smirnov test, determining the normality of the sample for all the variables studied.

Student's t-test was used to evaluate the mean difference (MD) between the psychosocial variables (role stress, burnout, emotional exhaustion, depersonalization and lack of personal relationship) with, sex, employment status of the interviewees and professional category, according to the level of teaching performed by the participants. Pearson's correlation coefficient was used to identify the presence of significant differences between psychosocial variables and age, number of children and years of teaching experience of the workers surveyed, according to the level of training provided.

Student's t-test was used to evaluate the MD between psychosocial variables (stress and burnout) and those of presence of health disorders, pain and toxic habits, according to the level of teaching provided. Pearson's correlation coefficient was used to identify significant differences between psychosocial variables and those related to the alteration of physiological parameters, both in teachers of early childhood and/or primary education and in teachers of secondary education and/or baccalaureate.

The level of statistical significance in the different analyses was set at $p<0.05$ and the confidence level at 95%. The statistical program used was IBM SPSS Statistics 20.0 software (SPSS/IBM, Chicago, IL, USA).

Results

Descriptive analysis

A total of 201 subjects were included in the study out of a total of 233 surveys delivered, representing a response rate of 86.2%.

The participants in the study belonged to 50 educational centers located in the province of Malaga. Of the respondents, 37.81% [sample(N)=76] taught kindergarten and/or primary education and 62.18% (N=125) secondary education and/or baccalaureate. 72.36% (N=55) of the teachers executing infant and/or primary education levels were female with a mean (M) age of 40 years [standard deviation (SD)=8.45] and 27.63% (N=21) male with a mean age of 39 years (SD=6.8). In the case of secondary and/or high school teachers, 43.2% (N=54) were male and 56.8% (N=71) were female with mean ages of 44.5 (SD=7.14) and 45 (SD=8.29) years respectively.

Teachers under 30 years of age included in this study do not have any children; between 30 and 39 years of age, they have one child for every 2 participants; between 40 and 41 years of age, one child per respondent; and over 50 years of age, three children for every 2 respondents.

In relation to the variables evaluated with the CBP-R questionnaire, the highest mean score achieved by teachers who taught early childhood and/or elementary education was for role stress (M=2.67; SD=0.59), as well as for those who taught secondary education and/or high school (M=3.04; SD=0.7).

Table 1 describes the mean value obtained for each variable according to the level of education taught.

Table 1. Results for Burnout and Role Stress according to groups of teachers

	CHILDHOOD AND / OR PRIMARY EDUCATION TEACHERS				**SECONDARY EDUCATION AND / OR HIGH SCHOOL TEACHERS**			
	M	SD	MIN	MAX	M	SD	MIN	MAX
BURNOUT	1.71	0.43	1	2.85	2.084	0.67	1	4.23
Emotional exhaustion	1.91	0.52	1	3.25	2.33	0.83	1	4.63
Despersonalization	1.48	0.54	1	3.5	1.72	0.69	1	4.25
Lack of realization	1.74	0.46	1	2.71	2.19	0.73	1	4.57
ROLE STRESS	2.67	0.59	1.23	4	3.04	0.7	1	4.54

Table 2 shows the prevalence of responses for each of the cut-off points and diagnoses established for the psychosocial variables (role stress and burnout).

Table 2. Cut-off points and diagnosis for psychosocial variables

	CUT POINT	CHILDHOOD AND / OR PRIMARY EDUCATION TEACHERS		SECONDARY EDUCATION AND / OR HIGH SCHOOL TEACHERS	
		%	N	%	N
BURNOUT	LOW	73.7	56	50.4	62
	MEDIUM	26.3	20	48.8	60
	HIGH	0	0	0.8	1
ROLE STRESS	LOW	11.8	9	6.5	8
	MEDIUM	86.8	66	83.7	103
	HIGH	1.3	1	9.8	12

On the other hand, Table 3 shows the descriptive analysis carried out on the physiological variables.

Table 3. Physiological variables

		CHILDHOOD AND / OR PRIMARY EDUCATION TEACHERS				SECONDARY EDUCATION AND / OR HIGH SCHOOL TEACHERS			
		M	SD	MIN	MAX	M	SD	MIN	MAX
HR		66	11.13	43	97	65.6	10.98	45	109
BP	SBP	117.75	13.62	89	163	128.28	101.14	90	118
	DBP	74.64	10.22	50	105	75.75	9.52	33	104
BMI		24.77	5.44	18.04	45.06	25.70	4.56	17.36	46.09

HR: Heart Rate; BP: Blood Pressure; SBP: Systolic Blood Pressure; DBP: Diastolic Blood Pressure; BMI: Body Mass Index

The 38.2% (N=47) of the teachers who teach secondary education and/or baccalaureate werw overweight and 14.6% (N=18) obese, compared to 27.6% (N=21) and 10.5% (N=8) of the teachers of infant and primary education, who were overweight and obese, respectively.

Table 4 presents the frequency analysis for the variables of presence of health disorders, pain and toxic habits.

Table 4. Prevalence of health disorders, pain and toxic habits

	CHILDHOOD AND / OR PRIMARY EDUCATION TEACHERS				SECONDARY EDUCATION AND / OR HIGH SCHOOL TEACHERS			
	YES		NO		YES		NO	
	%	N	%	N	%	N	%	N
CARDIOVASCULAR DISORDERS	23.7	18	76.3	58	24.4	30	75.6	93
DIGESTIVE DISORDERS	18.4	14	81.6	62	22	27	78	96
SKIN DISORDERS	17.1	13	82.9	63	13	16	87	107
OSTEOMUSCULAR PAIN	50	38	50	38	57.7	71	42.3	52
TOXIC HABITS	13.2	10	86.8	66	11.4	14	88.6	109

Analysis of the sociodemographic and job-related variables

The statistically significant mean difference ($p< 0.05$) between sociodemographic and job-related variables (independent variables) and psychosocial variables (role stress, burnout, emotional exhaustion, depersonalization and lack of personal relationship) was studied, the latter being outcome variables.

Age

Based on the age of the subjects, 5 levels were created corresponding to 5 age intervals, G1< 30 years, G2= 30- 39 years, G3= 40- 49 years, G4= 50- 59 years and G5> 60 years.

A significant association ($p< 0.05$) was found for the variables lack of fulfillment, burnout and depersonalization in teachers who teach secondary education and/or high school, while this association was not found in teachers who teach pre-school and/or elementary education.

For each age interval, the means of the psychosocial variables increase progressively, reaching their maximum value in G5, after which these figures decrease (Table 5).

Table 5. Mean psychosocial variables for each age interval

	LACK OF REALZATION (M)	BURNOUT (M)	DESPERSONALIZATION (M)
<30	1.42	1.35	1.37
30-39	2	1.85	1.47
40-49	2.22	2.15	1.78
50-59	2.46	2.3	1.98
>60	2.07	1.91	1.68

Sex

There are significant differences for the role stress variables in teachers who teach secondary education and/or high school. The mean level of stress in men is 2.89 (SD = 0.72) and in women 3.15 (SD = 0.67).

In teachers who teach pre-school and/or elementary school these differences appear in the variable lack of accomplishment. In men the mean rate of lack of fulfillment is 1.79 (SD= 0.39) and in women 1.71 (SD= 0.49).

Number of children

No significant association was found for any psychosocial variable and any level of training provided.

Years of teaching experience

Taking into account the years of experience in the profession, 3 groups were created, G1< 10 years, G2= 10-20 years and G3>20 years.

A statistically significant association was found between the differences in the means of teachers teaching at secondary and/or high school levels and the variables lack of fulfillment, burnout and depersonalization.

For teachers at infant and/or elementary school levels, these differences appeared in all the psychosocial variables evaluated (role stress, burnout, emotional exhaustion, depersonalization and lack of personal relationships).

Table 6 shows the mean value of each variable for each interval of work experience, according to the level of training provided.

Table 6. Mean of psychosocial variables for each work experience interval

	CHILDHOOD AND / OR PRIMARY EDUCATION TEACHERS (M)			SECONDARY EDUCATION AND / OR HIGH SCHOOL TEACHERS (M)		
	<10	10-20	>20	<10	10-20	>20
BURNOUT	1.67	1.74	1.86	1.93	2.09	2.04
Emotional exhaustion	1.86	2.02	1.85	2.15	2.36	2.57
Despersonalization	1.38	1.55	1.82	1.55	1.72	2.04
Lack of realization	1.76	1.74	1.86	2.07	2.17	2.42
ROLE STRESS	2.51	2.9	2.73			

Level of teaching provided

There are significant differences in all the psychosocial variables evaluated (role stress, burnout, emotional exhaustion, depersonalization and lack of personal relationship), being for all of them $p<0.01$.

Analysis of the variables of presence of health disorders, musculoskeletal pain, toxic habits and alteration of physiological parameters.

From the bivariate analysis carried out a significant association ($p<0.05$) was found between belonging to secondary education and/or high school and the variables role stress and musculoskeletal pain. In turn, there were significant differences ($p<0.05$) between the presence of musculoskeletal pain and the BMI value for the same group.

The M of the burnout variable for teachers with pain is 2.15 (SD= 0.64) and without pain is 1.98 (SD= 0.7). In the case of role stress, the mean is 3.16 (SD= 0.64) for those with pain and 2.86 (SD= 0.75) for those without pain.

For the rest of the variables related to the presence of health disorders and toxic habits, no statistically significant MDs were found.

Finally, as for the MD between psychosocial variables and those related to the alteration of physiological parameters, no significant differences were identified for any group.

Discussion

This work represents an approximation to the knowledge of how stress and burnout affect the physical health of teachers in Malaga, differentiating at all times those who teach secondary education and/or high school from those who teach infant and/or primary education.

The teaching activity includes a series of tasks in which human relations are the fundamental pillar, being, therefore, a group of those who suffer the greatest mental and professional wear.

In this study, considering the level of classification of stress and burnout rates into low, medium and high, it is striking that almost two thirds of teachers who teach secondary education and / or high school are at a medium level, with these rates being significantly lower in infant and / or primary school teachers, where just over half of them are at a low level for these two psychosocial variables. However, the results described in this section are similar to those obtained by Ratto et al (2015) [23] in their study, in which they relate Burnout at Work Syndrome (BWS), with psychosocial factors, such as role stress, through the use of the CBP-R questionnaire in school teachers.

These results could be a consequence of the high professional burnout to which they are subjected due to exposure to various stressors such as the lack of social support from organizational entities and the length of the working day [24]. Other authors prefer to emphasize workload, the deterioration of human relations, the technification of teaching and role ambiguity as important sources of stress among teachers [25, 18].

Role stress is the variable with the highest score obtained in the questionnaire, followed by emotional exhaustion, lack of fulfillment, burnout and depersonalization, at both educational levels. Although the ranking order according to the figures achieved is the same for the two groups included in this study, the values obtained are significantly higher in those who teach secondary education and/or high school.

In a study carried out to evaluate the psychological burnout of a group of 264 teachers in the city of Lima, the mean value of the variables emotional exhaustion, lack of fulfillment and depersonalization, occupy the same ranking order as in this research [30]. According to the author of the study, both emotional exhaustion and depersonalization are two of the characteristics that define the psychological exhaustion to which teachers are subjected, and the latter can lead to negative coping strategies.

On the other hand, and despite the fact that both groups of teachers included in this study have to cope with significant psychological burnout, the teachers who teach in the classroom are more likely to have a high level of emotional exhaustion.

Levels of secondary education and / or baccalaureate "suffer" more than those of infant and / or primary, being the differences in means of psychosocial variables for each study group statistically significant. These results are consistent with those obtained in a study held among Malaga teachers during 2017. In it, the existing association between psychosocial risk, measured with the "Scale sources of stress in teachers", and the educational center of work (school or institute) is evaluated [21].

Among the reasons that could justify these differences are the characteristics of the students themselves, which influence the levels of stress and/or burnout of teachers. Adolescent students are more demanding due to their greater anatomophysiological development, which together with the increase in physical and verbal aggression and the increase in responsibilities assumed by teachers without sufficient authority to carry them out, could lead to greater suffering from these processes [29].

Age is also an influential factor. Prior to the unification of all university studies as Degrees, the training period of teachers was longer than that of teachers and, therefore, the age for incorporation into the labor market was also higher [26]. In this study it can be observed that as teachers get older, burnout increases. However, when teachers reach 60 years of age, these figures decrease, and the association between the variables age and burnout, in teachers who teach secondary education and/or high school, is statistically significant.

In a study carried out in 2000 among working-age workers in Finland, it was found that the relationship between the variables burnout and age did not follow a linear distribution, so that younger people suffer more stress than older ones and that as the age

of the worker increases, their psychological burnout increases until it reaches its peak at around 60 years of age, at which point it begins to decrease [28].

All this could be due to the different stages, both at a professional and personal level, through which the worker passes during his working life. The effects of stressors on the worker accumulate over the years, but as the years go by, effective coping strategies are also incorporated that could lead to a decrease in the average burnout figures in the last years of professional activity.

Gender is also a factor that could influence the differences found in the stress and burnout rates of the different groups of teachers participating in this study. In this research it has been identified that role stress is significantly higher in women than in men and at secondary and/or high school levels. Role stress is caused by role performance within the organization and encompasses role ambiguity, role conflict and role overload [31]. Both quantitative and qualitative role overload may be influenced by the dual presence that many women have to cope with. Dual presence is a health risk since it involves increased workload, which can lead to a decrease in responsiveness on the part of the female worker increasing her chances of stress and burnout [27,28].

The years of teaching experience can also influence the professional burnout suffered by the teacher, with a greater suffering of this process being related to greater work experience [26]. Just as it happens with increasing age, over the years, the ability to respond to the continuous threats of stressors is diminished, and this can have a negative impact on the health of the worker.

According to the data that can be extracted from this study, as the years of work experience of teachers increase, there is an increase in the mean of the psychosocial variables for each study group.

The fact of having children could act as a protective factor against stress, since a greater maturity state is assumed in people who are fathers or mothers. The greater problem-solving capacity of childhood and the support received by the family could improve the resilience of these workers [32]. However, in this study, no significant differences were found between stress and/or burnout rates and the number of children.

On the other hand, it was not possible to accept the hypothesis of this study since no significant results were obtained that relate stress and/or burnout with a worse

state of physical health, except for the results obtained in teachers who teach secondary education and/or high school in which there are statistically significant mean differences between the variables presence of musculoskeletal pain and BMI.

Although the relationship between the presence of musculoskeletal pain and greater psychosocial suffering is not statistically significant, it should be noted that professionals with pain suffer more stress and burnout than those who do not.

A situation of stress maintained over time can produce a high physiological activation that leads to greater muscular tension and generates pain. The manifestation of the worker's suffering in the form of pain is a more than common problem. Both pain and psychosocial distress can lead to sadness and depression, decreasing the worker's physical activity, increasing their sedentary lifestyle and therefore favoring weight gain [33].

In this study, it has been identified that 57.7% of respondents who teach secondary education and / or high school have musculoskeletal pain compared to 50% of infant and / or primary school teachers, data that are similar to those collected in the National Survey of Working Conditions [16]. According to this survey, 28% of the education teachers interviewed stated that their work negatively affects their health, with the most prevalent health problems being: back pain (46%), muscular pain in the shoulders, neck and upper extremities (45%) and general fatigue (45%).

As for the health problems detected in this study, cardiovascular, digestive and skin disorders stand out in order of prevalence, this order being the same for both study groups.

The figures for SBP and DBP are slightly higher in teachers who teach secondary education and/or high school, which may be a consequence of the greater professional wear and tear to which they are subjected or their higher average age, since as age increases, the risk of suffering arterial hypertension increases [34].

In relation to the presence of toxic habits in the study population and specifically smoking, it is noteworthy that between 11 and 13% of respondents reported smoking, figures that are well below the prevalence of smoking in Spain [35].

Finally, given the cross-sectional nature of this study, it is suggested as a future line of research that a longitudinal study should be carried out to establish relationships between the level of stress and burnout of teachers in Malaga and its impact on physical

health in the form of certain health disorders, alterations in physiological parameters and a higher prevalence of toxic habits. However, there is a large body of literature supporting that a maladaptive response of the organism to one or more stressors can have harmful consequences on the health of the worker, with these consequences being worse in prolonged stressful situations [6-12].

Limitations

The main limitation of this study is its cross-sectional design. Given that it was not feasible to follow up the workers over time due to a lack of human resources, this design was chosen, suggesting that future studies with similar characteristics but of a longitudinal nature should be carried out.

Due to a purely temporal limitation, it was not possible to reach the estimated sample size for each teaching level, but it was possible to reach the overall sample size for both levels (201 teachers), and the results may have been influenced by this.

Finally, the non-inclusion of factors I and II of the CBP-R questionnaire could have interfered with the results obtained because the causes (antecedent factors) that could be generating the situation of stress and/or burnout and that could be acting as confounding factors were not known.

Conclusions

This work is intended to be a tool to be used by the Occupational Risk Prevention Services in order to develop specific prevention strategies adapted to the teaching reality of the province. The following conclusions can be drawn from this study:

- Teachers in the province of Malaga (Spain) are subjected to significant mental and professional burnout, with teachers who teach secondary education levels and / or high school being the most adversely affected.
- The means obtained for the psychosocial variables are classified for both professional groups in the following order (from highest to lowest): role stress, emotional exhaustion, lack of fulfillment, burnout and depersonalization.
- Burnout increases with the age of the professional (secondary education and/or baccalaureate), decreasing when the professional is around 60 years of age.

- Role stress is higher in women than in men when they teach at secondary education and/or baccalaureate levels.
- Teachers (early childhood and/or primary education and secondary education and/or baccalaureate) suffer more as they have more years of work experience in teaching.
- Teaching professionals (early childhood and/or primary and secondary education and/or baccalaureate) with tenure suffer more stress and burnout than those who are interim teachers.
- There are no differences in the rates of stress and/or burnout between teachers who have children and those who do not (early childhood and/or primary and secondary education and/or baccalaureate).
- No association can be established between stress and/or burnout rates and the suffering of health disorders, pain, alteration of physiological variables and acquisition of toxic habits.
- The health disorders of teachers (early childhood and/or primary and secondary education and/or high school) are classified according to their prevalence in the following order: cardiovascular, digestive and skin disorders.
- The BMI of the professional who teaches secondary education and/or baccalaureate is associated with the presence of musculoskeletal pain.
- SBP and DBP is higher in personnel located at secondary education and/or baccalaureate levels.
- Tobacco consumption in the participants of this study is lower than in the Spanish population.

Conflict of interest. The authors declare no conflict of interest.

Funding. None.

References

1. Martínez C-A. Estrés: Aspectos médicos. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2001.
2. Organización Internacional del Trabajo. Estrés en el trabajo: Un reto colectivo. Available from: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_466549.pdf https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_466549.pdf
3. Hassard J, Teoh K, Cox T, Dewe P, Cosmar M. La estimación del coste del estrés y los riesgos psicosociales relacionados con el trabajo: Revisión bibliográfica; 2014. Consulted at: https://osha.europa.eu/es/tools-and-publications/publications/literature_reviews/calculating-the-cost-of-work-related-stress-and-psychosocial-risks/view
4. Nogareda C. El trabajo y tu salud. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2007.
5. Di Martino V, Gold D, Schaap A. Como abordar los problemas emergentes relacionados con la salud en el trabajo: estrés, tabaco, alcohol y drogas, VIH-SIDA. Madrid: Ministerio de Trabajo y Asuntos Sociales. Subdirección General de Información Administrativa y Publicaciones, 2004.
6. Soriano G, Guillén P, Carbonell E. Guía de recomendaciones para la vigilancia específica de la salud de los trabajadores expuestos a factores de riesgo psicosocial: Protocolo PSICOVS2012; 2012. Available from: http://www.aeemt.com/contenidos/Recursos/Guia_PSICOVS2012/guia_PSICOVS2012.pdf
7. Del Hoyo A. Estrés laboral: documento divulgativo, 2004. Available from: http://www.insht.es/InshtWeb/Contenidos/Documentacion/FICHAS%20DE%20PUBLICACIONES/FONDO%20HISTORICO/DOCUMENTOS%20DIVULGATIVOS/DocDivulgativos/Fichero%20pdf/Estres%20laboral.pdf

8. Leka S, Griffiths A, Cox T. La organización del trabajo y el estrés: estrategias sistemáticas de solución de problemas para empleadores, personal directivo y representantes sindicales, 2004. Available from: http://www.who.int/occupational_health/publications/pwh3sp.pdf?ua=1
9. Vieco G-F, Abello R. Factores psicosociales de origen laboral, estrés y morbilidad en el mundo. Psicología desde Caribe 2014, 31(2): 354-385.
10. Serrano M-A, Moya L, Salvador A. Estrés laboral y salud: Indicadores cardiovasculares y endocrinos. Anales de Psicología 2009, 25(1): 150-159.
11. Arias W-L. Estrés laboral y consumo de sustancias psicoactivas (SPA) desde un enfoque de la salud ocupacional. Revista Peruana de Psicología y Trabajo Socia 2012, 1(1): 107-118.
12. Matud M-P, García, M-A, Matud M-J. Estrés laboral y salud en el profesorado: un análisis diferencial en función del género y del tipo de enseñanza. International Journal of Clinical and Health Psychology 2002, 2(3): 451-465.
13. Selye H. Stress in Health and Disease. Canada: Butterworth-Heinemann, 1976.
14. Maslach C, Jackson S-E. The Maslach Burnout Inventory. Palo Alto: California Consulting Psychol Press, 1981.
15. Hassard J, Irastorza X, Milczarek M, Miller J-M, Parent-Thirion A. Psychosocial risk in Europe: Prevalence and strategies for prevention. Luxemburgo: European Agency for Safety and Health al Work, 2014. Available from: https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1443en_0.pdf
16. Pinilla J, Almodóvar A, Galiana M-L, Hervás P, Zimmermann M. Encuesta Nacional de Condiciones de Trabajo. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2017. Available from: http://www.oect.es/InshtWeb/Contenidos/Documentacion/FICHAS%20DE%20PUBLICACIONES/EN%20CATALOGO/GENERALIDAD/ENCT%202015.pdf
17. Ayuso J-A. Profesión docente y estrés laboral. Una aproximación a los conceptos de estrés laboral y burnout. Revista Iberoamericana de Educación 2006, 39(3): 1-15.

18. Silvero S. Estrés y desmotivación docente: el síndrome del “profesor quemado” en educación secundaria. Estudios sobre educación 2007, 12: 115-138.
19. Villanueva M-A, Jiménez I, García L, Durán J. Valoración de las fuentes de estrés laboral en personal docente. Murcia: Servicio de Higiene Industrial y Salud Laboral, Área de Ergonomía y Psicosociología, 2005.
20. Acuerdo del 19 de septiembre de 2006, del Consejo de Gobierno por el que se aprueba el I Plan Andaluz de Salud Laboral y Prevención de Riesgos Laborales del personal docente de los Centros Públicos dependientes de la Consejería de Educación (2006-2010). Boletín Oficial de la Junta de Andalucía, núm. 196, de 9 de octubre de 2006: 11-17.
21. Ortiz C. Riesgo psicosocial de los docentes de la provincia de Málaga (España). Revista Enfermería del Trabajo 2018, 8(1): 2-8.
22. Moreno B, Garrosa E, González J-L. La evaluación del estrés y el burnout del profesorado: el CBP-R. Revista de Psicología del Trabajo y las Organizaciones 2000, 16(1): 331-349.
23. Ratto A, García R-C, Silva M-I, González M-C. El Síndrome de Quemarse por el Trabajo y Factores Psicosociales en Docentes de Primaria de la Ciudad de Montevideo. Ciencias Psicológicas 2015, 9(2): 273-281.
24. Martínez-Otero V. Estrés y ansiedad en los docentes. Pulso, 2003, 26: 9-21.
25. Alonso F. Una panorámica de la salud mental de los profesores. Revista Iberoamericana de Educación 2014, 66: 19-30.
26. Torres R-M, Lawver R, Lambert M. Job-Related Stress Among Secondary Agricultural Education Teachers: A Comparison Study. Journal of Agricultural Education 2009, 50(3): 100-111.
27. Azofeifa C-A, Solano L-C, Salas J, Fonseca H. Comparación entre los predictores del estrés laboral según el nivel de actividad física, edad, género y antigüedad laboral en un grupo de funcionarios administrativos del sector público costarricense. Revista en Ciencias del Movimiento Humano y Salud 2016, 13(1): 1-14.
28. Ahola K, Honkonen T, Virtanen M, Aromaa A, Lonnqvist J. Burnout in Relation to Age in the Adult Working Population. Journal of Occupational Health 2008, 50(4): 362-365.

29. Agai-Demjaha T, Minov J, Stoleski S, Zafirova B. Stress causing factors among teachers in elementary schools and their relationship with demographic and job characteristics. Macedonian Journal of Medical Sciences 2015, 3(3): 493-499.
30. Fernández M. Desgaste psíquico (burnout) en profesores de educación primaria de Lima metropolitana. Persona 2002, 5: 27-66.
31. Mansilla F. Consecuencias del estrés de rol. Medicina y seguridad el trabajo 2011, 57(225): 361-370.
32. Moriana J-A, Herruzo J. Estrés y burnout en profesores. International Journal of Clinical and Health Psychology 2004, 4(3): 597-621.
33. Encuesta Nacional de Condiciones de Trabajo 6º EWCS. España: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2015. Available from: http://www.insht.es/InshtWeb/Contenidos/Documentacion/FICHAS%20DE%20PUBLICACIONES/EN%20CATALOGO/GENERALIDAD/ENCT%202015.pdf
34. Gijón-Conde T, et al. Documento de la Sociedad Española de Hipertensión-Liga Española para la Lucha contra la Hipertensión Arterial (SEH-LELHA) sobre las guías ACC/AHA 2017 de hipertensión arterial. Hipertensión y Riesgo Cardiovascular, 2018. Available from: https://www.seh-lelha.org/wp-content/uploads/2018/06/TGijonDoc_SEHLELHAGuiasAHA2017.pdf
35. Boletín Informativo del Instituto Nacional de Estadística. La salud y sus riesgos, 2012. Available from: http://www.ine.es/revistas/cifraine/0412.pdf

European Journal of Occupational Health Nursing
EJOHN is the scientific journal of FOHNEU

European Journal of Occupational Health Nursing

Original Article

Effect of covid-19 on the flu vaccine coverage in the staff of the Hospital Universitario de Fuenlabrada (Spain)

Eva Sánchez-Testillano, Elda Colino-Romay, Fátima Alcañiz-Martín, Paloma Lamas-Delgado, Jesica Manzanares-Rocha, Luis Mazón-Cuadrado

Occupational Risk Prevevention Service. Hospital of Fuenlabrada. Spain.

ABSTRACT

Introduction. The objectives were to know the influenza vaccination coverage among the staff of the Fuenlabrada University Hospital between 2006-2020 and its acceptance after Covid-19; and to analyze vaccination coverage by profession and year of vaccination, and to establish vaccination strategies to increase the adherence of hospital personnel.

Methods. A longitudinal descriptive study was carried out between 2006 and 2020 at the Fuenlabrada University Hospital, which had an average of 1,584 workers in the 11 years studied. Vaccine acceptance was measured through the data entered by the SPRL in the Sispal vaccination registry of the Community of Madrid. Study variables: Profession (Healthcare, Non-Healthcare) and number of vaccines administered.

Results. A total of 6,074 workers were vaccinated in the years from 2006-2020, with a general vaccination coverage rate of 24.56%. Total vaccination coverage was higher in 2020, the year after the Covid-19 Pandemic, where the vaccination rate was 68.15%) and in 2007 with the lowest vaccination record, with an Rate of 13.95%. By type of profession; non-healthcare personnel are vaccinated more (22.52%) than healthcare personnel (15.92%).

Conclusions. Vaccination coverage increases in the years in which specific epidemic waves appear, such as the one that occurred in 2020. The modification in the vaccination strategy, generating greater adherence of the professional, a specific education and facilitating the accessibility of schedules and going to Its units without the need for personnel displacement, has significantly helped increase the acceptance of vaccination.

Keywords: Flu vaccination: Covid-19 pandemic; vaccination coverage; health / non-health personnel.

Article history

Received: 21-Nov-2021

Revised: 12-Dec-2021

Accepted: 23-Dec-2021

Corresponding author

Elda Colino-Romay

eldacolino@gmail.com

Sánchez-Testillano E, Colino-Romay E, Alcañiz-Martín F, Lamas-Delgado P, Manzanares-Rocha J, Mazón-Cuadrado L. Effect of covid-19 on the flu vaccine coverage in the staff of the Hospital Universitario de Fuenlabrada (Spain). *Eur J Occ Health Nurs*. 2021; 2 (1): 28-38

Introduction

The influenza virus is one of the main causes of respiratory infection (1), every year it infects an average of 10-15% of the population (2), which is why it has become a major Public Health problem, due to its high mortality in patients with chronic diseases and the elderly (1). Health workers are more susceptible than the general population to being infected with the influenza virus, due to direct contact with patients and because they are in a workplace where there is a risk of nosocomial infections, this being one of the most contagious routes of infection. important in this area, being able to cause outbreaks where both patients and health personnel are involved (3, 4). The flu is a disease that generates high health costs (S), so it is necessary to implement all the necessary measures to avoid its transmission, one of them is the flu vaccination of health workers, which prevents the contagion of both the patient towards the staff, as well as from the staff towards the patient (6). Although the efficacy of the vaccine is known, studies show that there is still a certain rejection among health personnel, among the main reasons we have: fear of adverse effects (20%) and doubts about vaccine efficacy (15%) (7, 8, 9).

In the year 2020, specifically, the general population highlighted in the survey the following reasons for flu vaccination: the possible protection that the flu vaccine could offer against COVID-19; prevent the flu from worsening your health if you catch the new virus; and help not to confuse the symptoms between both diseases.

For their part, the health workers did it to protect their health; prevent the collapse of the health system in the face of new outbreaks of COVID-19; or not infecting their patients.

The pandemic has had a positive impact on awareness of the need to protect oneself from the flu, a disease responsible for up to 50,000 hospitalizations and between 3,900 and 15,000 deaths in Spain in a normal year, mainly in those over 65 years of age. One of the main problems associated with this pathology is cardiovascular complications.

6 out of 10 vaccinated respondents have assured that they will maintain the habit in future campaigns. In fact, 71.6% of the healthcare professionals surveyed affirm that, once the pandemic is controlled, they will continue to be vaccinated. Likewise, 65.9% of the primary care physicians surveyed agree that vaccination should be mandatory among health professionals in future campaigns.

Although awareness has increased among health personnel with the need to prescribe the flu vaccine, risk groups must still continue to be made aware of the consequences of the flu, since only 17.3% of those surveyed perceive it as a serious and life-threatening illness.

On the other hand: A survey carried out in 2012 to 336 health workers in Spain, point out, ahead of the reasons mentioned above, the fact that they are not considered risk personnel. It is estimated that the percentage of vaccination necessary to generate group immunity and interrupt transmission in health centers is 80% (10). In the US by 2020, they target 90% health coverage within the Healthy People program (11). Spain has been a model for its high vaccination coverage in the pediatric population, thanks to the commendable work of years of different medical professionals, nurses and those responsible for Public Health, so it would be desirable to set a similar objective in the population of the healthcare field.

The main objective of this study: To know the flu vaccination coverage among the staff of the Fuenlabrada University Hospital and how Covid-19 has influenced it. As secondary objectives: i) To break down the analysis of vaccination coverage by: Profession (Health and Non-Health) and year of vaccination; ii) Establish vaccination strategies to increase the adherence of hospital staff

Methods

A longitudinal descriptive study was carried out between 2006 and 2020, at the Fuenlabrada University Hospital, with a study population of 23,767 workers; 19,396 health professions (doctors, nurses, technicians, nursing assistants, pharmacists ...) and 4374 non-health professions (orderlies, clerks, cleaning, kitchen ...), from this population the workers who were vaccinated against the flu. Among the variables under study of the vaccinated personnel are: qualitative as the type of profession

(health / non-health personnel), and quantitative as the number of vaccines administered.

The influenza vaccination information campaign directed at the staff was homogeneous for the thirteen seasons studied, and consisted of the publication in the internal computer system of the institution of an appeal for influenza vaccination, times and place of vaccination and as an exception in 2014 to 2020 vaccination was offered without schedule and a day was assigned to vaccinate in the Specialty Center. In 2016, we also attended the Adult, Pediatric and Gynecological Emergency Services. In 2017, in addition to the Emergencies, the Hospitalization Units were also visited. And in 2018 and 2019, in addition to all of the above; Vaccination rounds were made throughout the Hospital in addition to offering vaccination 1 day / week in the afternoon.

The vaccine was administered and registered in the SISPAL System and in the Occupational Health Service of the Hospital, and a day was assigned to vaccinate in the Specialty Center. The data recorded (2006-2020) in the registration system of the Community of Madrid were used as sources of information: SISPAL (Registry of vaccinated people by type of vaccine and place of administration, Vaccine management, Residence permits and External Centers) and the HR databases of the Fuenlabrada Hospital itself.

The vaccination coverage index was calculated for the total population of workers and for different study subgroups (depending on whether they were health and non-health: Index of vaccination coverage = number of people vaccinated / total number of the population considered x 100.

Excel databases were designed for registration and management, as well as descriptive graphics.

	TOTAL WORKERS	Total sanitary	% total sanitary	Total NO sanitary	% total NO sanitary	Total vaccinated	% of total vaccinated	TOTAL SANITARY vaccinated	NON-SANITARY vaccinated	sanitary vaccinated%	NON-sanitary VACCINATED %	COVERAGE INDEX(TOTAL sanitary facilities VACCINATED)	COVERAGE INDEX (TOTAL NON-sanitary VACCINES)%	TOTAL COVERAGE INDEX%
2006	1398	1189	85,05	209	14,95	238	17,02	177	61	74,37	25,63	14,89	29,19	17,02
2007	1398	1189	85,05	209	14,95	195	13,95	141	54	72,31	27,69	11,86	25,84	13,95
2008	1379	1088	78,90	291	21,10	271	19,65	202	69	74,54	25,46	18,57	23,71	19,65
2009	1379	1088	78,90	291	21,10	529	38,36	421	108	79,58	20,42	38,69	37,11	38,36
2010	1450	1157	79,79	293	20,21	248	17,10	176	72	70,97	29,03	15,21	24,57	17,10
2011	1570	1276	81,27	294	18,73	243	15,48	187	56	76,95	23,05	14,66	19,05	15,48
2012	1591	1292	81,21	299	18,79	256	16,09	174	82	67,97	32,03	13,47	27,42	16,09
2013	1604	1305	81,36	299	18,64	241	15,02	171	70	70,95	29,05	13,10	23,41	15,02
2014	1643	1336	81,31	307	18,69	251	15,28	165	86	65,74	34,26	12,35	28,01	15,28
2015	1644	1336	81,27	308	18,73	277	16,85	221	56	79,78	20,22	16,54	18,18	16,85
2016	1645	1347	81,88	298	18,12	315	19,15	241	74	76,51	23,49	17,89	24,83	19,15
2017	1655	1354	81,81	301	18,19	387	23,38	308	79	79,59	20,41	22,75	26,25	23,38
2018	1648	1364	82,77	284	17,23	479	29,07	393	86	82,05	17,95	28,81	30,28	29,07
2019	1735	1430	82,42	305	17,58	762	43,92	586	176	76,90	23,10	40,98	57,70	43,92
2020	2028	1645	81,11	386	19,03	1382	68,15	1145	237	82,85	17,15	69,60	61,40	68,15

Figure 1. Working population in the hospital (Excel databases)

Results

A total of 23,767 workers have been analyzed in fifteen seasons of the vaccination campaign, obtaining a general index of vaccination coverage of 24.56%; out of a total of 6,074 vaccinated. Vaccine coverage total was higher in 2020, which can be explained by the pandemic occurring that year Covid-19 observing a vaccination rate was 68.15%.

And the year with the lowest vaccination record was in 2007, with an Index of 13.95%.

By professional categories, non-healthcare personnel are vaccinated more (22.52%) than healthcare personnel (15.92%).

In 2016, an increase in adherence to influenza vaccination began to be observed by extending the schedule and the number of days the vaccination was offered, as well as the boarding areas; this being the first year where the highest coverage in sanitary ware is achieved than in previous years, even surpassing the non-healthcare personnel

Figure 2 shows the influenza vaccination coverage appears for all hospital personnel, where it is observed that in 2020 the percentage of coverage increases, reaching 68.15% of the total index. It is observed that the coverage index remains stable between the years 2010-2015, appreciating a rebound in the following years

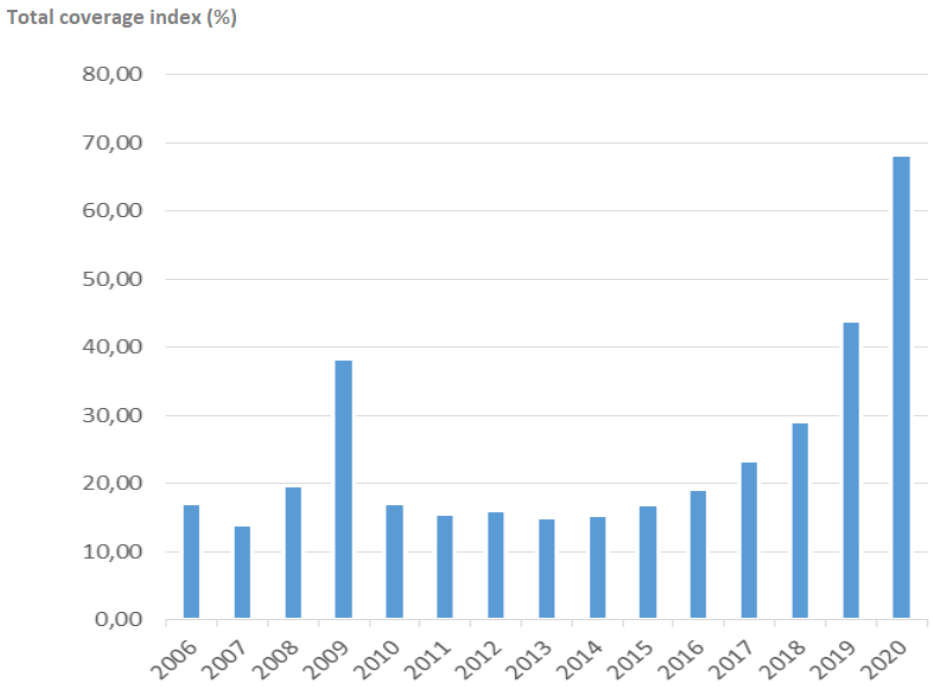

Figure 2. Flu vaccination coverage index (%)

Figures 3 shows the results for the group of hospital staff: health / non-health staff. It shows that non-healthcare personnel show greater acceptance of influenza vaccination than healthcare personnel, with results of 22.52% compared to a 15.92% coverage rate. With the exception of 2009 (Flu A) and 2020 (Covid-19) where there was a higher rate of vaccination coverage in health workers compared to non-health workers.

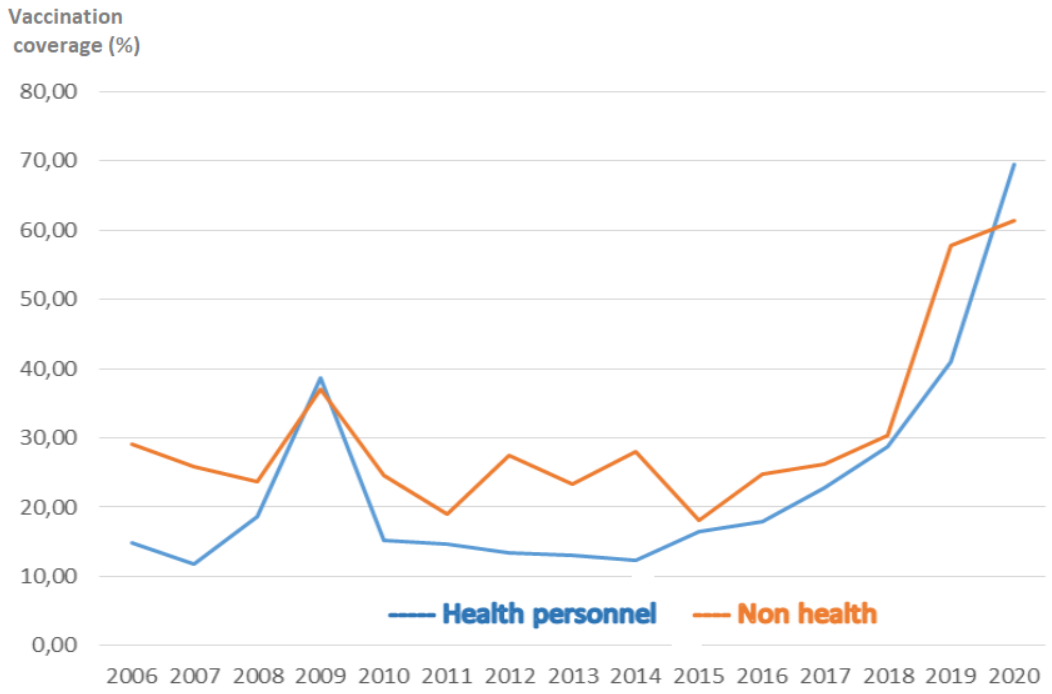

Figure 3. Flu vaccination coverage for health-personnel and non health-personnel

Discussion

There are numerous scientific evidences that make unquestionable the recommendation of vaccination against influenza in health personnel. The most important ones are summarized and grouped below in three fundamental arguments:

1. The need argument (self-protection in a more exposed group). "Medice, cure you ipsum." Sanitary, heal yourself. Numerous health survey studies agree that self-protection is the main reason for vaccination, even far ahead of patient protection (7, 8, 12, 13,14).

2. The ethical argument (the awareness of a possible transmitter source for patients in whom the flu can be expressed more severely and cause more frequent death). "Primum non nocere". First, do not hurt (Hippocrates). It is estimated that 30-50% of flu cases can be asymptomatic, which is why many health workers continue to work without knowing that they may be transmitting the flu to patients and close colleagues (15, 16).

3. The argument of exemplariness (the scientific conviction of its usefulness and safety by the health worker brings confidence) "Docendo discimus". We learn by teaching (Séneca). Our own vaccination will not only prevent us from getting sick and transmit the flu to our patients, as has been explained in the two previous sections, but it will help us to better understand this preventive tool and will mentalize ourselves to keep it in mind at the time of recommendation. On the other hand, our example will help the general population to become aware of the importance of vaccination and increase confidence in it as well as in ourselves because, in a recent study, up to 85% of the people surveyed considered vaccination of health personnel protects patients (12).

Despite the broad indication for systemic vaccination among the healthcare community, the coverage achieved is usually medium, ranging between 11.86% and 40.98% (17).

In 2009 we have observed an increase in flu vaccination coverage, which we think is influenced by the HlNl flu epidemic that made workers aware of more prevention.

In 2020, the increase in flu vaccination coverage is clearly influenced by the Covid-19 pandemic due to the fear of workers of suffering an increase in a more severe Covid in case of suffering a co-infection.

Limitations

The effectiveness of influenza vaccination in the population of H.U.F workers is not studied, but vaccination coverage. The modification in the vaccination strategy, generating greater adherence of the professional, a specific education and facilitating schedules and going to their units without the need for personnel displacement, will significantly help the increase in vaccine acceptance. lt is also necessary to carry out specific analyzes of temporary disabilities duet influenza and its impact on the hospital, in order to improve recruitment techniques

Conclusions

Vaccination coverage increases in the years in which specific epidemic waves appear, such as the one that occurred in 2020.

The modification in the vaccination strategy, generating greater adherence of the professional, a specific education and facilitating the accessibility of schedules and going to Its units without the need for personnel displacement, has significantly helped increase the acceptance of vaccination.

Conflict of interest. The authors declare no conflict of interest.

Funding. None.

References

1. Nicholson KG, Kent J, Hammersley VS. Acute viral infection of upper respiratory tract in elderly people living in the community: comparative, prospective, population based study of disease burden. BMJ 1997; 315:1060-4.
2. Clark NM, Lynch JP, 3rd. Influenza: epidemiology, clinical features, therapy, and prevention. Semin Respir Crit Care Med 2011; 32:373-92.
3. Elder AG, O'Donnell B, McCruden EAB, Symington IS, Carman WF. lncidence and recall of influenza in a cohort of Glasgow health care workers during the 1993-4 epidemic: results of serum testing and questionnaire. BMJ 1996; 313:1241-2.
4. Vaqué J, Campins M, Bruguera M. Vacunaciones en el personal sanitario. En: Salieras L, editor. Vacunaciones preventivas: principios y aplicaciones. Barcelona: Masson, 2003; p. 867- 76.
5. Mayo E; Hernández V; Sierra MJ; Pachón I; Carrasco P; Gil de Miguel Á; Jiménez García R. Rev.Esp Salud Publica 2004; 78.
6. Center for Disease Control and Prevention. Prevention and control of influenza. Recommendations of the Advisory Committee on lmmunization Practices (ACIP). Morbid Mortal Wkly Rep 2001; 50(RR-4):8-9.

7. Vírseda S, Restrepo MA, Arranz E, Magán-Tapia P, Fernández-Ruiz M, de la Cámara AG, et al. Seasonal and Pandemic A (H1N1) 2009 influenza vaccination coverage and attitudes among health-care workers in a Spanish University Hospital. Vaccine 2010; 28:4751-7.
8. Wicker S, Rabenau HF, Doerr HW, Allwinn R. Influenza vaccination compliance among health care workers in a German university hospital. lnfection 2009; 37:197-202.
9. Norton SP, Scheifele DW, Bettinger JA, West RM. Influenza vaccination in paediatric nurses: Cross- sectional study of coverage, refusal, and factors in acceptance. Vaccine 2008; 26:2942-8.
10. Fiore AE, Shay DK, Broder K, lskander JK, Uyeki TM, Mootrey G, et al. Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on lmmunization Practices (ACIP), 2009. MMWR Recomm Rep 2009; 58(RR-8):1-52.
11. DHHS U. U.S. Department of Health and Human Services. Healthy People 2020. Flu Vaccination of Health Care Personnel.; 2012 [Último acceso 6 de julio de 2012); Disponible en: http:// www.healthypeople.gov/202O/topicsobjectives2020/ objectiveslist.aspx?topicld=23
12. Picazo JJ, González- Romo F, Salieras-Sanmartí L, Bayas JM, Álvarez-Pasquín MJ. Situación de la vacunación en adultos en España. Gripe y Neumococo. Vacunas. 2012.
13. Sanchez-Paya J, Hernandez-Garcia I, Garcia-Roman V, Camargo-Angeles R, Barrenengoa-Sanudo J, Villanueva-Ruiz CO, et al. Influenza vaccination among healthcare personnel after pandemic influenza H1Nl. Vaccine 2012; 30:911-5.
14. Hakim H, Gaur AH, McCuliers JA. Motivating factors for high rates of influenza vaccination among healthcare workers. Vaccine 2011; 29:5963-9.
15. Hopman CE, Riphagen-Dalhuisen J, Looijmans-van den Akker , Frijstein G, Van derGeest-Blankert ADJ, Danhof-Pont MB, et al. Determination of factors required to increase uptake of influenza vaccination among hospital-based

healthcare workers. J Hosp lnfect 2011; 77:327-31.

16. Mclennan S, Wicker S. Reflections on the influenza vaccination of healthcare workers. Vaccine 2010; 28:8061-4.
17. Nichol KI Hauge M. Influenza vaccination of healthcare workers.; Infection Control & Hospital Epidemiology , Volume 18 , Issue 3 , March 1997 , pp. 189 - 194

European Journal of Occupational Health Nursing
EJOHN is the scientific journal of FOHNEU

European Journal of Occupational Health Nursing

Review Article

Living a calling in precarious employment: an integrative review of consequences on professional and personal lives

Marja Hult[1], Kirsie Lappalainen[2], Mari Kangasniemi[3]

[1] University researcher. Department of Nursing Science. University of Eastern Finland Kuopio. Finland

[2] Product Manager. Department of Occupational Health. Finnish Institute of Occupational Health. Kuopio, Finland

[3] University researcher. Department of Nursing Science. University of Turku. Finland.

ABSTRACT

Introduction. The working life trend in recent years has been precarious employment. At the same time, people seek callings and more meaningfulness from work. Therefore, the purpose of this integrative review study is to identify, describe, and synthesize studies on precarious employment and having a calling.
Methdos. An integrative review method was used. Data from eight papers were analyzed using the constant comparison method. Precarious employment and having a calling was a sparsely studied area.
Results. Precarious employment was related to job insecurity, poor working conditions, and financial burdens. More subjective characteristics were poor career management and development possibilities, limited autonomy, and tensions concerning workers' identities. However, some workers chose precarity and financial insecurity to be able to fulfill their calling. Having a calling was related to low-paid professions.
Conclusions. Precarious employment offers poor job security, career opportunities, working conditions, and low levels of autonomy. These negatively affect workers' careers, wellbeing and health and make it hard for them to maintain their calling. Employers should pay attention to the quality of working life and better recognize calling as an important resource in work. Occupational health care can support workers having a calling and who are in precarious employment.

Keywords: Autonomy; Career Management; Job Insecurity; Wellbeing at Work

Article history

Received: 5-Aug-2021

Revised: 23-Sept-2021

Accepted: 18-Nov-2021

Corresponding author

Marja Hult

marja.hult@uef.fi

Hult M, Lappalainen K, Kangasniemi M. Living a calling in precarious employment: an integrative review of consequences on professional and personal lives. *Eur J Occ Health Nurs*. 2021; 2(1): 39-53

Introduction

A calling to a particular profession is an important career choice factor and influences career management possibilities and wellbeing. Although definitions and conceptualizations of calling differ in the research literature, it most often refers to the meaningfulness gained from work, inner urge to a particular profession, and orientation to other people (1, 2). The role of calling in working life has become more relevant with the younger generations as they seek meaning from work more often than the previous generations (3). At the same time, working life is becoming more precarious, characterized by fragmentation of work, insecurity of livelihood, and inadequate workers' rights (4, 5), and precarious work mostly affects young workers (6). The present study focused on the relationship between calling and precarious work described in the earlier literature. We found no synthesized knowledge on the relationship between these opposing determinants of working life. The study applied the integrative review method to reach both qualitative and quantitative studies. Even though the number of identified studies was low, this study contributes to the current understanding of precarious employment. Our results showed that precarious employment turns a living a calling a struggle that affects personal and professional lives and identities in many ways and makes it difficult to pursue a career. We discuss the result with having a specific interest in women because they are, along with the young, the most affected by precarious employment (6, 7). Also, implications for occupational health practices are presented.

Precarious employment

Work produces wellbeing in many ways, and changes in working life have so far improved the safety and health of workers. The change of recent decades is related to the globalization of labor, technological development, neoliberal policies, and the decline of industrial work (8). Thus, the current change, precarisation, involves demands for flexibility for workers in a way that causes more anxiety and dissatisfaction. The change has consequences, for according to studies, precarious work is detrimental to health and wellbeing (9-11). This may be due to poor physical and psychosocial working conditions, limited access to occupational health and safety measures, under-protection from social risks such as unemployment and disability, and retirement conditions (12).

Precarious employment is a complex phenomenon. The International Labour Organization (4), a United Nations agency that sets global working standards to advance social and economic justice, describes precarious employment as characterized by low-quality employment relationships and short contracts. A precarious working status does not necessarily result from poor education or a lack thereof. However, these often lead to poorly paid employment liable to problems involving worker protection and rights. Some professions that require higher education have had features of precarious work in the past or have recently experienced precarisation processes. For example, highly skilled art workers, whose career choices are often guided and maintained by calling and deep commitment, traditionally have had precarious careers.

The collective, organizational, and social dimensions of precarious employment consist of low wages and economic deprivation, limited workplace rights, social protections, and powerlessness to exercise legally granted workplace rights (4, 13). Precarious employment can be defined in two ways. First, a narrow, individual approach is based on labor market status or employment type (5). Second is a broader phenomenon of precarity that focuses on growing inequalities in society (12, 14). Growing inequality can be seen as gender differences in precarious employment. A study examined the quality of work and classified employees into working conditions profiles (15). According to Sutela et al. (15), women were mostly in stressful and heavy jobs. Only a few thought that they had good opportunities to participate in developing their work organizations' activities or their own work. Women's top professions in these heavy work jobs included social work and nursing. Several other studies show that precarious employment has increased in nursing, traditionally one of the occupations of calling (16) and led to issues such as fragmented employment relationships and insecurity (17-20). For example, the number of temporary employment contracts for nurses has increased by 50% in Canada over the past 20 years (21). In Finland, temporary employment has increased 25% in only two years, and a fifth of nurses are employed on temporary contracts (22). Precarisation process has reflected external changes in working life, such as reduced funding and the emergence of private-sector employers (18, 23).

Living a calling

However, having a calling may balance these negative job factors caused by precarity to some extent (24). A calling has been historically defined as a conviction or obligation to help other people (16). The modern definition emphasizes calling as an internal, consuming, and passionate pursuit of self-realization, and work according to calling is seen as the purpose of life (25,26). Calling has also been seen as purposeful work that has the possibility to contribute to society and a meaningful passion people experience toward a domain (1). Seeing work as a calling has been reported to increase satisfaction, both at work and in life in general (27). Several studies have associated a calling with high work performance, professional competence, wellbeing, career commitment, meaningful work, job satisfaction, and work motivation (27-30). However, having a calling also has negative aspects, including workaholism, increased work-family conflicts, and sacrifices of wellbeing (16,31). Having a calling has also been seen as a factor that helps workers feel an attachment to their work, even when they do not have job security, as it gives their life a sense of continuity and meaning (32). Younger generations are even ready to work on a volunteer basis if volunteering most motivates them (33). Allan et al. (34) found that workers who help others in their jobs experience more meaningfulness. Calling-based professions, therefore, are likely to attract young people in the future as long as they offer decent working conditions and employment relationships.

Methods

In this study, the integrative review method was used to identify and synthesize original studies based on different research method (35). The integrative review comprised five stages: identifying the problem, searching the literature, evaluating the data, analyzing the results, and presenting the results. In the first stage, a preliminary literature search on databases was conducted using different combinations of search terms for precarious employment and calling. The preliminary search showed that no previous literature reviews were found, and that gap in the literature helped develop the research aim for this review.

In the second stage, electronic and manual literature searches were performed using the CINAHL, SocIndex, PsycINFO, Scopus and PubMed databases to find English-language, peer-reviewed scientific articles published between January 2010 and January 2021. Based on the preliminary literature search and the advice of an information specialist, search terms consisting of free words and synonyms for precarious employment and calling were formulated. The preliminary literature search identified a limited number of studies in nursing science, so the searches were not limited to nurses or the healthcare sector. The reference lists of the included studies were manually searched using the same limitations as the electronic literature searches.

Two authors (MH, KL) independently selected the data using predefined inclusion and exclusion criteria (35). The electronic searches resulted in 688 studies, and the manual searches provided one more study. These 689 search results were screened to select 596 studies based on their titles and abstracts and 22 studies based on their full text. A reading of the full text identified eight studies that met the inclusion and exclusion criteria. Empirical studies covering precarious employment and calling were included, but literature reviews, commentaries, editorials, and grey literature were excluded (Figure 1).

In the third phase, two researchers (MH, MK) independently carried out quality appraisal (35) using method-specific critical appraisal tools from the Joanna Briggs Institute (36). The two researchers (MH, MK) discussed any discrepancies until they reached a consensus. The Checklist for Qualitative Research was applied to the six qualitative studies and one mixed methods study, and the Checklist for Prevalence Studies to the quantitative study (36). Due to the limited number of studies identified, this assessment was aimed at describing the studies' quality, not excluding them from the review. The quality appraisal showed that two of the qualitative studies fulfilled seven of the ten quality criteria (37, 38) two of the qualitative studies and the mixed methods study fulfilled eight of ten criteria (39-41) and the other two studies fulfilled nine (42, 43). The mean score of the seven qualitative studies was eight of ten quality criteria. The quantitative study met nine of the ten quality criteria, but the sampling strategy was unclear (44) (Table 1).

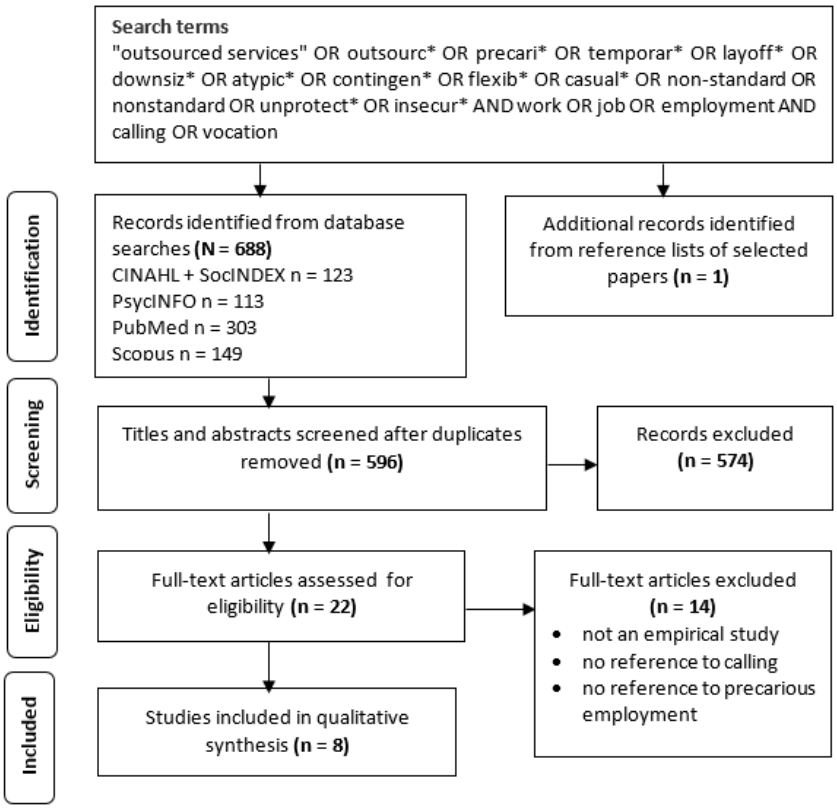

Figure 1. Flow diagram of the study selection process

Table 1. Quality assessment using JBI Critical Appraisal Checklists

Study/Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Qualitative studies										
Bennet & Hennekam 2018	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Cinque et al. 2020	Y	Y	Y	Y	Y	Y	Y	Y	U	Y
Coulson 2012	Y	Y	Y	Y	Y	N	N	Y	U	Y
Lysova et al. 2019	Y	Y	Y	Y	Y	Y	Y	Y	U	Y
Morgan & Wood 2013	Y	Y	Y	Y	Y	U	N	Y	U	Y
Robb et al. 2018	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Smith & Thwaites 2019	Y	Y	Y	Y	Y	N	Y	Y	U	Y
Quantitative study										
Zhang et al. 2015	Y	U	Y	Y	Y	Y	Y	Y	Y	Y

Y = yes, N = no, U = unclear

The fourth stage consisted of data analysis, and the constant comparison method was used to provide an integrative synthesis of the individual studies (35). The studies were read several times to get an overview of all the data. Their authors, years, countries, aims, study designs, data and methods were then extracted and tabulated (Table 2). Expressions representing precarious employment and perceived calling were extracted and grouped based on their similarities and differences. Expressions from the individual studies were compared to the entire results to ensure that the analysis corresponded to the original data. The final stage of the integrative review method (35) was to describe how the studies combined precarious employment and calling.

Results

Of the eight selected studies, six were qualitative studies, one was a quantitative study, and one used mixed methods (Table 2). The qualitative studies used in-depth (36, 40-42) semi-structured (43) and life-history interview methods (38). The number of participants in the qualitative studies ranged from 17 to 51 and included actors (40, 42), musicians (37, 38, 41) and people who started new businesses (43). The qualitative studies employed narrative (37, 38, 42), thematic (40) and inductive analysis methods (43). One study did not specify the analysis method (41). The quantitative study applied moderated mediation analysis to survey data from 263 nurses, managers, educators, engineers, and finance workers (44). The mixed methods study on creative industry workers (39) had data from 250 written career stories and fourteen interviews. Three studies were conducted in Australia, two in the United Kingdom and one each in China, Italy and the Netherlands. Findings for precarious employment and calling were organized and presented as a *career-related dimension*, *individual consequences* and *social dimensions* that helped and undermined a calling in precarious employment.

Table 2. Characteristics of the eight studies included in the review.

Author, year, country	Aim	Study design	Data and analysis methods
Bennet and Hennekam, 2018, Australia	To examine the decisions creative industries workers made about their careers.	Mixed methods Cross-sectional	Written stories (n=250) and interviews (n=14) with creative industries workers.
Cinque et al., 2020, Italy	To examine how theatre actors maintained their calling during precarious employment.	Qualitative Cross-sectional	In-depth interviews with theatre actors (n = 21). Narrative analysis.
Coulson, 2012, UK	To investigate how creative workers felt about running their own business, by examining active networking.	Qualitative Cross-sectional	In-depth interviews with musicians (n = 17). Biographic narrative approach.
Lysova and Khapova, 2019, the Netherlands	To understand how individuals experienced, enacted and sustained their calling when career structures were less established, and resources were limited.	Qualitative Cross-sectional	Semi-structured interviews with the founders of video game companies (n = 24). Inductive analysis.
Morgan and Wood, 2013, Australia	To describe the creative ambitions of young men in the music industry.	Qualitative Cross-sectional	Life history interviews with young men (n = 25) with musical careers.
Robb et al., 2018, Australia	To explore the factors affecting the psychological wellbeing of actors.	Qualitative Cross-sectional	In-depth interviews with Australian adult who were professional actors (n = 20). Thematic analysis.
Smith and Thwaites, 2019, UK	To explore composers' experiences of their working lives in music.	Qualitative Cross-sectional	In-depth online survey of emerging composers (n = 47), supplemented with interviews (n= 4).
Zhang et al., 2015, China	To test the effects of self-directed career attitude on career and life satisfaction mediated by a sense of calling and moderated by job insecurity.	Quantitative cross-sectional	Survey among Chinese employees (n = 263). A moderated mediation analysis with bootstrapping.

Discussion

This review shows that when people who have a calling are in precarious employment, it has great impacts on their personal and professional lives. The findings also show that a range of career-related, individual, and social dimensions are involved in living a calling in precarious employment. Overall, precarious employment makes maintaining a calling difficult as it reduces career management and development possibilities, as well as autonomy, self-confidence, and mental health. In contrast, having a calling provides a great source of purpose in life, and accordingly, workers prioritize their work and find solutions to cope with precarious employment.

In line with the review results (38,39) having a calling has been highlighted as an important career factor (45) even before precarious employment emerged as an issue (16). However, in the review results, precarious employment and calling are also connected to an ongoing shift from established public institutions to outsourced providers. Outsourcing could force paid workers to set up their own businesses that expose workers to precarious employment (20,37), indicating weak labor protections and a loss of rights (19). Temporary work is becoming more common in education, health care, and social assistance (21,22), sectors often related to callings, but this is not always a negative development. Some workers in the reviewed studies said that their careers offer them freedom and variety. Similarly, working temporarily can offer workers freedom from burdensome tasks and sometimes is the only way to achieve a good work-life balance (46). However, the review results indicate that women have difficulties, and precarious employment negatively affects this balance (39). This work-life imbalance highlights the importance of developing sustainable working and employment structures that help young women engage with the profession and give them opportunities to start families. Unfortunately, it is found that young women are more likely to be stuck in precarious work than young men (7).

Nursing is a good example of a female-dominated calling driven profession that suffers the precarisation development: low salaries, poor career management and development opportunities, poor working conditions, powerlessness, vulnerability, tensions regarding identity, and a lack of autonomy (17-20). Although nursing is a significant industry for women, it has little influence on collective bargaining between the representatives of employers and employees and decision-making in healthcare policies (45). Such an

existential hardship is also associated with a struggle for social visibility and recognition among the workers in this review. Another problem is devaluation, one of the theoretical frameworks defining care work in general. It has been argued that employers pay care workers less as they have intrinsic caring motives or a calling (45,47). The review results also show the exploitation of employees in the creative industries, often characterized by low pay and economic insecurity. Several of them accepted the misery of working conditions and wages because they were allowed to do the work according to their calling. According to Zhang and Hirschi (30), employees with calling value external compensation and rewards as much as other employees but ignoring calling for rewards might lead to diminished satisfaction and higher cynicism. To our review, workers who left their profession to gain financial security had identity tensions.

To conclude, this review finds that precarious employment negatively affects workers' careers, wellbeing, and perceived calling, but some workers report that freedom of choice is beneficial. In the future, it will be important to develop structures that support the wellbeing and individual career plans of workers regardless of what kind of working contract they have. People who have a calling should be supported and managed so that they can engage in their work and find meaning in it. The review results show that precarious employment is related to job insecurity, poor working conditions, and financial burdens. More subjective dimensions of precarious employment and calling are related to career management and development possibilities, autonomy, and tensions related to workers' identities. Another important implication of this review is that having a calling positively impacts their professional and personal lives. Employers need to recognize better and support this positive attribute. Occupational health care and, notably, occupational health nurses often have close and confidential relationships with employees. Therefore, they are in an excellent position to identify precarious working conditions and support employees with calling.

Limitations

The strength of this study is the production of new knowledge on precarious employment and having a calling – dimensions of working life not previously systematically combined. However, this review also has some limitations. Various terms were used to

search for relevant studies, but the concept of precarious employment has not been earlier defined. Also, we included studies where precarious employment and calling were explicitly stated. Consequently, some relevant studies might have been missed, which may have reduced the review's representativeness. The searches were limited to a 10-year period ending in January 2021 to ensure capturing studies reflecting the latest, ongoing changes in working life.

Conflict of interest. The authors declare no conflict of interest.

Funding. None.

References

1. Dik BJ, Eldridge BM, Steger MF, et al. (2012) Development and validation of the Calling and Vocation Questionnaire (CVQ) and Brief Calling Scale (BCS). *Journal of Career Assessment* 20(3): 242–263.
2. Hirschi A (2011) Callings in career: A typological approach to essential and optional components. *Journal of Vocational Behavior* 79(1): 60–73.
3. Lavoie-Tremblay M, O'Brien-Pallas L, Gélinas C, et al. (2008) Addressing the turnover issue among new nurses from a generational viewpoint. *Journal of Nursing Management* 16(6): 724–733.
4. International Labour Organization (2019) World employment social outlook. Trends 2019. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_670542.pdf.
5. Puig-Barrachina V, Vanroelen C, Vives A, et al. (2013) Measuring employment precariousness in the European Working Conditions Survey: the social distribution in Europe. *Work* 49(1): 143–161.
6. Bodin T, Çağlayan Ç, Garde AH, et al. (2020) Precarious employment in occupational health—an OMEGA-NET working group position paper. *Scandinavian Journal of Work, Environment and Health* 46(3): 321–329.

7. Allmang S and Franke T (2020) 'Just a job?' An assessment of precarious employment trajectories by gender among young people in the U.S. *Advances in Social Work* 20(1): 152–171.
8. Buchholz S, Hofacker D, Mills M, et al. (2009) Life courses in the globalization process: The development of social inequalities in modern societies. *European Sociological Review* 25(1):53–71.
9. Jonsson J, Matilla-Santander N, Kreshpaj B, et al. (2020) Precarious employment and general, mental and physical health in Stockholm, Sweden: a cross-sectional study. *Scandinavian Journal of Public Health* 49(2): 228–236.
10. Rönnblad T, Grönholm E, Jonsson J, et al. (2019) Precarious employment and mental health: a systematic review and meta-analysis of longitudinal studies. *Scandinavian Journal of Work, Environment & Health* 45(5): 429–443.
11. Vanroelen C (2019) Employment quality: an overlooked determinant of workers' health and well-being? *Annals of Work Exposures and Health* 63(6): 619–623.
12. Behach J, Vives A, Tarafa G, et al. (2016) What should we know about precarious employment and health in 2025? Framing the agenda for the next decade of research. *International Journal of Epidemiology* 45(1): 232–238.
13. Vives A, Amable M, Ferrer M, et al. (2010) The Employment Precariousness Scale (EPRES): psychometric properties of a new tool for epidemiological studies among waged and salaried workers. *Occupational and Environmental Medicine* 67(8): 548–555.
14. Pyöriä P and Ojala S (2016) Precarious work and intrinsic job quality: evidence from Finland, 1984–2013. *Economic and Labour Relations Review* 27(3): 349–367.
15. Sutela H, Pärnänen A and Keyriläinen M (2019) Digital working life. Working conditions survey results 1977–2018. Statistics Finland. Available at: https://www.stat.fi/tup/julkaisut/tiedostot/julkaisuluettelo/ytym_1977-2018_2019_21473_net.pdf.
16. Emerson C (2017) Calling to nursing: concept analysis. *Advances in Nursing Science* 40(4): 384–394.

17. Araújo-dos-Santos T, Oliveira Nunes D, Batista Pereira R, et al. (2020) Association between variables related to precariousness of work and leave of absence in the nursing field. *Ciência & Saúde Coletiva* 25(1):123–133.
18. Fité-Serra AM, Gea-Sánchez M, Alconada-Romero Á, et al. (2019) Occupational precariousness of nursing staff in Catalonia's public and private nursing homes. *International Journal of Environmental Research and Public Health* 16(24): 1–7.
19. Nigenda G, Serván-Mori E, Aristizabal P, et al. (2020) The correlates of precarious working conditions in the Mexican nursing labour market from 2005 to 2018: a repeated cross-sectional study. *Journal of Nursing Management* 28(5): 1010–1020.
20. Walsh BM, Burrus A, Kabat-Farr D, et al. (2020) Living a calling and perceived work ability in domestic violence services. *Journal of Counseling Psychology* 67(2): 241–250.
21. Naidu-Chelani R (2019) Number of temp workers jumped by 50% in last 20 years, StatsCan says. CBC News. Available at: https://www.cbc.ca/news/business/temporary-workers-employment-1.5135310.
22. Pehkonen S (2020) The employment statistics do not show the plight of nurses. Statistics Finland. Available at: https://www.tilastokeskus.fi/tietotrendit/blogit/2020/tyossakayntitilaston-tiedoissa-hoitajien-ahdinko-ei-nay/?listing=simple.
23. Wall S (2015) Dimensions of precariousness in an emerging sector of self-employment: a study of self-employed nurses. *Gender, Work and Organization* 22(3): 221–236.
24. Ziedelis A (2019) Perceived calling and work engagement among nurses. *Western Journal of Nursing Research* 41(6): 816–833.
25. Dobrow SR and Tosti-Kharas J (2011) Calling: The Development Of A Scale Measure. *Personnel Psychology* 64(4): 1001–1049.
26. Shimizu AB, Dik BJ and Conner BT (2018) Conceptualizing calling: cluster and taxometric analyses. *Journal of Vocational Behavior* 114: 7–18.
27. Douglass RP, Duffy RD and Autin KL (2015) Living a calling, nationality, and life satisfaction: a moderated, multiple mediator model. *Journal of Career Assessment* 24(2): 253–269.

28. Duffy RD, Allan BA, Autin KL, et al. (2014) Living a calling and work well-being: a longitudinal study. *Journal of Counseling Psychology* 61(4): 605–615.
29. Xu S, Tao L, Huang H, et al. (2020) Pediatric nurses' turnover intention and its association with calling in China's tertiary hospitals. *Journal of Pediatric Nursing* 52: e51–e56.
30. Zhang C and Hirschi A (2021) Forget about the money? A latent profile analysis of calling and work motivation in Chinese employees. *Career Development International* 26(2): 105–118.
31. Hirschi A, Keller AC and Spurk D (2019) Calling as a double-edged sword for work–nonwork enrichment and conflict among older workers. *Journal of Vocational Behavior* 114(2): 100–111.
32. Meijers F and Lengelle R (2012) Narratives at work: the development of career identity. *British Journal of Guidance and Counselling* 40(2): 157–176.
33. Aggarwal A, Sadhna P, Gupta S, et al. (2020) Gen Z entering the workforce: restructuring HR policies and practices for fostering the task performance and organizational commitment. *Journal of Public Affairs* 00: 1–18.
34. Allan BA, Duffy RD and Collisson B (2018) Helping others increases meaningful work: evidence from three experiments. *Journal of Counseling Psychology* 65(2): 155–165.
35. Whittemore R and Knafl K (2005) The integrative review: updated methodology. *Journal of Advanced Nursing* 52(5): 546–553.
36. Joanna Briggs Institute (2020) Critical appraisal tools for use in JBI systematic reviews. Available at: https://joannabriggs.org/critical-appraisal-tools.
37. Coulson S (2012) Collaborating in a competitive world: musicians' working lives and understandings of entrepreneurship. *Work, Employment and Society* 26(2): 246–261.
38. Morgan G and Wood J (2014) Creative accommodations: the fractured transitions and precarious lives of young musicians. *Journal of Cultural Economy* 7(1): 64–78.
39. Bennett D and Hennekam S (2018) Self-authorship and creative industries workers' career decision-making. *Human Relations* 71(11): 1454–1477.
40. Robb AE, Due C and Venning A (2018) Exploring psychological wellbeing in a sample of Australian actors. *Australian Psychologist* 53(1): 77–86.

41. Smith NT and Thwaites R (2019) The composition of precarity: 'emerging' composers' experiences of opportunity culture in contemporary classical music. *British Journal of Sociology* 70(2): 589–609.
42. Cinque S, Nyberg D and Starkey K (2020) 'Living at the border of poverty': how theater actors maintain their calling through narrative identity work. *Human Relations* 00: 1–26.
43. Lysova EI and Khapova SN (2019) Enacting creative calling when established career structures are not in place: the case of the Dutch video game industry. *Journal of Vocational Behavior* 114: 31–43.
44. Zhang C, Hirschi A, Herrmann A, et al. (2015) Self-directed career attitude as predictor of career and life satisfaction in Chinese employees: calling as mediator and job insecurity as moderator. *Career Development International* 20(7): 703–716.
45. van der Cingel M and Brouwer J (2021) What makes a nurse today? A debate on the nursing professional identity and its need for change. *Nursing Philosophy* 22(2): e12343.
46. Rokkonen, L. (2020) *Precarious motherhood: narratives from the fringes of paid labour* (Publication No. 235, Dissertations in Social Sciences and Business Studies). Doctoral dissertation, University of Eastern Finland.
47. England P (2005) Emerging theories of care work. *Annual Review of Sociology* 31: 381–399.

European Journal of Occupational Health Nursing
EJOHN is the scientific journal of FOHNEU

Clinical Case

NANDA-I Diagnosis risk of occupational injury (00265): Clinical Case

Juan Vega-Escaño[1], Carmen Fernández-Garrido[2], Sonia Repullo-Leiva[3], Rocío de Diego-Cordero[4]

1 Associate Professor, *Spanish Red Cross Nursing School. University of Seville, Spain*.

2 Occupational Health Nursing. Subdirectorate General for Attention to Personnel and Prevention of Occupational Risks. Granada City Council. Spain.

3 Occupational Health Nursing. Occupational Health Service. Reina Sofia University Hospital. Córdoba. Spain.

4 Assistant Professor, Department of Nursing. University of Seville. Spain.

ABSTRACT

The Occupational Nursing professional is a key piece in the approach to sleep disorders derived from labor aspects as well as in the prevention of their appearance or of the damages caused by it and the adoption of measures that promote occupational health in relation to these disorders. A clinical case of Occupational Nursing is presented where the worker manifests a symptomatology derived from the working conditions to which he is subjected. After the assessment, it is determined that the factors associated with the working conditions are the trigger of the referred insomnia symptoms and that these pose a risk of occupational injury in the worker.

Keywords: Occupational Healthcare Nursing; Insomnia; Working Conditions; Health Survillance.

Corresponding author

Juan Vega-Escaño

juanvegadue@gmail.com

Vega-Escaño J, Fernández-Garrido C, Repullo-Leiva S, De Diego-Cordero R. NANDA-I Diagnosis risk of occupational injury: Clinical Case. *Eur J Occ Health Nurs*. 2021; 2(1): 54-63

Introduction

The Ocupational Health Nursing is a nurse specialty that deals with the health status of individuals in their relationship with the world of work trying to reach the highest physical, mental and social level of the working population considering the individual not as an element isolated but taking into account the individual characteristics of the worker, the job position and the socio-labor environment in which it is developed (1).

The use of a standardized nursing language, typical of nursing and common to all nurses, provides benefits that redound in teaching, research, management and care practice (2). While RD 1093/2010 indicates that the minimum data set of clinical reports in the national health system, nursing diagnoses, results and nursing interventions must be expressed according to the NANDA, NOC and NIC taxonomies (3), the reality is that the use of standardized nursing language among nurses continues to be a challenge to achieve today, especially in certain specialties such as occupational nursing, which is a specialty in which progress towards new professionals not only in clinical practice, but in teaching and research, is a reality today (4).

Insomnia is the most common sleep disturbance. Its incidence in the population is high and notably deteriorates the quality of life of the people who suffer from it, with negative repercussions on their family, work and social activity (5).

Clinical Case

The 51-year-old Mr. MR attends the Health Surveillance Department of the Foreign Prevention Service hired by his company to carry out a health examination for the renewal of the certificate of psychophysical aptitude according to ORDER FOM / 2872/2010 (6) required to obtain the qualifying certificate for the exercise of the functions of railway personnel as *safety pilot in traffic.* Among the functions and tasks of this position are the surveillance of the infrastructure and protection of the maintenance work on the track (in relation to the safety of rail traffic) as well as the surveillance of the level crossings. During the instrumental examination carried out by the occupational nursing specialist nurse, in addition to the complementary tests, the taking of biological blood and urine samples for the detection of alcohol consumption or drug abuse are included. Added to this is accomplished detecting possible alterations of sleep through the *Pittsburg sleep quality index* questionnaire *(PSQI)* (7) and *Scale Epworth sleepiness* (ESE) (8). The score obtained in both tests was 18

and 14 points indicating "poor quality of sleep" and "abnormal sleepiness (possibly pathological)", respectively.

Overall Rating

Carrying out a correct assessment that includes the collection and standardized analysis of the information will allow detecting the problems on which to act, restoring the health of Mr. MR

Initial physical assessment

Medical diagnosis: Insomnia

Reason for consultation: Railway staff health examination.

a) Work history:

- Current job: Mechanic.
- Qualification: Traffic safety pilot.
- Risks of the position: standing, lung disease, driving of vehicles, cuts and wounds, professional dermatosis, manual handling of loads, forced postures, burns, electrical risk, noise, welding, turnicity, vibrations, projection of particles and confined spaces.

b) Instrumental Exploration:

- Anthropometry and Constants: Weight: 62 kg; Size: 170 cm; (BMI): 21.45 kgs / m^2; Abdominal circumference: 88 cm; Systolic BP: 130 mm / Hg; Diastolic BP: 80 mm / Hg. FC: 76 ppm.
- Complementary tests: electrocardiogram, forced spirometry, vision control (far, near and intermediate, campimetry, stereoscopic vision, chromatic vision, glare test) and liminal tone audiometry with previous otoscopy: parameters within normality.

c) Physical examination: ranges of normality in pulmonary and cardiac auscultation (without presence of murmurs), vascular examination, central and peripheral neurological examination, mobility of the spine and extremities. Soft and depressible abdomen, painless muscle and joint palpation.

c) Anamnesis:

- Family history: leukemia (father), breast neoplasia (mother), cerebrovascular accident (maternal grandmother).
- Personal history: myopia, presbyopia, appendectomy, adenoidectomy.
- Allergies: not known.
- Pharmacological: gastric protector.

d) Tests of psychological ability of a cognitive, psychomotor and behavior-personality character (Personality Test 16 PF (9) and the Montreal Cognitive Assessment Test (MoCA) (10) within normality.

Nursing assessment according to the Virginia Henderson model:

1. Breathe normally.

   Heart rate: 76 bpm

   Blood pressure: 130/80 mmHg

   M. of independence: does not smoke. Breathe without difficulty; m. dependency: not observed; data to be considered. Ex-smoker 5 years ago.

2. Eat and drink properly.

   M. of independence: follow a balanced diet, following recommendations for gastroesophageal reflux. M. of dependency: not observed; Data to be considered: size: 170 cm; Weight: 62 Kg;

3. Eliminate by all bodily routes. M. of independence: normalized his intestinal habit; m. dependency: not observed; data to be considered: not observed.

4. Move and maintain proper postures.

M. of independence: regular activity (walks in the afternoons); m. dependency: not observed; Data to be considered: normal central and peripheral neurological examination, good mobility of the spine and extremities.

5. Sleep and rest. M. of Independence: The patient have attended to relaxation sessions in his district. M. of dependency: he refers to having problems falling asleep since, according to what he says, *"since I started working as a security pilot, between schedule changes and the responsibility of the job, sleeping is something that costs me a lot of work"* ; Facts to consider: The patient sleeps between 4-5 hours a day, and feels tired and drowsy during the day.

6. Choose the right clothes. Dressing and undressing. M. of independence: dress appropriately; m. of dependency: not observed; data to be considered: not observed

7. Maintain body temperature within normal limits by adjusting clothing and modifying the environment. M. of independence: not observed; m. dependency: not observed; data to be considered: he remains his temperature at 37º C.
8. Maintain body hygiene and skin integrity. M. of independence: adequate state of hydration of skin and mucous membranes; m. dependency: not observed; data to be considered: not observed.
9. Avoid environmental hazards and avoid injuring other people. M. of independence: has glasses. Follow appropriately the pharmacological treatment indicated for the control of gastroesophageal reflux. M. Dependency: poor sleep hygiene that can lead to harm oneself and others. Data to be considered: not observed.
10. Communicate with others expressing emotions, needs, fears or opinions. M. of dependency: sometimes he admits *feeling overwhelmed by the responsibility associated with the position.* data to consider alert and oriented.
11. Live according to your own values and beliefs. M. of independence: he refers to being very close to his partner with whom he has been in a relationship for 20 years and very excited about his grandson.; m. dependency: not observed; data to be considered: not observed.
12. Be engaged in something in such a way that your work has a sense of personal fulfillment. M. of independence: he shares with his relatives the joy of having achieved the position he now occupies. M. of dependency: not observed; Facts to Consider: Your financial situation has improved with this job.
13. Participate in recreational activities. M. of Independence: he goes fishing with his friends on weekends and collaborates in the neighborhood association in his neighborhood. M. of dependency: not observed; data to be considered: not observed.
14. Learn, discover or satisfy the curiosity that leads to normal development and to use available resources. M. of independence: he knows that he must change his sleeping habits and is interested in the nurse giving him explanations about his health problem; m. Dependency: inadequate sleep hygiene (lack of knowledge). data to be considered: not observed.

Planning and execution

Once the occupational health examination has been carried out and the problems identified, we elaborate a nursing care plan using the taxonomies, NANDA, NIC and NOC.

The following table (Table 1) shows the care planning and the follow-up and evaluation after its execution. These are prepared following the standardized nurse taxonomy (11-13).

To carry out the evaluation, we apply a rating scale from 1 to 5 where 1 is nothing proven and 5 is always proven. After the initial assessment, we established a follow-up by monthly telephone contact and a final assessment at three months.

The NOC outcome criteria evolved positively. Thus, we can see in the attached table how the indicator 19020, which recognizes personal risk factors, goes from having a score of 1 in the initial assessment to a score of 5 at three months, always recognizing the worker's risk factor. The same occurs with the indicator (190221), which recognizes the ability to change behavior, that goes from an initial score of 2 to a final score of 5.
The indicators (190204) and (190208) go from having an initial rating of 1 to a final rating of 4 after three months, reaching almost the maximum.

Regarding the proposed activities, once the risks have been identified, training actions will be carried out on the prevention of occupational hazards and health and safety at work, which have previously shown to be a key element for occupational safety and health (14) and that will help to detect situations that may pose a work risk.

Table 1. NANDA diagnosis with the corresponding NOC, NIC and activities realized

<table>
<tr><td colspan="5">Nurse Diagnosis: (00265): Risk of occupational injury R / C rotation of night and day shifts</td></tr>
<tr><td colspan="5">Definition: susceptible to a work-related accident or illness, which can compromise health</td></tr>
<tr><td colspan="4">NOC RESULT</td><td>NIC INTERVENTION</td></tr>
<tr><td colspan="4">1902 Risk control</td><td rowspan="6">[6610] Risk identification
- Identify biological, environmental and behavioral risks, as well as their interrelationships.
- Apply risk reduction activities.</td></tr>
<tr><td colspan="4">EVALUATION
Scale from NEVER proven (1) until ALWAYS proven (5)</td></tr>
<tr><td>Indicator</td><td>Initial value</td><td>Final Value</td><td>Evaluation/Follow-up</td></tr>
<tr><td>[190201] Recognize personal risk factors.</td><td>1</td><td>5</td><td>3 months/ 1 month</td></tr>
<tr><td>[190204] Develop effective risk control strategies.</td><td>1</td><td>4</td><td>3 months/ 1 month</td></tr>
<tr><td>[190208] Modify your lifestyle to reduce your risk.</td><td>1</td><td>4</td><td>3 months/ 1 month</td></tr>
<tr><td>[190221] Recognize the ability to change behavior.</td><td>2</td><td>5</td><td>3 months/ 1 month</td></tr>
</table>

Collaboration problem: insomnia	
NOC RESULT	NIC INTERVENTION
0004 Sleepness	[1850] Improve Sleep [6480] Environmental management

Discussion / Implications for clinical practice

The present case shows the consequences of a poor adaptation to a new (although desired) work situation (marked by changes in work shifts) that ends up affecting the worker's sleep / rest, insomnia appearing as a derived pathology.

Insomnia is the most frequent alteration of sleep. 30-40% of the adult population report symptoms of insomnia, with the consequent deterioration in the quality of life of those who suffer from it, with negative family, work and social repercussions. Despite its clinical relevance, it frequently goes unnoticed by healthcare professionals due to lack of time, information or resources, preventing correct diagnosis and treatment (5).

The diagnostic phase of this clinical case has been conditioned by the existence of the newly incorporated diagnostic label *Risk of occupational injury* (00265). This tag has been incorporated in the latest update of NANDA-1 (2018-2020) (11). It is found within l Domain 11, Class 4, Concept: occupational lesion. It currently has a level of evidence of 2.1. It has established 10 individual and 15 environmental risk factors, among which is the *"rotation of night and day work shifts",* which is directly related to the case raised.

Coupled with this, in this case, the risk of occupational injury is both for the worker and for third parties since insufficient sleep causes neurocognitive changes such as excessive daytime sleepiness, which carries a greater risk of accidents at work and traffic.

Conclusions

This clinical case shows the need for a broader vision on the part of Occupational Nursing professionals, with autonomy and their own professional responsibility that entails specialized training, as well as a greater approach as part of a multidisciplinary team in the performance of health examinations with a view to an early detection of pathologies that are highly influential in the psychophysical capacity of professionals and rarely diagnosed in health surveillance.

Together with this, the benefits of establishing the use of nursing language as a necessity among Occupational Nursing professionals are shown, thus allowing faster and more effective communication between them and giving rise to the use of common criteria and standardized protocols, which will result in a higher quality of care offered by the specialty.

References

1. Ministry of Health and Social Policy. O rder SAS / 1348/2009, dated 6 May, which approves and publishes the training program for the specialty of Nursing Work [Internet]. Spain; 2009 p. 44687. Available from: https://www.boe.es/eli/es/o/2009/05/06 / sas1348

2. González Caballero J. Application of nursing diagnoses in the field of occupational health: Examples of nursing prescription. Med Segur Trab (Madr). 2010; 56: 328–46.

3. Ministry of Health and Social Policy. Royal Decree 1093/201 0, of September 3, which approves the minimum set of data for clinical reports in the National Health System. [Internet]. Spain; 2010 p. 78742-67. Available from: https://www.boe.es/eli/es/rd/2010/09/03/1093

4. Romero Saldaña M, Moreno Pimentel AG, Santos Posada A. Occupational Nursing: competence and experience to achieve the safety, health and well-being of the working population. Clinical Nursing [Internet]. 2019; 29 (6): 376–80. Available from: http://www.sciencedirect.com/s cience / article / pii / S11308621193037 05

5. Sarrais Oteo F, De Castro Manglano P. Insomnia. An Sist Sanit Navar [Internet]. 2007 [cited 2017 Jul 23]; 30 (SUPPL. 1): 121–34. Available from: http://scielo.isciii.es/pdf/asisna/v30s1/11.pdf

6. Ministry of Public Works. Order FOM / 2872/2010, of November 5, which determines the conditions for obtaining the enabling titles that allow the exercise of the functions of railway personnel related to traffic safety, as well as the [Internet]. Madrid Spain; 2 010. Available from: https://www.boe.es/eli/es/o/2010/11/05/fom2872/con

7. Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. Psychiatry Res [Internet]. 1989; 2 8. Available from: https://doi.org/10.1016/0165-1781(89)90047-4

8. Johns MW. A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep. 1991 Dec; 14 (6): 540–5.

9. Cattell, RB; Cattell, A, K., Cat tell, HEP (1995). 16 PF-5. Ques tionnaire Factorial Personality. TEA editions.

10. Ojeda N, del Pino R, Ibarretxe-Bilbao N, Schretlen D, Peña J. Montreal cognitive evaluation test: Normalization and standardization of the test in the Spanish population. Journal of Neurology. 201 6 Dec 1; 63 (11): 488-496.

11. Herdman TH, Kamitsuru S. Nanda International Nursing Diagnoses: Definitions & Classification, 2018-2020. 11th ed. Thieme; 2017. 512 p.

12. Bulechek G, Butcher H, McCloskey JD, Wagner C. Nur sing interventions classification (NIC). 6th ed. Elseiver, editor. Mosby; 2012. 640 p.

13. Moorhead S, Swanson E, Johnson M, Mass ML. Nursing Outcomes Classification (NOC). Measurement of Health Outcomes. 6th ed. Elseiver, editor. Mosby; 2018. 696 p.

14. Salguero DH. What is training in occupational risk prevention for? Theoretical reflections and practical implications from the case of unskilled jobs in intensive subcontractors that act as the final link in the subcontracting chain in the construction sector in Spain. Notebooks on Labor Relations 2015; 33 (2): 331-356.