

Women Are More at Risk of Poor Mental Health: Mental Health of Spanish Nurses Measured by the GHQ-12

Pilar Sanchez-Lopez,^{1,*} Ana Isabel Saavedra-San Roman,² Virginia Dresch,³ Lorena Garcia-Quintans,⁴ and Irene Rodrigo-Holgado¹

¹Complutense University of Madrid, Madrid, Spain

²University Hospital of Getafe, Madrid, Spain

³Federal Fluminense University, Niteroi, Brazil

⁴Asturian Public Health Service, Madrid, Spain

*Corresponding author: Pilar Sanchez-Lopez, Complutense University of Madrid, Madrid, Spain. Tel/Fax: +34-3942820, E-mail: mpsanche@psi.ucm.es

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Abstract

Background: Mental health is one of the principal indicators of people's quality of life. One of the professions most commonly associated with mental health problems is nursing.

Objectives: We analyzed mental health in a group of female and male nurses from a hospital in Madrid (Spain) to evaluate whether differences exist between the groups. Furthermore, there is an analysis regarding whether the variables affecting mental health in female nurses are different from those affecting male nurses.

Patients and Methods: The research is non-experimental, observational, with a cross sectional and descriptive analysis. The GHQ-12 instrument was chosen for the analysis of mental health in male and female nurses. The GHQ-12 has been validated in the Spanish population.

Results: Male and female professional nurses scored worse in mental health than the population as a whole. Female nurses had worse scores than male nurses. Mental health in male nurses is related to age, self-perceived health, stress at work, and job satisfaction. The variables related to mental health in female nurses are stress at work and rest/sleep.

Conclusions: The variables explaining the state of mental health in female and male nurses are different. The only variable in both regression equations is stress at work, and even then it has different magnitudes for male and female nurses. An awareness of possible quantitative and qualitative differences in the mental health of male and female nurses will contribute to the optimal design of more efficient, evidence-based treatments geared to improving the health of these professionals.

Keywords: Mental Health, Nurses, Gender

1. Background

At the present time, mental health is one of the principal indicators of people's quality of life and their environment. Impaired mental health has serious, immediate consequences for individuals, families, and social groups and affects professionals in their work and economic life. The world health organization (WHO) defines mental health as "a state of welfare in which the individual is aware of his/her own capabilities and can deal with the normal tensions of life, can work productively and usefully and is able to contribute to the community" (1). Most people spend a large part of the late night hours working. Work can give rise to mental and/or physical disturbances in many people (2). One of the professions most commonly reported to experience mental health problems is nursing. Results of the general health questionnaire (GHQ) suggest that nearly 40% of nurses experienced psychological distress (3). Factors such as night shifts can lead to a reduction in the amount and quality of sleep among nurses (4) and can

affect their health, increasing their stress level (5). Countering this effect, variables such as work satisfaction (6, 7) and perceived health (8, 9) have shown a direct and positive effect on mental health.

A study carried out on 150 female nurses showed that 35% of them reported light or moderate symptoms of depression. Depressive symptoms correlated positively with stress at work and sleep disorders and other somatic complaints (10). In this same line of research, the work headed by Lin et al. (11) showed that male/female nurses reported moderate work-induced stress, poor quality sleep, and moderate self-perceived health, and stress at work had an inverse relationship with sleep quality. The latter, in turn, showed a direct relationship with the self-perceived state of health. Another factor that has been related to self-perceived stress among nurses is that of job satisfaction. Studies show significant negative relationships between both constructs (12).

2. Objectives

With the present work, our aim is to confirm that male and female nurses have worse mental health than the general Spanish population (13, 14). The second point is to verify whether mental health, as measured by means of the 12-item GHQ-12, is worse among female nurses than male ones. Third, we assess whether the variables related to mental health are the same in male and female nurses. Given the unique characteristics of the nursing profession, where the number of women clearly surpasses that of men, it was essential to ensure a similar number of men and women nurses as participants in the study, comparable in their sociodemographic and working characteristics.

3. Patients and Methods

3.1. Participants

The study was carried out on 98 male nurses and 98 female nurses, all of them Spanish, working in a tertiary university hospital in Madrid (Spain), representative of the hospitals in the network of the Spanish National Health system.

Of a total number of 103 male nurses in the hospital, 98 volunteered to participate in the study. Of the 588 female hospital nurses, 98 were selected, as they met the same sociodemographic criteria (age, number of children, and number of dependents they cared for) (Table 1), and with the same work shift and service in the hospital as their male colleagues.

3.2. Design

The design is non-experimental, observational, with a cross-sectional study.

3.3. Instruments

Sociodemographic variables were assessed using a questionnaire. We considered age, marital status, having children, having elderly people to care for, the service for which they worked, whether they were on night shifts, and whether they received any help with housework. Men and women were balanced for all these variables.

Based on the literature reviewed (10, 11, 15), variables that might impinge on the mental health of nursing professionals were evaluated. The selected variables were self-perceived health, job satisfaction, and difficulties in sleeping and resting. The aim is to assess whether these variables have the same type of influence for male and female nurses.

To measure self-perceived health, daily work-induced stress, and job satisfaction among the participants, the questions recorded in the national survey of health in Spain were used (16, 17).

To assess mental health, the GHQ-12, prepared by Gold-

berg and Williams (18) and adapted and validated for the Spanish population, was used (17). The GHQ-12 has shown to have a high reliability in the different studies conducted by the author, with Cronbach alpha reliability quotients ranging between 0.82 and 0.86 (18). This instrument has been widely used in research studies on health and has proven itself to be a reliable, valid tool for studying mental health (2, 19, 20). It shows sufficient internal consistency for the Spanish population, with a Cronbach alpha of 0.76 for the general population, 0.75 for the female sample, and 0.76 for the male sample (17).

3.4. Procedure

The study was approved by the ethical committee of the hospital. A personalized interview was held with each of the male hospital nurses, and they were given a detailed report of the research. All those who had volunteered to participate in the study, 98 male nurses, were given a questionnaire and the relevant consent form. We also guaranteed the anonymity of their data.

Similarly, a personalized interview was held with each of the 588 female nurses from the hospital, and 98 female nurses were selected. They also met the same criteria in sociodemographic variables and work contract characteristics as the male nurses. Once selected, they (at random, among those meeting the requirements), were given the same questionnaire and relevant consent form, guaranteeing the anonymity of the data.

3.5. Data Analysis

All the statistical calculations have been made with the statistical program SPSS (Statistical Products and Service Solutions) version 22.0. Different means were analyzed with the Mann-Whitney U statistics, independent t-test and chi-squared test. To calculate the correlations between mental and self-perceived health, work-induced stress, job satisfaction, and rest and sleep time, we used the Spearman Rho correlation coefficient. Multivariate logistic regression analysis was done to explain the variables with greater statistical significance in mental health for male and female nurses.

4. Results

The final sample was made up of 196 nursing professionals, distributed in a group of 98 women (50%) and another of 98 men (50%). Nurses' mean age was 32.45 (SD = 16.84), ranging from 20 to 56. The males' mean age was 32.29 (SD = 8.54) and the females' was 32.60 (SD = 8.20), ranging from 22 to 56 years for the females and 20 to 56 years for males.

In 2013, A previous analysis (21) (asymmetry and kurtosis coefficients and Kolmogorov-Smirnov test) was carried out to prove that the variables in the nurses' sample were adjusted to normal distribution; thus, the variables that meet this assumption have been compared using an independent t-test and the others have been analyzed us-

ing the Mann-Whitney test.

There is no significant difference between male and female nurses in socio-demographic variables using the chi-square test and independent t-test.

Female nurses ($M = 2.28$; $SD = 2.81$) had significantly worse scores in mental health ($P = 0.0071$) than women in the Spanish population in general ($M = 1.61$; $SD = 2.45$). Likewise male nurses ($M = 1.47$; $SD = 2.26$), when compared with men in the general population, ($M = 1.06$; $SD = 2.06$) reported worse mental health ($P = 0.0499$). Second, if we compare the data provided on mental health by male and female nurses, we find that the females have significantly worse health than their male colleagues ($P = 0.020$).

The data from the present research indicated that the differences found in mental health between male and female nurses diminish with age. If we compare young male and female nurses (20 to 38 years of age) we find statistically significant differences ($P = 0.042$) in mental health in favor of men. This does not occur with the middle-aged group (39 to 56-years-old), where we do not find statistical differences. Therefore, we can conclude that, as age increases, these differences disappear.

Statistically significant difference in means analysis shows that female nurses reported worse mental health.

After Spearman Rho correlation analysis was also conducted between mental and self-perceived health, work-induced stress, job satisfaction, and sleep/rest difficulties among male and female nurses (Table 2).

The multivariate logistic regression analysis in the female nurse group showed that a one-point increase in stress at work led to a two-fold increase in the odds of suffering from poor mental health (Table 3). Not having a restful sleep led to an almost sevenfold increase in the odds of suffering from poor mental health (mental health = $0.851 + 0.798$ work-induced stress + 1.891 rest/sleep).

Findings obtained for the male nurse sample showed that for every 10-year increase in male nurses' age, the odds of suffering from poor mental health decreased by 33% and having self-perceived poor health increased the odds of having poor mental health by 11%. Moreover, the regression analysis showed, as can be observed in Table 4, that a one-point increase in work-induced stress levels would double the odds of having poor mental health, but if there were a one-point rise in male workers' job satisfaction, there would be a 46% decrease in the odds of having poor mental health (mental health = $0.688 - 0.111$ age + 2.428 self-perceived health + 0.648 work-induced stress - 0.613 job satisfaction).

Table 1. Means, Standard Deviations and Student's t-test Between Men and Women in Socio-Demographic Variables^a

Variables	Women (n = 98)	Men (n = 98)	Total (n = 196)	P Value
Age	32.60 ± 8.20	32.29 ± 8.64	32.45 ± 16.84	0.80
No of dependents	0.06 ± 0.28	0.04 ± 0.25	0.05 ± 0.26	0.60
No of children	0.42 ± 0.76	0.39 ± 0.71	0.40 ± 0.73	0.78

^aValues are expressed as mean ± SD.

Table 2. Partial Correlations Between Mental Health and Psychological Variables (Controlling For Age)

Mental Health	Values ^a	P Value
Self-perceived health		
Male	0.272	< 0.01
Female	0.393	< 0.01
Work-induced stress		
Male	0.340	< 0.01
Female	0.231	< 0.05
Job satisfaction		
Male	-0.102	< 0.001
Female	-0.232	< 0.05
Sleep/rest difficulties		
Male	0.338	< 0.01
Female	0.416	< 0.01

^aN = 98

Table 3. Regression Logistics Analysis For Female Nurses

Variables	Mental Health			
	β	P Value	OR	95%CI
Work-induced stress	0.798	0.007	2.220	1.248 - 33.950
Sleep/rest difficulties	1.891	0.001	6.624	2.083 - 21.062

Table 4. Regression Logistics Analysis for Male Nurses

Variables	Mental Health			
	β	P Value	OR	95%CI
Age	-0.111	0.021	0.895	0.814 - 0.983
Self-perceived health	2.428	0.038	11.338	1.139 - 112.857
Work-induced stress	0.648	0.021	1.911	1.103 - 3.314
Job satisfaction	-0.613	0.005	0.542	0.354 - 0.829

5. Discussion

The present findings indicate that (i) the female nurses in a tertiary university hospital of Madrid had worse mental health than the general Spanish population, (ii) female nurses reported worse mental health than their male colleagues, and (iii) the variables explaining mental health in nursing professionals assessed are different for female nurses (stress at work and rest/sleep) than for male nurses (age, self-perceived health, work-induced stress, and job satisfaction).

In accordance with other studies (22, 23) that confirm poorer health among nursing professionals than the population as a whole, the present research shows that female and male nurses score worse on a measure of mental health than women and men in the general population. This difference in mental health has been explained by various factors, such as daily contact with death and disease (24) and work shifts, which can increase stress levels and insomnia (5).

When we compare mental health scores between women and men, the results of the present work show that female nurses report worse mental health. These data prove that differences between male and female nurses in mental health are akin to the differences between men and women in the population as a whole (15).

The multivariate regression analysis showed that the variables that best explained mental health issues in female nurses were stress at work and the hours of sleep/rest. Declines in mental health are exacerbated if there is an increase in work-induced stress and a lack of sufficient rest/sleep. These results have been corroborated by other studies showing a positive relationship between depressive symptomatology and trouble sleeping (10) and an inverse relation between stress at work and quality of sleep (11).

A possible interpretation of these results could be related to differences in the female and male gender roles with regard to the responsibilities associated with the female role (heavier in general than those related to the

masculine role: i.e. asymmetric distribution of household, children and familial care), along with those stemming from the nursing profession (14).

Multivariate analysis in male nurses showed that mental health improved with age and that having self-perceived poor health increased the odds of having poor mental health. This result has been corroborated by previous studies (25). The equation also showed that a one-point increase in work-induced stress levels doubled the odds of having poor mental health, but if there were a one-point increase in the level of job satisfaction in male nurses, there would be a 46% decrease in the odds of having poor mental health. It is interesting to note that there are several health protective variables in the mental health of male nurses that are not present for their female colleagues. Moreover, one of them is a biological variable, namely age. This improvement in the mental health of male nurses over the age of 40 compared to younger ones is something that appears to be more frequent in male rather than female nurses and could be explained by the greater emotional and professional stability and work security in their professional work possessed by male nurses (22).

The data coming from the present research could be of help in perfecting the design of effective treatments to improve the health of male and female nurses. The factors impinging on mental health and gender differences will provide a basis for strengthening ways to improve mental health, bearing in mind the differences shown between men and women and developing treatment approaches that are more suited to the needs of each group. These findings will thus provide a solution to the mental health of a group of people who are essential in any society, namely nurses.

In conclusion, it is important to highlight that this study does not exhaust the need for work on this question and has its limitations. One of them is the sample size and the

type of measure used to assess the variables studied. Future studies might extend the sample and use objective ways of measuring health to validate the results.

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Footnote

Authors' Contribution:The five authors have made substantial contributions to the conception, design, acquisition, analysis and interpretation of data; all five have drafted the article, revised it critically and expressed their final approval of the version to be published.

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