

Original article

## Self-efficacy and anxiety in female hospital healthcare workers

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### ABSTRACT

**Introduction:** In this research, the objective was to learn the correlation between perceived self-efficacy and anxiety in a sample of hospital workers. The hypothesis predicts that workers with less anxiety will have higher levels of perceived self-efficacy, whereas workers with significant anxiety will have lower levels of general and social self-efficacy.

**Materials and methods:** A total of 240 female hospital health workers responded to the questionnaires. The measuring instruments used were an inventory to measure anxiety (State-Trait Anxiety Inventory) and a self-efficacy questionnaire (Self-Efficacy Scale).

**Results:** The results indicate that there is a negative relationship between anxiety and self-efficacy in these workers. Thus, with a confidence level of  $p < .001$ , the female hospital workers who show higher levels of anxiety perceive themselves as being ineffective, with a negative score in Pearson's correlation ( $r = -.48$ ); that is, they feel less able to carry out their professional duties and establish social relations.

**Conclusions:** In line with our results, it is essential to implement measures to promote variables such as self-efficacy, especially for professionals who are highly exposed to the effects of anxiety.

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## Autoeficacia y ansiedad en trabajadoras sanitarias de hospital

### RESUMEN

**Introducción:** En esta investigación, el objetivo es conocer la correlación entre la autoeficacia percibida y la ansiedad en una muestra de mujeres trabajadoras sanitarias de hospital. La hipótesis predice que las trabajadoras con menos ansiedad tendrán niveles más altos de autoeficacia percibida, mientras que aquellas trabajadoras con ansiedad significativa tendrán niveles más bajos de autoeficacia general y social.

**Materiales y métodos:** Un total de 240 mujeres trabajadoras sanitarias de hospital respondieron a los cuestionarios. Los instrumentos de medida utilizados fueron un inventario para medir la ansiedad (Inventario de Ansiedad Estado-Rasgo) y un cuestionario de autoeficacia (Escala de Autoeficacia).

**Resultados:** Los resultados obtenidos indican que existe una relación negativa entre ansiedad y autoeficacia en estas trabajadoras. Así, con un nivel de confianza de  $p < .001$  las trabajadoras sanitarias que presentan mayores niveles de ansiedad rasgo tienen la percepción de ser poco eficaces, resultando con una puntuación negativa en correlación de Pearson ( $r = -.48$ ), es decir, se sienten menos capaces para hacer tareas y establecer relaciones sociales.

#### Palabras clave:

Autoeficacia

Ansiedad

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*Conclusiones:* A tenor de los resultados obtenidos, es imprescindible implementar medidas en las organizaciones laborales para la promoción de variables como la autoeficacia, especialmente en los profesionales más expuestos a los efectos de la ansiedad.

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Self-efficacy is an interpersonal variable that exerts an important influence on personal and organizational variables; its development and improvement, in turn, can be influenced by other variables. To assess the moderator-mediator role of self-efficacy with respect to other variables (such as work demands, work commitment, coping strategies, productivity and even treatment adherence in the case of clinical patients), the research of [Salanova, Grau and Martínez \(2005\)](#) can be cited. They used a sample of 625 Spanish workers from different occupations to study the effect of the moderating role of self-efficacy between job demands and problem-centered coping. They found that people with high levels of self-efficacy and increasing job demands show more problem-centered coping than people with low self-efficacy. [Tripliana and Llorens \(2015\)](#) examined the role of supportive leadership and of self-efficacy in workplace development. Specifically, they assessed the mediator role of self-efficacy between leadership and workplace engagement. Their sample was composed of 271 employees in a public administration. Structural equation analysis revealed that self-efficacy can be defined as the relationship between leadership and engagement in the workplace. Perceived leader support can contribute to an employee's self-efficacy, which is positively related with work engagement. In addition, [Gismero-González et al. \(2012\)](#) analyzed the relationship between cognitive coping strategies, self-efficacy, and job variables in a sample of 413 teachers. Their results show that teachers in public schools are more likely to use more Pessimistic Passivity and Obsessive Self-Reference strategies than teachers in private schools.

[Contreras, Espinosa and Esguerra \(2013\)](#) researched and identified the psychological variables that mediate treatment adherence behavior in patients with chronic kidney disease under hemodialysis treatment. They concluded that patients with high self-efficacy and low stress levels showed the best treatment adherence. Out of a sample of 213 patients, 106 were diagnosed with acute coronary syndrome and 107 were not diagnosed. [Pereyra Girardi et al. \(2015\)](#), with a sample of coronary patients, obtained results that showed significant differences in coping with stress between the self-efficacy group and the non-self-efficacy group.

There are several investigations that have assessed the importance of personal and organizational variables in workers' mental health. [Luceño, Talavera, Martín and Escorial \(2017\)](#), with a sample of 865 workers from different companies, conclude that workers' perception of psychosocial risk factors in the company is a predictor of their well-being at work, in the sense that the greater the motivation and satisfaction, the lower the level of perceived stress. In another study by [Gómez-Perdomo, Meneses and Palacio \(2017\)](#), with a sample of 111 workers, results yielded an inverse relationship between the predictor variables of job satisfaction and psychological capital and the dependent variable of burnout syndrome. On the other hand, [Talavera, Luceño, Martín and Díaz \(2017\)](#) concluded in a study that depression is influenced by different organizational variables such as high perception of job demands, scarce control over demands, effort-reward imbalance, perceived work-family conflict, lack of supervision, job insecurity, working overtime, working on weekends when holding positions of low occupational grade and lower professional tenure.

For some time now there has been an increase in the number of studies attempting to find relationships between anxiety and self-efficacy. Certain studies have looked into the influence of one construct on the other, and others have only checked the correlational and negative effect between anxiety and self-efficacy. It seems that the perceived efficacy of control over thought and the efficacy of physical control predict state anxiety and avoidance behavior. It has been shown that persons who experience a lot of anxiety related to their skills are often as effective as those persons who do not suffer from anxiety. However, the difference is that those who are not anxious believe that they are more capable than they really are and they perceive themselves to be more self-effective ([Bandura, 1995](#)).

Bandura's Theory of Self-efficacy uses the two concepts of threat and coping, which coincides with the work of other authors who have specialized in anxiety and stress, such as [Lazarus \(1999\)](#). [Bandura \(1995\)](#) frequently speaks of the self-efficacy of coping. [Lazarus \(1999\)](#) distinguishes a type of evaluation that the subject makes, defined as 'appraisal processes in stress', with which he or she attempts to estimate the damage caused or the threat of the damage that could be caused by an external event while, on the other hand, the challenge could be seen as an opportunity for personal growth and improvement. In these types of appraisal processes, personal and situational factors, such as interests and beliefs, have an influence and are defined as 'secondary appraisals about coping resources'. These appraisals are made to check the available coping strategies and the abilities to put them into practice. These are basically beliefs about control.

Coping has been defined as the cognitive and behavioral efforts to control, reduce or tolerate the external or internal demands created by stressful stimuli, irrespective of the success of these efforts ([Lazarus, 1999](#)). Lazarus found a relationship between generalized expectations of control, or internal locus of control, and high expectations of efficacy, and added that beliefs about personal control affect the coping processes. Thus, when the desired results are important for the subject but there are low expectations of control, then it is likely that a threat will be perceived and the coping effort will be directed more towards the emotions and not towards the problem. But if the desired results are important and the expectations of control are high, then the first appraisal will be that of 'challenge' and the coping effort will be concentrated on the problem. According to Bandura's Social Cognitive Theory ([Bandura, 1995](#)), in social cognitive states, higher self-efficacy corresponds to lower anxiety and greater coping, and that the control could be behavioral or cognitive. In the case of the latter, the influence is based on the belief and not the ability. For this reason, there are subjects who, even though they are not very able or capable, feel very competent in their self-perception, and others who, despite being able and capable, do not feel very competent.

[Muris \(2002\)](#) published a study examining the relationships between self-efficacy and symptoms of affective disorders in a large sample of normal adolescents ( $n=596$ ). Results showed that low levels of self-efficacy generally were accompanied by high levels of trait anxiety/neuroticism, anxiety disorder symptoms, and depressive symptoms. In another research study, [Tahmassian and](#)

Moghadam (2011) with a sample of 266 female and 283 male high school students from Iran distinguished that there is a significant and negative relationship between self-efficacy (physical, emotional and total) and depression or anxiety.

More recently, Quijano and Navarro (2012) postulated in their experiments that there is no one single cause-effect relationship, but rather certain networks in which cognitive, behavioral and physiological variables come into play. As pointed out in the Theory of Self-efficacy, a correlation exists between perception, the efficacy of the individual and the physiological responses of anxiety and avoidance, and these in turn determine self-efficacy in a process of reciprocal influence.

In relation to Self-efficacy Theory, these studies have shown that there is a correlation between an individual's perception of his or her effectiveness and the physiological responses of anxiety and avoidance, and that these in turn determine self-efficacy in a process of mutual influence. A study by González and Garcés in 2014, with a sample of professional and amateur athletes, measured the psychological characteristics (CPRD) and anxiety (STAI) and concluded that women perceive anxiety symptoms (state and trait) as more intense than men, whereas cognitive management of stress control and mental ability was greater in men than in women.

Therefore, the purpose of this study was to determine and evaluate the correlation of the constructs of perceived self-efficacy and anxiety in female health care workers. The hypothesis is that workers with less anxiety will have higher levels of perceived self-efficacy, whereas those workers with significant anxiety will have lower levels of general and social self-efficacy. It is also predicted that women with high levels of self-efficacy will suffer fewer anxiety problems; that is, anxiety and self-efficacy are variables that relate negatively.

One of the reasons for choosing this sample was the much larger proportion of female health workers with regard to male health workers. According to several research studies, female workers possess a greater duality and role ambiguity than male workers while the impact of their different roles in mental health care can affect their perception of self-efficacy (Swanson & Power, 1999). According to other research, women are more prevalent in the majority of anxiety disorders. Etiologically, for social, educational and ontogenetic causes (Marks, 1987). These professionals, by the very nature of their work, are in continuous contact with illness and death, and they are more exposed to suffering from anxiety disorders and perhaps need more strategies of self-efficacy. According to Varela (2015), although nursing and medicine is gratifying work for most healthcare professionals, sometimes the daily reality of hospitals and the peculiarity of the sector cause stress with more assiduity than in other types of professionals. This increases the onset and the development of symptoms associated with burnout syndrome.

## Materials and method

### Participants

The sample consisted of 240 hospital workers in the University Hospital of Salamanca (Spain), with ages ranging from 25 to 59, with an average age of 38.6 years, belonging to the Spanish population, selected by intentional sampling, from among the workers of the center visited in order to conduct this study. Their educational levels included 15.1% licensed practitioners (Medical Specialist), 47.5% nurses, 11.8% technicians, and 25.6% auxiliary or basic technicians. A total of 53.7% of the participants were on a fixed contract and 47.3% had other types of contracts.

### Instruments

This study employed the State-Trait Anxiety Inventory that was developed by Spielberger, Gorsuch and Lushene (1970); its Spanish version was published by TEA Editions (1988). This questionnaire provides a differentiated measurement between 'state' anxiety (i.e., the anxiety experienced at a particular moment in time) and 'trait' anxiety (i.e., anxiety which is more stable and lasting in the participant). It was originally developed to assess anxiety in normal adults, although it has since proven to be applicable and of great use in clinical cases.

The 20 items that make up each part of the test (S/A) and (T/A) measure feelings of tension, nervousness, worry and apprehension. In the original studies, the sample comprised secondary school students, university students, neuropsychiatric patients, general medicine and surgery patients, and young prison inmates. The internal consistency of the test (reliability) was obtained using Kuder-Richardson's KR-20 and the indices found were  $KR20 = .83$  in T/A and  $KR20 = .92$  in S/A in normal participants in the test-retest trials. The validity of the construct was observed in trials that correlated the STAI with other tests that measured anxiety, the correlations being between  $KR20 = .52$  and  $KR20 = .83$ . In short, it appears that the elements that make up the STAI sufficiently discriminate and differentiate between the groups and have good internal consistency. The indices in the Spanish samples are similar to those seen in the original samples.

The differences found between groups of men and women and their ages have led to the construction of two differentiated tables for score typification with respect to sex (men-women) and age groups (adolescents-adults). Our research here uses the table for the group of adult women. We used a four-point Likert scale for measurement.

The Self-Efficacy Scale was created by Sherer and Maddux (1982), and was used in this study to obtain differentiated scores about general self-efficacy and social self-efficacy. This questionnaire has 23 items and is used to measure perceived self-efficacy. This scale was applied by its authors to a sample of 376 psychology students in the United States with the intention of measuring their self-efficacy with regard to their general abilities, and in particular their social skills. This questionnaire obtained a Chronbach alpha coefficient ( $\alpha \equiv .86$ ) on the subscale of General Self-Efficacy and alpha coefficient ( $\alpha \equiv .71$ ) on the subscale of Social Self-Efficacy. A seven-point Likert scale was used to measure the responses. The test has 17 items in subscale I of general self-efficacy and six items in subscale II of social self-efficacy.

### Procedure

The questionnaires were self-administered in the following ways: individually, voluntarily, and in the same conditions of order and instructions. All of the participants were given the questionnaires in their workplace and through their supervisors. The average duration for completing the questionnaire was fifteen minutes.

### Data analysis

The SPSS 20.0 statistical software was used to analyze the data. Three types of data analysis were carried out: descriptive, inferential and multi-structural. To analyze the data and obtain the results, Student's *t*-test was run to establish comparisons between two groups (with and without anxiety) using the STAI test scores for adult women and the cut-off point corresponding to the 50th percentile in State anxiety ( $P50 = 21$ ) and Trait anxiety ( $P50 = 24$ ). This test is used when samples are dependent; that is, when it is a single sample that has been evaluated twice (repeated samples) or

**Table 1**  
Correlations (Pearson) between anxiety and self-efficacy.

	General self-efficacy	Social self-efficacy	Total self-efficacy
State anxiety	-.39*	-.31*	-.42*
Trait anxiety	-.42*	-.41*	-.48*

\*  $p < .001$ .

when the two samples have been paired or mated. We then used Pearson's correlation to verify the correlation between variables.

## Results

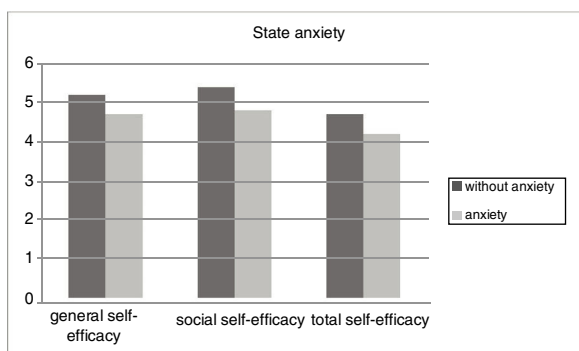
In view of these proposals, it seemed appropriate to determine whether the workers in our sample who showed anxiety would have a lower perception of self-efficacy. To do this, a Student's  $t$ -test for difference of means was carried out, with the independent variable (I.V.) the state anxiety being dichotomized into two groups (i.e. group 1 with anxiety and group 2 without anxiety). The measurement variable (D.V.) represented the scores obtained in general, social and total self-efficacy.

A Pearson's correlation was run between the variables (see Table 1). The results indicate that both state anxiety and trait anxiety correlate negatively with self-efficacy (general, social and total).

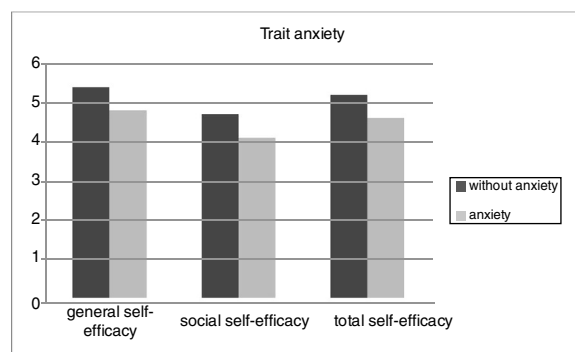
The results indicate that state anxiety shows significant differences with regard to general self-efficacy:  $t(240) = -6.21$  and  $p < .001$ . Thus, the higher the anxiety, the lower the self-efficacy. The differences in the results for social self-efficacy and anxiety are also significant:  $t(240) = -3.67$ ;  $p < .001$ . Likewise, significant differences were found between the state anxiety groups with regard to total self-efficacy:  $t(240) = -6.30$ ;  $p < .001$ . The analyses all showed that subjects with higher levels of state anxiety do indeed exhibit a lower perception of self-efficacy (see Fig. 1).

Subsequently, the same analyses (i.e. Student's  $t$ -test of differences of means) were again carried out, but this time the independent variable was trait anxiety (see Fig. 2). The results indicate that trait anxiety also shows significant differences with regard to general self-efficacy:  $t(240) = -6.46$ ;  $p < .001$ . Significant, although smaller, differences were also observed between trait anxiety and social self-efficacy:  $t(240) = -5.03$ ;  $p < .001$ . The results are equally significant between the groups of trait anxiety and total self-efficacy:  $t(240) = -6.8$ ;  $p < .001$ . Coinciding with the results for state anxiety, the workers who exhibited higher levels of trait anxiety had the perception of being ineffective; that is, they felt less able to perform tasks (general self-efficacy) and establish relationships (social self-efficacy).

Other analyses were carried out to compare whether there were differences between the groups of the age variable (18 to 30 years, 31 to 45 years and 46 to 65 years) in relation to the anxiety variable



**Fig. 1.** Differences in state anxiety between the groups of workers with and without anxiety regarding general, social and total self-efficacy.



**Fig. 2.** Differences in trait anxiety between the groups of workers with and without anxiety regarding general, social and total self-efficacy.

and we found that the intermediately aged women scored higher on anxiety. Regarding age groups and the self-efficacy variable, the results indicate that it is the younger workers who feel most self-efficacy and the oldest who feel the least self-efficacy, without there being significant differences between the age groups. Subsequently, comparisons were made between professional groups and anxiety, with nurses followed by auxiliaries showing the most anxiety and doctors and technicians the least. Finally, comparison of the professional groups with Total Self-efficacy yielded that the technicians obtained the highest scores, followed by auxiliaries and doctors (medical personnel), who obtained the lowest scores, without there being significant differences between these professional groups.

## Conclusion and discussion

These results indicate that: (1) There is a negative correlation between perceived efficacy and the variable of state and trait anxiety. Participants with high levels of self-efficacy for the performance of tasks or the social relations, do not exhibit the negative consequences of anxiety, even though the values of the external stressors are high. (2) There is a negative relationship between anxiety and self-efficacy. Workers with significant anxiety tended to perceive themselves as less effective. (3) There are greater differences between general self-efficacy and state or trait anxiety than between social self-efficacy and those same variables. (4) In social self-efficacy, the negative correlation between high levels of one variable with low levels of anxiety is not such high. (5) Perceived self-efficacy affects the anxiety state more negatively than trait anxiety. (6) There were no significant differences for anxiety or self-efficacy with respect to professional type or age group.

Regarding the relationship between the age variable and anxiety, although our results do not show significant differences, it seems that the older workers have less anxiety than those of intermediate ages and this is partly in agreement with the results of [Bandelow and Michaelis \(2015\)](#), who claim that there is a decrease in the prevalence rates of anxiety disorders with advancing age.

These results are similar to those of the study carried out by [Manzano and Ramos \(2000\)](#), who in a sample of healthcare workers found that participants with low levels of self-efficacy feel helpless, become less involved in their tasks, and have the sensation of being incapable of satisfying the needs of their patients. Consequently, they experience feelings of emotional exhaustion and frustration more frequently. In addition, [Navarro \(2015\)](#) aimed to analyze the moderating effect that self-efficacy may have on burnout and engagement, as forerunners of the quality of working life. [Navarro's \(2015\)](#) study was conducted with a sample of 374 medical personnel who worked at the Hospital of Seville (Spain). [Grau, Salanova and Peiró \(2000\)](#) analyzed the modulation established by beliefs

about both general and professional self-efficacy in the processes of work-related stress and claim that low levels of self-efficacy are associated with higher levels of stress. Anopchand (2000) also studied the effect of self-efficacy on overload, conflict in professional role and stress and found that self-efficacy reduced the impact of stress to which workers were subjected and improved the situations of role overload. Jimmieson (2000) studied the moderating effect of self-efficacy in behavior control under conditions of stress and showed an interaction between role conflict, work control and self-efficacy. It was also shown that workers with high levels of perceived self-efficacy in their work showed a greater psychological well-being, physical health, and a higher level of job satisfaction.

These results were put to the test in a study by Grau, Salanova and Peiró (2012) with data obtained from 140 workers who use new technologies in their jobs. It was noted that, in general, self-efficacy modulates the relationship between stressors and their consequences, in the sense that low levels of self-efficacy are associated with higher levels of stress. With respect to the results found in previous research, Merino, Fernández and Bargsted (2015) went a little further and added that self-efficacy is related to personal irritation and job satisfaction. A multi-occupational sample of 386 subjects participated in the study, which attempted to gather empirical evidence for the moderating role of occupational self-efficacy beliefs and specific responses to stress (such as irritation at work). It was confirmed that among the participants with lower levels of job satisfaction, those with higher self-efficacy showed lower levels of stress, thus confirming the moderating role of occupational self-efficacy on work stress experience.

Another study that attempts to clarify the interrelationship between self-efficacy and anxiety was conducted by Tejedor and Mangas (2016), which introduces self-regulation as a new construct. This study aimed to deepen our understanding of the possible moderating role of variables such as self-efficacy and self-regulation in the experience of work stress. This investigation yielded empirical evidence of the relationship between these variables. The sample consisted of 106 elementary school teachers, who were reported to have undergone important levels of stress in their jobs.

Prada (2015) researched a sample of 228 workers from the construction sector to evaluate whether personal resources are related to the self-perception of work performance, and through them, occupational resources and engagement (involvement) in the work. That study concluded that personal resources (i.e. specifically self-efficacy, mental skills and emotional skills) play a predictive role in the perception of occupational resources, specifically in the control of the work and the supervisor's social support. The importance of promoting self-efficacy was that it served as a preventive factor of burnout. Meseguer, Soler and García-Izquierdo (2014) analyzed the moderator role of self-efficacy of professionals between the occupational harassment and self-perceived health in a sample of 722 different professional workers. The results highlight the moderating role of self-efficacy in health in cases of psychological harassment. To illustrate the relationship between self-efficacy and levels of stress, which is consistent with our results, Ros, Fuentes and Fernández (2015) researched 103 teachers of different educational levels and applied a test of self-efficacy and Maslach Burnout Inventory. Their results confirm the relationship between the perception of interpersonal self-efficacy and positive mental health. Schönfeld, Brailovskaia, Bieda, Chi Zhang and Margraf (2016) used data from a large nationally representative German population sample of 1031 workers to find out whether self-efficacy is a mediator of the effects of daily stress. Their findings suggest that self-efficacy operates as a buffer of daily stress. Their findings suggest that self-efficacy operates as a buffer of daily stress.

According to our results and the results of the review of the previous literature, matched with samples of teachers, health workers,

patients, public or private sector workers, related to the new technologies or not, it is essential to implement measures for the promotion of these variables, especially in those professions most exposed to the effects of stress. For example, Cifre and Salanova (2015) studied a sample of teleworkers to investigate the role that organizations have in developing and training their workers, not only in technical knowledge but also to enhance their skills and positive personal variables. The results of moderate regressions show the importance of organizational resources (facilitators, distance management) and personal resources (personality, mental competency) in relation to the different experiences/emotions. In particular, our group showed that the very unusual nature of their working in continuous contact with illness and death means that they are more exposed to suffering from anxiety disorders and, perhaps, need more strategies for self-efficacy.

Finally, it should be pointed out that the findings of this study have some limitations, since the measurements of the variables depend on the validity and reliability of the questionnaires used, i.e. the STAI by Spielberger et al. and the scale of self-efficacy by Sherer and Maddux, because no objective or clinician administered measures of anxiety and self-efficacy were used in the study.

### Conflict of interests

The authors declare no conflict of interests.

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