Psicothema

Validation of the General Self-Efficacy Scale in psychiatric outpatient care

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Abstract

Background: Self-efficacy has been used to explain and predict human characteristics in different domains, including health behavior. The aim of this paper is to study the internal consistency, components, and convergent validity of the Spanish version of the General Self-Efficacy Scale (GSE) in psychiatric outpatients. **Methods:** A convenience sample of 966 consecutive psychiatric out patients completed in 2014 the Spanish versions of the General Self-Efficacy Scale (GSE), Form C of the Multidimensional Health Locus of Control Scale (MHLC-C), the Hong Psychological Reactance Scale (HPRS), the Drug Attitude Inventory (DAI-10), and a questionnaire including socio-demographic and clinical variables. **Results:** The GSE scale attained high internal consistency. Principal component analysis produced a general one-component solution. This structure accounted for more than 50% of the common variance. Further analyses yielded significant results with health locus of control dimensions, attitudes toward psychiatric treatment, age, and affective psychological reactance, but not with other socio-demographic or clinical variables. **Conclusions:** The structure of the General Self-efficacy Scale is unidimensional, homogenous and positively related to the constructs examined. The scale is a reliable and valid measure of the perception of self-efficacy in psychiatric outpatient care.

Keywords: General Self-Efficacy scale; psychiatric outpatients; psychological processes; psychometric properties.

Resumen

Validación de la Escala General de Autoeficacia en pacientes con trastornos mentales. **Antecedentes:** la autoeficacia ha sido utilizada para explicar y predecir las conductas de salud. El objetivo de este trabajo es estudiar la consistencia interna, componentes y la validez convergente de la escala general de Autoeficacia (GSE) en pacientes psiquiátricos. **Método:** una muestra de conveniencia de 966 pacientes psiquiátricos ambulatorios consecutivos cumplimentó, a lo largo del año 2014, las versiones en español de la GSE, del Formulario C de la escala Multidimensional de Locus de Control de Salud, la escala de Reactancia Psicológica de Hong, el Inventario de Actitudes hacia la Medicación, y un cuestionario con variables socio-demográficas y clínicas. **Resultados:** la consistencia interna de la escala GSE fue alta. El análisis de componentes principales ofreció una solución de un único componente, explicando más del 50% de la varianza común. Se registraron relaciones significativas con el locus de control de salud, las actitudes hacia la medicación, la edad y la reactancia psicológica afectiva, pero no con otras variables socio-demográficas o clínicas estudiadas. **Conclusiones:** la estructura de la escala general de auto-eficacia es unidimensional, homogénea y se relaciona positivamente con los constructos examinados. La escala es una medida fiable y válida en la atención ambulatoria psiquiátrica.

Palabras clave: escala general de auto-eficacia; pacientes psiquiátricos ambulatorios; procesos psicológicos; propiedades psicométricas.

Albert Bandura (1977) conceptualized self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". For this author, the originator of social learning theory, self-efficacy beliefs determine how people feel, think, motivate themselves and behave (Bandura, 1986; 1994). The applications of the self-efficacy theory have been used to account for and predict human characteristics in different domains including health behavior, personal performance and individual cognitive ability (Schwarzer & Fuchs, 1996).

Bandura introduced self-efficacy as a domain-specific construct, the perceived ability to perform concrete actions in

order to achieve specific outcomes (Bandura, 1994; Bandura & Adams, 1997), which need to be measured by instruments adapted to the content domain. However, a different level of analysis was chosen by Schwarzer and Jerusalem (1995) when the General Self-Efficacy Scale was created to assess a general sense of perceived self-efficacy in order to predict coping with daily hassles, as well as adapting after undergoing all kinds of stressful life events.

The psychometric properties of the scale were assessed with samples across 25 nations and the results obtained confirmed that perceived general self-efficacy appears to be a unidimensional and universal construct that yields meaningful relations with other psychological constructs (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002). Somehow, self-efficacy shapes both the *autonomy* self-concept component (Goñi, Esnaola-Echaniz, Rodríguez-Fernández, & Camino, 2015), and the *stress-management* component of emotional intelligence (Pérez-Fuentes, Gázquez-Linares, Mercader-Rubio, & Molero-Jurado, 2014).

Self-efficacy plays a considerable role in coping with chronic conditions such as psychiatric disorders (Carpinello, Knight, Markowitz, & Pease, 2000). Self-efficacy affects the amount of effort that patients put into coping with their diseases and the tendency to persevere in coping strategies (Raggi, Leonardi, Mantegazza, Casale, & Fioravanti, 2009). Moreover, psychiatric patients may internalize the experience of stigma associated with having a mental disorder and experience diminished self-efficacy and self-esteem (Watson, Corrigan, Larson, & Sells, 2007).

When explaining health behavior, significant attention is paid to controlling, or the belief of controlling one's health and attitudes (Shapiro, Schwartz, & Astin, 1996; De las Cuevas, Peñate, & Sanz, 2014). Control is a concept that plays an important role in Bandura's (1977) self-efficacy theory. Both locus of control and psychological reactance focus on analyzing the perception of control or on resources to solve the task-concepts partially collected in the General Self-Efficacy Scale. Conversely, the health literature has revealed a relationship between attitudes and self-efficacy beliefs (Gecas, 1989).

Three valid and reliable measures have demonstrated the value of general self-efficacy as a construct (Scherbaum, Cohen-Charash, & Kern, 2006). They are currently available and include: Sherer et al.'s Self-efficacy Scale (1982), Schwarzer and Jerusalem's General Perceived Self-Efficacy Scale (1995), and Chen, Gully, and Eden's New General Self-efficacy Scale (2004).

The aim of this study was to report the psychometric properties of the Spanish version of the General Perceived Self-Efficacy Scale in psychiatric outpatient care and to investigate how socio-demographic and clinical variables are related to this perceived control variable. Health locus of control, psychological reactance and patients' subjective responses and attitudes towards their psychiatric drug treatment were introduced in the analyses. For these purposes, we try to adhere to the norms of the EFPA Test Review Model (Evers et al., 2013).

Method

Participants

From October 2013 to April 2014, 1100 consecutive psychiatric outpatients, belonging to a basic health area of 135,000 inhabitants of the Canary Islands Health Service, attended to in two Community Mental Health Centers on the island of Tenerife (Canary Islands, Spain) were invited to participate in a cross-sectional study. Patients were eligible for inclusion in the study if they were aged 18 and over and were diagnosed by their psychiatrists with psychiatric disorders using the International Classification of Diseases, Tenth Edition (ICD-10) codes F20 (schizophrenia), F31 (bipolar affective disorder), F32-33 (depressive episode and recurrent depressive disorder), F40-48 (obsessive-compulsive disorder and other neurotic, stress-related and somatoform disorders), and F60 (personality disorders). Prior to consultation with their psychiatrist, each participant received a full explanation of the study, after which they signed an informed consent form approved by the local clinical research ethics committee. Each participant then filled out a brief socio-demographic survey and the questionnaires that comprise the study.

We recorded a high response that, after outlier removal, resulted in a sample of 966 psychiatric outpatients. The 966 patients who agreed to participate in the study had a mean age of 49.6 ±13.8 years (range, 18-87), and 62.9% were female. In regard to educational level, 9.0% of patients could only read and write, 34.6% had completed primary studies, 37.2% had completed secondary studies and 19.3% had a university degree. The primary diagnoses of respondents were schizophrenia (18.5%), bipolar disorder (12.2%), depressive disorders (47.7%), anxiety disorders (16.6%) and personality disorders (3.1%). The average duration of treatment was 112±100 months (range 1-400). The mean number of psychotropic drugs used was 2.9±1.4 (range 1-8). Only 13.3% of patients were under monotherapy treatment, whereas 27.0% received two drugs, 25.5% received three, 17.9% received four, and 16.3% received five or more drugs. Six hundred and eighty-nine (72.6%) patients had a 'pharmacophilic' attitude and one hundred and forty-seven (15.5%) showed a 'pharmacophobic' attitude to psychiatric medications. One hundred and thirteen (11.9%) patients registered a score of zero.

Instruments

Socio-demographic characteristics and clinical variables. Age, sex, educational level (no formal education, primary studies, secondary studies, and university degree), time under psychiatric treatment (in months), number of different drugs used, and the number of psychiatric admissions specifying their voluntary or involuntary character were registered. Patients' diagnoses were collected from their therapeutic recommendation sheets.

General Self-Efficacy Scale (GSE). The self-efficacy construct was assessed with the validated Spanish version of the General Self-Efficacy Scale (GSE; Bäßler & Schwarzer, 1996; Sanjuán-Suárez, Pérez-García & Bermúdez, 2000; Schwarzer & Jerusalem, 1995). The GSE scale is a ten-item self-report scale that measures general self-efficacy as a prospective and operative construct. In contrast with other scales designed to assess optimism, this scale explicitly refers to personal agency, that is, the belief that our own actions are responsible for successful outcomes. Each item is scored from 1 (*not at all true*) to 4 (*completely true*). The summary score ranges from 10 to 40, with higher scores indicating higher self-efficacy.

Multidimensional Health Locus of Control scale. The validated Spanish version for psychiatric patients (Cronbach's alpha: Internal = .67; Chance = .62; Doctors = .58; Other People = .41) of Form C of the Multidimensional Health Locus of Control Scale (MHLC-C; De las Cuevas, Peñate, Betancort, & Cabrera, 2015; Wallston, Stein, & Smith, 1994) was used to assess patients' perception about who or what controls their psychiatric disorder outcomes. The MHLC-C is an 18-item general purpose, condition-specific locus of control self-report scale that can easily be adapted for use with any medical or health-related condition to assess individuals' beliefs on what influences their health. It is comprised of two general dimensions: were assessed, i.e., internal and external health locus of control. The six-item internal health control dimension assesses the extent to which patients believe their health is influenced by their behavior, whereas the 12-item external health control dimension is comprised of three subscales: the belief that fate/luck (Chance subscale), healthcare professionals (Doctors subscale) or other significant people (Other People subscale) control patients' health status. High scores represent high levels of control beliefs in their corresponding dimensions.

Hong Psychological Reactance Scale (HPRS). Psychological reactance was assessed using the validated Spanish version for

psychiatric patients (Cronbach's alpha: Affective Psychological Reactance = .76; Cognitive Psychological Reactance = .62) of the Hong Psychological Reactance Scale (HPRS; De las Cuevas, Peñate, Betancort, & De Rivera, 2014; Hong & Faedda, 1996). HPRS is a 14-item self-report questionnaire developed to measure individual differences in reactance proneness, that is, individuals' trait propensity to experience psychological reactance. According to the concept of psychological reactance (Hong & Faedda, 1996), when an individual's freedom is threatened, the individual will be motivated to restore their perceived loss of freedom. Participants indicated the extent to which they endorsed each cognitive (HPRS-C) or affective (HPRS-A) statement on a five-point Likert scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*).

Drug Attitude Inventory (DAI-10). Patients' subjective responses and attitudes towards their treatment were assessed using the validated Spanish version of the Drug Attitude Inventory (DAI-10) (Cronbach's alpha= .67) (Hogan, Awad, & Eastwood, 1983; Robles-García, Salazar-Alvarado, Páez-Agraz, & Ramírez-Barreto, 2004), a 10-item self-report scale developed to assess a patient's belief about the efficacy of drugs. Items represent subjective experience presented as self-report statements with which the patient agrees or disagrees. These are based on actual recorded and transcribed patient accounts, and response options are true/false only. Each response is scored as +1 if correct or –1 if incorrect. The final score is the grand total of the positive and negative points and ranges in value from –10 to 10, with higher scores indicating a more positive attitude towards medication. A positive total score means a positive subjective response; a negative total score means a negative subjective response. We grouped the study population according to their DAI-10 total score. Those who had total scores of more than 0 were classified as "pharmacophilic" and those with negative scores were classified as "pharmacophobic".

Procedure

Interviews were held in the waiting room prior to patients' psychiatric consultation for a period of approximately 25 minutes. Participants received a full explanation of the study, after which they signed an informed consent form approved by the local ethics committee. A trained nurse administered self-report paper-and-pencil questionnaires. Participants did not receive any remuneration for their participation in the study.

Data analyses

All calculations were performed using SPSS 19 software (IBM, 2010). To examine the dimensionality of the GSE, principal component analysis was conducted. This method was used to maximize the common variance explained. Discriminant item coefficients were obtained with eta correlation. To investigate internal consistency, Cronbach's alpha was calculated. Convergent validity was examined by calculating the correlation between the GSE with health locus of control, psychological reactance, and attitude towards drug treatment. ANOVA was used to compare the scores in the GSE according to socio-demographic variables. Regression analysis will also be performed to establish the association of both socio-demographic variables and psychological processes/attitudes with self-efficacy.

Results

Descriptive analyses

An initial group of analyses was performed to determine the discriminant power of each GSE scale item. To do this, the sample was divided into two groups according to GSE total score. These two groups represent extreme groups extracted, taking into account percentiles: one group representing percentile 25 or less, and another group representing percentile 75 or higher. Eta biserial correlation was used to establish the relationship between items and extreme score. Table 1 summarizes the coefficients obtained.

The range of eta coefficients represents high correlation levels (from .63 to .86). All items are highly related to GSE total score, which indicates their relevance to assess self-efficacy. Internal consistency (*Cronbach's alpha*) was high: .90.

Component analysis

A principal component analysis was performed with the 10 GSE scale items. The Eigenvalue method was used to extract components (values 1.0 or higher). As type of matrix, correlations among items were used. As can be observed in Table 2, a general one-solution was extracted, with high factor loading for all the items. This structure accounted for more than 50% of common variance.

Mean Scores Comparisons and GSE relationship patterns according to socio-demographic, clinical variables, and psychological processes

A statistically significant difference was found by sex, $F(1) = 13.26$, $p<.000$), where males scored higher than females: male's $M = 29$, $SD = 6.65$; female's $M = 28.73$, $SD = 7.05$; however, these differences attained a small effect size ($\eta^2 = .007$). Statistical significance was also found by diagnosis, $F(5) = 3.28$, $p<.006$). Despite there being a high effect size ($\eta^2 = .019$), *Bonferroni test* only yielded one statistically significant difference ($p<.026$), where anxiety patients ($M = 30.54$, $SD = 6.24$) showed higher levels of self-efficacy than depressive patients ($M = 28.56$, $SD = 6.82$). No statistically significant differences were found among educational levels, $F(3) = 1.19$, $p<.311$).

Table 1
Discriminant coefficients (eta correlations) for GSE's items

Items	n	Mean	Standard deviation	Eta
Item01	576	2.73	1.18	.63
Item02	576	3.30	.96	.70
Item03	576	2.93	1.08	.81
Item04	576	2.77	1.12	.84
Item05	576	2.82	1.09	.86
Item06	576	2.37	1.08	.73
Item07	576	2.70	1.07	.83
Item08	576	3.09	1.01	.81
Item09	576	3.09	1.01	.74
Item10	576	2.97	1.04	.75

Table 2
Pattern matrix following Principal Components Analysis of General Self-Efficacy scale (GSE)

Items	Factor loading
1. Puedo resolver problemas difíciles si me esfuerzo lo suficiente [I can always manage to solve difficult problems if I try hard enough]	.55
2. Puedo encontrar la forma de obtener lo que quiero aunque alguien se me oponga [If someone opposes me, I can find the means and ways to get what I want]	.72
3. Me es fácil persistir en lo que me he propuesto hasta llegar a alcanzar mis metas [It is easy for me to stick to my aims and accomplish my goals]	.75
4. Tengo confianza en que podría manejar eficazmente acontecimientos inesperados [I am confident that I could deal efficiently with unexpected events]	.80
5. Gracias a mis cualidades y recursos puedo superar situaciones imprevistas [Thanks to my resourcefulness, I know how to handle unforeseen situations]	.80
6. Puedo resolver la mayoría de los problemas si me esfuerzo lo necesario [I can solve most problems if I invest the necessary effort]	.66
7. Cuando me encuentro en dificultades puedo permanecer tranquilo/a porque cuento con las habilidades necesarias para manejar situaciones difíciles [I can remain calm when facing difficulties because I can rely on my coping abilities]	.78
8. Al tener que hacer frente a un problema, generalmente se me ocurren varias alternativas de cómo resolverlo [When I am confronted with a problem, I can usually find several solutions]	.81
9. Si me encuentro en una situación difícil, generalmente se me ocurre qué debo hacer [If I am in trouble, I can usually think of a solution]	.69
10. Venga lo que venga, por lo general soy capaz de manejarlo [I can usually handle whatever comes my way]	.73
Eigenvalue	5.37
% of variance	53.71

Statistically significant negative correlations (Pearson) were found between self-efficacy with age ($r = -.15$, $p<.000$), treatment duration ($r = -.07$, $p<.026$), and number of different drugs prescribed ($r = -.11$, $p<.001$), but, as can be denoted, the coefficients were low.

Low correlation coefficients were also found among GSE and psychological reactance dimensions. For cognitive reactance there was an $r = .03$. However, the coefficient with affective reactance, also low, attained statistical significance: $r = .08$, $p<.02$. The data indicate an increase in self-efficacy as affective reactance increases.

The relationships between GSE and locus of control dimensions attained statistically significant correlation coefficients: $r = .17$ ($p<.000$), for internal dimension, and $r = -.12$ ($p<.000$) for external dimension. These results revealed that self-efficacy increases as patients believe their health is influenced by their behavior, and decreases as they believe their health is influenced by external factors. Specifically, this negative correlation was due to the Chance subscale ($r = -.13$, $p<.000$), and the Other People subscale ($r = -.06$, $p<.045$). No correlation was found with the Doctor subscale ($r = .01$). In this regard, self-efficacy decreases as patients consider their health depends on Chance and, to a lesser extent, on Other People (Doctors excluded). In any case, although correlations are higher than with psychological reactance, coefficients remain low.

In regard to attitude to drugs (DAI scale), a positive and statistically significant correlation was found: $r = .10$ ($p<.001$), pointing out an increase in self-efficacy scores as patients rely more on medicines. This data is strengthened by contrasting the GSE scores of pharmacophilic patients ($M = 29.5$, $SD = 6.75$) with pharmacophobic patients ($M = 28.16$, $SD = 7.57$). ANOVA revealed that pharmacophilics scores higher, $F(1) = 4.62$, $p<.032$. However, once again, coefficients are low.

Regression analysis

Finally, a regression analysis was performed to establish the association of GSE with the aforementioned statistically significant variables. A step-by-step model was used to select only those variables with a relevant contribution to the GSE score. The GSE total score was used as criterion variable, and sex, age, diagnosis, treatment duration, number of different drugs, psychological reactance, locus of control, and attitudes to drugs were introduced as predictive variables. Table 3 summarizes the coefficients attained. The final model attained statistical significance (F = 14.49, $p<.000$) and accounted for 10% of variance ($R^2 = .09$).

As can be observed, the first two variables are locus of control variables: internal locus of control contributes positively to explain the GSE score, and an external locus of control variable, Chance contributes negatively. The next variable is age with a negative association. Moreover, as patients take a higher number of drugs, there is a negative contribution to self-efficacy. Taking this variable separately, it obtained a higher beta coefficient. Finally, attitude towards psychiatric drugs and affective reactance have a statistically significant and positive association with GSE.

Discussion

The main goals of this study were to assess the psychometric properties of the Spanish version of the General Self-Efficacy Scale (GSE) in psychiatric outpatients and to explore the predictive role of socio-demographic, clinical and perception of control variables on perceived self-efficacy.

Table 3
Regression analysis (step-by-step method) determining the role of both socio-demographical variables and psychological processes/attitudes on self-efficacy

Predictive variables	B	t	P	CI 95%	
(Constant)	30.11	19.84	.000	27.13	33.09
Internal Locus of control	.13	4.24	.000	.07	.19
Chance Locus of control	-.13	-4.05	.000	-.19	-.066
Age	-.06	-3.67	.000	-.09	-.03
Attitude to drugs	.20	3.69	.000	.09	.30
Number of different drugs	-.51	-3.23	.001	-.82	-.20
Affective Reactance	.08	2.31	.021	.01	.14

Abbreviations: B, beta coefficient; CI, confidence interval; *P*, statistical probability; *t*, *t*-test contrast

Self-efficacy has been progressively considered an important psychological resource in dealing with psychiatric disorders. The role of self-efficacy is an important consideration in overcoming self-stigma associated with mental illness (Corrigan, 2004; Corrigan et al., 2006), as predictor of successful recovery from prolonged psychiatric disorders (Davidson & Strauss, 1992; Löve, Moore & Hensing, 2012; Raggi et al., 2009), and as facilitator of engagement in health-promoting behaviors (Schmutte et al., 2009; Spruill et al., 2014; Yanos, Primavera, & Knight, 2001). Given this evidence, the improvement of self-efficacy should be an explicit goal in psychiatric care, mental health-promotion strategies, and therapeutic and counseling sessions.

Our results are in line with those reported by Scholz et al. (2002), showing that perceived self-efficacy, as measured by the GSE scale, is a unidimensional and universal construct. This research also provides further evidence of the high internal consistency of the scale; the relevance of the ten items included in the scale is notable.

The regression analysis performed showed that health locus of control emerged as the most important predictor of perceived self-efficacy. The fact that patients' self-efficacy increases as they believe their mental health is influenced by their behavior and decreases as they believe their health is influenced by external factors, such as fate, luck or other significant people different from their doctors, can be considered as a criterion of internal validity of the scale. Interestingly, the DAI-10, which assessed responses and attitudes towards their psychiatric drug treatment, played a role in predicting patients' self-efficacy. Although psychiatric outpatients' self-efficacy is related to internal locus of control, that does not mean they do not trust psychiatric drugs although they dislike their overuse. In this sense, the GSE is negatively associated with 'number of different drugs', pointing out how patients rely less on themselves as they need to take more drugs.

But these data must be interpreted with caution: if we analyze the correlation coefficients separately, what we observe is that the three psychological processes (reactance, locus of control, and attitude to drugs), have a significant but low relationship pattern with the GSE. In this regard, these variables are far from being a good convergent validity criterion, contrary to what we initially thought. New measures are required to establish a stronger convergent validity for the GSE.

The current study has several limitations. These include the fact that the study was cross-sectional, which restricts the possibility of causal conclusions and could only demonstrate associations. Another limitation is that data from questionnaires were self-reported and, therefore, have the potential risk of misstatement or could involve response biases. The strengths of this study include the large number of psychiatric outpatients who agreed to participate and the large number of socio-demographic, clinical and perceived control variables included. Another strength of the current study is that regression analyses performed were controlled for the contribution of these variables.

In conclusion, this study supports other cross-cultural research on the GSE scale in terms of the scale's factor structure and internal consistency. The Spanish version of the scale can be confidently used in psychiatric outpatients as a reliable indicator of perceived general self-efficacy and may provide mental health practitioners with a useful guide for creating the contexts that facilitate the recovery process and patients' adherence to treatment. With the exception of age, which affects psychiatric patients' confidence, which diminishes as they get older, the remaining socio-demographic variables showed low significant correlations, indicating little contribution to the common variance.

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