

Psychometrics properties of a questionnaire on the attitudes of general practitioners towards mental health (MAPSAM-14)

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Título: Estudio psicométrico de un cuestionario sobre las actitudes de los médicos de atención primaria hacia la salud mental: Cuestionario MAPSAM-14.

Resumen: *Antecedentes:* El objetivo de este estudio es la adaptación y el análisis de las propiedades psicométricas de un cuestionario para medir las opiniones y percepciones de los médicos de atención primaria hacia la salud mental. *Método:* Se trata de un estudio observacional, descriptivo y transversal. Han participado 145 médicos de atención primaria pertenecientes al área de referencia del Hospital Regional de Málaga, que contestaron un cuestionario de 25 ítems. Con dicho cuestionario se realizó un análisis factorial exploratorio y de consistencia interna. *Resultados:* Las condiciones de adecuación muestral y esfericidad se cumplieron de forma satisfactoria. En el análisis factorial se obtuvieron 3 dimensiones medidas por 14 ítems que explican el 55.1% de la varianza total: el cuestionario MAPSAM-14 (Cuestionario de Médicos de Atención Primaria y Salud Mental). *Conclusiones:* Este cuestionario puede ser una herramienta de rápida aplicación, válida y fiable, para conocer la satisfacción de los médicos de atención primaria respecto a su relación con los equipos de salud mental, sus creencias hacia la enfermedad mental y su percepción del nivel de formación en relación con la esquizofrenia y trastornos afines.

Palabras clave: atención primaria; actitudes; salud mental; propiedades psicométricas.

Abstract: *Background:* The aim of this study is to adapt and analyze the psychometric properties of a questionnaire on the perceptions of general practitioners towards mental health. *Method:* This is a descriptive cross-sectional, observational study. A total of 145 general practitioners from the reference area of Malaga Regional Hospital answered this 25-item questionnaire; a factorial analysis was then conducted and its internal consistency reliability was tested. *Results:* The adequacy of sampling and sphericity were satisfactorily met. Three dimensions measured by 14 items were found in the factorial analysis explaining 55.1% of its variance: the MAPSAM-14 questionnaire. *Conclusions:* This questionnaire may be a proper tool with which to determine the satisfaction of general practitioners in relation to mental health services, their beliefs and stigma towards mental illness and their level of training in the field of schizophrenia and related disorders.

Keywords: primary care; attitudes; mental health; psychometrics.

Background

The general practitioner (GP) is a key professional in the diagnosis and treatment of people with mental disorders because they are located in the entry point to the Spanish public health system. The majority of the patients with mental illnesses attended by these professionals suffer from minor mental disorders, like depression and anxiety. However, with the implementation of the psychiatric reform and the development of community care, the majority of general practitioners are regularly involved in the treatment of people with severe mental disorders like schizophrenia and other psychotic disorders. Some studies imply that one out of four patients with schizophrenia are only treated by the GP (Kendrick, Burns, Garland, Greenwood & Smith, 2000) and one out of three has lost contact with the mental health service (Carr et al., 2004). Also, the detection of the first psychotic symptoms by the general practitioner is essential for a preventive treatment of said patients (García Campayo & Alda Díez, 2005; Skeate, Jackson, Birchwood & Jones, 2002).

There are many aspects that influence the clinical conduct of the GP facing people with mental disorders: factors related to the illnesses own characteristics, the patients' char-

acteristics, the medical organization and pertaining said professional. Specifically, among the professionals' factors that can influence the treatment of people with mental disorders in general and with schizophrenia in particular we can find three groups of factors. The first group includes the communication and quality of the collaboration between primary care and the mental health services (Aragones, Piñol, Lopez-Cortacans, Hernández & Caballero, 2011; Carr et al., 2004; Jones, Vahia, Cohen, Hindi & Nurhussein, 2009; Meadows, Harvey, Joubert, Barton & Bedi, 2007; Oud, Schuling, Slooff & Meyboom-de Jong, 2007; Verdoux, Cougnard, Grolleau, Besson & Delcroix, 2006). In a second group we can find those that encompass the beliefs and attitudes of GPs towards mental illness (McCab & Leas, 2008; Nkire et al., 2015; Oud et al., 2007). And lastly there is a third group that includes the understanding of the role of the GP in the treatment of patients with mental illnesses (Carr et al., 2004; Dowrick, Gask, Perry, Dixon & Usherwood, 2000; Latorre Postigo, Lopez-Torres Hidalgo, Montañez Rodríguez & Parra Delgado, 2005; Simon, Lauber, Ludewig, Braun-Scharm & Umbrecht, 2005).

Even though there is a high demand for assistance of patients with mental health problems in primary care, in Spain, we have barely any published studies documenting GPs views on the demand in mental healthcare, their formative necessities and their attitudes towards those disorders, probably due to the lack of instruments to evaluate those components. Latorre Postigo et al. (2005) designed a questionnaire

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to evaluate those components, but they did not publish their validation (Latorre Postigo et al., 2005), while Aragonés et al. (2011) have validated an instrument about GPs attitudes, but specific to depression. Arrillaga Arizaga, Sarasqueta Eizaguirre, Ruiz Feliu and Sánchez Etxeberria (2004) have published a questionnaire to measure the perception of primary care health workers (doctors and nursing staff) towards the mental patient, psychiatry and the mental health team. The availability of said questionnaire and his particular interest to know the beliefs and stigmas towards mental health, the assessment of the care relation with the mental health services and the training of the primary care professionals in these subjects, inclined us to choose it for our study. Therefore the goal of our work is the adaptation of the questionnaire of Arrillaga et al. (2004) for GPs, analyzing its psychometric properties (construct validity, factorial structure and internal consistency).

Method

Design

Observational and cross-sectional study of the validation of a questionnaire.

Participants

The GPs that participated in the study belonged to the 13 primary care basic teams of the health area of the Mental Health Clinical Management Unit of the Regional Hospital of Malaga. Altogether the target population was of 188 practitioners, of whom 145 answered the questionnaire, so the response rate was of 77%. Among the GPs that took part in the study there was a slight prevalence of males, 55.9% ($n = 81$). The average age was 49.52 years, with a standard deviation of 5.9 (CI 95%: 48.52-50.51) in the 25-63 years range and with a median of 51. The average seniority in the job position was of 7.2 years, with an average time past since the conclusion of the degree being 27.4 years. The discrepancy between the seniority in the position and the time since the conclusion of the degree is probably related with the date of the last open job competition called by the Andalusian Health Service.

Instrument

In this study we have based ourselves on the questionnaire employed by Arrillaga Arizaga et al. (2004) that had 46 items and was directed at doctors as well as primary care nursing staff and focused on the most common pathologies in the field of mental health. The validity of the content of said questionnaire was revised by a group of experts that included mental health and primary care professionals, that added or removed items according to the data they thought would be necessary for the objective of the study and that also analyzed the clarity of the enunciations of the items as

well as if they were representative of the areas they intended to measure. In the factorial analysis of correlations they obtained 5 factors (course attendance, knowledge, major treatments, minor treatments and care by the mental health center), with good Cronbach's Alpha scores that ranged 0.65 - 0.95 (Arrillaga Arizaga et al., 2004).

To achieve the objectives of our study we have defined three dimensions from a theoretical and clinical point of view, drawing from a review of the literature and from our own clinical experience. The dimension 1 (Relation) that measured the level of satisfaction of the GP's relation with the community mental health center; the dimension 2 (Beliefs) that touched upon erroneous beliefs, stigmas and attitudes towards mental illness; and lastly the dimension 3 (Training) that measured the perception of GPs towards their training in mental health, schizophrenia and other psychotic disorders. For this, we used the first 22 items of Arrillaga Arizaga et al. (2004) version, which were the general items related to mental health problems. Also, to focus on schizophrenia and related disorders, of the following sections: "I have difficulties to treat", "I would attend courses on", and "I consider my knowledge of the treatment and approach to the following illnesses to be appropriate", we solely retained the item "schizophrenia and other psychotic disorders", suppressing the items related to any other mental disorders. This way, the questionnaire was reduced to 25 items (Chart 1), the 22 general ones and the 3 related to schizophrenia specifically, that were graded in a Likert scale with 3 options: disagree = 1, indifferent (neither agree nor disagree) = 2 and agree = 3.

Procedure

The 25-item questionnaire was delivered to GPs by the research staff or by the mental health professionals in charge of the coordination with every primary care team. Once completed it was collected by the person that distributed it in every center. This study was approved by the Regional Ethics and Research Committee of Malaga.

Statistical analysis

For the study of the construct validity of the questionnaire an exploratory factor analysis (EFA) was conducted. To this effect the sample suitability was assessed with the Kaiser-Meyer-Olkin test (KMO; Kaiser, 1974) and the Bartlett's sphericity test was applied. As the extraction and rotation tool of the items, the method of least squares was implemented with the R application and the Varimax rotation was employed. This form of extraction is an approximation method to the correlation matrixes of Likert scales and consists in estimating first the polychoric correlations between all the items, and on those correlations the extraction of factors is conducted.

With the objective of studying the reliability, the homogeneity or internal consistency of the questionnaire was ana-

lyzed via the corresponding Cronbach's Alpha coefficient, with whom a measure of the strength of the relation between all the items of every dimension was obtained.

The descriptive analysis of the dimensions of the questionnaire and of the total score was made with the calculation of the average, the standard deviation, the maximum and minimum value and the confidence interval set to 95%. Lastly, in regards to the missing values an attempt to substitute those values using different procedures (nearest point's average, linear interpolation, etc...) was undertaken, getting similar results to the ones presented below.

Results

Assessment of the construct validity

First of all, the 25 items were grouped in the 3 dimensions previously established, in the following way: 9 items in the dimension 1 (Relation): 1, 5, 10, 13, 16, 17, 20, 21, 22; 8 items in the dimension 2 (Beliefs): 3, 4, 6, 7, 9, 11, 18, 19 y 9 and 8 items in the dimension 3 (Training): 2, 8, 12, 14, 15, 23, 24, 25 (Table 1). All these items were fully answered by 133 doctors (91.7%), giving a subject/item ratio of 9.5, very close to the ratio of 10 usually recommended.

Table 1. Items included to measure the perception of the GPs towards mentally ill, psychiatry and the Mental Health team (Arillaga Arizaga et al., 2004).

Description of items	Dimensions	
1. The mental health center (MHC) is sufficiently fast in handling the psychiatric deviations of their patients	1	1
2. The psychiatric training of GPs is generally satisfying	3	#
3. Even though many psychic patients look well, it would be dangerous to forget for a moment that they are mentally ill	2	#
4. In between the patients that you treat there are evident psychological factors in their illnesses	2	2
5. The attention that the MHC gives to the patients I treat is unsatisfactory	1	1
6. Apart from covering their basic necessities there is little that can be done for psychotic patients	2	2
7. It would be convenient in any community that the mentally ill would be known so as to be warned of them	2	2
8. I find neuroleptic drugs to be very manageable	3	3
9. Psychological factors are of great importance	2	#
10. There is a necessity for a MHC in this district	1	#
11. I would accept a job taking care of mentally ill	2	#
12. Psychotropic drugs are more difficult to manage than other drugs used in primary care	3	#
13. The MHC resolves the psychiatric problems of the patients that I refer	1	1
14. I find antidepressants to be very manageable	3	#
15. I consider my psychiatric training sufficient for my job in primary care	3	3
16. Indication for psychotherapy has to be made in primary care	1	#
17. The interrelation I maintain with the MHC is satisfactory	1	1
18. Mentally ill patients treated by the MHC cease to be our patients	2	2
19. There is little we can do with Mental illnesses apart from referring the patients to the MHC	2	2
20. Relatively speaking, there are fewer patients referred to the MHC than to other specialties	1	#
21. I consider that the Mental Health Center should not discharge a patient until he/she is totally healed	1	#
22. The interrelation that we have with the MHC is sufficient	1	1
23. I have difficulties treating schizophrenia and other psychotic disorders	3	3
24. I would attend courses related to schizophrenia and other psychotic disorders	3	#
25. I consider my knowledge of treatments and approaches to schizophrenia and other psychotic disorders to be adequate	3	3

Dimensions: 1=Relation, 2=Beliefs, 3=Training

Items in bold correspond to the reduced version: MAPSAM-14

#Items eliminated from the reduced version

To verify if the items were correctly grouped in these dimensions and to assess the construct validity we performed an EFA. Prior to analysis, and following the recommendations of Dziuban y Shirkey (1974), the psychometric adequacy of the items was examined. Bartlett's sphericity test indicated that the items were dependent ($p < .0001$), while the sample suitability index KMO was above the recommended 0.50 (KMO = 0.586). Consequently, these values satisfied the adequacy and sphericity ($p < .0001$) conditions, which established that the EFA was feasible and appropriate for the starting empirical data. For the elimination of items and to retain the most parsimonious solution, first a revision was conducted of what items, within those factors, contributed the least on them (factorial weight $< .150$). Drawing from

the results of the analysis of extraction of least squares and the Varimax rotation it was confirmed that the most parsimonious solution was the one that maintained 14 of the 25 items we started with (Table 1). This way the three dimensions established from a theoretical perspective presented values above one and explained the 55.1% variance, sufficient for the result to be statistically significant. The structure obtained between the different dimensions, in the reduced questionnaire, was well balanced with similar representativity of all of them, and also, all the values of the factorial weights of every item with their dimension were very high ($\geq .600$), with two items with a negative charge (4 and 23) that would have an inverse relation with the rest of the items of their dimension (Table 2). The dimension 1 that we will refer to as

“Relation” (19.1% explained variance) includes 5 items (1, 5, 13, 17, 22) that measure the level of satisfaction of the relation between the GP and the community mental health unit. The dimension 2, denominated “Beliefs” (18.2 explained variance) touches upon erroneous beliefs and the existence of stigmas towards mental illnesses and includes 5 items (4, 6, 7,

18, 19). Lastly, the dimension 3 named “Training” (17.8 explained variance) measures the perception that GPs have about their own training in mental health, schizophrenia and other psychotic disorders and is composed by 4 items (8, 15, 23, 25) (Table 2).

Table 2. Summary of results of the exploratory factor analysis of the MAPSAM-14 questionnaire.

Item description	Descriptors			Dimensions Factorial charge		
	Mean	SD	h^2	1 Relation	2 Beliefs	3 Training
5.MHC attention satisfactory	2.72	0.53	0.68	.79		
17.Interrelation with MHC satisfactory	2.60	0.61	0.61	.69		
1.MHC quickness to attend referrals	2.53	0.68	0.48	.69		
22.Interrelation with MHC sufficient	2.22	0.77	0.42	.64		
13.MHC resolves problems	2.56	0.57	0.55	.64		
19.Little to do with mental illness	1.20	0.48	0.68		.81	
18.MHC patients not ours anymore	1.17	0.45	0.60		.72	
4. Psychological factors of patients illness	2.96	0.28	0.43		-.65	
6.Little to do with psychotic patients	1.32	0.62	0.41		.61	
7.Cautious with mentally ill	1.48	0.73	0.46		.61	
25.Adequate schizophrenia knowledge	1.42	0.62	0.82			.90
23.Difficulties to treat schizophrenia	2.57	0.68	0.64			-.74
8.Ease in using neuroleptics	1.68	0.66	0.52			.70
15.Psychiatric formation sufficient	2.25	0.77	0.40			.60
			%Explained variance	19.1	18.2	17.8
			%Accumulated of explained variance	19.1	37.3	55.1

MHC = Mental Health Center, *SD* = standard deviation, h^2 = communality

Reliability

Once the process of reducing and simplifying the questionnaire was finished, the reliability of this group of 14 items was evaluated through the analysis of the internal consistency with the estimation of Cronbach's alpha coefficient, with a result for the whole scale (14 items, $n = 133$) of a reliability coefficient of 0.672 (CI 95%: 0.531-0.795). For the first dimension the coefficient would be 0.626 (CI 95%: 0.517-0.717), for the second 0.502 (CI 95%: 0.358-0.622) and for the third 0.625 (CI 95%: 0.512-0.717).

Descriptive analysis of the dimensions of the questionnaire

To conduct the descriptive analysis of the 3 dimensions and of the total score of the questionnaire their factor scores were calculated according to the sum of the values of the answers given to each item. Items 4 and 23 were inverted because of the above mentioned considerations, and since the third dimension had 4 items and the other two 5, it was decided to correct its score by the factor 1.25, so as to make the scales of the scores of the three dimensions the same (range 5-15). The total score was calculated with the sum of the values of the three dimensions (range 5-45), being the result of the descriptive analysis of the total of the scale and of its dimensions the ones shown in Table 3. The interpretation of these results would be that a higher score in dimension 1 indicates a higher satisfaction of the GP with the relation be-

tween mental health and primary care, a higher score in dimension 2 indicates a higher presence of stigmas and erroneous beliefs towards mental health and a higher score in dimension 3 indicates the perception of a better training to treat schizophrenia and other psychotic disorders.

Table 3. Results of the descriptive analysis according to components and total score of the MAPSAM-14 questionnaire.

Dimensions	<i>N</i>	Average (<i>SD</i>)	Máximo- Minimum	CI 95%
Relation	137	12.65 (2.01)	7-15	12.31-12.99
Beliefs	139	6.22 (1.55)	5-12	5.96-6.48
Training	141	8.40 (2.35)	5-15	8.00-8.79
Total	133	27.33 (3.42)	18-36	26.74-27.91

SD = standard deviation

Discussion

In this work we have conducted an adaptation and analyzed the psychometric properties of a questionnaire to measure the perception of medical staff towards mental health. As a result, we have obtained a questionnaire based on a model with three factors and with a total of 14 items that explain a 55.1% of the total variance: the MAPSAM-14 questionnaire (Primary Care and Mental Health Practitioners Questionnaire). This questionnaire measures the satisfaction of GPs

with regards to their relation with mental health teams, their beliefs towards mental illness and their perception of training level regarding schizophrenia and similar disorders. The results of the analysis of the construct validity show that the dimensions (relation, beliefs and training) report evidence of a coherent internal structure and are based on theoretical, clinical and psychometric criteria. Dimension 1 (Relation) is represented by 5 items that ask about the satisfaction regarding the attention (5) and interrelation (17, 22) with the Mental Health Center, as well as about the swiftness (1) and the degree of solving of problems referred to the secondary care level (13). In the dimension 2 (Beliefs) the objects of evaluation are the erroneous beliefs and stigmas that GPs may hold towards patients with a mental illness. In particular what practitioners consider that they can do with a patient with mental illness (6, 19), the influence of psychological factors in illnesses (4), the necessity of being cautious in front of mentally ill people (7) and the belief that patients in mental health care stop belonging to primary care (18). Lastly, dimension 3 (Training) would include specifically perceptions of the level of knowledge to treat schizophrenia and other psychotic disorders (23, 25), the usage of neuroleptic drugs (8) as well as the training level in psychiatry (15). The dimensions included in the questionnaire line up with other research in which these factors also appear as the ones that weigh most heavily in the treatment of people with mental disorders in general and schizophrenia in particular (Aragonés et al., 2011; Carr et al., 2004; Jones et al., 2009; Oud et al., 2007; Verdoux et al., 2006).

The results of the internal consistency analysis show low values in general, for the complete scale as well as for the 3 dimensions. Even though these values are relatively low, they can be considered acceptable, according to the purpose of the scale since questionnaires about perceptions can present less strict internal consistency criteria. Also, these dimensions can provide themselves with clinical significance since we base ourselves not only in statistical criteria, but also from a clinical and theoretical point of view due to the similarity with earlier studies that support these dimensions.

This study is subject to a number of limitations that we will summarize next. First, in respect to the dimensionality of the questionnaire, we are aware that the value for the KMO index (0.586) is too near to the allowable limit (0.5); however, the same Kaiser (1970) was the one that designed the KMO and some other authors (Ferguson & Cox, 1993; Hair, An-

derson, Tatham & Black, 2005; Tabachnik & Fidell, 2001) consider that a KMO value over 0.5 allows to conduct the exploratory factor analysis. A second limitation would be related to the results of the internal consistency analysis, whose Cronbach's alpha scores could be considered low. However, they are inside the range recommended by Nunnally and Bernstein (1994) and by Huh, Delorme and Reid (2006) that suggest that a score equal to or higher than 0.6 in an exploratory research could be considered adequate and more so for a questionnaire about opinions and beliefs such as ours. The third limitation is related to not having evaluated the test-retest reliability. However it should be taken into consideration that self-completed questionnaires have a high reliability as previously documented (Charles, Birtt & Valente, 2006). The fourth limitation could be due to possible bias in relation with the data gathering. Among them is an aspect related with the so-called social desirability, in which the professional tends to transform his reality in what he considers an optimal behavior. To minimize this aspect the questionnaire was conducted anonymously. A last limitation would be that we do not have data about the doctors that did not answer the questionnaire, although the response rate was considerably high (77%).

As conclusions we could highlight that the perception that GPs have about these three dimensions (relation between primary care and mental health, training in schizophrenia and other psychotic disorders and beliefs about mental illnesses) could be useful for the planning and development of a set of measures that would lead to an increment of the quality of the treatment of those patients and in a higher job satisfaction for GPs. In this context the MAPSAM-14 questionnaire is a concise, valid and reliable tool for the measuring of these dimensions and it will allow assessing the extent of the problem in a quick and economical way, therefore it will be of great utility to clinical practice and research. However, we consider conducting confirmatory factorial analysis to verify the internal structure of the questionnaire in future research.

Funding: This study was funded by the Department of Innovation, Science and Enterprise (PI-0332/08, P10-CTS-5862, CTS-945) of the Regional Government of Andalusia.

Acknowledgements: Thanks to the general practitioners and to the directors of the health centers that have taken part in this study.

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(Article received: 27-02-2017; revised: 14-07-2017; accepted: 25-09-2017)