

ORIGINAL ARTICLE

## Characteristics of Spanish articles of “scientific quality” cited in clinical practice guidelines on mental health<sup>☆</sup>

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### Abstract

**Introduction:** The study aims to illustrate the impact of Spanish research in clinical decision making. To this end, we analysed the characteristics of the most significant Spanish publications cited in clinical practice guidelines (CPG) on mental health.

**Material and methods:** We conducted a descriptive qualitative study on the characteristics of ten articles cited in Spanish CPG on mental health, and selected for their “scientific quality”. We analysed the content of the articles on the basis of the following characteristics: topics, study design, research centres, scientific and practical relevance, type of funding, and area or influence of the reference to the content of the guidelines.

**Results:** Among the noteworthy studies, some basic science studies, which have examined the establishment of genetic associations in the pathogenesis of mental illness are included, and others on the effectiveness of educational interventions. The content of those latter had more influence on the GPC, because they were cited in the summary of the scientific evidence or in the recommendations. Some of the outstanding features in the selected articles are the sophisticated designs (experimental or analytical), and the number of study centres, especially in international collaborations. Debate or refutation of previous findings on controversial issues may have also contributed to the extensive citation of work.

**Conclusions:** The inclusion of studies in the CPG is not a sufficient condition of “quality”, but their description can be instructive for the design of future research or publications.

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**PALABRAS CLAVE**

Guías de práctica clínica;  
Investigación cualitativa;  
Medicina basada en la evidencia;  
Impacto en la toma de decisiones;  
España

## Características de artículos españoles de «calidad científica» citados en las guías de práctica clínica en salud mental

**Resumen**

*Introducción:* Se quiere ilustrar el impacto de la investigación española en la toma de decisiones clínicas y sanitarias. Con este fin se formula la cuestión de cómo son las publicaciones científicas españolas más citadas en las guías de práctica clínica (GPC) en salud mental.

*Material y método:* Se plantea un estudio de tipo descriptivo-cualitativo sobre las características de 10 artículos originales españoles citados en la GPC sobre trastornos mentales y seleccionados por su «calidad científica». Se analizó el contenido de los artículos según las características siguientes: tema, diseño, centros de investigación, relevancia científica y práctica, tipo de entidad financiadora y posición de la referencia o influencia del contenido en la GPC.

*Resultados:* Entre los estudios que han alcanzado notoriedad figuran algunos de ciencia básica que examinan el establecimiento de asociaciones genéticas en la patogenia de las enfermedades mentales y otros sobre la eficacia de las intervenciones educativas. El contenido de estos últimos es el que más influencia ha tenido en la GPC, citándose en el resumen de la evidencia o en recomendaciones. Algunas de las características que destacan en los artículos seleccionados son los diseños sofisticados (experimentales o analíticos) y el carácter multicéntrico, especialmente con colaboraciones internacionales. La confirmación o refutación de hallazgos previos en temas polémicos puede haber igualmente contribuido a la amplia citación de los trabajos.

*Conclusiones:* La inclusión de estudios en las GPC no es una condición de «calidad» suficiente pero, sin embargo, su descripción puede ser ilustrativa para el diseño de futuras líneas de investigación o publicación.

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**Introduction**

It is a well-known fact that in the present health and science world great value is given to what has been called "scientific quality", basically using bibliometric indicators. Of these there is a wide assortment, bibliometrics reaching a high level of refinement in its valuations. At present, the number of citations that each article receives is one of its basic indexes when spreading the echo that the study receives from other researchers. However, the relevance of scientific research should, in ideal conditions, also be assessed in other dimensions. Among these are the different types of scientific and social impact that a given investigation has caused.<sup>1</sup> One of the most notable impacts is the effect that the study in question exercises on decisions by the corresponding health collective. The diffusion of an article can be measured with fairly direct and quantitative criteria, such as the number of citations received, while the impact on making decisions is more subtle and complex and, normally, less subject to direct measurement.<sup>2</sup> One indirect way used to obtain an initial approximation of the influence of a specific work on decision-making is to analyse whether or not it has been included in the corresponding clinical practice guidelines (CPG), in how many and in which of them and in what sense and proportion its content has been incorporated into them.<sup>3,4</sup>

In the project "Social Impact of Research" [ISOR is the Catalan acronym], developed by the "Agency for Information, Assessment and Quality in Health" [AIAQS], various studies are being carried out on the social impact of biomedical research and its assessment. In one of them, the impact of Spanish research on mental health has been analysed by means of the use that the main Spanish CPG have made of

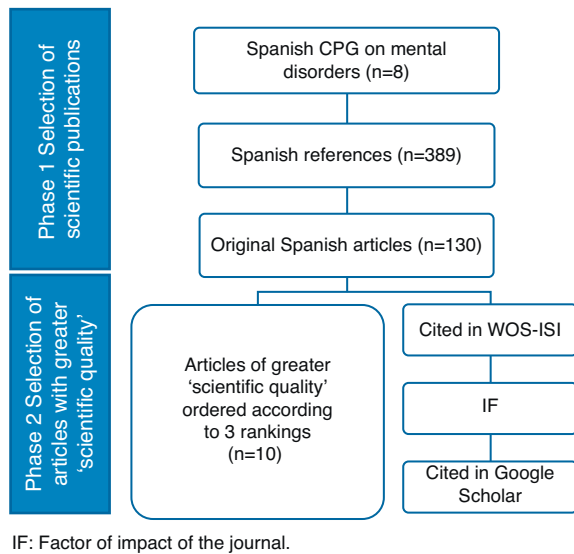
Spanish studies.<sup>5</sup> In this study, it was calculated that Spanish research in the CPG recommended by the National Health System represented 19% of all the references. Of these publications, the bibliometric indicators make it possible to select a group of studies that have reached a high number of citations and impact at the international level.

This article presents part of this study in which a group of Spanish scientific publications considered of "scientific quality" and referenced in Spanish CPG on mental health is analysed. The objective is to show what a few fundamental characteristics of this group of elite Spanish studies on mental health are. This can represent an illustration of what research in the country with the greatest influence in clinical and health decision-making is like. In addition, and even more importantly, the information can provide an orientation to calibrate the relevance that other studies in the same field might have in future.

**Materials and methods**

This was a qualitative study descriptive of the characteristics of the scientific publications of greatest "scientific quality" in bibliometric terms. The selection of the sample was carried out in 2 phases: (a) Phase 1: selection of Spanish scientific publications with potential impact on decision-making, and (b) Phase 2: selection of original Spanish articles considered of greatest "scientific quality" or bibliometric excellence included in the publications identified in Phase 1 (Fig. 1).

For the choice of publications in Phase 1, the sources of data selected in June 2011 were the CPG about mental disorders published in Spain in Spanish and indexed in



**Figure 1** Diagram showing the sample selection process.

the register of *GuíaSalud* (HealthGuide). This was chosen because it has a wide representation of the current most recommended practices in this field, judging by the criteria of quality that are established for its selection. In addition, the CPG had to be published in the format of *GuíaSalud* itself (to obtain guidelines with the most homogeneous format as possible). Guidelines that had not passed through this filter were ignored.

A selection was made of the bibliographic references included in each CPG that, as a minimum, the affiliation of 1 of the authors was located in Spain, independently of the order of the authors. The references were taken manually from the CPG between July and September 2011. These were entered into a specific database for the study, standardising and completing them through searches in the most common databases (Science Citation Index, PubMed, Scopus and Google Scholar) that have been shown to contain different numbers of citations.<sup>6</sup>

For the selection of the original Spanish articles in Phase 2, these were classified and ranked according to 3 criteria:

- Criteria 1: Number of citations obtained according to the *WOS-ISI* database from its publication through September 2011.
- Criteria 2: Factor of impact of the journal in the year of publication.
- Criteria 3: Number of citations obtained according to the Google Scholar database, an alternate search engine with greater scope than purely scientific considerations.

The 10 best articles in each ranking were compared. After that, articles that were included in at least 2 of the 3 classifications were selected.

The original articles of the sample selected were then obtained. Two of the authors analysed the content of the articles and gathered a few indicators that showed a profile of the studies based on their subject, study design, research centres, scientific and practical relevance, type of funding body and position of the reference or influence of its content in the CPG according to the position of the reference. This

final indicator served to analyse where the references were located within the CPG and, consequently, to what degree they contributed to the recommendations given in the CPG, as these constituted relevant data with respect to the transfer of knowledge. A reference was considered as linked to the recommendation when the reference or its content was explicitly mentioned.

## Results

In the first phase of the selection of the sample, 8 CPG were identified (these included subjects such as anxiety,<sup>7</sup> autism,<sup>8</sup> schizophrenia,<sup>9</sup> depression,<sup>10,11</sup> insomnia,<sup>12</sup> eating disorders<sup>13</sup> and severe mental disorder<sup>14</sup>). In these, 389 bibliographic references with at least 1 author affiliated with a Spanish institution were identified (Table 1).

Among these references there were 130 original articles that were classified into 3 rankings according to the 3 criteria of "scientific quality" mentioned earlier. In the case of Criterion 1 (citations in *WOS-ISI*), there was more than 1 article with the same number of citations. Consequently, 12 articles were selected instead of 10 (Table 2).

By combining the 3 classifications, a final sample of 10 articles was obtained. Four of these were included in the 3 criteria and 6 were included in 2 (Table 2).

We now turn to the description of the content and the methodology of these 10 articles cited in the CPG that, in turn, fulfil the criteria of "quality" according to the methodology described (Table 3).

Articles A ("A randomised trial on the efficacy of group psychoeducation in the prophylaxis of recurrences in bipolar patients whose disease is in remission"),<sup>15</sup> D ("Psychoeducation efficacy in bipolar disorders: beyond compliance enhancement")<sup>16</sup> and K ("Impact of a psychoeducational family intervention on caregivers of stabilised bipolar patients")<sup>17</sup> refer to 3 single-blind clinical trials. They assessed the efficacy of educational group therapy in bipolar disorder in both patients (Articles A and D) and their relatives-caregivers (Article K). The authors assigned the patients randomly to receive conventional drug treatment and unstructured group sessions in the control group, while the active treatment group received specific educational sessions. Follow-up lasted up to 2 years and the efficacy of the intervention was tested in terms of lower relapse rate, delay in the appearance of relapse and lower hospitalisation rate. In the trial carried out with relatives-caregivers, an assessment was made, likewise using random assignment, of the efficacy of 12 weekly educational sessions on acquiring training about bipolar disorder and the skills and capabilities of coping. This trial was also positive, demonstrating by the use of a specific measurement tool that, while the objective load of the relatives remained unchanged, the relatives' subjective perception of the load did indeed decrease. In addition, to a highly important degree, the relatives reduced the assignment of patient responsibility to the perturbation generated by the disorder. The 3 clinical trials were carried out by the same research group and, as can be deduced from the text of the articles, were based on a population seen at the same time, possibly contemporaneously.

Article B ("A polymorphic genomic duplication on human chromosome 15 is a susceptibility factor for panic and phobic

**Table 1** CPG selected, characteristics and references identified.

CPG	Year	Institution	Aspects treated	Spanish ref. no. (%) <sup>a,b</sup>	Total ref. no. (%) <sup>c</sup>
Clinical Practice Guidelines on Management of Patients with Anxiety Disorders in Primary Health Care	2008	Lain Entralgo Agency. Community of Madrid	Diagnosis and intervention	66 (17.0)	214 (10.3)
Clinical Practice Guidelines on Management of Patients with Autism Spectrum Disorders in Primary Health Care	2009	Lain Entralgo Agency. Community of Madrid	Detection and diagnosis	38 (9.8)	266 (12.8)
Clinical Practice Guidelines on Management of Major Depression in Adults	2008	Agency of health technology assessment of Galicia ( <i>avalia-t</i> )	Diagnosis and intervention	33 (8.5)	202 (9.8)
Clinical Practice Guidelines on Major Depression in Childhood and Adolescence	2009	Agency of health technology assessment of Galicia ( <i>avalia-t</i> )	Diagnosis, risk factors and intervention	48 (12.3)	269 (13.0)
Clinical Practice Guidelines on Schizophrenia and Incipient Psychotic Disorder	2009	Mèdiques Agency of Technology & Research Assessment	Diagnosis and intervention	26 (6.7)	240 (11.6)
Clinical Practice Guidelines on Management of Patients with Insomnia in Primary Health Care	2009	Lain Entralgo Agency. Community of Madrid	Diagnosis and treatment	44 (11.3)	207 (10.0)
Clinical Practice Guidelines on Eating Disorders	2009	Mèdiques Agency of Technology & Research Assessment	Diagnosis and intervention	114 (29.3)	446 (21.5)
Clinical Practice Guidelines on Psychosocial Interventions in Severe Mental Disorder	2009	Aragon Institute of Health Sciences	Intervention	20 (5.1)	228 (11.0)
<b>Total</b>				<b>389 (18.8)</b>	<b>2072 (100)</b>

CPG: clinical practice guidelines; Ref.: references.

<sup>a</sup> References that have, at least, 1 author affiliated with a Spanish institution.

<sup>b</sup> Percentage based on the total CPG references.

<sup>c</sup> Percentage in function of the total number of references.

**Table 2** Classification and selection of the original articles.

Criterion 1. Number of citations in <i>WOS-ISI</i>		Criterion 2. Journal Impact Factor		Criterion 3. Number of citations in <i>Google Scholar</i>		Articles selected	
Article ID	Score	Article ID	Score	Article ID	Score	Article ID	No. of times classified
A	241	B	29.219	A	386	A	3
B	123	A	10.519	B	142	B	3
C	112	M	9.335	D	132	C	3
D	82	C	7.801	C	118	D	3
E	78	N	7.249	L	113	E	2
F	56	O	5.022	S	97	G	2
G	45	D	4.978	G	97	H	2
H	45	J	4.463	E	88	J	2
I	40	P	4.04	T	75	K	2
J	38	Q	4.013	H	68	L	2
K	38	K	3.987	U	67		
L	38	R	3.959	V	66		

**Table 3** Characteristics of the original Spanish articles selected.

ID	Study	Type of study	Study subject	Research centres	Position in the CPG	Funding bodies <sup>a</sup>
A	“A randomised trial on the efficacy of group psychoeducation in the prophylaxis of recurrences in bipolar patients whose disease is in remission” <sup>15</sup>	Clinical trial	Efficacy of an educational intervention in patients with bipolar disorder	Multicentre	Summary of the scientific evidence (interventions)	3 non-profit (2 national + 1 international) 1 public (national)
B	“A polymorphic genomic duplication on human chromosome 15 is a susceptibility factor for panic and phobic disorders” <sup>18</sup>	Case-control	Study on genetic association of familial phobic disorder and panic disorder	Multicentre	Explanation of the pathogenesis of the disorder	1 non-profit (national) 5 public (4 national + 1 international)
C	“Association of BDNF with anorexia, bulimia and age of onset of weight loss in six European populations” <sup>19</sup>	Case-control	Study on genetic association of eating disorders	Multicentre European collaboration	Explanation of the pathogenesis of the disorder	4 public (3 national + 1 international)
D	“Psychoeducation efficacy in bipolar disorders: beyond compliance enhancement” <sup>16</sup>	Clinical trial	Efficacy of an educational intervention in patients with bipolar disorder	Multicentre	Summary of the scientific evidence (interventions)	2 non-profit (1 national + 1 international) 2 industries
E	“Risk factors for suicidality in Europe: results from the ESEMED study” <sup>21</sup>	Transversal	Prevalence of suicidal ideation and of suicide attempts	Multicentre European collaboration	Explanation of the risk of the disorder	5 public (3 national + 2 international) 1 industry
G	“Psychometric properties of the Temperament and Character Inventory (TCI) questionnaire in a Spanish psychiatric population” <sup>22</sup>	Transversal	Psychometric properties of the Spanish version of the TCI questionnaire	Single centre	Explanation of the detection of the disorder	n.i.
H	“Prevalence of eating behaviour disorders in adolescents in Navarra” <sup>23</sup>	Transversal	Prevalence of eating disorders	Multicentre	Explanation of the prevalence of the disorder	n.i.
J	“The 5-HTTLPR s/s genotype at the serotonin transporter gene (SLC6A4) increases the risk for depression in a large cohort of primary care attendees: the PREDICT-gene study” <sup>20</sup>	Cohort	Study on genetic association of the risk of depression	European study	Explanation of the factors of risk for the disorder	3 public (2 national + 1 international)
K	“Impact of a psychoeducational family intervention on caregivers of stabilised bipolar patients” <sup>17</sup>	Clinical Trial	Efficacy of an educational intervention in relatives-caregivers of patients with bipolar disorder	Multicentre	Summary of the scientific evidence and linked to recommendation	1 non-profit (international) 1 public (national)



Table 3 (Continued)

ID	Study	Type of study	Study subject	Research centres	Position in the CPG	Funding bodies <sup>a</sup>
L	"Prevalence of eating disorders in a Spanish school-age population" <sup>24</sup>	Transversal	Prevalence of eating disorders	Single centre	Explanation of the prevalence of the disorder	n.i.

BDNF: brain-derived neurotrophic factor; CPG: clinical practice guidelines; n.i.: not indicated; TCI: Temperament and Character Inventory.

<sup>a</sup> Information taken from the Acknowledgements section in the original articles.

disorders"<sup>18</sup> was a case-control study that analysed the familial panic and phobic disorder and ligamentous hyperlaxity in 7 families 178 patients affected, and an independent sample of 70 patients with non-familial panic disorder. The results reached in the genetic analysis of these patients were compared with those obtained in 189 controls. Cytogenetics and FISH analysis made it possible to identify an interstitial duplication of chromosome 15q24-26 (DUP 25), which was shown to be associated with family cases of phobia, panic disorder and ligamentous hyperlaxity, as well as to non-familial cases of panic disorder. The authors proposed that DUP 25 could be an important genetic factor of familial susceptibility to panic and phobic disorders with ligamentous hyperlaxity, as well as to non-familial panic disorder. The authors also suggested that there might be a non-Mendelian inheritance mechanism with a different level of penetration. This article generated controversy after its publication, when the findings were not replicated in later studies.

Article C ("Association of BDNF with anorexia, bulimia and age of onset of weight loss in six European populations"<sup>19</sup>) was a case-control study that analysed the association of 2 variants of the brain-derived neurotrophic factor (BDNF) gene and its single nucleotide polymorphism with appetite disorders (anorexia and bulimia nervosa). The sample consisted of 1142 patients from 5 European countries plus 510 controls. The study was based on data from previous studies that pointed to the same direction. Likewise, there was prior literature that indicated a possible direct relationship between BDNF and the pathogenesis of eating disorders. The results of the study showed a strong association of the 2 variants of the gene studied with all of the clinical subtypes of this disorder. The authors defended that these were the first findings of variants of this gene that predisposed for these disorders. The study also illustrated the need for the use of very large samples in order to demonstrate, in association studies, a genetic effect in a complex phenotype.

Article J ("The 5-HTTLPR s/s genotype at the serotonin transporter gene (SLC6A4) increases the risk for depression in a large cohort of primary care attendees: the PREDICT-gene study"<sup>20</sup>) was a cohort study. It presented the analysis of an aspect of the genetic basis for the risk of depression. The authors studied genetic samples and administered a validated questionnaire (Composite International Diagnostic Interview [CIDI]) for depression and another for anxiety, taking blood and saliva samples for genetic analysis, to

consecutive individuals that went to primary health care centres for consults (n = 737). In all the samples the polymorphism 5-HTTLPR was genotyped in the serotonin transporter gene (SLC6A4), considered to be an indicator of risk of depression. After rejections and losses, the univariate and multivariate analyses of 737 participants (80% of the total) displayed an association with an odds ratio (OR) of 1.50 between the genotype and the episodes of depression; this association was even stronger (OR: 1.79) for severe depression. The association between the polymorphism studied and depression had already been described, but the authors felt that the results of previous studies were contradictory. For that reason, they performed their study (PREDICT-gene study) in the context of a wider European study (Project PREDICT) whose objective was studying depression in primary health care.

Despite referring to different mental disorders (phobic and panic disorders, eating disorders and risk of depression), the last 3 articles described share a common methodological link: they study the association between genetic determinants and the mentioned mental disorders. In this group of studies there is also an overlap of authors in 2 of them. Interestingly, 1 of the 3 articles is an international collaboration within the European environment. As has already been emphasised, in this case clinical trials were not involved; the article handles analytical observational designs (cohorts and case-controls).

Article E ("Risk factors for suicidality in Europe: findings from the ESEMED study"<sup>21</sup>) was a transversal descriptive study. Like the last of the studies mentioned, it was of European focus. However, in this case it was not a study on genetic association, but a wide international study in which the goal was to evaluate prevalence in suicidal ideation and suicide attempts in a large random sample (8796 individuals) from the general population of 6 European countries, including Spain. The CIDI questionnaire was used as the measurement tool, detecting with it prevalence of 7.8% for suicidal ideation and 1.3% for suicide attempts. Spain was identified as having one of the lowest prevalence figures. Factors of risk determined included suffering a major mental disease or being unemployed.

Article G ("Psychometric properties of the Temperament and Character Inventory [TCI] questionnaire in a Spanish psychiatric population"<sup>22</sup>) likewise describes a transversal descriptive study that assessed the psychometric properties of the Spanish version of the TCI questionnaire. This instrument assesses 7 basic dimensions of personality and in the

study it was administered to 416 consecutive psychiatric patients with affective disorders, anxiety, depression or drug dependence. Based on the analysis performed, the authors concluded that the psychometric properties of the instrument were appropriate for the sample studied.

Finally, Articles H<sup>23</sup> and L<sup>24</sup> (*“Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras”* [Prevalence of eating disorders in adolescents in Navarra] and *“Prevalence of eating disorders in a Spanish school-age population”*) had various characteristics in common: they were prevalence studies referring to eating disorders and focused exclusively on Spain, in 2 different communities. They also shared the instruments of measurement. However, they differed in the methods of participant selection (random in both cases) and in participant ages. In spite of these differences, the results were quite similar with respect to bulimia (0.8% and 1.24%) but differed somewhat with respect to anorexia nervosa (0.3% and 0.69%), with the results of the first study being just outside the interval of confidence of those of the second study. An important result of one of the studies was the increase in prevalence of eating disorders, comparing it with a study performed 10 years earlier that found prevalence figures ranging from 1.55% to 4.69%, respectively.

## Discussion

The analysis of the content of these 10 articles makes it possible to identify some of the characteristics that, independently of the quality of the methodology and execution, can have been associated to the relevance demonstrated by their impact and by being chosen to be incorporated into documents that reflect the most relevant scientific evidence and aim to influence decision-making. This represents a further sample that research can produce improvements in clinical practice and, consequently, in the mental health of our society and its citizens.<sup>25</sup>

## Subjects

The articles analysed referred to a wide variety of prevalent mental diseases with the notable exception of schizophrenia. It does not therefore appear that the selection of a specific disorder as the object of research represents in and of itself a greater probability of diffusion.

## Design

With respect to the design of the studies, the dominance of complex designs (experimental and analytical)<sup>15–20</sup> over the simply descriptive<sup>21–24</sup> is notable in this sub-sample of articles having elevated bibliometric impact. However, the overall sample of articles cited in the guidelines featured a predominance of simpler descriptive designs.<sup>5</sup>

## Research centres

Eight of the 10 articles describe multicentre studies. Three of them correspond to international European collaborations,<sup>19–21</sup> where not only the research team was

international, but the population of patients as well. This is, undoubtedly, another feature that helps to characterise a group of studies having “scientific quality”. The fact that they are collaborative studies and that they had large samples has been taken, among others, as one of the factors explaining the elevated number of citations.<sup>26</sup>

## Funding

It is notable that the majority of the articles selected have been financed primarily by public institutions, whether local or European in nature. This fact contrasts with the data from other countries, where the private sector (both industry and non-profit organisations) contributes in a higher percentage in research than the governmental bodies.<sup>4</sup> In addition, it is surprising that articles funded by local bodies can have such a notable impact. Nevertheless, Lewison and Dawson<sup>27</sup> found that there was a relationship between research that had the most funding organisms available, in addition to other factors, and the fact of achieving higher impact; for example, in the number of citations.

## Perceived scientific and practical relevance

Putting a value to the scientific and practical relevance of the articles is complex and very dependent on subjective criteria. At any rate, in all the articles, the authors themselves are very explicit in emphasising the elements that they feel indicate this relevance. In the 3 clinical trials carried out by the same research group on the efficacy of regulated educational interventions in patients with bipolar disorder<sup>15,19</sup> and in their relatives-caregivers,<sup>17</sup> the scientific importance and the potential of practical application of the studies would basically derive, in the opinion of the authors, from being the first controlled and random clinical trials on this type of intervention. This is true as much in the case of the patients as of the caregivers, and also from being findings of real interest in the management of the illness and its environment.

The relevance of the 3 studies on genetic association also stems from involving novel findings. Even acknowledging that they refer to areas in which some prior information exists, part of that data comes from studies by the same authors. The relevance of these works for the scientific community is made clearly evident by the fact that one of them (Article B)<sup>18</sup> aroused considerable controversy when its findings were not replicated in later studies,<sup>28–30</sup> while another (Article J)<sup>20</sup> represents a contribution to a contentious and highly debated topic on which there are even several meta-analyses.<sup>20,31</sup> Both characteristics help to explain why these articles have been cited repeatedly. As is obvious, the authors do not propose any immediate practical application of these study results. However, it is a given that greater understanding of the pathogenic basis of the illnesses studied will facilitate advances in their treatment in the long range.

The relevance of the European study on suicidal ideation and suicide attempts<sup>21</sup> stems, in the authors’ opinion, from a greater knowledge of their factors of risk, which could in turn facilitate corresponding policies in public health and even in the clinical attitudes of the health professionals

involved. The 2 studies on the prevalence of eating disorders in different populations of Spanish adolescents represent a contribution to local knowledge on these disorders about which, at least posteriorly, information has been plentiful. However, due to characteristics of rigour of the studies, they probably represent observations that can be generalised to a wider environment than that of the execution of the studies. Finally, the practical relevance of the study on validating the TCI instrument<sup>22</sup> stems from the fact that it is the first validation of a Spanish version of this questionnaire. In the opinion of the authors, this will facilitate its use in the Hispanic environment.

### Position of the references or influence of their content in the clinical practice guidelines

An interesting aspect related to the relevance of these articles having "scientific quality" with respect to decision-making is to consider the use to which they have been put in the CPG; that is to say, which position they hold within the guidelines. The Spanish CPG are not an exception removed from the Anglo-Saxon world with respect to the scant contribution of local research considering 2 factors: the volume of studies on which they are based (19% of studies were Spanish according to a study that analysed the Spanish references in the same sample of CPG<sup>5</sup>) and the proportion in which they contributed to specific recommendations. In the sample under consideration here, the 3 clinical trials related to bipolar disorder are mentioned in the summary of the scientific evidence on which decision-making is based, but only 1 is expressly linked to specific recommendations. The rest of the studies, as is logical considering their subjects and objectives, are mentioned in the synthesis of the literature that summarises the pathogenesis, prevalence or clinical characteristics of the mental diseases and is not linked to recommendations.

### Limitations and strengths of the study

This work does not propose a statistical or comparative assessment of any type. As in every study where content is analysed qualitatively, the aim is to suggest characteristics or processes of interest, rather than establish numerical frequencies and quantitative comparisons. Another thing to consider is the question of up to what point the sample of articles selected for this analysis is appropriate for it. Their selection criteria are certainly conventional. However, as was explained in "Methods" section, these criteria seem, because of their rigour, to guarantee the identification of articles that have truly demonstrated a maximum level of bibliometric impact in the subject group chosen. Consequently, it is realistic to say that the characteristics of methodology and of other types identified in this analysis identify the Spanish research studies on mental health with probability of reaching notoriety in the scientific community and in the area of preparation of CPG. One last aspect that should be emphasised is the relevance in the analysis of the citations of the articles compared with the factor of impact of the journal with all its weaknesses. This indicator provides information about the use that is given to the articles

and, therefore, supplies a more scientific perspective to the analysis.

Another study limitation is the fact that all the Spanish CPG existing on mental disorders were not included in the analysis. Those in the *GuíaSalud* register were specifically selected because the CPG published in this catalogue require established methodological criteria for their inclusion. For this reason, we have not taken into consideration other CPG registers that are widely accepted in some fields, such as *Fisterra* in primary health care.<sup>32</sup>

This study makes it possible to identify a series of predominant characteristics that can reasonably be associated with an elevated number of bibliographic citations achieved. These characteristics include: sophisticated designs (experimental or analytical) and the multicentre character of the studies, especially with international collaboration. Among the studies that have achieved notoriety belong some basic science ones that examine or analyse genetic associations in the pathogenesis of mental illnesses and others on the efficacy of educational interventions. The content of the latter makes them the ones that have had the most influence in the CPG, being cited in the summary of the scientific evidence or being linked to recommendations. The confirmation or rebuttal of prior findings in controversial topics may have contributed equally to the wide citation of the studies. Some of these tend to be concentrated in a few centres of "excellence". However, the wide variety of subjects addressed suggests a certain dispersion in the area studied. Certainly, this study does not attempt to characterise Spanish mental health research globally; however, it does describe a few characteristics that appear in studies with great probabilities of diffusion and it could be useful for the design of future lines of research or publication.

### Ethical disclosures

**Protection of people and animals.** The authors declare that no experiments on human beings or animals have been performed for this investigation.

**Data confidentiality.** The authors declare that no patient data appear in this article.

**Right to privacy and informed consent.** The authors declare that no patient data appear in this article.

### Conflict of interests

The authors have no conflict of interests to declare.

### References

1. Donovan C. State of the art in assessing research impact: introduction to a special issue. *Res Eval.* 2011;20:175-9.
2. Adam P, Solans-Domènech M, Pons JMV, Aymerich M, Berra S, Guillaumon I, et al. Assessment of the impact of a clinical and health services research call in Catalonia: when small can be big. *Res Eval.* 2012;21:319-28.
3. Grant J, Cottrell R, Cluzeau F, Fawcett G. Evaluating "payback" on biomedical research from papers cited in



- clinical guidelines: applied bibliometric study. *BMJ*. 2000;320:1107-11.
4. Lewison G, Sullivan R. The impact of cancer research: how publications influence UK cancer clinical guidelines. *Br J Cancer*. 2008;98:1944-50.
  5. Solans M, Guillamón I, Permanyer G, Pons JMV, Adam P. L'impacte de la recerca espanyola en trastorns mentals: Un anàlisi de la transferència del coneixement a la pràctica clínica a través de les guies. Barcelona: Agència d'Informació, Avaluació i Qualitat en Salut. Servei Català de la Salut. Departament de Salut. Generalitat de Catalunya; 2012.
  6. Patsopoulos NA, Analatos AA, Ioannidis JP. Relative citation impact of various study designs in the health sciences. *JAMA*. 2005;293:2362-6.
  7. Grupo de trabajo de la Guía de Práctica Clínica para el manejo de pacientes con trastornos de ansiedad en Atención Primaria. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Unidad de Evaluación de Tecnologías Sanitarias. Agencia Laín Entralgo; 2008. Guías de Práctica Clínica en el Sistema Nacional de Salud. UETS N° 2006/10.
  8. Grupo de trabajo de la guía de práctica clínica para el manejo de pacientes con trastornos del espectro autista en atención primaria. Guía de práctica clínica para el manejo de pacientes con trastornos del espectro autista en atención primaria. Madrid: Plan de Calidad para el Sistema Nacional de Salud del Ministerio de Sanidad y Política Social. Unidad de Evaluación de Tecnologías Sanitarias. Agencia Laín Entralgo; 2009. Guías de Práctica Clínica en el Sistema Nacional de Salud. UETS N° 2007/5-3.
  9. Grupo de trabajo de la Guía de Práctica Clínica sobre la esquizofrenia y el trastorno psicótico incipiente. *Fòrum de Salut Mental, coordinació*. Guía de Práctica Clínica sobre la esquizofrenia y el trastorno psicótico incipiente [Versión resumida]. Madrid: Plan de Calidad para el Sistema Nacional de Salud del Ministerio de Sanidad y Consumo. Agència d'Avaluació de Tecnologia i Recerca Mèdiques; 2009. Guía de Práctica Clínica: AATRM. N° 2006/05-2.
  10. Grupo de Trabajo de la Guía de Práctica Clínica sobre la Depresión Mayor en la Infancia y en la Adolescencia. Guía de Práctica Clínica sobre la Depresión Mayor en la Infancia y en la Adolescencia. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Axencia de Avaliación de Tecnoloxías Sanitarias de Galicia (avalía-t); 2009. Guías de Práctica Clínica en el Sistema Nacional de Salud. avalía-t N° 2007/09.
  11. Grupo de Trabajo sobre el Manejo de la Depresión Mayor en el Adulto. Guía de Práctica Clínica sobre el Manejo de la Depresión Mayor en el Adulto. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Axencia de Avaliación de Tecnoloxías Sanitarias de Galicia (avalía-t); 2008. Guías de Práctica Clínica en el Sistema Nacional de Salud. avalía-t N° 2006/06.
  12. Grupo de trabajo de la Guía de Práctica Clínica para el manejo de pacientes con insomnio en Atención Primaria. Guía de práctica clínica para el manejo de pacientes con insomnio en Atención Primaria. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Unidad de Evaluación de Tecnologías Sanitarias. Agencia Laín Entralgo; 2009. Guías de Práctica Clínica en el Sistema Nacional de Salud. UETS N° 2007/5.
  13. Grupo de trabajo de la Guía de Práctica Clínica sobre Trastornos de la Conducta Alimentaria. Guía de Práctica Clínica sobre Trastornos de la Conducta Alimentaria. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Agència d'Avaluació de Tecnologia i Recerca Mèdiques de Catalunya; 2009. Guías de Práctica Clínica en el Sistema Nacional de Salud. AATRM Núm. 2006/05-01.
  14. Grupo de Trabajo de la Guía de Práctica Clínica de Intervenciones Psicosociales en el Trastorno Mental Grave. Guía de Práctica Clínica de Intervenciones Psicosociales en el Trastorno Mental Grave. Madrid: Plan de Calidad para el Sistema Nacional de Salud. Ministerio de Sanidad y Consumo. Instituto Aragonés de Ciencias de la Salud-I+CS; 2009. Guías de Práctica Clínica en el Sistema Nacional de Salud. I+CS N° 2007/05.
  15. Colom F, Vieta E, Martínez-Aran A, Reinares M, Goikolea JM, Benabarre A, et al. A randomized trial on the efficacy of group psychoeducation in the prophylaxis of recurrences in bipolar patients whose disease is in remission. *Arch Gen Psychiatry*. 2003;60:402-7.
  16. Colom F, Vieta E, Reinares M, Martínez-Aran A, Torrent C, Goikolea JM, et al. Psychoeducation efficacy in bipolar disorders: beyond compliance enhancement. *J Clin Psychiatry*. 2003;64:1101-5.
  17. Reinares M, Vieta E, Colom F, Martínez-Aran A, Torrent C, Comes M, et al. Impact of a psychoeducational family intervention on caregivers of stabilized bipolar patients. *Psychother Psychosom*. 2004;73:312-9.
  18. Gratacos M, Nadal M, Martín-Santos R, Pujana MA, Gago J, Peral B, et al. A polymorphic genomic duplication on human chromosome 15 is a susceptibility factor for panic and phobic disorders. *Cell*. 2001;106:367-79.
  19. Ribasés M, Gratacòs M, Fernández-Aranda F, Bellodi L, Boni C, Anderlüh M, et al. Association of BDNF with anorexia, bulimia and age of onset of weight loss in six European populations. *Hum Mol Genet*. 2004;13:1205-12.
  20. Cervilla JA, Rivera M, Molina E, Torres-Gonzalez F, Bellon JA, Moreno B, et al. The 5-HTTLPR s/s genotype at the serotonin transporter gene (SLC6A4) increases the risk for depression in a large cohort of primary care attendees: the PREDICT-gene study. *Am J Med Genet B Neuropsychiatr Genet*. 2006;141B:912-7.
  21. Bernal M, Haro JM, Bernert S, Brugha T, de GR, Bruffaerts R, et al. Risk factors for suicidality in Europe: results from the ESEMED study. *J Affect Disord*. 2007;101:27-34.
  22. Gutiérrez F, Torrens M, Boget T, Martín-Santos R, Sangorrín J, Pérez G, et al. Psychometric properties of the Temperament and Character Inventory (TCI) questionnaire in a Spanish psychiatric population. *Acta Psychiatr Scand*. 2001;103:143-7.
  23. Pérez-Gaspar M, Gual P, de Irala-Estévez J, Martínez-González MA, Lahortiga F, Cervera S. Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras. *Med Clin (Barc)*. 2000;114:481-6.
  24. Morandé G, Celada J, Casas JJ. Prevalence of eating disorders in a Spanish school-age population. *J Adolesc Health*. 1999;24:212-9.
  25. Arango C. Investigación en salud mental en España: algo más que brotes verdes. *Rev Psiquiatr Salud Ment*. 2012;5:211-3.
  26. Leggett L, Noseworthy TW, Zarrabi M, Lorenzetti D, Sutherland LR, Clement FM. Health technology reassessment of non-drug technologies: current practices. *Int J Technol Assess Health Care*. 2012;28:220-7.
  27. Lewison G, Dawson G. The effect of funding on the outputs of biomedical research. *Scientometrics*. 1998;41:17-27.
  28. Zhu G, Bartsch O, Skrypnik C, Rotondo A, Akhtar LA, Harris C, et al. Failure to detect DUP25 in lymphoblastoid cells derived from patients with panic disorder and control individuals representing European and American populations. *Eur J Hum Genet*. 2004;12:505-8.
  29. Weiland Y, Kraus J, Speicher MR. A multicolor FISH assay does not detect DUP25 in control individuals or in reported positive control cells. *Am J Hum Genet*. 2003;72:1349-52.
  30. Tabiner M, Youings S, Dennis N, Baldwin D, Buis C, Mayers A, et al. Failure to find DUP25 in patients with anxiety disorders,

- in control individuals, or in previously reported positive control cell lines. *Am J Hum Genet.* 2003;72:535–8.
31. Kiyohara C, Yoshimasu K. Association between major depressive disorder and a functional polymorphism of the 5-hydroxytryptamine (serotonin) transporter gene: a meta-analysis. *Psychiatr Genet.* 2010;20:49–58.
  32. Kotzeva A, Gracia FJ, Guillamón I, Díaz del Campo P, Carrasco JM, de Gaminde I, et al. Knowledge, attitudes and perceptions of Spanish clinicians towards guidelines: preliminary results of a national survey [poster]. Seoul (Korea): Guidelines International Network Conference; 2011 [citado October 2012].