

Towards an ICF Core Set for functioning assessment in severe mental disorders: Commonalities in bipolar disorder, depression and schizophrenia

Georgina Guilera¹, Oscar Pino², Maite Barrios¹, Emilio Rojo³, Eduard Vieta⁴, and Juana Gómez-Benito¹

¹ University of Barcelona, ² Granollers General Hospital - Benito Menni CASM (Barcelona), ³ Sisters Hospitalers, and ⁴ CIBERSAM

Abstract

Background: The International Classification of Functioning, Disability and Health (ICF) offers an internationally accepted standard for describing and assessing functioning and disability in any health condition. A specific list of ICF categories, an ICF Core Set (CS), has been developed for bipolar disorder, depression and schizophrenia. The aim of this study was to determine commonalities in the ICF-CSs for these three disorders, and to identify relevant categories for the development of tentative ICF-CSs for severe mental disorders in general. **Methods:** The ICF categories of all three mental health conditions were examined and compared. **Results:** Comparison of the Comprehensive ICF-CSs for the three mental health conditions revealed a set of 34 common categories (i.e., 10 from the *Body functions* component, 14 from the *Activities and participation* component, and 10 *Environmental factors*). These categories formed the proposed Comprehensive ICF-CS for severe mental disorders. A total of 11 categories were common to the Brief ICF-CSs of the three mental health conditions, and these formed the Brief ICF-CS for severe mental disorders (i.e., 3 from the *Body functions* component, 6 from the *Activities and participation* component, and 2 *Environmental factors*). All the categories included refer to key aspects of functioning for severe mental disorders. **Conclusions:** The proposed ICF-CSs for severe mental disorders may be applicable across a number of psychotic and affective disorders and they should prove useful for mental health services whose care remit covers a range of conditions.

Keywords: International Classification of Functioning Disability and Health (ICF), ICF Core Sets, bipolar disorder, depression, schizophrenia.

Resumen

Hacia un Conjunto Básico de la CIF para la evaluación del funcionamiento en el trastorno mental grave: aspectos comunes del trastorno bipolar, la depresión y la esquizofrenia. Antecedentes: la Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud (CIF) ofrece un estándar internacionalmente aceptado para describir y evaluar el funcionamiento en cualquier condición de salud. Se han desarrollado listas de categorías CIF, conjuntos básicos (CB), para el trastorno bipolar, la depresión y la esquizofrenia. Este estudio pretende determinar los puntos comunes de los CIF-CB para estos tres trastornos e identificar las categorías relevantes con el fin de desarrollar un nuevo CIF-CB para los trastornos mentales graves. **Método:** se examinaron las categorías de CIF de las tres condiciones de salud mental. **Resultados:** la comparación de la versión completa de los CIF-CB para las tres condiciones de salud mental reveló un conjunto de 34 categorías comunes (i.e., 10 para el componente de *Funciones corporales*, 14 para el componente de *Actividades y participación* y 10 *Factores ambientales*). Estas categorías formaron la propuesta del CIF-CB completo para trastornos mentales graves. Un total de 11 categorías fueron comunes a los CIF-CB breves formando el CIF-CB breve para trastornos mentales graves (i.e., 3 para el componente de *Funciones corporales*, 6 para el componente de *Actividades y participación* y 2 *Factores ambientales*). Todas las categorías incluidas se refieren a aspectos clave del funcionamiento de estos trastornos.

Palabras clave: Clasificación Internacional del Funcionamiento, Discapacidad y de la Salud (CIF), Conjuntos Básicos CIF, trastorno bipolar, depresión, esquizofrenia.

Severe mental disorders, which include bipolar disorder, moderate to severe depression and schizophrenia (Liu et al., 2017), are among the main causes of disability in contemporary western societies (World Health Organization, 2018). According to the Global Burden of Disease Collaborative Network (2018) the prevalence of these disorders is, respectively, 1.5%, 3.6% and 0.3%, which overall implies enormous personal, economic and social costs (Trautmann, Rehm, & Wittchen, 2016). These disorders

are characterized by a variety of clinical symptoms (e.g. manic, hypomanic, and major depressive episodes in bipolar disorder; depressed mood and loss of interest or pleasure in depression; and hallucinations, delusions and disorganized speech in schizophrenia) and they have a multifactorial aetiology, in which a combination of genetic and environmental factors plays a central role (American Psychiatric Association, 2013). Although in several cases individuals are able to achieve full clinical remission or recovery (IsHak et al., 2016; Millier et al., 2014; Samalin et al., 2017; Van Der Voort et al., 2015), numerous models are now questioning whether such disorders should be viewed exclusively in terms of psychiatric symptoms and are considering other indicators such as daily life functioning. Consequently, current treatment for severe mental disorders has moved away from a primary emphasis on reducing psychiatric symptoms towards a model that focuses not

Received: June 25, 2019 • Accepted: November 27, 2019

Corresponding author: Maite Barrios

Faculty of Psychology
University of Barcelona
08035 Barcelona (Spain)
e-mail: mbarrios@ub.edu

only on clinical remission but also on functional recovery (Green, 2016; McIntyre, Lee, & Mansur, 2015; Samalin et al., 2017; Van Der Voort et al., 2015). The main problem with this change of model is that functioning can be understood — and therefore studied — in several different ways (Ustün & Kennedy, 2009). In response to this lack of consensus, the International Classification of Functioning, Disability and Health (ICF) was adopted by the World Health Organization (WHO) Assembly in 2001 (World Health, 2001), since when it has become an internationally accepted standard for describing and assessing functioning and disability in any health condition. Within the framework of the ICF, functioning is understood as the operationalization of health and the manifestation of the interaction between a person's health condition and his/her contextual factors (Bickenbach, Cieza, & Rauch, 2012). At a practical level, the classification provides a universal language that clinicians and researchers can use to standardize functional assessments.

The ICF contains more than 1,400 categories, making it a comprehensive classification. However, this large number of categories can also make it impractical to apply in daily practice, especially when the focus is on a specific health condition. Thus, shorter lists of ICF categories (known as ICF Core Sets) have been developed in order to enhance the utility of the classification and to tailor it to the particular needs of users. An ICF Core Set (ICF-CS) is a selection of categories from the entire ICF that are considered essential for describing the functioning of a person living with a specific health condition (for a detailed description of the standard process in developing an ICF-CS, see Selb et al., 2015). There are currently 36 ICF-CSs, of which at least two versions are available, that is, one comprehensive and one brief (Avellanet, Selb, Stucki, & Cieza, 2015). The Comprehensive ICF-CS is a list of ICF categories that includes as few categories as possible to be practical, but as many as are necessary to achieve a sufficiently comprehensive description of the typical spectrum of problems in functioning — and in the environment — of persons with a specific health condition (Bickenbach, Cieza, & Rauch, 2012). The Brief ICF-CS is a shorter list of ICF categories, selected from the Comprehensive ICF-CS, which includes the most essential categories that can serve as a minimal standard for describing functioning in the specific health condition (Selb et al., 2015). Since the number of categories in an ICF-CS is considerably less than the 1,400+ categories in the full ICF, the CS makes the classification more readily applicable in everyday practice (Stucki & Grimby, 2004).

According to the WHO (World Health Organization, 2018), bipolar disorder, depression and schizophrenia are among the most disabling mental and behavioural disorders. One of the main clinical features of these three mental health conditions is the inability to function adequately in everyday life situations (Iosifescu, 2012). Moreover, it is known that this functional disability persists during relatively symptom-free periods (IsHak et al., 2016; Karow, Moritz, Lambert, Schöttle, & Naber, 2012; Samalin et al., 2017). One of the questions this raises is what aspects of functioning do these conditions have in common that make them so disabling.

In the framework of severe mental disorders, a specific list of ICF categories (i.e. an ICF-CS) has been developed for each of these mental health conditions: bipolar disorder (Ayuso-Mateos, Avila, Anaya, Cieza, & Vieta, 2013), depression (Cieza et al., 2004) and schizophrenia (Gómez-Benito et al., 2018). Close examination of these ICF-CSs reveals that the three mental health conditions share an important number of ICF categories. This suggests that

the categories common to them might constitute a more general ICF-CS for severe mental disorders, one which could be applied by services whose care remit extends across these different conditions. In terms of appropriateness and administration time, the use of a more generic ICF-CS in these contexts might be preferable to the use of specific ICF-CSs for the different disorders.

In light of the above, the purpose of the present study was to develop tentative ICF-CSs (Comprehensive and Brief) for severe mental disorders in general, including both psychotic and affective disorders. By identifying commonalities among the Comprehensive and Brief ICF-CSs for bipolar disorder, depression and schizophrenia, we aimed to determine the key aspects that would need to be considered in a more generic assessment of functioning in severe mental disorders.

Methods

Instruments

Both Comprehensive and Brief ICF-CSs for bipolar disorder, depression and schizophrenia were the instruments used in the present study. The ICF system is structured in a hierarchical fashion. Within each component of the system (i.e. *Body functions*, *Body structures*, *Activities and participation* and *Environmental factors*; personal factors are not yet classified in the ICF), ICF categories are arranged as follows: at the top of the hierarchy are the chapters, followed in descending order by the second-, third- and fourth-level categories. Fig 1 illustrates the structure of ICF categories, which is also reflected in the alphanumeric coding system, in this case using the category 'b167 Mental functions of language'. The letters b, s, d and e refer to the four components of the classification: *Body functions* (b), *Body structures* (s), *Activities and participation* (d) and *Environmental factors* (e), respectively.

Procedure

The procedure of the present study followed four successive steps. First, the currently available Comprehensive and Brief ICF-CSs for bipolar disorder, depression and schizophrenia were examined in terms of the categories they include. Second, since the ICF-CS for schizophrenia only includes categories at the second level, ICF-CS categories were aggregated at this level (see Figure 1). For example, the third-level category 'e1100 Drugs' was aggregated to the immediately higher second-level category 'e110 Products or substances for personal consumption'. Third, commonalities among the three ICF-CSs (or shared categories)

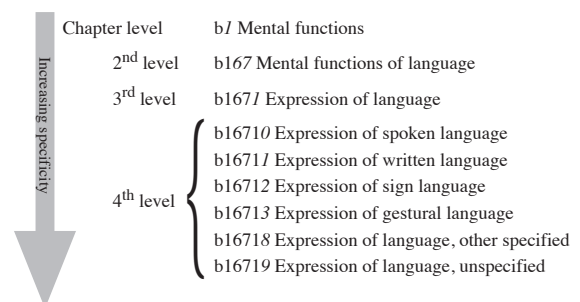


Figure 1. Structure of ICF categories, exemplified by the category 'b167 Mental functions of language'

were then identified separately by each ICF component (i.e., *Body functions, Activities and participation, and Environmental factors*). Fourth, the identified categories were selected to be included in tentative ICF-CSs (both Comprehensive and Brief) for severe mental disorders.

Data analysis

For each component, we calculated frequencies of common categories by comparing the ICF-CSs of the three mental health conditions, both in pairs (i.e., bipolar disorder vs. depression, bipolar disorder vs. schizophrenia, and depression vs. schizophrenia) and all three together. These frequencies were computed for both the Comprehensive and Brief ICF-CSs.

Results

Comprehensive ICF Core Set for Severe Mental Disorders

Analysis of the three Comprehensive ICF-CSs showed that the number of aggregated second-level categories corresponding to at least one of the three mental health conditions is 22 for the *Body functions* component, 53 for *Activities and participation* and 36 for *Environmental factors*. Hence, the total number of aggregated second-level categories that feature in the Comprehensive ICF-CS of at least one of the three mental health conditions across all components is 111. Table 1 shows the number of common categories between each pair of health conditions, as well as the commonalities across the three mental disorders.

A total of 34 categories are shared by all three mental health conditions and are thus proposed for inclusion in the Comprehensive ICF-CS for severe mental disorders. Ten of these 34 categories correspond to the *Body functions* component, mostly from chapter 1 ‘Mental functions’ ($n = 8$; 80.0%) (Table 2). A total of 14 categories relate to six different chapters of the *Activities*

and *participation* component, mostly from chapter 2 ‘General tasks and demands’ and chapter 7 ‘Interpersonal interactions and relationships’ (both $n = 4$; 28.6%). The remaining 10 categories correspond to the *Environmental factors* component, mostly from chapter 4 ‘Attitudes’ ($n = 4$; 40.0%).

Brief ICF Core Set for Severe Mental Disorders

Analysis of the Brief ICF-CSs for bipolar disorder, depression and schizophrenia showed that the number of aggregated second-level categories corresponding to at least one of the three mental health conditions is 12 for *Body functions*, 15 for *Activities and participation* and 12 for *Environmental factors*. Hence, the total number of aggregated second-level categories that feature in the Brief ICF-CS of at least one of the three mental health conditions across all components is 39 (Table 3).

Of these 39 categories, 11 are shared by all three mental health conditions (Table 3) and could thus form the Brief ICF-CS for severe mental disorders (these categories are marked with a (B) in Table 2). Three of the 11 common categories correspond to *Body functions*, all from chapter 1 ‘Mental functions’ (i.e. b130 Energy and drive functions, b140 Attention functions, and b152 Emotional functions), six refer to *Activities and participation* (i.e. d175 Solving problems, d230 Carrying out daily routine, d240 Handling stress and other psychological demands, d570 Looking after one’s health, d760 Family relationships, and d845 Acquiring, keeping and terminating a job) and two correspond to *Environmental factors* (i.e. e355 Health professionals and e410 Individual attitudes of immediate family members).

Discussion

The purpose of the present study was to identify those aspects of functioning that are common to the Comprehensive and Brief ICF-CSs for bipolar disorder, depression and schizophrenia, and having done so to suggest tentative ICF-CSs for severe mental disorders in general. Given that better functioning has been associated with improved treatment response, a reduced likelihood of relapse, better clinical course and less severe illness (Slade & Longden, 2015), it is crucial to identify the specific aspects of functioning that are affected so as to target their improvement from an integrative perspective (Green, 2016; McIntyre et al., 2015; Van Der Voort et al., 2015).

In relation to the *Body functions* component, two of the categories of the proposed ICF-CSs for severe mental disorders, included in both the Comprehensive and Brief versions, refer respectively to emotional functions (b152) and energy and drive functions (b130). Mood alterations are widely acknowledged to be one of the main psychopathological features of bipolar disorder, major depressive disorder, and schizophrenia, and especially of the former two conditions (Iosifescu, 2012). Low motivation, loss of energy, apathy and diminished goal-directed behaviour are also characteristic of these disorders (American Psychiatric Association, 2013; González-Pando, Alonso-Pérez, Suárez-Gil, García-Montes, & Pérez-Álvarez, 2018).

Numerous studies have likewise highlighted the important cognitive deficits that affect people with psychotic and affective disorders, and these deficits have been shown to be associated with poor psychosocial functioning (Bowie et al., 2010; Rock, Roiser, Riedel, & Blackwell, 2014; Solé et al., 2012). Given that neurocognition plays an important role in functional outcomes

ICF component	Second-level ICF categories			Common second-level categories
	BD	D	S	
<i>Body functions</i> (b)	BD	14		10
	D	12	17	
	S	12	12	
<i>Activities and participation</i> (d)	BD	14		14
	D	14	45	
	S	14	40	
<i>Environmental factors</i> (e)	BD	10		10
	D	10	28	
	S	10	24	
Total	BD	38		34
	D	36	90	
	S	36	76	

Note: BD: Bipolar disorder; D: Depression; S: Schizophrenia

Table 2
ICF categories included in the tentative ICF-CSs for severe mental disorders organized by ICF component and chapter

ICF component	Chapter	Category
<i>Body functions</i>	1 Mental functions	b130 Energy and drive functions (B)
		b134 Sleep functions
		b140 Attention functions (B)
		b144 Memory functions
		b147 Psychomotor functions
		b152 Emotional functions (B)
	5 Functions of the digestive, metabolic and endocrine systems	b160 Thought functions
		b164 Higher-level cognitive functions
		b530 Weight maintenance functions
	6 Genitourinary and reproductive functions	b640 Sexual functions
<i>Activities and participation</i>	1 Learning and applying knowledge	d175 Solving problems (B)
		d177 Making decisions
	2 General tasks and demands	d210 Undertaking a single task
		d220 Undertaking multiple tasks
		d230 Carrying out daily routine (B)
		d240 Handling stress and other psychological demands (B)
	5 Self-care	d570 Looking after one's health (B)
	7 Interpersonal interactions and relationships	d710 Basic interpersonal interactions
		d720 Complex interpersonal interactions
		d760 Family relationships (B)
		d770 Intimate relationships
	8 Major life areas	d845 Acquiring, keeping and terminating a job (B)
d870 Economic self-sufficiency		
9 Community, social and civic life	d920 Recreation and leisure	
<i>Environmental Factors</i>	1 Products and technology	e110 Products or substances for personal consumption
		e310 Immediate family
	3 Support and relationships	e320 Friends
		e355 Health professionals (B)
		e410 Individual attitudes of immediate family members (B)
	4 Attitudes	e420 Individual attitudes of friends
		e450 Individual attitudes of health professionals
		e460 Societal attitudes
		e570 Social security services, systems and policies
	5 Services, systems and policies	e580 Health services, systems and policies

Note: Those categories that feature in all three Brief ICF-CSs are marked with a (B). Data related to the comparative analysis of complete list of categories included in the ICF - CSs for bipolar disorder, depression and schizophrenia are available from the authors upon request

across these disorders it is not surprising that categories such as 'b140 Attention functions', 'b144 Memory functions' and 'b164 Higher-level cognitive functions' are common to all three ICF-CSs and thus form part of our proposed ICF-CSs for severe mental disorders. It should also be noted that the specific mental function related to the beliefs and ideational component of these mental health conditions (i.e. goal and non-goal directed thought functions, recurrent thoughts, incoherence of thought, delusions, etc.) is reflected in the category 'b160 Thought functions', which is an aspect that is essential to assess as part of the diagnostic process for psychotic and affective disorders.

Our analysis also identifies psychomotor functions ('b147 Psychomotor functions') as another common feature that should be

included in a ICF-CS for severe mental disorders. In this regard, it is important to bear in mind that although psychomotor disturbances are only a core diagnostic criterion in bipolar disorder (i.e. psychomotor agitation or retardation), this is an area of functioning that may also show significant abnormalities in individuals suffering from major depressive disorder or schizophrenia, in whom such disturbances are indicative of greater overall severity (American Psychiatric Association, 2013). Indeed, although the focus of psychomotor activities is on motor skills, they also involve perceptual processes and cognitive control mechanisms, not simply muscle contractions. Accordingly, psychomotor disturbances can have an important impact on functioning in all three of the mental health conditions considered here (Morrens, Hulstijn, & Sabbe,

Table 3
Number of ICF categories corresponding to each component of the Brief ICF-CS for the three mental health conditions

ICF component	Second-level ICF categories			Common second-level categories
	BD	D	S	
<i>Body functions (b)</i>	BD	7		3
	D	4	5	
	S	4	3	
<i>Activities and participation (d)</i>	BD	7		6
	D	7	11	
	S	6	6	
<i>Environmental factors (e)</i>	BD	5		2
	D	4	10	
	S	3	5	
Total	BD	19		11
	D	15	26	
	S	13	14	

Note: BD: Bipolar disorder; D: Depression; S: Schizophrenia

2007; Morsel, Temmerman, Sabbe, Hulstijn, & Morrens, 2015; Young, Parsons, Stein, & Kringelbach, 2015).

Another category common to the three ICF-CSs is ‘b134 Sleep functions’. Sleep disturbances, whether in the form of insomnia, hypersomnia or a decreased need to sleep, are one of the diagnostic criteria for major depressive disorder and bipolar disorder (American Psychiatric Association, 2013). Although not included as a diagnostic criterion in schizophrenia, disturbed sleep (including difficulty falling and staying asleep and diminished sleep quality) is a symptom commonly reported by most patients with this disorder (Kaskie, Graziano, & Ferrarelli, 2017). Importantly, there is also a large body of evidence suggesting that sleep disturbances are a risk factor for the onset, exacerbation and relapse of mental disorders (Rumble, White, & Benca, 2015). Consequently, shifts in circadian rhythm and disturbances to the sleep-waking pattern may be a contributing factor in functional impairment, making it a cornerstone when functioning is assessed in these three mental disorders.

Sexual functions are also frequently altered in severe mental disorders, often directly as a symptom of the health condition, but also indirectly as a consequence of pharmacological treatment (Baldwin & Foong, 2013; Elnazer, Sampson, & Baldwin, 2015). A similar point can be made in relation to the category ‘b530 Weight maintenance functions’, since the metabolic syndrome and associated weight gain presented by many people with psychotic and affective disorders is one of the most undesirable secondary features, not forgetting the implications this has for their physical health (Mansur, Brietzke, & McIntyre, 2015; Nayerifard, Bureng, Zahiroddin, Namjoo, & Rajezi, 2017). Thus, both sexual and weight maintenance functions should be included in the new ICF-CS for severe mental disorders.

A large number of different areas feature in the *Activities and participation* component of our proposed ICF-CSs for severe mental disorders, including problem solving (d175), decision making (d177) and task performance (d210 and d220), all of

which are directly linked to the serious difficulties people with a severe mental disorder experience in dealing satisfactorily with their everyday lives (Barch, 2005; Jonas & Loeb, 2010; Meltzer et al., 2012). These areas may be associated with the category ‘d570 Looking after one’s health’, since limited insight and diminished self-care skills mean that people with these disorders take less care of their health, are less likely to adhere to treatment and present higher rates of other illnesses (Scott & Happell, 2011).

The categories related to family and intimate relationships (d760 and d770, respectively) are also important. People with severe mental disorders often have difficulties finding a partner, forming a family or maintaining family relationships once the illness has emerged (Yasuyama, Ohi, Shimada, Uehara, & Kawasaki, 2017). Note too that these categories are also directly related to interpersonal difficulties that affect the person’s ability to interact in socially appropriate ways (d710 Basic interpersonal interactions; e.g. showing respect, managing social space, fostering interaction) (Fontanil-Gómez, Alcedo Rodríguez, & Gutiérrez López, 2017; Yasuyama et al., 2017), a necessary skill for participation in community life.

Other categories represented in the proposed ICF-CSs for severe mental disorders are ‘d845 Acquiring, keeping and terminating a job’ and ‘d870 Economic self-sufficiency’. Studies have reported poor employment outcomes among people with mental health problems, even when taking into account supported work schemes (Kinoshita et al., 2013; Ruiz-Iriondo, Salaberria, Polo-López, Iruín, & Echeburúa, 2019). Some authors have suggested that this low level of employment reflects the discrimination and stigma that these persons face (Brohan, Gauci, Sartorius, & Thornicroft, 2011; Corbière et al., 2011), although it is more widely believed to be a direct indicator of the disability that these disorders cause (e.g. cognitive impairment, negative symptoms, low mood, low energy levels, etc.) (Carmona, Gómez-Benito, Huedo-Medina, & Rojo, 2017; Martínez-Arán et al., 2007). Importantly, the proposed ICF-CSs also include two categories referring to skills that are crucial for maintaining any kind of job. The first is ‘d230 Carrying out daily routine’, which refers to the difficulties in planning and in following routines and timetables, difficulties which become especially salient during the active phases of severe mental disorders (Barch, 2005; Bowie et al., 2010). As for the highly competitive nature of the current labour market and the high levels of stress associated with certain jobs, these aspects are reflected in the category ‘d240 Handling stress and other psychological demands’. The inability to cope with stress also affects the ability to hold down a job. Consequently, some countries have developed and implemented a range of employment rehabilitation and supported work schemes with the aim of helping people with severe mental disorders to occupy competitive positions and integrate properly within their communities (Carmona et al., 2017; Marshall et al., 2013).

Finally, one of the aspects that is often overlooked or seen as less important in the context of rehabilitation programmes, but which is increasingly recognized as having a key role in the development of persons with mental health problems (Borge, Martinsen, Ruud, Watne, & Friis, 2014; Cella, Edwards, & Wykes, 2016), is reflected in the category ‘d920 Recreation and leisure’, which includes activities such as engaging in games, handicrafts or sports.

With respect to the *Environmental Factors* component, the tentative ICF-CSs for severe mental disorders regard as important the categories ‘e355 Health professionals’ and ‘e450 Individual attitudes of health professionals’. This reflects the need that patients

have for a good relationship with members of the multidisciplinary team (e.g. psychiatrists, psychologists, nurses, neuropsychologists, occupational therapists, etc.), since this is associated with fewer relapses and better functioning (Onyett, 2011).

The categories 'e310 Immediate family' and 'e410 Individual attitudes of immediate family members' are also relevant. The family unit is often a source of conflict and high stress for persons with mental health conditions (Power et al., 2016). In this respect, numerous studies have shown that a supportive family environment is related to better clinical outcomes in people with severe mental disorders, whereas families characterized by high levels of hostility are associated with poorer outcomes and a higher number of relapses (Kissling, Bauml, Engel, Leucht, & Pitschel-Walz, 2012; Perlick et al., 2004; Weinstock, Keitner, Ryan, Solomon, & Miller, 2006).

Another important environmental factor to consider is represented by the category 'e110 Products or substances for personal consumption', which in the case of illegal substances is associated with poorer prognosis, both clinical and functional (Jónsdóttir et al., 2012). As regards prescribed pharmacological treatment, this has been associated with a higher risk of physical diseases (Correll, Detraux, De Lepeleire, & De Hert, 2015).

The environmental categories 'e320 Friends', 'e420 Individual attitudes of friends' and 'e460 Societal attitudes' are also relevant to functioning (Morgan, Reavley, Jorm, & Beatson, 2017; Yasuyama et al., 2017), given that people with a psychiatric diagnosis are likely to be more stigmatized, to suffer more social isolation and to find it more difficult to socialize in general.

Finally, the categories 'e570 Social security services, system and policies' and 'e580 Health services, system and policies' highlight the relevance of service availability and the important role that anti-stigma initiatives and policies can play in terms of normalization and improving the everyday functioning of these patients (Mehta et al., 2015; Schnyder, Panczak, Groth, & Schultze-Lutter, 2017).

All the common ICF categories we identified are relevant to all three conditions (i.e. bipolar disorder, depression and schizophrenia), since they refer to key aspects of functioning for severe mental disorders in general. Many authors suggest that clinical treatment should focus on those risk factors that are potentially modifiable, such as the patient's level of functioning (Köhler, Horsdal, Baandrup, Mors, & Gasse, 2016). In fact, this is precisely what patients and their families want: not just *feeling well*, but actually *doing well* in order to *be well* (Vieta & Torrent, 2016). Thus, the functioning of those who suffer from a severe mental disorder should be considered above and beyond their diagnosis (British Psychological Society, 2014).

In conclusion, this study presents tentative Comprehensive and Brief ICF-CSs for severe mental disorders, constituting a first step towards their applicability and usability in the assessment of functioning across the main psychiatric disorders. Their actual clinical utility now needs to be tested in practice and verified through validation studies that confirm their suitability. The availability of ICF-CSs for severe mental disorders would be useful in multidisciplinary health settings such as rehabilitation, where professionals care for patients diagnosed with a range of psychotic and affective disorders. More specifically, and from a clinical point of view, these ICF-CSs could serve as a minimum common standard for describing functioning in severe mental disorders, assessing patient needs, planning interventions (e.g. prioritizing treatment options), formulating rehabilitation goals or evaluating progress, doing so through the widely accepted terminology of the ICF categories.

Acknowledgements

This study was supported by Spain's Ministry of Economy and Competitiveness [grant PSI2015-67984-R], and by the Agency for the Management of University and Research Grants of the Government of Catalonia [grant 2017SGR1681].

References

- American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC: American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Avellanet, M., Selb, M., Stucki, G., & Cieza, A. (2015). Utility of using the ICF Core Sets in clinical practice. *Rehabilitación*, 49(4), 197-201. <https://doi.org/10.1016/j.rh.2015.07.001>
- Ayuso-Mateos, J. L., Avila, C. C., Anaya, C., Cieza, A., & Vieta, E. (2013). Development of the International Classification of Functioning, Disability and Health core sets for bipolar disorders: Results of an international consensus process. *Disability and Rehabilitation*, 35(25), 2138-2146. <https://doi.org/10.3109/09638288.2013.771708>
- Baldwin, D. S., & Foong, T. (2013). Antidepressant drugs and sexual dysfunction. *British Journal of Psychiatry*, 202(6), 396-397. <https://doi.org/10.1192/bjp.bp.112.110650>
- Barch, D. M. (2005). The cognitive neuroscience of schizophrenia. *Annual Review of Clinical Psychology*, 1, 321-353. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143959>
- Bickenbach, J. E., Cieza, A., & Rauch, A., Stucki, G. (2012). *ICF Core Sets: Manual for Clinical Practice*. Goettingen: Hogrefe, Göttingen.
- Borge, L., Martinsen, E. W., Ruud, T., Watne, Ø., & Friis, S. (2014). Quality of life, loneliness, and social contact among long-term psychiatric patients. *Psychiatric Services*, 50(1), 81-84. <https://doi.org/10.1176/ps.50.1.81>
- Bowie, C. R., Depp, C., McGrath, J. A., Wolyniec, P., Mausbach, B. T., Thornquist, M. H., ... Pulver, A. E. (2010). Prediction of real-world functional disability in chronic mental disorders: A comparison of schizophrenia and bipolar disorder. *The American Journal of Psychiatry*, 167(9), 1116-1124. <https://doi.org/10.1176/appi.ajp.2010.09101406>
- British Psychological Society (2014). *Understanding Psychosis and Schizophrenia*. The British Psychological Society. Division of Clinical Psychology. Retrieved from [https://www.bps.org.uk/system/files/user-files/Division of Clinical Psychology/public/understanding_psychosis_-_final_19th_nov_2014.pdf](https://www.bps.org.uk/system/files/user-files/Division%20of%20Clinical%20Psychology/public/understanding_psychosis_-_final_19th_nov_2014.pdf)
- Brohan, E., Gauci, D., Sartorius, N., & Thornicroft, G. (2011). Self-stigma, empowerment and perceived discrimination among people with bipolar disorder or depression in 13 European countries: The GAMIAN-Europe study. *Journal of Affective Disorders*, 129(1-3), 56-63. <https://doi.org/10.1016/j.jad.2010.09.001>
- Carmona, V., Gómez-Benito, J., Huedo-Medina, T., & Rojo, J. (2017). Employment outcomes for people with schizophrenia spectrum disorder: A meta-analysis of randomized controlled trials. *International Journal of Occupational Medicine and Environmental Health*, 30(2014), 345-366. <https://doi.org/10.13075/ijom.1896.01074>
- Cella, M., Edwards, C., & Wykes, T. (2016). A question of time: A study of time use in people with schizophrenia. *Schizophrenia Research*, 176(2-3), 480-484. <https://doi.org/10.1016/J.SCHRES.2016.06.033>

- Cieza, A., Chatterji, S., Andersen, C., Cantista, P., Herceg, M., Melvin, J., ... De Bie, R. (2004). ICF Core Sets for depression. *Journal of Rehabilitation Medicine*, 36(Suppl. 44), 128-134. <https://doi.org/10.1080/16501960410016055>
- Corbière, M., Zaniboni, S., Lecomte, T., Bond, G., Gilles, P. Y., Lesage, A., & Goldner, E. (2011). Job acquisition for people with severe mental illness enrolled in supported employment programs: A theoretically grounded empirical study. *Journal of Occupational Rehabilitation*, 21(3), 342-354. <https://doi.org/10.1007/s10926-011-9315-3>
- Correll, C. U., Detraux, J., De Lepeleire, J., & De Hert, M. (2015). Effects of antipsychotics, antidepressants and mood stabilizers on risk for physical diseases in people with schizophrenia, depression and bipolar disorder. *World Psychiatry*, 14(2), 119-136. <https://doi.org/10.1002/wps.20204>
- Elnazer, H. Y., Sampson, A., & Baldwin, D. (2015). Lithium and sexual dysfunction: An under-researched area. *Human Psychopharmacology: Clinical and Experimental*, 30(2), 66-69. <https://doi.org/10.1002/hup.2457>
- Fontanil-Gómez, Y., Alcedo Rodríguez, M. A., & Gutiérrez López, M. I. (2017). Personal and macro-systemic factors as predictors of quality of life in chronic schizophrenia. *Psicothema*, 29(2), 160-165. <https://doi.org/10.7334/psicothema2016.179>
- Global Burden of Disease Collaborative Network (2018). *Global Burden of Disease Study 2017 (GBD 2017): Incidence, Prevalence, and Years Lived with Disability 1990-2017*. Seattle, United States: Institute for Health Metrics and Evaluation.
- Gómez-Benito, J., Guilera, G., Barrios, M., Rojo, E., Pino, O., Gorostiaga, A., ... Selb, M. (2018). Beyond diagnosis: The Core Sets for persons with schizophrenia based on the World Health Organization's International Classification of Functioning, Disability, and Health. *Disability and Rehabilitation*, 40(23), 2756-2766. <https://doi.org/10.1080/09638288.2017.1356384>
- González-Pando, D., Alonso-Pérez, F., Suárez-Gil, P., García-Montes, J. M., & Pérez-Álvarez, M. (2018). Diminished emotional expression in schizophrenia: An interdisciplinary approach based on behavioral interventions. *Psicothema*, 30(1), 8-13. <https://doi.org/10.7334/psicothema2017.92>
- Green, M. F. (2016). Impact of cognitive and social cognitive impairment on functional outcomes in patients with schizophrenia. *Journal of Clinical Psychiatry*, 77(Suppl. 2), 8-11. <https://doi.org/10.4088/JCP.14074su1c.02>
- Iosifescu, D. V. (2012). The relation between mood, cognition and psychosocial functioning in psychiatric disorders. *European Neuropsychopharmacology*, 22(Suppl. 3), S499-S504. <https://doi.org/10.1016/j.euroneuro.2012.08.002>
- IsHak, W. W., James, D., Mirocha, J., Youssef, H., Tobia, G., Pi, S., ... Cohen, R. (2016). Patient-reported functioning in major depressive disorder. *Therapeutic Advances in Chronic Disease*, 7(3), 160-169. <https://doi.org/10.1177/2040622316639769>
- Jonas, B. S., & Loeb, M. (2010). Mood disorders and physical functioning difficulties as predictors of complex activity limitations in young U.S. adults. *Disability and Health Journal*, 3(3), 171-178. <https://doi.org/10.1016/j.dhjo.2009.11.001>
- Jónsdóttir, H., Opjordsmoen, S., Birkenaes, A. B., Simonsen, C., Engh, J. A., Ringen, P. A., ... Andreassen, O. A. (2012). Predictors of medication adherence in patients with schizophrenia and bipolar disorder. *Acta Psychiatrica Scandinavica*, 127(1), 23-33. <https://doi.org/10.1111/j.1600-0447.2012.01911.x>
- Karow, A., Moritz, S., Lambert, M., Schöttle, D., & Naber, D. (2012). Remitted but still impaired? Symptomatic versus functional remission in patients with schizophrenia. *European Psychiatry*, 27(6), 401-405. <https://doi.org/10.1016/j.eurpsy.2011.01.012>
- Kaskie, R. E., Graziano, B., & Ferrarelli, F. (2017). Schizophrenia and sleep disorders: Links, risks, and management challenges. *Nature and Science of Sleep*, 9, 227-239. <https://doi.org/10.2147/NSS.S121076>
- Kinoshita, Y., Furukawa, T. A., Kinoshita, K., Honyashiki, M., Omori, I. M., Marshall, M., ... Kingdon, D. (2013). Supported employment for adults with severe mental illness. *Cochrane Database of Systematic Reviews*, 13(9), CD008297. <https://doi.org/10.1002/14651858.CD008297.pub2>
- Kissling, W., Bauml, J., Engel, R. R., Leucht, S., & Pitschel-Walz, G. (2012). The Effect of Family Interventions on Relapse and Rehospitalization in Schizophrenia-A Meta-analysis. *Schizophrenia Bulletin*, 27(1), 73-92. <https://doi.org/10.1093/oxfordjournals.schbul.a006861>
- Köhler, O., Horsdal, H. T., Baandrup, L., Mors, O., & Gasse, C. (2016). Association between Global Assessment of Functioning scores and indicators of functioning, severity, and prognosis in first-time schizophrenia. *Clinical Epidemiology*, 8, 323-332. <https://doi.org/10.2147/CLEPS109036>
- Liu, N. H., Wahlbeck, K., Dudek, K., Daumit, G. L., Prince, M., Druss, B., ... Sussner, E. (2017). Excess mortality in persons with severe mental disorders: A multilevel intervention framework and priorities for clinical practice, policy and research agendas. *World Psychiatry*, 16(1), 30-40. <https://doi.org/10.1002/wps.20384>
- Mansur, R. B., Brietzke, E., & McIntyre, R. S. (2015). Is there a "metabolic-mood syndrome"? A review of the relationship between obesity and mood disorders. *Neuroscience and Biobehavioral Reviews*, 52, 89-104. <https://doi.org/10.1016/j.neubiorev.2014.12.017>
- Marshall, T., Goldberg, R. W., Braude, L., Dougherty, R. H., Daniels, A. S., Ghose, S. S., ... Delphin-Rittmon, M. E. (2013). Supported employment: Assessing the evidence. *Psychiatric Services*, 65(1), 16-23. <https://doi.org/10.1176/appi.ps.201300262>
- Martínez-Arán, A., Torrent, V. E., Sánchez-Moreno, J., Goikolea, J., Salamero, M., Malhi, G., ... Ayuso-Mateos, J. (2007). Functional outcome in bipolar disorder: The role of clinical and cognitive factors. *Bipolar Disorders*, 9(2), 103-113.
- McIntyre, R. S., Lee, Y., & Mansur, R. B. (2015). Treating to target in major depressive disorder: Response to remission to functional recovery. *CNS Spectrums*, 20(S1), 17-31. <https://doi.org/10.1017/S1092852915000826>
- Mehta, N., Clement, S., Marcus, E., Stona, A. C., Bezborodovs, N., EvansLacko, S., ... Thornicroft, G. (2015). Evidence for effective interventions to reduce mental health-related stigma and discrimination in the medium and long term: Systematic review. *British Journal of Psychiatry*, 207(5), 377-384. <https://doi.org/10.1192/bjp.bp.114.151944>
- Meltzer, H., Bebbington, P., Brugha, T., McManus, S., Rai, D., Dennis, M. S., & Jenkins, R. (2012). Physical ill health, disability, dependence and depression: Results from the 2007 national survey of psychiatric morbidity among adults in England. *Disability and Health Journal*, 5(2), 102-110. <https://doi.org/10.1016/j.dhjo.2012.02.001>
- Millier, A., Schmidt, U., Angermeyer, M. C., Chauhan, D., Murthy, V., Toumi, M., & Cadi-Soussi, N. (2014). Humanistic burden in schizophrenia: A literature review. *Journal of Psychiatric Research*, 54(1), 85-93. <https://doi.org/10.1016/j.jpsychires.2014.03.021>
- Morgan, A. J., Reavley, N. J., Jorm, A. F., & Beatson, R. (2017). Discrimination and support from friends and family members experienced by people with mental health problems: Findings from an Australian national survey. *Social Psychiatry and Psychiatric Epidemiology*, 52(11), 1395-1403. <https://doi.org/10.1007/s00127-017-1391-z>
- Morrens, M., Hulstijn, W., & Sabbe, B. (2007). Psychomotor slowing in schizophrenia. *Schizophrenia Bulletin*, 33(4), 1038-1053. <https://doi.org/10.1093/schbul/sbl051>
- Morsel, A. M., Temmerman, A., Sabbe, B., Hulstijn, W., & Morrens, M. (2015). Unraveling psychomotor slowing in bipolar disorder. *Neuropsychobiology*, 71(4), 234-240. <https://doi.org/10.1159/000431153>
- Nayerifard, R., Bureng, M. A., Zahiroidin, A., Namjoo, M., & Rajezi, S. (2017). Comparison of metabolic syndrome prevalence in patients with schizophrenia and bipolar I disorder. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 11, S411-S416. <https://doi.org/10.1016/j.dsx.2017.03.027>
- Onyett, S. (2011). Understanding relationships in context as a core competence for psychiatric rehabilitation. *Psychiatric Rehabilitation Skills*, 4(2), 282-299. <https://doi.org/10.1080/10973430008408411>
- Perlick, D. A., Rosenheck, R. A., Clarkin, J. F., Maciejewski, P. K., Sirey, J., Struening, E., & Link, B. G. (2004). Impact of family burden and affective response on clinical outcome among patients with bipolar disorder. *Psychiatric Services*, 55(9), 1029-1035. <https://doi.org/10.1176/appi.ps.55.9.1029>
- Power, J., Goodyear, M., Maybery, D., Reupert, A., O'Hanlon, B., Cuff, R., & Perlesz, A. (2016). Family resilience in families where a parent has a mental illness. *Journal of Social Work*, 16(1), 66-82. <https://doi.org/10.1177/1468017314568081>
- Rock, P. L., Roiser, J. P., Riedel, W. J., & Blackwell, A. D. (2014). Cognitive impairment in depression: A systematic review and meta-analysis. *Psychological Medicine*, 44(10), 2029-2040. <https://doi.org/10.1017/S0033291713002535>

- Ruiz-Iriondo, M., Salaberria, K., Polo-López, R., Iruín, A., & Echeburúa, E. (2019). Preventing cognitive decline in chronic schizophrenia: Long-term effectiveness of integrated psychological therapy and emotional management training. *Psicothema*, *31*(2), 114-120. <https://doi.org/10.7334/psicothema2018.254>
- Rumble, M. E., White, K. H., & Benca, R. M. (2015). Sleep disturbances in mood disorders. *Psychiatric Clinics of North America*, *38*(4), 743-759. <https://doi.org/10.1016/j.psc.2015.07.006>
- Samalin, L., Boyer, L., Murru, A., Pacchiarotti, I., Reinares, M., Bonnín, C. M., ... Vieta, E. (2017). Residual depressive symptoms, sleep disturbance and perceived cognitive impairment as determinants of functioning in patients with bipolar disorder. *Journal of Affective Disorders*, *210*, 280-286. <https://doi.org/10.1016/j.jad.2016.12.054>
- Schnyder, N., Panczak, R., Groth, N., & Schultze-Lutter, F. (2017). Association between mental health-related stigma and active help-seeking: Systematic review and meta-analysis. *British Journal of Psychiatry*, *210*(4), 261-268. <https://doi.org/10.1192/bjp.bp.116.189464>
- Scott, D., & Happell, B. (2011). The high prevalence of poor physical health and unhealthy lifestyle behaviours in individuals with severe mental illness. *Issues in Mental Health Nursing*, *32*(9), 589-597. <https://doi.org/10.3109/01612840.2011.569846>
- Selb, M., Escorpizo, R., Kostanjsek, N., Stucki, G., Ustün, B., & Cieza, a. (2015). A guide on how to develop an international classification of functioning, disability and health core set. *European Journal of Physical and Rehabilitation Medicine*, *51*(1), 105-117. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24686893>
- Slade, M., & Longden, E. (2015). Empirical evidence about recovery and mental health. *BMC Psychiatry*, *15*(1), 1-14. <https://doi.org/10.1186/s12888-015-0678-4>
- Solé, B., Bonnín, C. M., Torrent, C., Balanzá-Martínez, V., Tabarés-Seisdedos, R., Popovic, D., ... Vieta, E. (2012). Neurocognitive impairment and psychosocial functioning in bipolar II disorder. *Acta Psychiatrica Scandinavica*, *125*(4), 309-317. <https://doi.org/10.1111/j.1600-0447.2011.01759.x>
- Stucki, G., & Grimby, G. (2004). Foreword. *Journal of Rehabilitation Medicine*, *36*(0), 5-6. <https://doi.org/10.1080/16501960410022300>
- Trautmann, S., Rehm, J., & Wittchen, H. U. (2016). The economic costs of mental disorders: Do our societies react appropriately to the burden of mental disorders? *EMBO Reports*, *17*(9), 1245-1249. <https://doi.org/10.15252/embr.201642951>
- Ustün, B., & Kennedy, C. (2009). What is "functional impairment"? Disentangling disability from clinical significance. *World Psychiatry*, *8*(2), 82-85. <https://doi.org/10.1002/j.2051-5545.2009.tb00219.x>
- Van Der Voort, T. Y. G., Seldenrijk, A., Van Meijel, B., Goossens, P. J. J., Beekman, A. T. F., Penninx, B. W. J. H., & Kupka, R. W. (2015). Functional versus syndromal recovery in patients with major depressive disorder and bipolar disorder. *Journal of Clinical Psychiatry*, *76*(6), e809-e814. <https://doi.org/10.4088/JCP.14m09548>
- Vieta, E., & Torrent, C. (2016). Functional remediation: The pathway from remission to recovery in bipolar disorder. *World Psychiatry*, *15*(3), 288-289. <https://doi.org/10.1002/wps.20351>
- Weinstock, L. M., Keitner, G. I., Ryan, C. E., Solomon, D. A., & Miller, I. W. (2006). Family functioning and mood disorders: A comparison between patients with major depressive disorder and bipolar I disorder. *Journal of Consulting and Clinical Psychology*, *74*(6), 1192-1202. <https://doi.org/10.1037/0022-006X.74.6.1192>
- World Health Organization (2001). *International classification of functioning, disability and health (ICF)*. Geneva, Switzerland: World Health Organization. <https://doi.org/10.1097/01.pep.0000245823.21888.71>
- World Health Organization (2018). *Global Health Estimates: DALY estimates, 2000-2016*. Geneva: World Health Organization.
- Yasuyama, T., Ohi, K., Shimada, T., Uehara, T., & Kawasaki, Y. (2017). Differences in social functioning among patients with major psychiatric disorders: Interpersonal communication is impaired in patients with schizophrenia and correlates with an increase in schizotypal traits. *Psychiatry Research*, *249*, 30-34. <https://doi.org/10.1016/j.psychres.2016.12.053>
- Young, K. S., Parsons, C. E., Stein, A., & Kringelbach, M. L. (2015). Motion and emotion: Depression reduces psychomotor performance and alters affective movements in caregiving interactions. *Frontiers in Behavioral Neuroscience*, *9*, 1-10. <https://doi.org/10.3389/fnbeh.2015.00026>