Influencia de variables psicosociales en la evolución de trastornos mentales graves

Tesis Doctoral

Departamento de Personalidad, Evaluación y Tratamiento Psicológicos de la Universidad de Sevilla

Doctorando:

Antonio Vázquez-Reyes

Tesis realizada por Antonio Vázquez-Reyes bajo la dirección del Dr. Agustín Martín-Rodríguez, la Dra. Mª Ángeles Pérez-San-Gregorio y el Dr. Antonio J. Vázquez-Morejón en el Departamento de Personalidad, Evaluación y Tratamiento Psicológicos de la Universidad de Sevilla, para la obtención del Grado de Doctor en Psicología.

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ÍNDICE

1. MARCO LEGISLATIVO DE LA TESIS DOCTORAL

La presente Tesis Doctoral se expone bajo la modalidad de tesis por compendio de publicaciones científicas regulado por el artículo 9 de la normativa reguladora del régimen de Tesis Doctoral (Acuerdo 9.1/CG 19-14-2) de la Universidad de Sevilla. Los artículos que la integran son consecuencia de una línea de investigación cuyo objetivo es estudiar la influencia de variables psicosociales en la evolución de trastornos mentales graves. Los artículos que se presentan y que componen la Tesis Doctoral se han realizado a través de la colaboración entre el Hospital Universitario Virgen del Rocío y la Facultad de Psicología de la Universidad de Sevilla.

2. INTRODUCCIÓN

Los trastornos mentales graves están adquiriendo progresivamente mayor relevancia e impacto en la población mundial, e incluyen diagnósticos clínicos como la esquizofrenia, otros trastornos psicóticos y el trastorno afectivo bipolar (Vancampfort et al., 2015). En concreto, se definen como trastornos del espectro psicótico, de dos o más años de evolución y una severa afectación a nivel funcional (NIMH, 1987). Así, poseer la etiqueta diagnóstica de esquizofrenia, otros trastornos psicóticos o trastorno afectivo bipolar no implica necesariamente la conceptualización como trastorno mental grave, sino que precisan de criterios adicionales de gravedad, cronicidad y deterioro funcional.

El diagnóstico de trastorno mental grave se relaciona con un severo impacto a nivel personal, social, familiar y económico (Jin & McCrone, 2015; Jin & Mosweu, 2017; Kooyman et al., 2007). A nivel personal se caracterizan por la presencia de una rica y grave psicopatología, déficits en el área social y funcional que dificultan la integración y adaptación comunitaria e incluso una elevada tasa de mortalidad prematura respecto a la población general (Grove et al., 2016; Oakley et al., 2018). En la esfera familiar, numerosas investigaciones encuentran alteraciones en la dinámica familiar destacando un alto nivel de emoción expresada y de carga familiar (Awad & Voruganti, 2008; Carra et al., 2012; Kuipers, 2010; Szkultecka-Debek et al., 2016; Thornicroft & Tansella, 2013), mientras que a nivel económico estos pacientes precisan de un elevado empleo de recursos sanitarios con su consiguiente coste para la sociedad (Chong et al., 2016; Knapp, Mangalore, & Simon, 2004).

Debido al significativo impacto a nivel personal, familiar y social de los trastornos mentales graves y atendiendo a las características definitorias de gravedad, cronicidad y alteración funcional, en las últimas décadas surgen nuevas líneas de investigación cuyo objetivo es estudiar la posible influencia que diversos factores psicosociales pueden

ejercer sobre los trastornos mentales graves. Específicamente, el principal objetivo de estudio de la presente Tesis Doctoral es avanzar en la identificación, comprensión y predicción de variables psicosociales que pueden influir en el curso de los trastornos mentales graves y proponer unas directrices básicas de intervención que permitan la recuperación.

No obstante, clásicamente el estudio del curso de los trastornos mentales graves se relacionaba con un deterioro progresivo y un pronóstico pobre (Bleuler, 1950; Kraeplin, 1919). Durante décadas el estudio de los trastornos mentales graves se redujo a investigar diferentes factores eminentemente clínicos (diagnóstico, sintomatología positiva o negativa, duración de la psicosis no tratada, etc.) que, en función de su expresión, interacción y configuración, eran asociados a un determinado pronóstico (Gureje & Bamidele, 1998; Koster et al., 2008). En general, los resultados hallados eran variables y no permitían predecir de una manera fiable el curso evolutivo de los trastornos mentales graves.

En este contexto, ante la dificultad e inespecificidad de las variables clínicas para predecir el curso evolutivo de los trastornos mentales graves, durante los últimos años han surgido nuevas propuestas de investigación que enfatizan la inclusión como objeto de estudio de variables psicosociales y funcionales, permitiendo desarrollar un modelo más comprehensivo, global y ajustado sobre la predicción evolutiva de los trastornos mentales graves. Así, la inespecificidad de variables clínicas junto a los criterios definitorios de gravedad, cronicidad y afectación funcional son los principales motivos por el que aparecen nuevos enfoques centrados en el estudio de factores psicosociales que pueden interferir en la adaptación social y el curso evolutivo de los trastornos mentales graves (APA, 2013).

Los nuevos enfoques centrados en la adaptación social y la funcionalidad se impulsan y desarrollan a consecuencia del proceso de desinstitucionalización experimentado en países desarrollados en el modelo de atención a la salud mental. Tras esta reforma en la conceptualización asistencial al trastorno mental grave, la amplia mayoría de estudios se focalizan en investigar los recursos comunitarios que precisan los pacientes. Este movimiento permite desarrollar un nuevo modelo asistencial enfocado en el tratamiento a pacientes con trastornos mentales graves desde servicios asistenciales comunitarios, siendo apoyados puntualmente por unidades de hospitalización en casos de exacerbación sintomatológica o de crisis agudas (Moreno-Kustner et al., 2011).

Así, un enfoque que promueve un mayor énfasis en el estudio de factores funcionales y psicosociales precisa del desarrollo de instrumentos que permitan observar y medir las variables conductuales que se relacionan con el grado de adaptación social e integración comunitaria de estos pacientes (Carpenter & Strauss, 1991), permitiendo desarrollar un modelo más comprehensivo, ajustado, integrador y global de los trastornos mentales graves. Dos enfoques principales se han derivado de este criterio: uno relacionado con los problemas de conducta que interfieren en la integración social (Wykes & Stuart, 1986) y otro centrado en el funcionamiento social (Birchwood et al., 1990).

Relacionado con el enfoque propuesto por Wykes & Stuart (1986), un factor necesario en la comprensión de las dificultades que padecen los pacientes con trastorno mental grave son los problemas de conducta. Desde esta perspectiva, los problemas de conducta se consideran un constructo que puede interferir sobre la adaptación y el funcionamiento social de estos pacientes (Brewin et al., 1987), conceptualizándose como la expresión conductual de la psicopatología característica de la psicosis y trastornos relacionados (Wykes & Sturt, 1986).

En esta línea, diversos estudios han intentado delimitar los principales problemas de comportamiento en esta población clínica. Así, Harvey et al. (1996) encontraron cuatro factores de problemas de conducta en esquizofrenia (aislamiento social, alteraciones del pensamiento, comportamiento antisocial y depresión) que posteriormente replicaron y confirmaron Curson et al. (1999). Esos cuatro factores que se obtuvieron de la *Social Behaviour Schedule* (Wykes & Sturt, 1986) se nombraron como aislamiento social, perturbaciones del pensamiento, conducta antisocial y depresión. Recientemente, Vázquez-Morejón et al. (2018) encontraron tres factores (problemas de inactividad o aislamiento social, problemas activos y descontrol de impulsos) que engloban los principales problemas de comportamiento en trastornos mentales graves. Así, su investigación está adquiriendo progresivamente mayor relevancia ante la necesidad de incluir enfoques objetivos y observables que permitan estudiar la adaptación de estos pacientes a su contexto comunitario (Cella et al., 2014).

A raíz del proceso de desinstitucionalización, las personas con trastorno mental grave transitan a vivir y participar en su entorno comunitario abandonando los hospitales psiquiátricos donde permanecían ingresados. Sin duda, este movimiento de integración social ha favorecido que la investigación se centre en el estudio de factores comunitarios que pudiesen intervenir en el proceso de adaptación social. Entre ellos, el estudio de la familia y sus diferentes variables relacionadas ha suscitado un creciente interés. Mientras que durante el periodo de institucionalización los familiares adoptaban un rol pasivo en el proceso de tratamiento, desde la integración comunitaria de pacientes con trastorno mental grave se consideran a los mismos como ingredientes activos del tratamiento y como área básica de los objetivos de intervención clínica. En este sentido, la literatura científica ha evidenciado que la asunción del rol activo de cuidado se relaciona con un

incremento de estrés y con una percepción superior de carga emocional, física y económica para los cuidadores.

Dentro de la exploración de la carga familiar la principal línea de investigación ha estado dirigida a clarificar cuáles son las variables que contribuyen a aumentarla y en qué medida. Junto a variables clínicas como la severidad sintomatológica o el diagnóstico, los problemas de conducta son otro factor relacionado con la mayor percepción de carga familiar (Boye et al., 2001; Wolthaus et al., 2002), pudiéndose señalar que los familiares responsables del cuidado de pacientes con mayores problemas de conducta podrían presentar un elevado nivel de carga familiar. Sin embargo, según nuestro conocimiento, no existen investigaciones que estudien la relación entre diferentes problemas de conducta y nivel de carga familiar. Además de factores relacionados con el paciente, la carga familiar también se relaciona con aspectos relacionados con la propia familia. Así, la emoción expresada, variable que engloba la hostilidad, sobreimplicación y criticismo de los familiares hacia los pacientes, está relacionada con una mayor carga percibida por parte de los familiares (Carra, Cazzullo, & Clerici, 2012).

La emoción expresada ha demostrado ser una variable relevante en el curso de la esquizofrenia obteniendo capacidad predictiva en la recaída (Hanzawa et al., 2013; Möller-Leimkühler & Wiesheu, 2012). En este sentido, algunos autores han señalado que un descenso de la carga familiar puede asociarse a un pronóstico favorable en el curso de pacientes con trastornos mentales, teniendo así menos recaídas y una evolución conservada (Sono et al., 2012). Así, la carga familiar es un factor estratégico en la evolución del trastorno mental grave por lo que sería adecuado explorar la posible relación existente entre los diferentes problemas de conducta y la percepción de carga por familiares claves en el cuidado de los pacientes.

Además de los problemas de conducta y la carga familiar, el género también es un factor que necesita ser estudiado de manera transversal para el diseño de intervenciones clínicas ajustadas a las necesidades de los pacientes. Clásicamente, los estudios han encontrado mayor presencia de trastornos externalizantes en hombres e internalizantes en mujeres (Zahn-Waxler et al., 2008), enfatizando el análisis de variables clínicas (pródromos, duración de la psicosis no tratada, síntomas positivos y negativos, etc.), hallando variabilidad en sus resultados y siendo poco concluyentes (Chang et al., 2011; Hui et al., 2014; Morgan et al., 2008; Thorup et al., 2007). De nuevo, ante la inespecificidad de las variables clínicas, y coherentemente con la necesidad de estudiar elementos comunes y también específicos que puedan interferir en la adaptación social y comunitaria, surge la necesidad de incluir el género en el estudio de los trastornos mentales graves desde una perspectiva socio-funcional.

En suma, en un contexto que enfatiza el estudio de factores psicosociales que pueden interferir en la adaptación comunitaria, la primera línea de la presente Tesis Doctoral tiene como objetivo explorar las posibles diferencias según el género en problemas de conducta y su relación con la carga familiar en pacientes con trastorno mental grave.

Referente al funcionamiento social, en el *Handbook of Social Functioning in Schizophrenia* (Mueser & Tarrier, 1998) se expone que un nivel de funcionamiento social deficitario interfiere en la competencia de los pacientes para desarrollar roles sociales específicos como el cuidado del hogar, el empleo, el estudio, la conyugalidad, o las relaciones familiares y de amistad. Además, también se incluye la insatisfacción percibida por los propios pacientes ante las dificultades para desarrollar estos roles sociales, para el autocuidado y su interferencia en actividades recreativas y de ocio. Estudios clásicos señalaban el funcionamiento social como uno de los factores nucleares en la evolución del trastorno, encontrando asociaciones con la adaptación al medio comunitario

(Johnstone et al., 1990; Perlick et al., 1992; Rajkumar & Thara, 1989), el coste de los servicios (Byford et al., 2001; McCrone et al., 1998) y el número de ingresos y visitas a urgencias (Raudino et al., 2014). En consecuencia, resulta necesario incluir el funcionamiento social y sus diferentes dimensiones como una variable a considerar en la predicción de la evolución de los trastornos mentales graves.

Sin embargo, según nuestro conocimiento, no hay estudios que exploren la relevancia de las diferentes dimensiones que componen el funcionamiento social en la predicción del curso de los trastornos mentales graves. Por este motivo, la segunda línea de la presente Tesis Doctoral tiene como objetivo explorar la influencia del funcionamiento social y los problemas de conducta en la evolución de los trastornos mentales graves.

Estas tres variables, problemas de conducta, carga familiar y funcionamiento social han sido escasamente estudiadas de forma sistemática en investigaciones cuyo objetivo es el desarrollo de modelos que permitan predecir el curso evolutivo de los trastornos mentales graves.

Con respecto a la metodología de las investigaciones revisadas, es importante señalar que, a pesar de ser muy valiosas para ir aproximándose a una visión más completa de los trastornos mentales graves, suelen presentar una limitación común: la mayoría de ellas se realizan con un diseño transversal por lo que no pueden extraerse conclusiones que hagan referencia a los cambios acontecidos con el transcurso del tiempo (Kilian et al., 2003). Otra limitación relevante es la evaluación a través de aspectos globales o logros sociales del funcionamiento social, ante lo que surge la necesidad de estudiar el funcionamiento social a nivel molecular a través de las diferentes dimensiones que lo componen mediante instrumentos específicos que permitan obtener un conocimiento más exhaustivo y detallado sobre el curso de los trastornos mentales graves.

En resumen, en la presente Tesis Doctoral se exponen tres investigaciones empíricas, todas ellas ya publicadas en revistas indexadas en *Journal Citation Reports* (JCR) de *ISI Web of Knowledge*, en las que se pretendió determinar: a) la relación entre problemas de conducta y carga familiar en pacientes con trastorno mental grave desde una perspectiva de género, b) la evolución del funcionamiento social y los problemas de conducta en trastornos mentales graves, y c) el impacto del funcionamiento social en la supervivencia de trastornos mentales graves. En la Tabla 1 se resumen los objetivos (generales y específicos), así como los aspectos que conciernen al método (diseño, tamaño muestral, análisis estadísticos) de cada uno de los tres trabajos que conforman esta Tesis Doctoral.

Tabla 1. Objetivos y método de los trabajos que conforman la presente Tesis Doctoral.

Objetivo general	Determinar las diferencias de género en problemas de conducta y la relación con la carga familiar en pacientes con trastorno mental grave.	
Título del trabajo	*Gender influence on severe mental disorders: relationship between behavior problems and family burden.*	
Objetivos específicos	-Estudiar las diferencias en problemas de conducta entre hombres y mujeres. -Estudiar la relación entre problemas de conducta y carga familiar. -Determinar qué problemas de conducta predicen mayor carga familiar.	
Método	-Diseño transversal. -*n* = 235 pacientes. -Prueba *t*-test para muestras independientes. -Regresión lineal múltiple.	
Objetivo general	Determinar la influencia del funcionamiento social y los problemas de conducta en la evolución de trastornos mentales graves.	
Título del trabajo	*Ten-year follow-up of social functioning and behaviour problems in people with schizophrenia and related disorders.*	*Survival of patients with severe mental disorders: influence of social functioning.*

Objetivos específicos	-Analizar la evolución del funcionamiento social y las diferencias según diagnóstico y género. -Analizar la evolución de los problemas de conducta y las diferencias según diagnóstico y género. -Determinar si algunas de las dimensiones del funcionamiento social y de los problemas de conducta predicen la evolución del funcionamiento social.	-Analizar la influencia del funcionamiento social en la supervivencia de pacientes con trastornos mentales graves. -Determinar si alguna de las dimensiones del funcionamiento social predice la mortalidad prematura en pacientes con trastorno mental grave.
Método	-Diseño longitudinal: T1 (2003-2007) y T2 (2014-2017). -*n* = 100 pacientes. -Análisis mixto de la varianza. -Prueba t para muestras relacionadas. -Regresión lineal múltiple.	-Diseño longitudinal: T1 y T2 (10 años de seguimiento). -*n* = 163 pacientes. -Análisis de supervivencia Kaplan-Meier. -Análisis long-rank.

3. OBJETIVOS

1. Analizar las diferencias en problemas de conducta según el género y su relación con la carga familiar en pacientes con trastorno mental grave.
    1.1. Estudiar las diferencias en problemas de conducta entre hombres y mujeres en trastornos mentales graves.
    1.2. Estudiar la relación entre problemas de conducta y carga familiar en trastornos mentales graves.
    1.3. Determinar qué problemas de conducta predicen mayor carga familiar.
2. Analizar la influencia del funcionamiento social y de los problemas de conducta en la evolución de trastornos mentales graves.
    2.1. Analizar la evolución del funcionamiento social y las diferencias según diagnóstico y género.
    2.2. Analizar la evolución de los problemas de conducta y las diferencias según diagnóstico y género.
    2.3. Determinar si algunas de las dimensiones del funcionamiento social y de los problemas de conducta predicen la evolución del funcionamiento social.
    2.4. Analizar la influencia del funcionamiento social en la supervivencia de pacientes con trastornos mentales graves.
    2.5. Determinar si alguna de las dimensiones del funcionamiento social predice la mortalidad prematura en pacientes con trastorno mental grave.

4. TRABAJOS QUE CONFORMAN LA TESIS DOCTORAL.

4.1. Primer trabajo titulado “Gender influence on severe mental disorders: Relationship between behavior problems and family burden”.

Este trabajo corresponde al artículo publicado que se referencia a continuación:

Vázquez-Reyes, A., Martín-Rodríguez, A., Pérez-San-Gregorio, M. Á., & Vázquez-Morejón, A. J. (2021). Gender influence on severe mental disorders: Relationship between behavior problems and family burden. *Clinica y Salud*, *32*(2), 65-70. https://doi.org/10.5093/clysa2021a3

Abstract

Gender differences in behavior problems and their relationship with family burden in severe mental disorders were analyzed. The Behavior Problems Inventory (BPI) and two items related to family burden (FB 1: “Do you feel able to endure the illness or disorder and the problems it causes?” and FB 2: “How often are you overwhelmed by these behavior/illness problems?”) were administered to 235 key informants under treatment in a community mental health unit. The results show that men presented more behavior problems and family burden, with significant differences in impulse dyscontrol and severe behavior problems. A positive correlation was found between behavior problems and family burden, where the inactivity/social withdrawal dimension was the best predictor of family load for men and women. We conclude that men have more behavior problems, and the inactivity/social withdrawal dimension has the most explanatory power for family burden in both men and women.

Keywords: Behavior problems; Severe mental disorders; Family burden; Impulse dyscontrol; Social withdrawal.

Introduction

The study of severe mental disorders has a very relevant place in mental health due to its psychopathological richness and variability, their transfer to behavioral problems (Wykes & Sturt, 1986), and their personal, family, social and economic impact (Jin & Mosweu, 2017).

In this context, gender is a variable which has been acquiring relevance in the study and understanding of severe mental disorders (Jiménez-García-Bóveda & Vázquez-Morejón, 2012; Ordóñez et al., 2016). Due to discrimination undergone by the female population insofar as research on their needs (Goldstein & Tsuang, 1990; Hosang & Bhui, 2018) and the influence which stereotyped roles of males appear to exert (assumption of more risk conduct, use of violence, dominance over others, etc.) on the psychopathology of men (Mahalik et al., 2003; Tager et al., 2010), in recent years a need has arisen to progress in understanding the impact of gender on severe mental disorders. From this perspective, the inclusion of a gender-sensitive focus is pertinent for early detection, evaluation and clinical intervention adjusted to individual needs.

Other studies focusing on gender differences have found more externalizing disorders in men and internalizing in women (Zahn-Waxler et al., 2008). Traditionally, study has concentrated on clinical variables (prodromal, duration of untreated psychosis, positive and negative symptoms, etc.), with inconstant, not very conclusive results (Koster et al., 2008; Morgan et al., 2008).

The diversity of results underlines how these clinical variables can become unspecific, as patients with the same diagnosis have different symptoms (APA, 2013), which is the main reason studies focus on elements common to all, such as affectation in social functioning (Carpenter & Strauss, 1991), behavior problems (Vázquez-Morejón et al., 2018) and family burden (Awad & Voruganti, 2008; Möller-Leimkühler & Wiesheu, 2012).

Research generally emphasizes better social functioning in women, both premorbid and over the course of the illness (Morgan et al., 2008; Thorup et al., 2007). Females specifically show better social functioning in the areas evaluating autonomy and employment, while there are no significant differences in gender in dimensions such as social integration, communication or leisure (Jiménez-García-Bóveda et al., 2000).

In social functioning, Brewin et al. (1987) described behavior problems as a construct that can interfere with adaptation and social functioning in such patients. From this perspective, behavior problems are understood as the behavioral expression of the characteristic psychopathology of psychosis and related disorders (Wykes & Sturt, 1986). Due to this conceptualization, its study is progressively acquiring more relevance in view of the need to include objective, observable approaches which enable study of the adaptation of these patients to their community context (Cella et al., 2014).

Along this line, several studies have attempted to delimit the main behavior problems in this clinical population. Harvey et al. (1996) found four behavior problem factors in schizophrenia (social isolation, altered thinking, antisocial behavior and depression) which were later replicated and confirmed by Curson et al. (1999). Recently, Vázquez-Morejón et al. (2018) found three factors (inactivity or social isolation problems, active problems and impulse dyscontrol) which included the main behavior problems in psychosis and related disorders.

Previous studies have explored the relationship between behavior problems and levels of autonomy (Wykes, 1982), family burden (Othman & Salleh, 2008), and the family's capacity for coping (Vázquez-Morejón et al., 2013). However, there is little knowledge of the differences in behavior problems by gender and their relationship with family burden.

Thus, in a scientific context in which interest in studying the factors common to functional affectation is gradually growing, the objective of our study was to explore the differences in behavior problems between men and women and their possible relationship with family burden.

Method

Participants

The study sample was comprised of 235 key family members of patients diagnosed with a severe mental disorder: schizophrenia (ICD-10 F.20), other psychotic disorders (ICD-10 F.21-F.29) or bipolar disorder Type 1 (ICD-10 F.31).

The mean age of the patients was 40.13 (*SD* = 11.67; range = 18 - 65); 152 were men (64.7%) and 83 women (35.3%). The distribution by marital status was: 178 single (75.7%), 38 married (16.2%), 13 separated (5.5%) and 6 widowed (2.6%). They were diagnosed with the following: 132 with schizophrenia (56.2%), 60 with psychotic disorders (25.5%) and 43 with bipolar disorder Type 1. Informants were: 113 mothers (48.1%), 37 fathers (15.7%), 26 spouses (11.1%), 35 siblings (14.9%), 24 other relatives (10.2%). There were 171 women (72.8%) and 64 men (27.2%).

All the patients in treatment in a Community Mental Health Unit (CMHU) at the time the study was begun who met the following inclusion criteria were included: 1) of legal age, 2) had any of the diagnoses mentioned above, and 3) agreed to participate in the evaluation. Criteria for the inclusion of family members were that their participation in the study was voluntary and they been selected by the patient as the person with the most knowledge of their condition. Thus, key family members were in charge of filling out the evaluation instruments.

Instruments and measures

Behavior Problem Inventory (BPI). The BPI (Vázquez-Morejón et al., 2018) was designed as a rapid and efficient measure of the most representative behavior problems of individuals with psychosis and related disorders. It consists of 14 items and three dimensions (identified by factor analysis): inactivity/social withdrawal (points vary from 0 to 15), active problems (0 to 15 points) and impulse dyscontrol (0 to 12 points). Two other scores are also found: moderate behavior problems (MBP, number of items with score equal to or over 2, where scores are 0 to 14) and severe behavior problems (SBP, number of items with score equal to 3, where scores vary from 0 to 14). The higher the score, the greater the behavior problems. The answers refer to behavior observed during the last three months rated on a Likert-type scale where 0 = never, 1 = hardly ever, 2 = sometimes and 3 = often.

Its psychometric properties support both the validity and reliability of this instrument, with excellent internal consistency (Cronbach's alpha) for the 14 items ($\alpha = .85$), for inactivity/social withdrawal ($\alpha = .76$) and for active problems ($\alpha = .80$), while for the impulse dyscontrol dimension the internal consistency is rather questionable ($\alpha = .56$). The temporal reliability measured by the total score of behavior problems in 28 patients was satisfactory ($r = .82$, $p < .001$). Furthermore, empirical evidence shows significant correlations supporting both concurrent validity with the Social Behaviour Schedule (SBS) and construct validity with the Social Functioning Scale (SFS) (Vázquez-Morejón et al., 2018).

Perceived family burden. Family burden was evaluated by asking a relative to respond to the following items: "Do you feel able to endure the illness or disorder and the problems it causes?" (FB 1) and "How often are you overwhelmed by these behavior/illness problems?" (FB 2). Both were answered on a Likert-type scale where 0 = not at all, 1 = a

little, 2 = somewhat, 3 = quite often and 4 = a lot. A score is also found for total family burden resulting from the mean of the scores on both items.

Procedure

The sample of 235 patients was chosen from a database of persons with severe mental disorders at a Virgen del Rocío University Hospital CMHU. Patients who were under treatment and met the criteria for inclusion at the start of the project were selected. The diagnosis had been made by a referral clinical psychologist or psychiatrist in each case based on the clinical history and psychopathological exploration.

During the usual psychological evaluation of the patients being followed up, a member of the team (the one with the most contact and/or confidence with family) requested the participation of the key family members and told them that it was entirely voluntarily, and if they accepted, they were given the evaluation instruments to fill in.

Statistical analysis

Analyses were done using the SPSS v.24 statistical package. First, a descriptive analysis was done to study gender differences in behavior problems and perceived family burden (with the *t*-test for independent samples). Before the analysis, data were checked for non-normal distribution using the Kolmogorov-Smirnov test. However, the Levene test for equality of variances was not significant, so the homoscedasticity criterion was met. The Cohen's *d* was used to calculate the effect size (Cohen, 1988).

Correlations between items and BPI dimensions and perceived family burden were also studied with the Pearson's correlation coefficient. Correlations are interpreted following Cohen's guidelines (1988), according to which the value of *r* classifies the correlation as small (r = .10 - .29), medium (r = .30 - .49) or large (r = .50 - 1.0).

Finally, a stepwise multiple linear regression analysis was performed to predict the increase in family burden (criterion or dependent variable) using three predictor or independent variables that referred to the behavior problem dimensions (inactivity/social withdrawal, active problems and impulse dyscontrol). Compliance with the statistical assumptions was confirmed before making the multiple linear regression analysis (linearity, independence of residuals, homoscedasticity and no multicollinearity).

Results

Descriptive analysis

Table 1 shows the mean, median, 1st and 3rd QT and the minimum and maximum scores on the 14 items, three dimensions (inactivity/social withdrawal, active problems and impulse dyscontrol), MBP and SBP.

Item number 1 ("Nervousness") showed the highest mean, median and 1st and 3rd QT scores, while the item with the lowest mean, median, 1st and 3rd QT scores was number 13 ("Taking alcohol or drugs"). The inactivity/social withdrawal dimension had the highest mean, median and 1st and 3rd QT scores, while the impulse dyscontrol dimension had the lowest scores.

Table 1. Descriptive analysis of behavior problems found with the Behavior Problems Inventory (N=235)

	Minimum	1st Quartile	Median	Mean	3rd Quartile	Maximum
Nervousness (BPI 1)	0	1	2	2	2	3
Talking about odd, strange things (BPI 2)	0	0	0	1	2	3
Irritability (BPI 3)	0	0	1	1	2	3
Avoiding others, isolation (BPI 4)	0	0	1	1	2	3
Laughing or talking to oneself (BPI 5)	0	0	0	1	1	3
Insulting others (BPI 6)	0	0	0	0	1	3
Breaking or hitting things (BPI 7)	0	0	0	0	0	3
Hitting people (BPI 8)	0	0	0	0	0	3
Doing odd, strange things (BPI 9)	0	0	0	0	1	3
Attempting self-harm or suicide (BPI 10)	0	0	0	0	0	3
No will to live, sad, crying (BPI 11)	0	0	0	1	2	3
Not keeping clean (BPI 12)	0	0	0	1	1	3
Taking alcohol or drugs (BPI13)	0	0	0	0	0	3
Lying around, not do anything all day long (BPI 14)	0	0	1	1	2	3
Basic	0	3	5	6	8	15
Active	0	1	3	4	6	15
Impulse dyscontrol	0	0	0	1	1	12
MBP	0	1	3	4	6	14
SBP	0	0	0	1	1.25	11

Note. Basic: Inactivity/social withdrawal dimension; Active: Active problems dimension; Impulse dyscontrol: Impulse dyscontrol dimension; MBP: Moderate behavior problems; SBP: Severe behavior problems.

Gender differences

Significant gender differences were observed in the scores on behavior problems (Table 2). On items BPI 12 ("Not keeping clean"; $p = .009$, $d = .346$), BPI 13 ("Taking alcohol or drugs"; $p = .001$, $d = .429$) and BPI 14 ("Lying around, not do anything all day long"; $p = .001$, $d = .432$), there were more behavior problems among the men. Similarly, men also scored higher on the impulse dyscontrol dimension ($p = .01$, $d = .339$) and on SBP ($p = .043$, $d = .269$). Men scored higher on item FB 2 on family burden although it was not statistically significant.

Table 2. Gender differences in behavior problems and family burden

	Men		Women		*P*	Cohen`s *d*	CI
	M	*S.D.*	*M*	*S.D.*			
BPI1	1.60	1.03	1.67	0.95	0.48	-0.093 N	[-0.176 , 0.363]
BPI2	0.91	1.02	0.77	1.04	0.31	0.133 N	[-0.401 , 0.135]
BPI3	1.33	1.05	1.34	0.95	0.963	-0.006 N	[-0.262 , 0.274]
BPI4	1.45	1.07	1.20	1.12	0.069	0.239 S	[-0.508 , 0.031]
BPI5	0.78	1.11	0.52	0.91	0.065	0.242 S	[-0.512 , 0.031]
BPI6	0.51	0.91	0.43	0.78	0.518	0.085 N	[-0.352 , 0.183]
BPI7	0.40	0.86	0.22	0.61	0.069	0.238 S	[-0.507 , 0.031]
BPI8	0.13	0.51	0.08	0.32	0.416	0.106 S	[-0.374 , 0.162]
BPI9	0.43	0.78	0.37	0.73	0.566	0.075 N	[-0.343 , 0.193]
BPI10	0.14	0.52	0.10	0.34	0.478	0.093 N	[-0.361 , 0.175]
BPI11	0.80	1.10	0.84	1.01	0.763	-0.04 N	[-0.228 , 0.307]
BPI12	0.66	0.92	0.37	0.75	0.009	0.346 S	[-0.617 , -0.074]
BPI13	0.51	0.93	0.16	0.56	0.001	0.429 S	[-0.702 , -0.155]
BPI14	1.46	1.18	0.97	1.09	0.001	0.432 S	[-0.704 , -0.159]
Basic	5.93	3.80	5.06	3.70	0.086	0.228 S	[-0.5 , 0.045]
Active	3.91	3.71	3.48	3.49	0.358	0.121 N	[-0.39 , 0.149]
Impulse dyscontrol	1.17	2.04	0.56	1.22	0.01	0.339 S	[-0.611 , -0.067]
MBP	3.84	0.96	3.10	3.01	0.078	0.234 S	[-0.508 , 0.04]
SBP	1.38	1.09	0.84	1.66	0.043	0.269 S	[-0.543 , 0.006]
FB1	2.80	0.96	2.73	0.93	0.596	0.071 N	[-0.347 , 0.205]
FB2	1.97	1.09	1.70	1.05	0.063	0.251 S	[-0.526 , 0.026]
FB total	1.58	0.87	1.50	0.83	0.728	0.094 N	[-0.160 , 0.322]

Note. BPI: Behavior Problems Inventory; Basic: Inactivity/social withdrawal dimension; Active: Active problems dimension; Impulse dyscontrol: Impulse dyscontrol dimension; MBP: Moderate behavior problems; SBP: Severe behavior problems; FB: family burden; CI: Confidence interval; N: Null effect size; S: Small effect size.

Gender differences in behavior problems by diagnosis

Figure 1 shows that men diagnosed with other psychotic disorders had significantly more behavior problems in the impulse dyscontrol dimension (p = .011, d = .744). No significant gender differences were found in the inactivity/social withdrawal, active problems or impulse dyscontrol dimensions among patients diagnosed with schizophrenia or bipolar disorder Type 1.

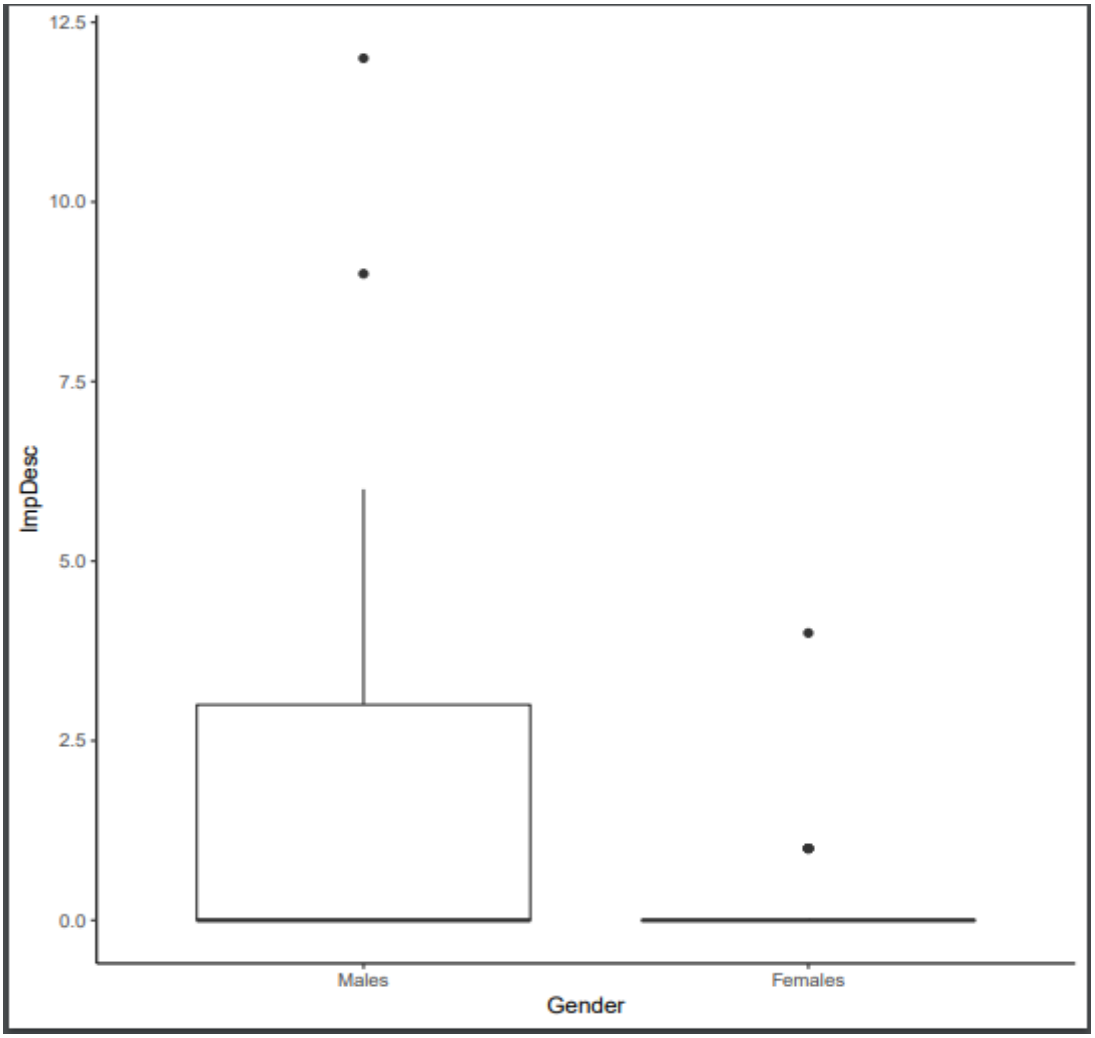

Figure 1. Impulse dyscontrol in other psychotic disorders by gender

Correlations between behavior problems and family burden

The scores showed significant correlations between behavior problems and family burden (Table 3). The behavior problems most closely associated with family coping capacity

(FB 1) were items BPI 3 (“Irritability”), BPI 11 (“No will to live, sad, crying”) and BPI 12 (“Not keeping clean”), all with small correlations. The most significant correlations regarding family perception of being overwhelmed (FB 2) pertained to items BPI 1 (“Nervousness”), BPI 2 (“Talking about odd, strange things”), BPI 3 (“Irritability”), BPI 4 (“Avoiding others, isolation”), BPI 6 (“Insulting others”), BPI 11 (“No will to live, sad, crying”), BPI 12 (“Not keeping clean”) and BPI 14 (“Lying around, not do anything all day long”), all with a medium correlation. The correlation with family burden was negative for FB 1 and positive for FB 2.

Table 3. Correlations between behavior problems and family burden

		BPI1	BPI2	BPI3	BPI4	BPI5	BPI6	BPI7	BPI8	BPI9	BPI10	BPI11	BPI12	BPI13	BPI14
FB1	*r*	-0.25**	-0.21*	-0.26**	-0.215*	-0.118	-0.15	-0.186*	-0.045	-0,113	-0,102	-0,274**	-0,287**	-0,136	-0,253**
	CI	[-0.457, 0.029]	[-0.329, -0.077]	[-0.377, -0.131]	[-0.427, 0.019]	[-0.342, 0.119]	[-371, 0.086]	[-0.402, 0.049]	[-0.275, 0.191]	[-0.338, 0.123]	[-0.328, 0.134]	[-0.477, -0.043]	[-0.488, -0.057]	[-0.359, 0.101]	[-0.46, -0.021]
FB2	*r*	0,353**	0,314**	0,419**	0,367**	0,204*	0,294**	0,244**	0,123	0,203*	0,179*	0,377**	0,314**	0,144	0,395**
	CI	[0.128, 0.543]	[0.085, 0.511]	[0.205, 0.595]	[0.145, 0.553]	[-0.032, 0.418]	[0.064, 0.494]	[0.010, 0.452]	[-0.114, 0.347]	[-0.032, 0.418]	[-0.057, 0.397]	[0.157, 0.562]	[0.086, 0.511]	[-0.094, 0.366]	[0.177, 0.576]

Note. BPI: Behavior Problems Inventory; FB: Family burden; CI: Confidence interval.

*< .01., **< .001.

All of the dimensions were negatively correlated with coping with the illness (FB 1) and positive with perception of being overwhelmed (FB 2) (Table 4). The dimension which was the most strongly associated with family burden was inactivity/social withdrawal (FB 1, r = -.351, p = < .001; FB 2, r = .480, p = < .001), followed by active problems (FB 1, r = -.256, p = < .001; FB 2, r = .414, p = < .001), and in last place, impulse dyscontrol (FB 1, r = -.220, p < .01; FB 2, r = .275, p < .001).

Table 4. Correlations between behavior problems dimension and family burden

		Basic	Active	Impulse dyscontrol
FB1	*r*	-0,351***	-0,256***	-0,220**
	CI	[-0.506, -0.174]	[-0.423, -0.072]	[-0.392, -0.034]
FB2	*r*	0,480***	0,414***	0,275***
	CI	[0.32, 0.613]	[0.246, 0.559]	[0.092, 0.440]

Note. Basic: Inactivity/social withdrawal dimension; Active: Active problems dimension; Impulse dyscontrol: Impulse dyscontrol dimension; FB: Family burden; CI: Confidence interval.

**p< .01.

***p< .001.

Family burden predictor

The results of the multiple linear regression analysis with family burden as the dependent variable and the inactivity/social withdrawal, active problems and impulse dyscontrol dimensions as the predictors are shown in Table 5. The final model identified the inactivity/social withdrawal dimension as the only one able to predict family burden in men, $F_{(3, 136)}$ = 12.55, p < .001, and women, $F_{(3, 69)}$ = 12.56, p < .001. In the rest of the dimensions, neither active problems nor impulse dyscontrol were good gender predictors of family burden. This model explained 35.3% (R^2 = .353) of the variance observed in family burden for women and 21.7% (R^2 = .217) of family burden for men.

Table 5. Behavior problems predicting family burden by gender

Predictor variables		*B*	*SE*	β	*t* (*p*)	R^2	Δ*R*
Men							
	Step 1					.203	.197
	Basic	.20	.03	.45	5.93 (< .001***)		
	Step 2					.212	.201
	Basic	.17	.04	.37	3.86 (< .001***)		
	Active	.06	.05	.21	1.25 (.215)		
	Step 3					.217	.200
	Basic	.16	.04	.37	3.73 (< .001***)		
	Active	.04	.05	.09	0.82 (.415)		
	Impulse dyscontrol	.07	.08	.08	0.92 (.361)		
Women							
	Step 1					.349	.340
	Basic	.27	.04	.59	6.17 (< .001***)		
	Step 2					.351	.332
	Basic	.28	.06	.63	4.80 (< .001***)		
	Active	-.03	.06	-.06	-0.44 (.660)		
	Step 3					.353	.325
	Basic	.28	.06	.62	4.60 (< .001***)		
	Active	-.04	.06	-.08	-0.57 (.572)		
	Impulse dyscontrol	.07	.15	.06	0.49 (.630)		

Note. Basic: Inactivity/social withdrawal dimension; Active: Active problem dimension; Impulse dyscontrol: Impulse dyscontrol dimension

***p< .001.

Discussion

In general, the results show significant gender differences in behavior problems which were strongly related to the level of family burden perceived by family members who had frequent contact with the patients.

Overall, men scored higher in behavior problems and in family perception of being overwhelmed by behavior problems. In agreement with previous research (Koster et al.,

2008; Thorup et al., 2007), men had significantly greater impulse dyscontrol behavior problems than women while there were no significant differences in the active problem dimensions or inactivity/social withdrawal. Men also showed significant differences in SBP, mainly explained by higher scores on the impulse dyscontrol behavior dimension. The results are in agreement with studies that emphasize the importance of socialization in men learning maladaptive emotional control strategies, associated with an increase in behavioral disinhibition, unhealthy behaviors or acts of aggression by men (Gallagher et al., 2014; Panno et al., 2013).

Men were found to score significantly higher on specific behavior problems in items BPI 12 ("Not keeping clean"), BPI 13 ("Taking alcohol or drugs") and BPI 14 ("Lying around, not do anything all day long"), which evaluate behaviors in the inactivity/social withdrawal dimension. These results may be related to the fact that women show better social functioning in the areas of autonomy and competence (Jiménez-García-Bóveda et al., 2000).

Results on the relationship between behavior problems and family burden were in line with Nordstroem et al. (2017) and Koutra et al. (2016), who suggested that family burden is greater when the patients have a more severe and persistent psychopathology. Considering behavior problems as the expression of the underlying psychopathology (Wykes & Sturt, 1986), our study demonstrated that behavior problems are related to an increase in family burden, especially when such behavior is in the inactivity/social withdrawal dimension, and to a lesser extent, behavior related to active problems and impulse dyscontrol.

With regard to the evolution of the illness, emotion expressed has been shown to be a relevant construct in predicting relapse in patients with schizophrenia (Möller-

Leimkühler & Wiesheu, 2012). Álvarez-Jiménez et al. (2012) emphasized the influence of critical and hostile comments of the main caregivers on relapse, which could be partially explained by the impact of the behavior problems on family burden and its consequential effect on the increase in emotion expressed by the main caregivers.

Our results regarding the relationship between gender and family burden are in agreement with Mors et al. (1992), who suggested that the burden is heavier on the families of men. Although not statistically significant, it was observed that the families of men tended to be more intensely overwhelmed by the illness (FB 2). Coinciding with the study by Awad and Voruganti (2008), which related the increase in family burden with social impairment, our analysis found that the inactivity/social withdrawal dimension was the best predictor of family burden regardless of gender.

Our findings seem to indicate that there are differential gender factors in the explanation for family burden. It is important to reflect on and study these differences to find out whether the roles culturally assigned to men and women (Goldstein & Tsuang, 1990), and which have traditionally been more permissive with males, or the presence of psychosocial variables may better explain the male burden (social functioning, recovery time, treatment adherence, type of treatment received, quality of life, etc.).

One of the limitations is the evaluation of the behavior problems by a single family member who frequently interacted with the patient, and it might be recommendable to include other evaluation sources (other professionals, such as clinical psychologist, psychiatrist or nurse) who could attribute the behavior problems more objectivity and avoid possible bias (Sabbag et al., 2011). Another limitation is the procedure for measuring family burden, which is based on subjective evaluation with only two questions. This might have been more objective with an instrument with good

psychometric properties such as the Involvement Evaluation Questionnaire (IEQ) (Schene & van Wijngaarden, 1992), or the Zarit Caregiver Burden Scale (Zarit et al., 1980). Finally, the participants were selected from a single CMHU, so the inclusion of patients from other healthcare centers would have been more representative.

Future studies could approach the relationship between behavior problems and gender in other functional dimensions affected by severe mental disorders, such as social functioning, recovery, quality of life or attempted self-harm. More progress in identifying the differential factors that contribute to explaining family burden in men and women is still necessary. Finally, it would also be of interest to include a longitudinal perspective with which the relationship of these variables and their evolution over time may be studied.

In conclusion, the results confirm the presence of more behavior problems in men in all three dimensions, inactivity/social withdrawal, active problems and impulse dyscontrol. Inactivity/social withdrawal was the dimension with the most predictive power for burden in both men and women.

Conflicts of interest

The authors do not have any personal or financial conflicts of interest to disclose.

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4.2. Segundo trabajo titulado "Ten-year follow-up of social functioning and behaviour problems in people with schizophrenia and related disorders"

Este trabajo corresponde al artículo publicado que se referencia a continuación:

Vázquez-Reyes, A., Pérez-San-Gregorio M. Á., Martín-Rodríguez A., & Vázquez-Morejón A. J. (2021). Ten-year follow-up of social functioning and behaviour problems in people with schizophrenia and related disorders. *International Journal of Social Psychiatry*, *68*(7), 1324-1335. https://doi:10.1177/00207640211023083

Abstract

Background: In recent years, several variables in the course of schizophrenia and related psychotic disorders have been studied. However, an instrumental analysis of the evolution of social functioning and behavior problems has scarcely been explored.

Aim: To analyze the evolution of social functioning and behavior problems and find any diagnosis or gender differences.

Method: The Social Functioning Scale (SFS) and the Behavior Problems Inventory (BPI) were administered in Stages I (2003-2007) and II (2014-2017) to 100 close relatives of patients under treatment at a Community Mental Health Unit. A related samples t-test, analysis of variance and multivariate analysis of variance were performed to study the evolution and differences in social functioning and behavior problems. Then a stepwise multiple linear regression analysis was done to predict the evolution of social functioning.

Results: No deterioration in the evolution of social functioning or behavior problems was observed, and schizophrenia patient scores were lower. Women scored higher in withdrawal/social engagement, interpersonal behavior, independence-performance, independence-competence and total social functioning, with no significant differences in behavior problems. Previous social functioning, underactivity/social withdrawal and education are predictive factors in the evolution of social functioning. The results show the need for implementing psychosocial intervention programs that promote functional recovery and keep problems from becoming chronic.

Keywords

schizophrenia, psychotic disorders, bipolar disorder, social functioning, behavior problems, gender

Introduction

Schizophrenia and related psychotic disorders, which make up most of the severe mental disorders and are a public health problem, have been associated with significant deterioration in social functioning (Grove et al., 2016), an increase in disability (World Health Organization, 2011) and considerable socioeconomic cost (Chong et al., 2016; Knapp et al., 2004).

Having surpassed the classic view of progressive deterioration and poor course, and reductionist attention to clinical symptoms (Bleuler, 1950; Kraeplin, 1919), the functional area emerges as a core dimension of recovery (Best et al., 2020; Correll, 2020). Studies have emphasized achievement in psychosocial domains as indicators of favorable evolution (Buonocore, 2018**;** Liberman et al., 2002; Morin & Franck, 2017). Thus, social functioning has become a strategic area in the study of severe mental disorders, and there is agreement on its consideration as a robust marker of treatment success ahead of clinical symptoms (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007), making it an essential factor for community adaptation (Johnstone et al., 1990) and evolution of the illness (Rajkumar & Thara, 1989).

Social functioning is a multidimensional construct referring to personal skills for everyday social tasks and an adequate social life (Birchwood et al., 1990; Hirschfeld et al., 2000). It can be analyzed on three levels: 1) social achievements, with global measures such as education, marital status or occupation (Hambrecht et al., 1990), 2) social roles, referring to the execution of certain roles, and 3) instrumental behavior, which involves specific analysis of functioning in different areas and dimensions (Mueser & Tarrier, 1998). Nevertheless, most studies have analyzed global aspects or social achievements, ignoring instrumental analysis of social functioning and impeding identification of

specific patient needs.

Among other factors, behavior problems, understood as the behavioral manifestation of underlying psychopathology (Wykes & Sturt, 1986), are closely linked to adaptation and social adjustment (Brewin et al., 1987). However, even though there are studies relating behavior problems with autonomy (Vázquez-Morejón & Jiménez-García-Bóveda, 1994; Wykes, 1982), family burden (Bellido-Zanin et al., 2017; Othman & Salleh, 2008) or family coping (Vázquez-Morejón et al., 2013), they are limited to analyzing their course and possible relationship between behavior problems and social functioning.

In addition to behavior problems, diagnosis is a variable related to differences in the evolution of social functioning. Despite studies having found stability and even recovery during the course of schizophrenia (Liberman & Kopelowicz, 2002; Liberman et al., 2002; Strauss et al., 2010), there is a consensus that social functioning is more deteriorated in it than in other psychotic disorders or bipolar disorder that have a more favorable prognosis (Gee et al., 2016; Harrow et al., 2005; Robinson et al., 2004). However, studies have focused mainly on analysis of global social functioning, impeding identification of specific dimensions that are more affected, and therefore, need more clinical attention.

Gender is also a factor related to heterogeneity in premorbid social functioning as well as during the course of the illness (Andia et al., 1995). Some studies have found better results in women, both premorbid and during the course of illness (Haas & Sweeney, 1992; Leung & Chue, 2000; Thorup et al., 2007). In this sense, the best social adjustment during the course of the illness has been associated with more premorbid social functioning, better cognitive functioning and late age of onset (Castle et al., 2000; Liberman et al., 2002). However, again, most gender studies do not analyze the social functioning dimensions, so it cannot be known whether better social functioning in women is due to

higher performance in all areas or in some of them, or whether there are specific gender needs (Jiménez-García-Bóveda et al., 2000; Haas et al., 1990).

Our objective was to study the evolution of social functioning and behavior problems, and find any diagnosis or gender differences during a ten-year follow-up in patients with schizophrenia and related psychotic disorders.

Method

Participants

The study sample consisted of 100 patients diagnosed with schizophrenia and related psychotic disorders: schizophrenia (ICD-10 F.20, n=55), other psychotic disorders (ICD-10 F.21-F.29, n=28) and bipolar type I disorder (ICD-10 F.31, n=17). All of them were in treatment at a Community Mental Health Unit (CMHU, Virgen del Rocío University Hospital, Seville, Spain) in two different periods: 2003-2007 (Stage I) and 2014-2017 (Stage II).

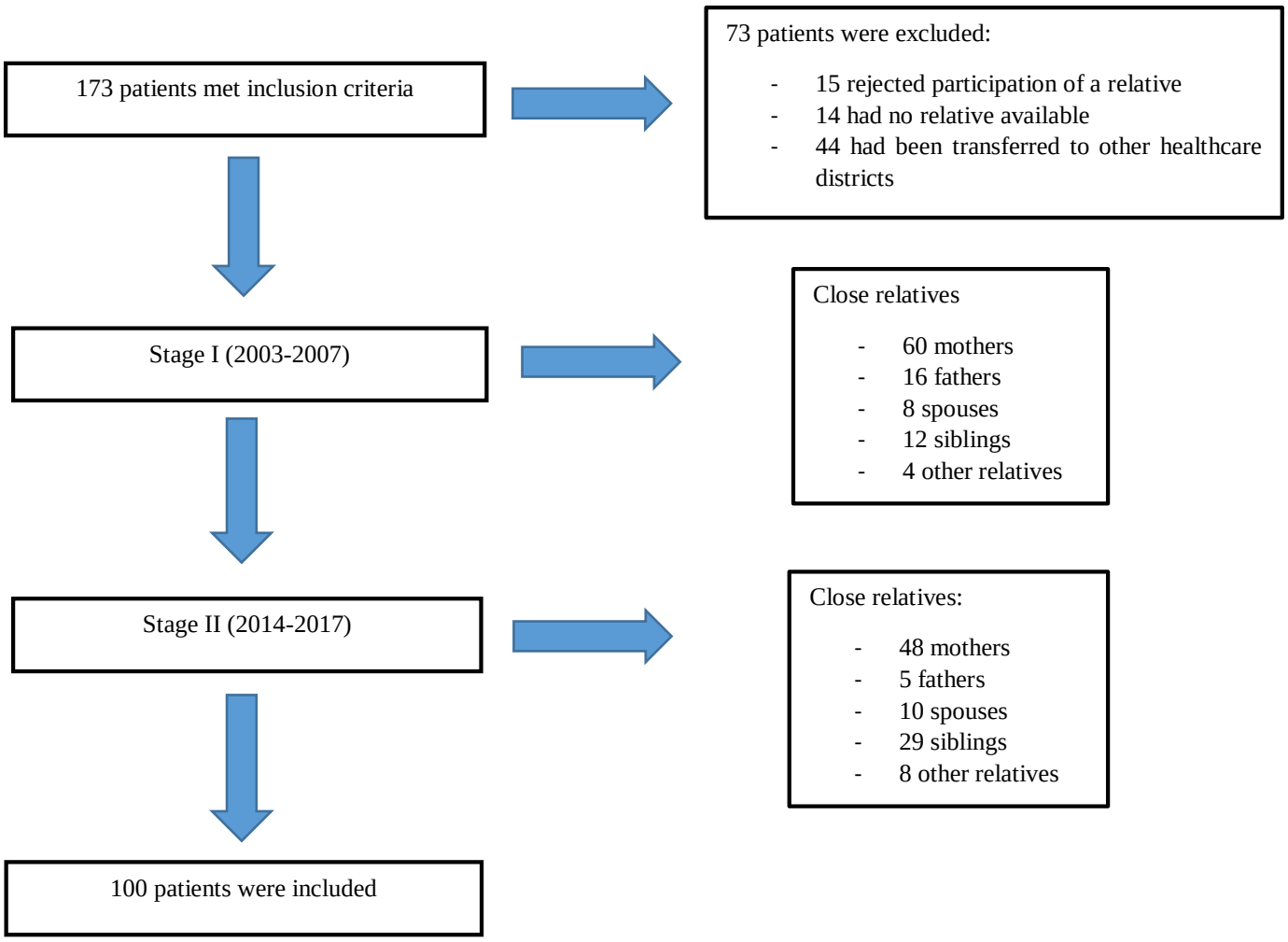
Evaluation tests were completed by close relatives who had frequent contact with the patient. Of the original number of participants, 15 would not let their close relative fill in the evaluation, 14 had no close relative available and 44 had been transferred to another healthcare district, leaving a total of 100 patients who completed the follow-up period (Figure 1). Of these, 64 were men (64%) and 36 women (36%). The mean age of participants in Stage I was 38.26 (*SD*=10.65; range=18-65), while in Stage II it was 51.42 (*SD*=10.51; range=30-77). The distribution by marital status was 77 single (77%), 13 married (13%), 9 separated (9%), and one widow (1%) in Stage I, while in Stage II 77 were single (77%), 12 married (12%), 10 separated (10%) and one widow (1%).

Close relatives in Stage I were: 60 mothers (60%), 16 fathers (16%), 8 spouses (8%), 12

siblings (12%), 4 other family members (4%). Of these, 74 (74%) were women and 26 (26%) were men. In Stage II, 48 (48%) were mothers, 5 fathers (5%), 10 spouses (10%), 29 siblings (29%), and eight other family members (8%). Of the total, 71 (71%) were women and 29 (29%) men.

The inclusion criteria were: (1) be of legal age, (2) have been diagnosed with schizophrenia or related psychotic disorders, (3) agree to participate in the study. Inclusion criteria for close relatives were voluntary participation in the study and have been selected by the patient as the person knowing most about their condition. The exclusion criteria were having a severe organic disease or abuse or dependence on toxic substances.

Figure 1. Flow chart for selection of participants in the study.



Instruments and measures

*Social Functioning Scale (SFS***,** Birchwood et al., 1990): This scale evaluates the most significant facets of social functioning in schizophrenia patients. It has 77 items divided in seven dimensions: withdrawal/social engagement, scored from 0 to 15, interpersonal behavior scored from 0 to 9, prosocial activities, scored from 0 to 66, recreation, scored from 0 to 45, independence-performance scored from 0 to 39, independence-competence scored from 13 to 39 and employment/occupation scored from 0 to 10. Higher scores show higher level functioning in each dimension. A total score classifies the social functioning level as low (<96 points), medium (96-106) or high (>106).

The scale has a self-report version (SFS-SR) to be filled out by the patient and an informant-report (SFS-IR) filled in by a relative who knows the patient well. For this study, we used the SFS-IR because it has demonstrated more sensitivity in evaluating social functioning than the SFS-SR, which has a higher tendency to self-evaluation bias (Jiménez-García-Bóveda et al., 2000).

Studies of the psychometric properties of both the English version of this instrument (Birchwood et al., 1990) and its Spanish adaptation (Vázquez-Morejón & Jiménez-García-Bóveda, 2000) have supported its validity and reliability, and internal consistency (Cronbach's alpha) of α=.85, and three-month temporal reliability α=.84. The internal consistency in our sample for Stage I was: withdrawal/social engagement α=.55, interpersonal behavior α=.58, prosocial activities α=.84, recreation α=.70, independence-performance α=.83, independence-competence α=.87, employment/occupation α=.37, and total α=.91. In Stage II it was: withdrawal/social engagement α=.57, interpersonal behavior α=.68, prosocial activities α=.86, recreation α=.79, independence-performance α=.87, independence-competence α=.89, employment/occupation α=.31, and total α=.93.

We selected this instrument because it can evaluate specific areas of social functioning, and furthermore, its items refer to observable quantifiable behaviors, reducing possible evaluation bias.

The Behavior Problem Inventory (*BPI*, Vázquez-Morejón et al., 2005; Vázquez-Morejón et al., 2018): Was designed to evaluate behavior problems in patients with psychotic disorders. It has 14 items and three dimensions: underactivity/social withdrawal (scored from 0 to 15), active problems (scored from 0 to 15) and lack of impulse control (scored from 0 to 12). Two more indices can be found: moderate behavior problems (MBP, number of items with scores equal to or over 2, scored from 0 to 14) and severe behavior problems (SBP, number of items with score equal to 3, scored from 0 to 14). Higher scores indicate worse behavior problems. The answers refer to observable behavior during the three last months on a Likert-type scale: 0=never, 1=a few times, 2= sometimes and 3=often.

Internal consistency in our sample in Stage I was: underactivity/social withdrawal α=.75, active problems α=.84, lack of impulse control α=.70, total α=.87; and in Stage II: underactivity/social withdrawal α=.78, active problems α=.82, lack of impulse control α=.64, total α=.88.

Procedure

The 173 patients were selected from a census of patients with schizophrenia and related psychotic disorders as diagnosed by a clinical psychologist or psychiatrist based on psychopathological exploration and clinical history at a Virgen del Rocío University Hospital CMHU. As shown in Figure 1, 100 patients were selected; all of them were in treatment in 2003-2007 (Stage I) and 2014-2017 (Stage II).

In Stage I of psychological evaluation, during the programmed checkups at the center, a

member of the team (who had the most contact with and/or knew the family) requested the participation of close relatives and informed them that it was voluntary, and if they agreed, gave them the evaluation instruments to be filled out.

At the end of Stage I evaluation and the ten-year follow-up, Stage II of the psychometric evaluation began. Contextualized within the follow-up checkups and as a normal part of the psychological evaluation, a member of the team again asked the close relatives of each patient for their voluntary participation in the study, and if they wanted to participate, they were given the evaluation scales to be filled out. In this second evaluation period, the close relative might not have been the same one who participated in Stage I, because that person either had an organic disease, was deceased or not available for exceptional reasons. However, those who were different from Stage I were a minority and met the criterion of knowing the current state of the patient well.

Statistical analysis

The analyses were done using SPSS v.24. First, multiple analyses of variance were done to measure the influence of two independent factors (each one with two levels: Stage [Stage I and Stage II] and gender [men and women]) on social functioning and behavior problems in severe mental disorders. The evolution and differences in social functioning and behavior problems were also studied by diagnosis (related samples *t*-test and analysis of variance). Data had previously been tested with the Kolmogorov-Smirnov test and found to follow a normal distribution, and the Levene test checked that the homoscedasticity criterion was met. The effect size was calculated with Cohen's *d,* interpreted as: $d < 0.20$ = null; $d \geq 0.20 < 0.50$ = small; $d \geq 0.50 < 0.80$ = medium; $d \geq 0.80$ = large (Cohen, 1988).

Finally, a stepwise linear regression analysis was done to predict the evolution of total

social functioning in Stage II (criterion or dependent variable) through the following predictor or independent variables: total social functioning in Stage I, behavior problems (underactivity/social withdrawal, active problems and lack of impulse control), education, age and diagnosis, and Stage II means. It was previously confirmed that statistical assumptions for multiple linear regression analysis had been met (linearity, residual independence, homoscedasticity and non-multicollinearity).

Results

Descriptive analysis

Table 1 shows the mean, median, Q1 and Q3, and the minimum and maximum scores on the social functioning dimensions and behavior problems in Stages I and II. Table 2 shows the mean and standard deviation in both stages by diagnosis and gender.

Table 1. Descriptive Analysis of Social Functioning and Behavior Problems (N=100).

	Stage I (n= 100)						Stage II (n=100)					
	Minimum	Q1	Median	Mean	Q3	Maximum	Minimum	Q1	Median	Mean	Q3	Maximum
Withdrawal/social engagement	0	8	10	9.47	11	14	3	7	10	9.43	11	15
Interpersonal behavior	0	4	6	5.80	8	9	0	4	6	5.82	8	9
Prosocial activities	3	19	24	23.97	29	39	5	20	24	25.03	33.75	39
Recreation	3	11	15	15.07	19	32	2	10	15	15.12	20	36
Independence-performance	0	8	13	15.22	22	42	0	6	12	14.85	22	46
Independence-competence	13	30	34	32.94	37	39	16	29	34	32.92	37	39
Employment/occupation	0	2	4	5.02	9	10	0	2	5	4.77	8	10
Total SF	33	87.25	109.50	107.49	129	170	31	88.25	105.50	107.94	132.75	182
Underactivity/social withdrawal	0	3	6	6.02	9	14	0	2	6	5.85	9	14
Active problems	0	1	3	3.96	7	15	0	1	3	3.90	5.25	15
Lack of impulse control	0	0	0	0.93	1	12	0	0	0	0.84	1	9
MBP	0	1	3	3.78	6	14	0	1	3	3.46	5	12
SBP	0	0	0	1.15	1	10	0	0	0	1.20	1.25	12

Total SF: Total social functioning; MBP: Moderate behavior problems; SBP: Severe behavior problems.

Table 2. Total Social Functioning, Moderate and Severe Behavior Problems.

	Schizophrenia (n=55)		**Other psychotic disorders (=28)**		**BAD (n=17)**		**Men (n=64)**		**Women (n=36)**	
	M	SD	M	SD	M	SD	M	SD	M	SD
Stage I										
Total SF	99.65	26.53	115.25	29.12	120.06	24.91	100.42	27.71	120.06	24.68
MBP	3.73	2.68	4.63	3.52	2.38	3.07	3.97	3.03	3.44	3.14
SBP	1.18	1.69	1.52	2.49	.44	1.03	1.38	2.04	0.74	1.48
Stage II										
Total SF	97.98	27.44	122.82	33.12	115.65	28.30	102.91	32.92	116.89	25.62
MBP	4.14	2.85	2.93	2.69	2.19	1.47	3.56	2.75	3.26	2.77
SBP	1.24	1.79	1.33	2.76	.69	1.01	1.31	2.16	1.00	1.67

BAD: Bipolar affective disorder; SD: Standard deviation; Total SF: Total social functioning; MBP: Moderate behavior problems; SBP: Severe behavior problems.

Social Functioning, Behavior Problems and diagnosis

Patients with other psychotic disorders showed a significant increase in the evolution of their social functioning in independence-performance (p=.035, d= -0.314, small effect size), while there were no significant differences in schizophrenia or bipolar disorder patients. Moderate behavior problems also diminished significantly in the group with other psychotic disorders (p=.031, d= 0.542, moderate effect size), but no significant differences were found in schizophrenia or bipolar disorder patients either (Table 3).

With regard to differences between diagnostic categories, in Stage I patients with schizophrenia had significantly lower scores than patients with bipolar disorder in interpersonal behavior (p=.007, d= -0.991, large effect size). They also had a lower score in employment/occupation than other psychotic disorders (p=.008, d= -0.733, moderate effect size) or bipolar disorder (p=.012, d= -0.794, moderate effect size), and social functioning compared to psychotic disorders (p=.044, d= -0.560, moderate effect size) and bipolar disorder (p=.023, d= -0.793, moderate effect size). Patients with other psychotic disorders had a higher score than patients with bipolar disorder in active problems (p=.038, d= 0.775, moderate effect size). Furthermore, schizophrenia patients scored lower than those with psychotic disorders in recreation with important effect sizes (d= -0.515, moderate effect size) and those with bipolar disorder in prosocial activities (d= -0.526, moderate effect size), recreation (d= -0.565, moderate effect size) and independence-performance (d= -0.588, moderate effect size), while they had higher scores than those with bipolar disorder in active problems (d= 0.767, moderate effect size) and severe behavior problems (d= 0.507, moderate effect size). Patients with other psychotic disorders scored lower than those with bipolar disorder in interpersonal behavior (d= -0.597, moderate effect size) and higher in moderate behavior problems (d=

0.681, moderate effect size) and in severe behavior problems (*d*= 0.557, moderate effect size) (Table 4).

In Stage II, schizophrenia patients scored lower than those with other psychotic disorders in prosocial activities (*p*=.022, *d*= -0.611, moderate effect size), recreation (*p*=.002, *d*= -0.783, moderate effect size), independence-performance (*p*=.023, *d*= -0.618, moderate effect size), independence-competence (*p*=.031, *d*= -0.597, moderate effect size), employment/occupation (*p*=.000, *d*= -0.902, large effect size), and total social functioning (*p*=.001, *d*= -0.817, large effect size). Differences between schizophrenia patients and those with bipolar disorder were also unfavorable to schizophrenia in interpersonal behavior (*p*=.002, *d*= -1.162, large effect size), employment/occupation (*p*=.000, *d*= -1.125, large effect size), active problems (*p*=.010, *d*= 1.000, large effect size) and moderate behavior problems (*p*=.015, *d*= 0.928, large effect size). In addition, schizophrenia patient scores were higher than those of psychotic disorder patients, also with important effect sizes, in underactivity/social withdrawal (*d*= 0.507, moderate effect size) and in moderate behavior problems (*d*= 0.506, moderate effect size), while they had lower scores than bipolar disorder patients in independence-competence (*d*= -0.662, moderate effect size) and in total social functioning (*d*= -0.634, moderate effect size), and higher scores in lack of impulse control (*d*= 0.527, moderate effect size). Lastly, other psychotic disorders scored lower than bipolar disorder patients in interpersonal behavior (*d*= -0.603, moderate effect size) and higher in active problems (*d*= 0.513, moderate effect size) (Table 4).

Table 3. Evolution of Social Functioning and Behavior Problems by diagnosis.

	Schizophrenia (n=55)						Other psychotic disorders (n=28)						BAD (n=17)					
	M I	SD I	M II	SD II	*p*	*d*	M I	SD I	M II	SD II	*p*	*D*	M I	SD I	M II	SD II	*p*	*d*
Withdrawal/social engagement	9.05	2.84	9.31	3.02	.575	-0.089 N	10.00	2.82	9.68	2.96	.739	0.111 N	9.94	2.05	9.41	3.12	.275	0.201 S
Interpersonal behavior	5.27	2.26	5.16	2.28	.747	0.048 N	5.93	2.68	6.07	2.93	.433	-0.050 N	7.29	1.79	7.53	1.77	1.000	-0.135 N
Prosocial activities	13.45	9.57	12.44	8.81	.438	0.110 N	16.96	10.53	18.93	12.18	.269	-0.173 N	18.06	7.89	15.94	10.84	.331	0.224 S
Recreation	13.62	5.62	13.16	6.54	.616	0.075 N	16.64	6.09	18.68	7.51	.180	-0.298 S	17.18	6.91	15.59	6.65	.382	0.234 S
Independence-performance	22.15	7.40	23.09	8.78	.432	-0.116 N	25.82	8.44	28.54	8.87	.035	-0.314 S	26.82	8.46	25.53	7.54	.424	0.161 N
Independence-competence	32.20	4.72	31.42	5.81	.326	0.147 N	33.64	5.90	34.71	5.19	.468	-0.193 N	34.18	6.45	34.82	4.35	.480	-0.116 N
Employment/occupation	3.91	3.28	3.40	3.03	.280	0.162 N	6.25	3.10	6.21	3.20	1.000	0.013 N	6.59	3.47	6.82	3.05	.526	-0.070 N
Total SF	99.65	26.53	97.98	27.44	.652	0.062 N	115.25	29.12	122.82	33.12	.138	-0.243 S	120.06	24.91	115.65	28.30	.526	0.165 N
Underactivity/social withdrawal	6.20	3.40	6.63	3.71	.494	-0.121 N	6.26	3.68	4.96	3.78	.113	0.349 S	4.88	3.95	5.00	3.58	.905	-0.032 N
Active problems	4.14	3.35	4.67	3.73	.358	-0.150 N	4.74	4.50	3.48	3.74	.186	0.305 S	1.81	2.88	2.00	1.63	.819	-0.081 N
Lack of impulse control	.82	1.37	1.02	1.71	.446	-0.129 N	1.30	2.55	.74	1.83	.253	0.252 S	.62	1.54	.38	.89	.609	0.191 N
MBP	3.73	2.68	4.14	2.85	.365	-0.148 N	4.63	3.52	2.93	2.69	.031	0.542 M	2.38	3.07	2.19	1.47	.814	0.079 N
SBP	1.18	1.69	1.24	1.63	.866	-0.036 N	1.52	2.49	1.33	2.76	.742	0.072 N	.44	1.03	.69	1.01	.534	-0.245 S

BAD: Bipolar affective disorder; M I: Mean Stage I; M II: Mean Stage II; SD I: Standard deviation Stage I; SD II: Standard deviation Stage II; N: Null effect size; S: Small effect size; M: Medium effect size; L: Large effect size; Total SF: Total social functioning; MBP: Moderate behavior problems; SBP: Severe behavior problems.

Table 4. Differences in Social Functioning and Behavior Problems by diagnosis.

			Stage I				Stage II			
			Mean difference	Error	P	Cohen's d	Mean difference	Error	p	Cohen`s d
Withdrawal/social engagement	Schizophrenia	Other psychotic	-.95	.63	.413	-0.336 S	-.37	.70	1.000	-0.120 N
		BAD	-.89	.75	.729	-0.359 S	-.10	.84	1.000	-0.033 N
	Other psychotic	BAD	.06	.63	.413	0.024 N	.27	.93	1.000	0.085 N
Interpersonal behavior	Schizophrenia	Other psychotic	-.66	.54	.679	-0.265 S	-.91	.56	.322	-0.347 S
		BAD	-2.02	.64	.007	-0.991 L	-2.37	.67	.002	-1.162 L
	Other psychotic	BAD	-1.37	.71	.176	-0.597 M	-1.46	.74	.155	-0.603 M
Prosocial activities	Schizophrenia	Other psychotic	-3.51	2.23	.355	-0.346 S	-6.49	2.37	.022	-0.611 M
		BAD	-4.60	2.66	.261	-0.526 M	-3.50	2.83	.655	-0.354 S
	Other psychotic	BAD	-1.09	2.95	1.000	-0.118 N	2.99	3.13	1.000	0.259 S
Recreation	Schizophrenia	Other psychotic	-3.02	1.39	.096	-0.515 M	-5.14	1.59	.002	-0.783 M
		BAD	-3.56	1.66	.104	-0.565 M	-2.42	1.90	.613	-0.368 S
	Other psychotic	BAD	-.53	1.84	1.000	-0.082 N	3.09	2.10	.435	0.436 S
Independence-performance	Schizophrenia	Other psychotic	-3.68	1.83	.142	-0.462 S	-5.44	2.00	.023	-0.618 M
		BAD	-4.68	2.19	.105	-0.588 M	-2.43	2.39	.931	-0.298 S
	Other psychotic	BAD	-1.01	2.42	1.000	-0.118 N	3.01	2.65	.778	0.366 S
Independence-competence	Schizophrenia	Other psychotic	-1.44	1.25	.753	-0.270 S	-3.30	1.26	.031	-0.597 S
		BAD	-4.60	2.66	.261	-0.350 S	-3.41	1.51	.078	-0.662 S
	Other psychotic	BAD	-1.09	2.95	1.000	-0.087 N	-.11	1.67	1.000	-0.023 N
Employment/occupation	Schizophrenia	Other psychotic	-2.34	.76	.008	-0.733 S	-2.81	.72	.000	-0.902 L
		BAD	-2.68	.91	.012	-0.794 S	-3.42	.86	.000	-1.125 L
	Other psychotic	BAD	-.34	1.01	1.000	-0.103 N	-.61	.95	1.000	-0.195 N

Total SF	Schizophrenia	Other psychotic	-15.60	6.27	.044	-0.560 M	-24.84	6.79	.001	-0.817 L
		BAD	-20.40	7.50	.023	-0.793 M	-17.66	8.12	.096	-0.634 M
	Other psychotic	BAD	-4.81	8.31	1.000	-0.177 N	7.17	8.99	1.000	0.233 S
Underactivity/social withdrawal	Schizophrenia	Other psychotic	-0.01	.85	1.000	-0.002 N	1.91	.87	.089	0.507 M
		BAD	1.38	1.02	.543	0.372 S	1.76	1.03	.277	0.489 S
	Other psychotic	BAD	1.38	1.13	.666	0.362 S	-.155	1.14	1.000	-0.041 N
Active problems	Schizophrenia	Other psychotic	-.53	.87	1.000	-0.133 N	1.47	.82	.232	0.388 S
		BAD	2.40	1.04	.072	0.767 M	2.95	.98	.010	1.000 L
	Other psychotic	BAD	2.93	1.15	.038	0.775 M	1.47	.824	.232	0.513 M
Lack of impulse control	Schizophrenia	Other psychotic	-.47	.43	.825	-0.230 S	.34	.37	1.000	0.200 S
		BAD	.20	.52	1.000	0.138 N	.70	.45	.370	0.527 M
	Other psychotic	BAD	.67	.57	.722	0.318 S	.36	.50	1.000	0.255 S
MBP	Schizophrenia	Other psychotic	-.86	.71	.690	-0.275 S	1.40	.62	.074	0.506 M
		BAD	1.39	.86	.323	0.482 S	2.11	.73	.015	0.928 L
	Other psychotic	BAD	2.25	.95	.058	0.681 M	.70	.81	1.000	0.323 S
SBP	Schizophrenia	Other psychotic	-.35	.44	1.000	-0.164 N	.05	.47	1.000	0.022 N
		BAD	.74	.53	.513	0.507 M	.69	.56	.654	0.477 S
	Other psychotic	BAD	1.08	.58	.208	0.557 M	.64	.62	.908	0.313 S

BAD: Bipolar affective disorder; Total SF: Total social functioning; MBP: Moderate behavior problems; SBP: Severe behavior problems; N: Null effect size; S: Small effect size; M: Medium effect size; L: Large effect size.

Social functioning, behavior problems, gender and stage

Tables 5 and 6 show the results of multivariate analysis of variance and associated effect sizes. No statistically significant interaction effects were found in the social functioning variables or behavior problems. The only statistically significant main effect was the influence of gender on social functioning, where women had higher scores regardless of stage in the withdrawal/social engagement (p=.009, d= 0.472, small effect size), interpersonal behavior (p=.017, d= 0.452, small effect size), independence-performance (p=.000, d= 0.837, large effect size), independence-competence (p=.003, d= 0.550, moderate effect size) and total social functioning (p=.002, d= 0.603, moderate effect size) dimensions.

Table 5. Evolution of Social Functioning by Gender and Stage.

	Means		**SD**		**Main Effects**		**Cohen`s *d***		**Interaction effects**
Psychosocial variables	Gender Men Women	Stage I II	Gender Men Women	Stage I II	Gender $F_{(1,98)}$ (*p*)	Stage $F_{(1,98)}$ *(p)*	Gender	Stage	$F_{(1,98)}$ *(p)*
Withdrawal/social engagement	8.99 10.27	9.47 9.43	3.03 2.35	2.73 2.99	7.036 (.009)	0.132 (.717)	0.472 S	0.014 N	0.765 (.384)
Interpersonal behaviour	5.43 6.50	5.80 5.82	2.56 2.16	2.41 2.54	5.863 (.017)	0.027 (.869)	0.452 S	-0.008 N	0.087 (.769)
Prosocial activities	14.19 16.55	15.22 14.85	9.99 10.21	9.70 10.49	2.147 (.146)	0.000 (.997)	0.234 S	0.036 N	0.046 (.831)
Recreation	14.50 16.17	15.07 15.12	6.81 6.32	6.14 7.18	1.662 (.200)	0.244 (.622)	0.254 S	-0.007 N	0.244 (.622)
Independence-performance	22.19 28.61	23.97 25.03	8.29 6.98	8.07 8.85	22.325 (.000)	0.489 (.486)	0.837 L	-0.125 N	2.564 (.113)
Independence-competence	31.90 34.77	32.94 32.92	5.63 4.77	5.39 4.32	9.540 (.003)	0.045 (.833)	0.550 M	0.004 N	0.409 (.524)
Employment/occupation	4.49 5.63	5.02 4.77	3.49 3.77	3.46 3.42	3.54 (.063)	0.497 (.482)	0.313 S	0.073 N	0.014 (.907)
Total SF	101.67 118.48	107.49 107.94	30.32 25.16	28.18 31.10	10.45 (.002)	0.014 (.905)	0.603 M	-0.015 N	0.990 (.322)

SD: Standard deviation; Total SF: Total social functioning; N: Null effect size; S: Small effect size; M: Medium effect size; L: Large effect size.

Table 6. Evolution of behavior problems by gender and stage.

	Means	**SD**	**Main effects**	**Cohen`s *d***	**Interaction effects**				
	Gender	Stage	Gender	Stage	Gender	Stage	Gender	Stage	
Psychosocial variables	Men Women	I II	Men Women	I II	$F_{(1,98)}$ (*p*)	$F_{(1,98)}$ *(p)*		$F_{(1,98)}$ *(p)*	
Underactivity/social withdrawal	6.35 5.15	5.99 5.87	3.58 3.73	3.57 3.76	3.620 (.060)	0.006 (.940)	0.328 S	0.033 N	1.190 (.278)
Active problems	3.90 3.88	3.91 3.87	3.75 3.56	3.75 3.58	0.001 (.972)	0.037 (.847)	0.005 N	0.011 N	0.114 (.737)
Lack of impulse control	0.95 0.76	0.93 0.83	1.83 1.53	1.81 1.64	.376 (.541)	0.155 (.694)	0.112 N	0.058 N	1.035 (.312)
MBP	3.74 3.36	3.76 3.46	2.87 2.95	3.07 2.71	.560 (.456)	.366 (.547)	0.131 N	0.222 S	.366 (.547)
SBP	1.32 0.88	1.15 1.17	2.06 1.60	1.89 1.94	1.876 (.174)	.104 (.748)	0.239 S	-0.010 N	.663 (.417)

SD: Standard deviation; MBP: Moderate behavior problems; SBP: Severe behavior problems; N: Null effect size; S: Small effect size; M: Medium effect size; L: Large effect size.

Predictors of Social Functioning

The results of multiple linear regression analysis with total social functioning in Stage II as the dependent variable and as independent variables, total social functioning in Stage I, behavior problems (underactivity/social withdrawal, active problems and lack of impulse control) education, age and diagnosis (measured in Stage II), are shown in Table 7. The final model [$F_{(3,99)}$=34.85, p=.000] identified three predictor variables: Stage I social functioning (p=.000), underactivity/social withdrawal (p=.000) and education (p=.016). On the contrary, active problems, lack of impulse control, age and diagnosis were not significant and were eliminated by the model. This model explained 51.2% (R^2=0.512) of the variance observed in total social functioning in Stage II.

Table 7. Prediction of Total Social Functioning in Stage II.

Predictor Variables	B	SE	β	*t* (*p*)	R^2	ΔR
Step 1					.337	.330
Social Functioning Stage I	.641	.092	.580	6.982 (p=.000)		
Step 2					.496	.486
Social Functioning Stage I	.538	.083	.488	6.523 (p=.000)		
Underactivity/social withdrawal	-3.391	.618	-.410	-5.484 (p=.000)		
Step 3					.527	.512
Social Functioning Stage I	.465	.086	.422	5.433 (p=.000)		
Underactivity/social withdrawal	-3.295	.604	-.398	-5.459 (p=.000)		
Education level	4.704	1.909	.188	2.465 (p=.016)		

Discussion

Overall, our results reinforce studies on schizophrenia and related psychotic disorders that emphasize stability and functional recovery during its course, surpassing the classical view of progressive functional deterioration.

In agreement with previous research (Liberman et al., 2002; Strauss et al., 2010; Häfner et al., 1995), our findings on the evolution of the social functioning dimensions and behavior problems show a period of stability in patients with schizophrenia. This stability seems to reflect the efficacy of intervention applied to contain possible functional deterioration, but insufficient to stimulate recovery, so a need emerges to develop psychosocial treatments that strengthen the functional area (Liberman & Kopelowicz, 2002; Ventriglio et al., 2020). Major studies with at least 20 years of follow-up of chronic schizophrenia patients in rehabilitation programs have found social recovery of 50% to 68% of the participants (Harding et al., 1987a; Harding et al., 1987b; Harding et al., 1992). Therefore, our results demonstrate the need for developing and ensuring access to psychosocial intervention based on evidence in the early stages that promote recovery through training in social skills, supporting employment, prosocial community training or family intervention, to facilitate community adaptation and integration and avoid chronicity (Armijo et al., 2013; Leopold et al., 2020; Norman et al., 2017; Rummel-Kluge & Kissling, 2008).

The results for other psychotic disorders coincide with previous studies which have shown recovery of social functioning (Gee et al., 2016; Harrow et al., 2005; Robinson et al., 2004), significantly increasing skills related to independence-performance and their consequent community adaptation. In agreement with Tohen et al. (2000), there were no differences from bipolar disorder patients after follow-up. However, even though schizophrenia evolved favorably, it would be important to include these patients in psychosocial treatment programs that stimulate overall functional recovery.

Gender differences, supporting previous studies, showed that women had better total social functioning throughout the course of the illness (Leung & Chue, 2000; Morgan et

al., 2008; Thorup et al., 2007). An instrumental analysis identified differences favorable to women in four dimensions: withdrawal/social engagement, interpersonal behavior, independence-performance and independence-competence. Coinciding with the results found by Jiménez-García-Bóveda et al. (2000), the differences in independence-performance and independence-competence may be motivated by cultural discrepancies in gender roles (Goldstein & Tsuang, 1990; Mayston et al., 2020), since the items refer to tasks related to performance in the home, which are mostly associated with women. Withdrawal/social engagement and interpersonal behavior are both dimensions reflecting a deficit in social skills that could impede community integration of men, also therefore justifying from a gender perspective the need to develop psychosocial rehabilitation programs based on evidence and adapted to individual needs. With regard to behavior problems, contrary to previous studies that show higher intensity and persistence of psychopathology in men (Chang et al., 2011; Hui et al., 2014; Segarra et al., 2012), the results did not show any significant gender differences in behavior problems.

In line with earlier studies, previous social functioning and underactivity/social withdrawal problems are powerful variables for explaining the evolution of social functioning (Castle et al., 2000; Liberman et al., 2002). Thus, deterioration in social functioning and presence of underactivity/social withdrawal problems are related to a poor course and heavier use of healthcare resources (Bellido-Zanín et al., 2017a; Raudino et al., 2014), and both factors become priority targets of treatment to avoid evolution toward chronicity. Of the sociodemographic variables, social isolation has been associated as a factor in poor prognosis (Harvey et al., 2007), so it was expected for a higher level of education to exert a protective role, probably explained by greater social and cognitive skills required in higher education.

Among the limitations, it should be mentioned that social functioning and behavior

problem evaluation was done by a single family member who had frequent contact with the patient, and this person could have been different in Stages I and II, so it would be recommendable to include other sources of evaluation (other clinical psychology, psychiatry or nursing professionals) who could provide the psychometric assessment with greater objectivity and avoid any bias (Sabbag et al., 2011). Moreover, the participants were selected from a single CMHU, and inclusion of patients from other healthcare centers would have been more representative.

Future research could study what psychotherapeutic intervention and what associated characteristics (intensity, frequency, group or individual, and so forth) contribute to promoting recovery of social functioning and behavior problems. It would also be of interest to study what other factors are involved in recovery of social functioning beyond behavior problems and education, and which contribute to explaining gender differences.

In conclusion, our study reinforces the need for attention to the functional area in schizophrenia and related disorders. The results confirm the importance of previous social functioning and problems related to underactivity/social withdrawal during the course of social functioning. Therefore, there is a need to include psychosocial treatment programs in the early stages that contribute to improving the course and favor recovery.

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Conflict of interest

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4.3. Tercer trabajo titulado “Survival of patients with severe mental disorders: Influence of social functioning”

Este trabajo corresponde al artículo publicado que se referencia a continuación:

Vázquez-Reyes, A., Martín-Rodríguez, A., Pérez-San-Gregorio M. Á., & Vázquez-Morejón A. J. (2023). Survival of patients with severe mental disorders: Influence of social functioning. *International Journal of Social Psychiatry*. https://doi.org/10.1177/00207640231152201

Abstract

Background: Patients with severe mental disorders have a high risk of premature death due to the interaction of various factors. Social functioning is a strategic functional factor in understanding the course of psychotic disorders.

Aim: Analyze the relationship between social functioning and its various dimensions and survival during a 10-year follow-up.

Method: The Social Functioning Scale (SFS) was administered to 163 close relatives of patients under treatment at a Community Mental Health Unit. Survival was described by Kaplan-Meier analysis and any differences in survival by level of social functioning were found by long-rank analysis. Finally, Cox regression was used to predict premature mortality.

Results: Significant differences in mortality were identified in the interpersonal behavior dimension of social functioning, while there were no significant gender or diagnostic differences in the rest of the dimensions. The interpersonal behavior dimension and age were found to be factors predicting premature death.

Conclusion: These findings show the protective effect of social functioning retained by patients with psychotic disorders on their survival, and the need to apply evidence-based psychotherapy focused on recovery of social functioning in the early stages of the disorder.

Keywords:

schizophrenia, psychotic disorders, bipolar disorder, course, premature death

Introduction

Severe mental disorders are defined as psychotic spectrum disorders associated with severe functional impairment which have evolved over two or more years (NIMH, 1987). These disorders have a high risk of premature death, with a life expectancy 10-15 years lower than the general population (Chan et al., 2022; Laursen et al., 2017; Oakley et al., 2018; Simon et al., 2018). In schizophrenia, the specific mortality rate is 2-4 times higher than in the general population, and may increase up to 12-15 times in young patients (Hjorthøj et al., 2017; Laursen, 2011; Saha et al., 2007). Contrary to the increase in life expectancy in the general population during recent decades, the mortality gap of patients with psychotic disorders remains stable, and some studies even show that it has increased in recent years (Gur, et al., 2018; Nielsen et al., 2013). These are undoubtedly alarming data which make it an important public health problem.

This high mortality rate has been associated with interaction of several risk factors, including: (a) those related to the patient: psychosis, negative symptoms, cognitive impairment and unhealthy lifestyle; (b) related to treatment: absence or insufficient psychological treatment and adverse effects of medication; and (c) related to healthcare services: difficult access to specific treatments, both for mental pathologies and other comorbid somatic pathologies diagnosed (De Hert et al., 2011a, 2011b). Casuistically, premature death may be divided into natural causes, of which the cardiovascular, metabolic and respiratory diseases are the most prevalent (Correll et al., 2017; Vancampfort et al., 2015, 2016), and non-natural causes, such as accidents and suicide (Björkenstam et al., 2014; Zaheer et al., 2018), in which contextual factors like alterations in family dynamics, social functioning deficits and behavior problems have the heaviest weight (Bellido-Zanin et al., 2015, 2017; Koutra et al., 2014; Thompson et al., 2019).

More profound study of functional factors has underlined some psychosocial achievements as indicators of a favorable course in psychosis (Harding et al., 1987a, 1987b; Liberman et al., 2002; Strauss & Carpanter, 1977). In this context, social functioning emerges as a core area in psychotic disorders, with agreement on its contribution to community adaptation (Johnstone et al., 1990), favorable evolution of the disease (Rajkumar & Thara, 1989) and treatment success (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007), and may become a protective factor for survival in psychosis.

Social functioning is a multidimensional construct referring to personal qualities for developing social activities and maintaining an optimum social life (Birchwood et al., 1990; Hirschfeld et al., 2000). It is studied on several levels: (1) social achievements, with overall measures such as education, marital status or occupation (Hambrecht et al., 1992), (2) social roles, referring to development of specific roles, such as at work or in marriage, and (3) instrumental behavior, which involves the detailed study of functioning in different areas and dimensions, such as interpersonal behavior or leisure activities (Birchwood et al., 1990; Mueser & Tarrier, 1998). However, most studies focus on analyzing social functioning through overall aspects or social achievements (Gardner et al., 2019; Kua et al., 2003; Nevarez-Flores et al., 2019; Velthorst et al., 2017), and do not include an overall and dimensional analysis using specific instruments and their possible relationship as a protective factor for survival.

As far as we know, social functioning and its various dimensions have not been explored as a predictive variable in the analysis of survival in patients with psychotic disorders. The objective of our study was to analyze any relationship between social functioning

and its dimensions and survival of patients with psychotic disorders during a 10-year follow-up period.

Method

Participants

The study sample consisted of 163 patients diagnosed with schizophrenia and related psychotic disorders: 94 (57.7%) with schizophrenia (ICD-10 F20), 44 (27.0%) with other psychotic disorders (ICD-10 F21-F29) and 25 (15.3%) with bipolar disorder type 1 (ICD-10 F31) who were under treatment at a Community Mental Health Unit (CMHU, Virgen del Rocio University Hospital, Seville, Spain) at the beginning of follow-up. Of these, 106 were men (65%) and 57 women (35%). The mean age of the patients was 41.83 (*SD* = 12.82; range=18-77). Marital status was: 123 single (75.5%), 25 married (15.3%), 14 separated (8.6%) and 1 widow (0.6%).

Social functioning was evaluated by close relatives who had frequent contact with the patient at the beginning of the study. Participation was the following: 82 mothers (50.3%), 28 fathers (17.2%), 19 spouses (11.7%), 23 siblings (14.1%), 11 other family members (6.7%). Inclusion criteria were: (1) legal age, (2) diagnosis of schizophrenia or related psychotic disorders, and (3) agree to participate in the study. For close relatives, the inclusion criteria were voluntary participation in the study and having been selected by the patient as the person with the most knowledge of their condition. Exclusion criteria were severe organic disease and substance abuse or dependence.

Instruments and measures

The Social Functioning Scale (SFS, Birchwood et al., 1990) evaluates the most relevant areas of social functioning in schizophrenia and psychotic disorders. It is comprised of

77 items divided into seven dimensions: withdrawal/social engagement with scores of 0-15 (items such as “How often do you leave your home?”), interpersonal behavior with scores of 0-9 (with items like “Do you feel uncomfortable in a group of people?”), prosocial activities with scores of 0-66 (with items like “visit interesting places” or “go to parties”), recreation with scores of 0-45 (with items like “go for walks” or “go shopping”), independence-performance with scores of 0-39, independence-competence with scores of 13-39. Although the last two dimensions contain the same items, in one, it is the perceived capacity that is evaluated and in the other it is the task really performed that is asked about (with items such as “prepare and cook meals” or “manage money”). Finally, employment/occupation with scores of 0-10 (with items such as “Do you have a regular job?” or “If you have a job: what kind of work?”). The items are scored from a minimum of 0 to maximum of 3, where higher scores show better social functioning. A total score also divides overall social functioning into low (<96 puntos), medium (96-106) and high (>106).

The instrument has two versions: self-report (SFS-SR), which is filled in by the patient and informant-report (SFS-IR), which is filled out by a close relative. The SFS-IR shows better sensitivity and fit (Jiménez-García-Bóveda et al., 2000), and was therefore the one used in this study. Its psychometric characteristics in both the English version (Birchwood et al., 1990) and its Spanish adaptation (Vázquez-Morejón & Jiménez-García-Bóveda, 2000), reinforce the validity and reliability of the scale, with an internal consistency (Cronbach’s alpha) of α=.85 and temporal reliability at three months of α=.84. In our sample, internal consistency was the following: withdrawal/social engagement α=.61, interpersonal behavior α=.86, prosocial activities α=.85, recreation α=.72, independence-performance α=.86, independence-competence α=.87, employment/occupation α=.36, total α=.91. This scale was selected because it is widely used for evaluating psychotic

disorders and for the dimensional richness that can be studied with it. Furthermore, its items refer to observable and quantifiable behaviors, reducing any possible bias and making the evaluation more objective.

Table 1. Descriptive analysis of social functioning by diagnosis and gender (N=163).

	Schizophrenia (n=94)		**Other psychotic (n=44)**		**BAD (n=25)**		**Men (n=106)**		**Women (n=57)**	
	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Withdrawal/social engagement	9.22	2.67	9.95	3.07	9.44	2.35	9.01	2.86	10.28	2.30
Interpersonal behaviour	5.55	2.35	6.27	2.47	7.48	1.41	5.75	2.38	6.60	2.23
Prosocial activities	13.55	9.66	17.11	10.53	15.08	8.21	13.61	8.99	16.86	10.83
Recreation	14.63	6.42	15.73	6.38	15.40	7.36	14.37	6.64	16.30	6.20
Independence-performance	23.41	8.48	24.91	9.23	26.40	8.39	21.84	7.72	28.80	8.65
Independence-competence	32.96	4.93	34.09	6.16	33.72	6.61	32.56	5.28	34.91	5.75
Employment/occupation	4.10	3.52	6.07	3.27	6.44	3.76	4.46	3.48	5.98	3.71
Total SF	103.44	28.85	114.14	31.70	113.96	26.36	101.59	27.89	119.74	29.24
	n	%	n	%	n	%	n	%	N	%
SF Low	35	37.2	10	22.7	8	32.0	42	39.6	11	19.3
SF Medium	13	13.9	7	15.9	1	4.0	14	13.2	7	12.3
SF High	46	48.9	27	61.4	16	64.0	50	47.2	39	68.4

Note. BAD: Bipolar affective disorder.

Procedure

The participants were selected based on a census of users with schizophrenia and other psychotic disorders who were under treatment at the beginning of the study and met the inclusion criteria. The diagnosis had been made by a clinical psychologist or psychiatrist referring to each patient based on their clinical history and psychopathological exploration.

In a first stage, framed by appointments for checkups at the CMHU, according to the psychological evaluation protocol of the patients under treatment, a member of the team (the one with the most contact and/or confidence with the family) was responsible for requesting the participation of close relatives, and if they accepted, gave them the social functioning scale for its completion.

In a second stage, the patients who continued in the follow-up were tested when they went to their scheduled checkups at the CMHU for 10 years. Deaths were reported using the hospital computer application which updates the clinical history for each patient.

Statistical analysis

Analyses were performed using SPSS v.24. First the Kaplan-Meier method was employed to describe patient survival during the ten-year follow-up. Then a long-rank analysis was done to study whether there were any differences in the survival curves between patients with high, medium or low social functioning. Finally, a Cox regression analysis was done to predict mortality. Data had previously been checked by the Kolmogorov-Smirnov test to see that they followed a normal distribution and homoscedasticity was checked by the Levene's test. The Cohen's *d* was used to calculate the effect size, interpreted as: $d < 0.20$ = null; $\geq 0.20 < 0.50$ = small; $\geq 0.50 < 0.80$ = moderate; ≥ 0.80 = large (Cohen, 1988).

Results

Descriptive analysis

Table 1 shows the analysis of the dimensions, the overall score and low, medium and high social functioning levels by diagnosis and gender. Patients with schizophrenia had a lower mean score on the various dimensions and in total social functioning, and men had a lower mean score in social functioning than women.

Survival analysis

Figure 1 presents the distribution of mortality in the study. As shown, 20 patients died during the follow-up period, of whom 16 were men and 4 were women, while 143 continued under treatment at the end of the follow-up, with a mean survival of 9.43 years. By diagnosis, 12 had schizophrenia, 6 other psychotic disorders and 2 had bipolar disorder. As shown in Table 2, no significant differences in mortality were found between schizophrenia and other psychotic disorders (p=.990, d= -0.029, null effect size), between schizophrenia and bipolar disorder (p=.815, d= 0.160, null effect size) or between other psychotic disorders and bipolar disorder (p=.793, d= 0.189, null effect size). Neither were there any significant differences by gender (p=.136, d= 0.255, small effect size) (Table 3).

There were no significant differences in mortality between patients with low, medium or high levels (χ^2 (2) = .271, p= .873) of social functioning (Figure 2). The mean age of mortality was: low = 44.67; medium = 52.83; high = 63.

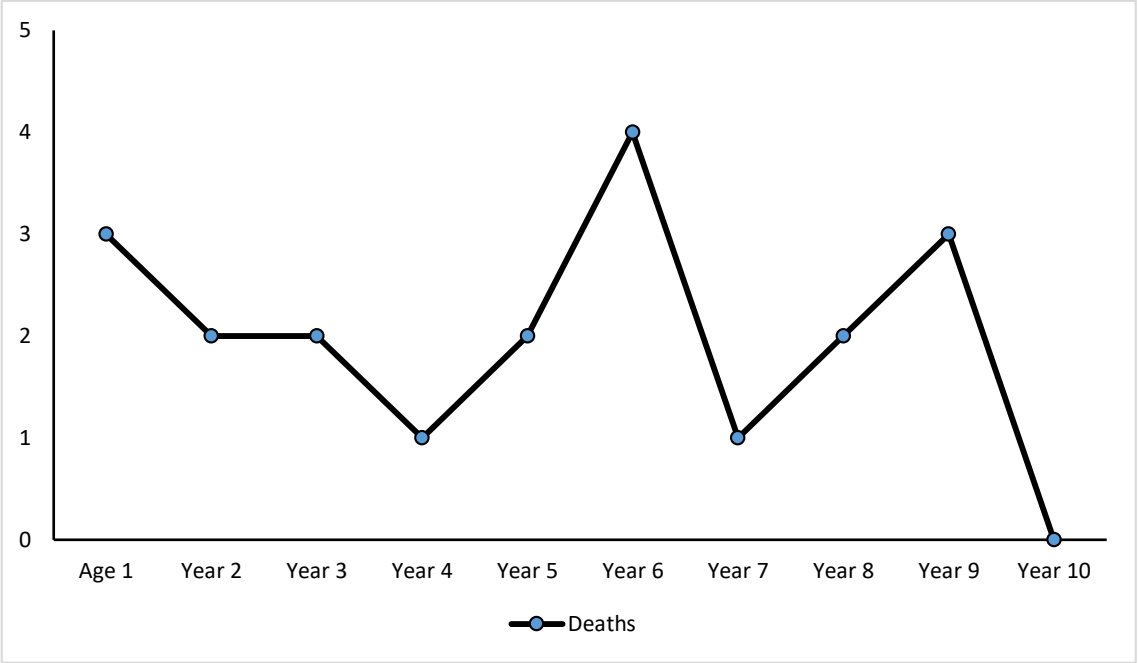

Figure 1. Distribution of deaths.

Table 2. Differences in survival by diagnosis.

		Mean difference	Error	*P*	Cohen´s *d*
Schizophrenia (n=94)	Other psychotic (n=44) BAD (n=25)	-.01 -.05	.06 .07	.990 .815	-0.029 N 0.160 N
Other psychotic (n=44)	BAD (n=25)	.06	.08	.793	0.189 N

Note. N: Null effect size.

Predictors of premature death

The results of the Cox regression analysis with mortality as the dependent variable and social functioning (withdrawal/social engagement, interpersonal behavior, prosocial activities, recreation, independence-performance, independence-competence, employment/occupation) and age as the independent predictor variables may be seen in Table 4. The final model [χ^2 *(9)* p=.010] identified two variables with predictive capacity: interpersonal behavior (p=.045) and age (p=.018). Specifically, deficient functioning in interpersonal behavior and older age were predictors of premature death. On the contrary,

the rest of the dimensions had no explanatory power.

Analysis of the interpersonal behavior factor found that the items with the lowest mean scores were 2 (“have a stable partner”, mean = .67), 9 (“Do you feel uncomfortable in a group of people?”, mean 1.46) and 10 (“Do you prefer to spend time alone?”, mean 1.17). As shown in Table 1, the interpersonal behavior dimension also had the lowest score in schizophrenia and in men in all the dimensions comprising social functioning.

Table 3. Differences in survival by gender.

Men (n=106)		Women (n=57)		*p*	Cohen´s *d*	C.I.
M	S.D.	M	S.D.			
0.15	0.36	0.07	0.26	.136	0.255 S	[-0.026 , 0.187]

Note. S: Small effect size

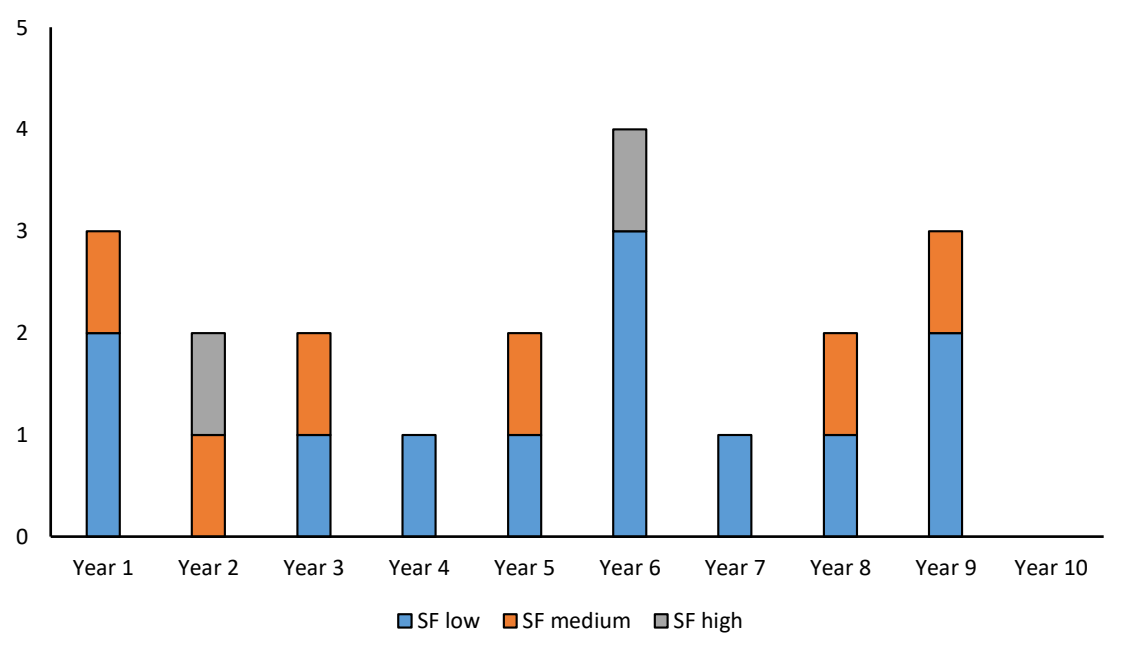

Figure 2. Distribution of deaths between low-medium-high social functioning.

Table 4. Prediction of death.

χ^2	df	*P*
21.663	9	.010

Predictor variables	B	S.E.	*p*	C.I.
Withdrawal/social engagement	-.088	.105	.405	[.745 , 1.126]
Interpersonal behaviour	.309	.154	.045	[1.007 , 1.843]
Prosocial activities	.074	.047	.116	[.982 , 1.180]
Recreation	-.050	.059	.396	[.848 , 1.067]
Independence-performance	-.044	.039	.261	[.887 , 1.033]
Independence-competence	-.027	.051	.599	[.882 , 1.075]
Employment/occupation	-.089	.075	.236	[.790 , 1.060]
Age	.044	.019	.018	[1.008 , 1.084]

Discussion

In general, the results found social functioning to be a role protector for survival in psychotic disorders. These results agree with previous research that underlines the importance of social functioning as a strategic factor in understanding the course of psychotic disorders (Liberman et al., 2002; Morin & Franck, 2017), and specifically, with an association between patients social functioning maintained and community integration (Johnstone et al., 1990), positive prognosis of the disease (Rajkumar & Thara, 1989) and meeting treatment goals (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007).

Our findings showed a trend of higher premature death in patients with lower social functioning. These results can be related to previous studies that have shown an association between impairment of the social area in early stages of the disorder and increase in autolytic behavior and suicide (Anderson et al., 2018; Kurdyak et al., 2021). Furthermore, severe impairment of social functioning in early stages has also been related to an unfavorable prognosis strengthening social isolation and use of toxic substances, alteration of family dynamics and more use of healthcare resources (Harvey et al., 2007;

He et al., 2021; Raudino et al., 2014; Velthrost et al., 2017).

Our instrumental analysis of social functioning showed that deficiency in interpersonal behavior can predict premature death, exerting a protective role for maintaining functioning in other dimensions. In view of the content of the items, impaired interpersonal behavior may be related to a poor social network, both in size and quality of the interaction (Guerrero-Jiménez et al., 2021). The possible relationship between interpersonal behavior and social support must be studied as there is a consensus that the social network is a relevant factor in understanding the course of psychotic disorders, emphasizing associations between a deficit in social support and an increase in clinical symptoms, chronicity and premature death in psychosis (Degnan et al, 2018; Holt-Lunstad et al, 2015; Vázquez-Morejón et al., 2018).

There were no significant differences in mortality by diagnostic category in the 10-year follow-up. One possible explanation is that social functioning may undergo stability and recovery during the course of schizophrenia and in other psychotic disorders if effective interventions, such as training in social skills, job support, assertive community training or family interventions are developed (Armijo et al., 2013; Gee et al., 2016; Harrow et al., 2005; Strauss et al., 2010). Therefore, psychosocial intervention in the early stages that stimulates social functioning, and indirectly, contributes to clinical and functional recovery, must be guaranteed (Michel et al., 2017; Schmidt et al., 2015).

The strengths of this study that should be mentioned are that it is longitudinal following up patients with severe mental disorders for 10 years, and secondly, that evaluation of social functioning was done by a close relative, which decreases any self-evaluative biases. With respect to the limitations, the sample size was small because it was a longitudinal study in a single CMHU, so inclusion of patients from other care centers

would have provided our study with stronger representativeness and results. We also think it worth mentioning that we could not control for the specific causes of mortality of patients who died during the follow-up, whether from natural causes or not. Finally, social functioning evaluation was done by a single family member, and it might be of interest to include other members of the family or professionals (clinical psychologists, psychiatrists or nurses) who could make a more objective evaluation (Sabbag et al., 2011).

Future research could study what variables (frequency, intensity, individual or group, etc.) of effective psychological intervention in psychotic disorders best explain favorable evolution of social functioning and its protective effect on survival. It would also be of interest to study the possible relationship between social functioning and suicidal behavior, and suicide committed during both first psychotic episodes and during the course of the disorder, any gender differences and factors that could be explaining that variability.

In conclusion, our study emphasizes the importance of psychosocial factors in the course of psychotic disorders. The results confirm the protective effect of social functioning for survival, underlining a deficit in interpersonal behavior as a predictive dimension of premature death. Therefore, we believe that psychological intervention based on evidence directed at social functioning must be applied in the early stages of the disorder.

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Conflict of interest

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5. RESUMEN GLOBAL DE LOS RESULTADOS

1. Determinar las diferencias de género en problemas de conducta y la relación con la carga familiar en pacientes con trastorno mental grave.

Respecto a los problemas de conducta, existen diferencias significativas desfavorables a los varones en los siguientes ítems del Inventario de Problemas de Conducta (IPC): IPC 12 ("Abandonar su aseo"; p=0.009, d=-0.346), IPC 13 ("Consumir alcohol o drogas"; p=0.001, d=-0.429) y IPC 14 ("Estar tumbado/a, sin hacer nada durante todo el día"; p=0.001, d=-0.432), en la dimensión descontrol de impulsos (p=0.01, d=-0.339) y en problemas de conducta graves (p=0.043, d=-0.269).

Referente a la carga familiar, los problemas de conducta que más se asocian con la capacidad de afrontamiento familiar (CF 1) son los ítems IPC 3 ("Irritarse"), IPC 11 ("Estar sin ganas de vivir, triste, llorando") e IPC 12 ("Abandonar su aseo"), obteniendo una correlación pequeña. En cuanto a la percepción de desbordamiento familiar (CF 2), los ítems IPC 1 ("Nerviosismo"), IPC 2 ("Hablar de cosas extrañas, raras"), IPC 3 ("Irritarse"), IPC 4 ("Evitar a los demás, aislarse"), IPC 6 ("Insultar a otras personas"), IPC 11 ("Estar sin ganas de vivir, triste, llorando"), IPC 12 ("Abandonar su aseo") e IPC 14 ("Estar tumbado/a, sin hacer nada durante todo el día"), obtienen una correlación mediana. Dimensionalmente, encontramos una mayor asociación de la carga familiar con inactividad/retirada social (CF 1, r = -.351, p = < .001; CF 2, r = .480, p = < .001), seguida de problemas activos (CF 1, r = -.256, p = < .001; CF 2, r = .414, p = < .001), y en último lugar, descontrol de impulsos (CF 1, r = -.220, p < .01; CF 2, r = .275, p < .001).

Por último, el análisis de regresión lineal múltiple identifica la dimensión inactividad/retirada social como la única con capacidad para la predicción de la carga familiar en hombres [$F_{(3, 136)}$ = 12.55, p<0.001] y mujeres [$F_{(3, 69)}$ = 12.56, p<0.001]. El

modelo explica el 35.3% (R^2=0.353) de la varianza observada en carga familiar en mujeres y el 21.7% (R^2 = 0.217) de carga familiar en hombres.

2. Determinar la influencia del funcionamiento social y los problemas de conducta en la evolución de trastornos psicóticos y relacionados.

Los siguientes resultados se refieren al estudio de seguimiento realizado sobre la evolución del funcionamiento social y de problemas de conducta en trastornos mentales graves. En general, no se observa deterioro en el nivel de funcionamiento social y en los problemas de conducta durante 10 años de seguimiento.

Hallamos diferentes resultados en las dimensiones de funcionamiento social y de problemas de conducta según diagnóstico. En concreto, al inicio del periodo de seguimiento existen diferencias desfavorables entre esquizofrenia y trastorno bipolar en comportamiento interpersonal (p=.007, d= -0.991, tamaño de efecto grande) y en empleo/ocupación respecto a otros trastornos psicóticos (p=.008, d= -0.733, tamaño de efecto moderado), y trastorno bipolar (p=.012, d= -0.794, tamaño de efecto moderado), así como en funcionamiento social cuando se compara con otros trastornos psicóticos (p=.044, d= -0.560, tamaño de efecto moderado) y trastorno bipolar (p=.023, d= -0.793, tamaño de efecto moderado). También puntúan superior otros trastornos psicóticos respecto a trastorno bipolar en problemas activos (p=.038, d= 0.775, tamaño de efecto moderado).

A la finalización del periodo de 10 años de seguimiento, existen diferencias desfavorables en esquizofrenia respecto a otros trastornos psicóticos en actividades prosociales (p=.022, d= -0.611, tamaño de efecto moderado), ocio (p=.002, d= -0.783, tamaño de efecto moderado), independencia-ejecución (p=.023, d= -0.618, tamaño de efecto moderado), independencia-competencia (p=.031, d= -0.597, tamaño de efecto moderado),

empleo/ocupación (p=.000, d= -0.902, tamaño de efecto grande), y funcionamiento social total (p=.001, d= -0.817, tamaño de efecto grande). También existen diferencias desfavorables en esquizofrenia respecto a trastorno bipolar en comportamiento interpersonal (p=.002, d= -1.162, tamaño de efecto grande), empleo/ocupación (p=.000, d= -1.125, tamaño de efecto grande), problemas activos (p=.010, d= 1.000, tamaño de efecto grande) y problemas de conducta moderados (p=.015, d= 0.928, tamaño de efecto grande).

Respecto a la evolución del funcionamiento social y los problemas de conducta según el género, encontramos significativa la influencia del género en el funcionamiento social, obteniendo puntuaciones superiores las mujeres con independencia del inicio o finalización del seguimiento en las dimensiones aislamiento/integración social (p=.009, d= 0.472, tamaño de efecto pequeño), comportamiento interpersonal (p=.017, d= 0.452, tamaño de efecto pequeño), independencia-ejecución (p=.000, d= 0.837, tamaño de efecto grande), independencia-competencia (p=.003, d= 0.550, tamaño de efecto moderado) y funcionamiento social total (p=.002, d= 0.603, tamaño de efecto moderado).

Finalmente, los resultados del análisis de regresión lineal múltiple facilitan un modelo final [$F_{(3,99)}$=34.85, p=.000] con tres variables con capacidad predictiva: funcionamiento social fase I (p=.000), inactividad/retirada social (p=.000) y nivel educativo (p=.016). Este modelo explica el 51.2% (R^2=0.512) de la varianza observada en el funcionamiento social total correspondiente a la fase II.

Los siguientes resultados se refieren al tercer estudio que pretende investigar la influencia del funcionamiento social en la evolución de trastornos psicóticos, en concreto analizando la relación del funcionamiento social y la supervivencia en trastornos mentales graves.

Los resultados obtenidos no hallan diferencias significativas en mortalidad según

diagnóstico entre esquizofrenia y otros trastornos psicóticos (p=.990, d= -0.029, tamaño de efecto nulo), entre esquizofrenia y trastorno bipolar (p=.815, d= 0.160, tamaño de efecto nulo) y entre otros trastornos psicóticos y trastorno bipolar (p=.793, d= 0.189, tamaño de efecto nulo). Tampoco existen diferencias significativas según el género (p=.136, d= 0.255, tamaño de efecto pequeño). Respecto al funcionamiento social, no existen diferencias significativas en mortalidad entre pacientes con niveles de funcionamiento social inferior, medio y superior (χ^2 (2) = .271, p= .873).

Referente a la predicción de una mortalidad prematura, el análisis de regresión de cox identifica un modelo final [χ^2 *(9)* p=.010] con dos variables con capacidad predictiva: comportamiento interpersonal (p=.045) y edad (p=.018). En concreto, un funcionamiento deficitario en comportamiento interpersonal y una edad superior son predictores de una mortalidad prematura. En contraste, el resto de dimensiones no obtuvieron poder explicativo.

6. DISCUSIÓN

En el presente apartado se discuten los resultados encontrados en cada uno de los artículos que conforman la Tesis Doctoral. Igualmente, se relacionará la evidencia obtenida y se procederá a un análisis global cuando sea pertinente.

6.1. Primer objetivo: Determinar las diferencias de género en problemas de conducta y la relación con la carga familiar en pacientes con trastorno mental grave.

En un contexto científico en el que se enfatiza la investigación por factores relacionados con la afectación a nivel funcional y su posible interferencia en la adaptación social y comunitaria, el objetivo del primer estudio correspondiente con la primera línea de la Tesis Doctoral era analizar las diferencias de género en problemas de conducta y la posible relación con la carga familiar. Su análisis como objeto de estudio deriva de la tendencia a enfatizar la atención en variables conductuales directamente observables en detrimento de síntomas clínicos inespecíficos y su posible relación con el grado de adaptación social (Wykes & Stuart, 1986).

Bajo este enfoque de análisis, los problemas de conducta se entienden como la expresión manifiesta y directamente observable de la psicopatología subyacente (Wykes & Sturt, 1986). Globalmente, encontramos diferencias significativas en problemas de conducta según el género y una correlación positiva entre la presencia de problemas de conducta y el nivel de carga familiar percibido. Se confirma que los pacientes varones presentan mayores problemas de conducta y más percepción de desbordamiento ante la enfermedad por parte de sus familiares más próximos. En concreto, de manera coherente con investigaciones previas (Hui et al., 2014; Koster et al., 2008; Thorup et al., 2007), hallamos diferencias significativas en la dimensión descontrol de impulsos y en ítems que evalúan conductas específicas relativas a la dimensión inactividad/retirada social,

resultados que pueden estar parcialmente explicados con la evidencia de que las mujeres obtienen puntuaciones superiores en funcionamiento social en áreas de autonomía y competencia (Andia et al., 1995; Jiménez-García-Bóveda et al., 2000).

Referente a la carga familiar, estudios anteriores relacionan la gravedad y persistencia de la psicopatología con una mayor carga familiar (Koutra et al., 2016; Nordstroem et al., 2017). En este sentido y como cabría esperar, entendiendo los problemas de conducta como psicopatología directamente observable, cuantificable y objetivable (Wykes & Sturt, 1986), nuestro estudio confirma la relación entre los problemas de conducta y el incremento en la carga familiar. Pormenorizando en el análisis dimensional, son las conductas relativas a la dimensión inactividad/retirada social las que mayor correlación obtienen con la carga familiar y, en menor medida, los comportamientos relacionados con problemas activos y descontrol de impulsos.

En cuanto a los problemas de conducta como factor predictor de la carga familiar, coincidiendo con las aportaciones de Awad & Voruganti (2008) que relacionan el aumento de carga familiar con un deterioro en la afectación social, realizando un análisis pormenorizado a nivel dimensional de los diferentes problemas de conducta, nuestros resultados encuentran que es la dimensión inactividad/retirada social la única con potencia predictiva de sobrecarga familiar y además es independiente del factor género.

Estos resultados ponen de manifiesto y subrayan la necesidad de profundizar en el estudio de factores de origen psicosocial en la evolución de los trastornos mentales graves, líneas de análisis que se corresponden con los siguientes trabajos de la presente Tesis Doctoral.

6.2. Segundo objetivo: Determinar la influencia del funcionamiento social y los problemas de conducta en la evolución de trastornos mentales graves.

Los resultados obtenidos en los trabajos segundo y tercero exponen la relevancia del funcionamiento social y los problemas de conducta en la evolución de pacientes con trastorno mental grave. Ambas investigaciones han contribuido a desarrollar una perspectiva más comprehensiva sobre el curso de los trastornos mentales graves. El interés por ampliar esta perspectiva proviene de la insuficiencia explicativa de la sintomatología clínica y el énfasis en la atención a variables psicosociales y conductuales directamente observables. Desde este enfoque se han desarrollado dos líneas de trabajo que enlazan con las variables estudiadas en la presente Tesis Doctoral: un enfoque centrado en el análisis del funcionamiento social (Birchwood et al., 1990) y otro en la investigación sobre la posible interferencia de los problemas de conducta sobre la adaptación social (Wykes & Stuart, 1986).

En el segundo trabajo de esta Tesis Doctoral se estudió la evolución del funcionamiento social y de los problemas de comportamiento estableciendo las diferencias según diagnóstico y género durante un periodo de seguimiento de diez años en pacientes con trastornos mentales graves, empleando un análisis mixto de la varianza y un análisis de regresión lineal múltiple por pasos. Globalmente, nuestros resultados refuerzan los estudios en trastornos mentales graves que enfatizan la estabilidad y recuperación funcional durante su curso.

De acuerdo con investigaciones previas (Häfner et al., 1995; Liberman et al., 2002; Strauss et al., 2010), los resultados obtenidos en nuestro segundo estudio indican estabilidad en el curso evolutivo, tanto en el funcionamiento social, como en sus diferentes dimensiones y en problemas de conducta en pacientes con esquizofrenia. Esta estabilidad es un claro indicador de que los tratamientos aplicados resultaron efectivos

para contener un posible deterioro en la evolución de la esfera funcional. No obstante, la citada estabilidad también es indicadora de la necesidad de implementar y desarrollar tratamientos psicosociales basados en la evidencia en fases tempranas que no solo contengan el posible deterioro, sino que estimulen la recuperación funcional (Liberman & Kopelowicz, 2002; Ventriglio et al., 2020).

Respecto al grupo de pacientes con otros trastornos psicóticos, los resultados obtenidos apoyan las aportaciones de estudios previos que señalan recuperación del funcionamiento social (Gee et al., 2016; Harrow et al., 2005; Robinson et al., 2004). No obstante, pormenorizando en el análisis dimensional, existe una mejoría significativa a los 10 años de seguimiento de las habilidades relacionadas con la independencia-ejecución que puede contribuir a su funcional adaptación comunitaria. Además, coincidiendo con las aportaciones de Tohen et al. (2000), no existen diferencias significativas tras el seguimiento en funcionamiento social y en problemas de conducta entre pacientes con otros trastornos psicóticos y trastorno bipolar. En suma, nuestros resultados subrayan la necesidad de desarrollar y garantizar el acceso a intervenciones psicosociales basadas en la evidencia en fases tempranas que promuevan tanto la recuperación como el entrenamiento en habilidades sociales, el apoyo al empleo, el entrenamiento asertivo comunitario o las intervenciones familiares, cuyo objetivo es facilitar la adaptación e integración comunitaria y evitar la cronicidad (Armijo et al., 2013; Leopold et al., 2020; Norman et al., 2017; Rummel-Kluge & Kissling, 2008).

Referente al análisis según el género, conforme a investigaciones previas (Leung & Chue, 2000; Morgan et al., 2008; Thorup et al., 2007), los resultados obtenidos ratifican que las mujeres obtienen mayor nivel de funcionamiento social total durante el curso de la enfermedad (Leung & Chue, 2000; Morgan et al., 2008; Thorup et al., 2007). Procediendo con un análisis a nivel dimensional, hallamos diferencias favorables a las mujeres en:

aislamiento/integración social, comportamiento interpersonal, independencia-ejecución e independencia-competencia. En cuanto al aislamiento/integración social y al comporamiento interpersonal, ambas dimensiones reflejan un déficit en habilidades sociales que pueden interferir en la adaptación comunitaria en hombres, mientras las diferencias en independencia-ejecución y en independencia-competencia pueden explicarse por divergencias culturales en roles de género (Goldstein & Tsuang, 1990; Mayston et al., 2020), puesto que los ítems evalúan conductas específicamente relacionadas con el desempeño en el hogar, mayoritariamente asociado a mujeres en países desarrollados.

Referente a variables que predicen la evolución del funcionamiento social, conforme con estudios previos, nuestros resultados señalan que el funcionamiento social previo y los problemas de conducta pertenecientes a la dimensión inactividad/retirada social son factores con capacidad explicativa en la evolución del funcionamiento social (Castle et al., 2000; Liberman et al., 2002). Así, un deterioro en funcionamiento social y problemas de inactividad/retirada social predicen un curso pobre y un mayor consumo de recursos sanitarios (Bellido-Zanín, Vázquez-Morejón, Martín-Rodríguez & Pérez-San-Gregorio, 2017; Raudino et al., 2014), debiendo convertirse ambos factores, funcionamiento social y problemas de conducta, en objetivos prioritarios de tratamiento con la finalidad de favorecer la adaptación e integración comunitaria y contener un desarrollo tendente a la cronicidad. Respecto a variables sociodemográficas, el aislamiento social ha sido asociado como factor de pronóstico pobre (Harvey et al., 2007), por lo que era esperable que el mayor nivel educativo ejerza un rol protector probablemente explicado por las mayores habilidades sociales y cognitivas requeridas para alcanzar estudios superiores.

En el tercer trabajo de la presente Tesis Doctoral se explora la relación entre el funcionamiento social y la mortalidad prematura en pacientes con trastorno mental grave.

En general, nuestros resultados confirman que un nivel de funcionamiento social conservado ejerce un efecto protector sobre la supervivencia en trastornos mentales graves.

Nuestros resultados indican una tendencia a una mortalidad prematura superior en pacientes con un nivel de funcionamiento social inferior. Estos resultados pueden relacionarse con investigaciones previas que señalan una asociación entre el deterioro del área social en fases tempranas del trastorno y el aumento de conductas autolíticas y suicidas (Anderson et al., 2018; Kurdyak et al., 2021). Además, un severo deterioro del funcionamiento social en fases tempranas también se ha relacionado con un pronóstico desfavorable potenciando el aislamiento social y el consumo de tóxicos, la alteración de la dinámica familiar y mayor consumo de recursos sanitarios (Harvey et al., 2007; He et al., 2021; Raudino et al., 2014; Velthrost et al., 2017).

Atendiendo a un análisis instrumental del funcionamiento social, nuestros resultados indican que un nivel deficitario en la dimensión comportamiento interpersonal posee capacidad predictiva ante una mortalidad prematura, ejerciendo un rol protector un funcionamiento conservado en el resto de dimensiones. Considerando el contenido de los ítems, un funcionamiento deteriorado en comportamiento interpersonal puede relacionarse con una red social pobre tanto en tamaño como en calidad de las interacciones (Guerrero-Jiménez et al., 2021). La posible relación entre comportamiento interpersonal y apoyo social debe ser estudiada puesto que existe consenso en que la red social es un factor relevante en la comprensión del curso de trastornos psicóticos, destacando asociaciones entre un déficit de apoyo social y un incremento de la sintomatología clínica, la cronicidad y la mortalidad prematura en psicosis (Degnan et al, 2018; Holt-Lunstad et al, 2015).

En cuanto a las categorías diagnósticas, nuestros resultados no encuentran diferencias significativas en mortalidad en 10 años de seguimiento. Una posible explicación es que el funcionamiento social puede experimentar estabilidad y recuperación durante el curso en esquizofrenia y en otros trastornos psicóticos si se desarrollan intervenciones efectivas como el entrenamiento en habilidades sociales, el apoyo al empleo, el entrenamiento asertivo comunitario o las intervenciones familiares (Armijo et al., 2013; Gee et al., 2016; Harrow et al., 2005; Strauss et al., 2010). En consecuencia, resulta necesario garantizar la aplicación de intervenciones psicosociales en fases tempranas que estimulen el funcionamiento social, e indirectamente, contribuyan a la recuperación clínica y funcional (Michel et al., 2017; Schmidt et al., 2015).

6.3. Limitaciones.

A continuación, se desarrollan las limitaciones existentes en los tres trabajos que conforman la Tesis Doctoral.

La primera limitación hace referencia a la inclusión de dos o tres variables para predecir la evolución de los trastornos mentales graves. No obstante, dado que las variables analizadas en los trabajos que componen esta Tesis Doctoral han sido escasamente exploradas, resulta necesario un análisis exhaustivo y pormernorizado de los factores a nivel individual previo a su inclusión en modelos predictivos multifactoriales. Además, el análisis de estas variables a nivel individual permite un estudio en profundidad sobre el posible impacto que ítems y dimensiones puedan ejercer sobre la evolución en trastornos mentales graves.

Otra limitación de los estudios es que la evaluación de los problemas de conducta y del funcionamiento social a través de instrumentos específicos como el Inventario de Problemas de Conducta y la Escala de Funcionamiento Social se llevaron a cabo a través

de un familiar que tenía contacto frecuente con el paciente. A pesar de que la literatura científica manifiesta que los cuidadores son informantes de calidad (Sabbag et al., 2011), sería interesante incluir otros evaluadores como otros familiares, el referente clínico o el propio paciente para dotar de mayor objetividad y reducir posibles sesgos en la evaluación.

También resulta una limitación el procedimiento seleccionado para medir la carga familiar, ya que está basado en una evaluación subjetiva con solo dos ítems respondidos también por los cuidadores principales, pudiendo resultar más objetivo emplear un instrumento con buenas propiedades psicométricas como el Involvement Evaluation Questionnaire (IEQ) (Schene & van Wijngaarden, 1992) o la Escala de Sobrecarga del Cuidador de Zarit (Zarit et al., 1980). Por tanto, como propuesta para estudios posteriores, podría ser relevante la medición objetiva de la carga familiar para comprobar si los resultados obtenidos se confirman.

Respecto a variables que podrían incluirse en otros estudios para desarrollar modelos más comprehensivos y explicativos, primero se referencian aquellas relativas al primer trabajo que compone la presente Tesis Doctoral. En concreto, investigaciones futuras podrían explorar la relación entre problemas de conducta y género con variables relacionadas con la recuperación o los intentos autolíticos. Además, resulta pertinente conocer cuáles son los factores diferenciales que explican la carga familiar según el género. Respecto a la segunda línea de trabajo, futuros trabajos podrían explorar qué tratamientos y qué características (intensidad, frecuencia, modalidad individual o grupal…) explican la recuperación del funcionamiento social y los problemas de conducta.

Por último, también es relevante destacar las principales fortalezas de la presente Tesis Doctoral. En primer lugar, indicar que la mayoría de estudios se centran en analizar el

funcionamiento social a través de medidas globales que no permiten un estudio dimensional e instrumental sobre aspectos moleculares del funcionamiento social, aspecto que en esta línea de trabajo se solventa a través del empleo de un instrumento específico para evaluar el funcionamiento social en pacientes con psicosis que permanecen integrados en su comunidad. Además, también es interesante señalar el seguimiento longitudinal durante 10 años a la muestra de pacientes diagnosticados de algún trastorno mental grave que componen dos de los trabajos presentados. Finalmente, la presente línea de investigación desarrolla el estudio de factores observables y cuantificables que pueden contribuir a la evaluación de la efectividad de las intervenciones aplicadas en la práctica clínica.

6.4. Aplicabilidad y utilidad práctica de los resultados en el área de la salud.

Los tres estudios que engloban la presente Tesis Doctoral se han diseñado desde las necesidades detectadas en la práctica clínica asistencial. La presente línea de investigación se ha centrado en el estudio y análisis del funcionamiento social, los problemas de conducta y la carga familiar como factores que pueden interferir en la adaptación social y en el curso de los trastornos mentales de estos pacientes.

Poseer modelos explicativos cada vez más comprehensivos y desarrollados sobre los factores implicados en la predicción del curso y evolución de los trastornos mentales graves permitiría diseñar programas de tratamiento ajustados a las necesidades individuales de cada paciente. A su vez, también facilitaría una gestión eficiente de los recursos humanos y materiales disponibles en salud mental, potenciando la calidad asistencial y evitando la saturación de servicios comunitarios.

Los programas de tratamientos deben basarse y sustentarse sobre premisas científicas derivadas del estudio empírico de aquellos factores que contribuyan a explicar la salud

mental de los pacientes. El planteamiento de la presente Tesis Doctoral es ampliar el conocimiento sobre la relación existente entre el funcionamiento social, los problemas de conducta y la carga familiar en la adaptación social y el curso evolutivo de pacientes con trastorno mental grave. El desarrollo de este enfoque permite, en primer lugar, avanzar en la atención prestada a pacientes y familiares y, en segundo lugar, gestionar racional y eficientemente los recursos en salud mental.

En base a este planteamiento y a los resultados obtenidos en los tres trabajos presentados, la primera aplicación práctica sería la necesidad de incluir factores psicosociales como el funcionamiento social, los problemas de conducta y la carga familiar en los modelos predictivos que se desarrollen sobre la evolución de los trastornos mentales graves.

Nuestros resultados revelan la pertinencia de incluir estas variables dentro de las necesidades asistenciales de los pacientes ampliando la perspectiva más allá de variables clínicas. En este sentido, es necesario incluir también su evaluación de una forma explícita al comienzo del tratamiento. Con tal finalidad, se hace necesario disponer de instrumentos de evaluación específicos que cuenten con óptimas propiedades psicométricas y adaptados al manejo clínico diario. Así, un tiempo de aplicación corto resulta crucial.

Además, la inclusión de estos factores en la práctica clínica permitiría diseñar, secuenciar y aplicar intervenciones eficaces en fases tempranas de los trastornos con el objetivo de proteger y conservar el curso evolutivo de los pacientes y, en última instancia, disminuir el empleo de recursos de salud mental como pueden ser los ingresos hospitalarios.

Apoyando este enfoque, investigaciones previas ya señalaban el funcionamiento social como un factor nuclear en la integración comunitaria de los pacientes (Johnstone et al., 1990; Perlick et al., 1992), el pronóstico positivo de la enfermedad (Rajkumar & Thara, 1989), el cumplimiento de los objetivos de tratamiento (Burns & Patrick, 2007; Liberman

et al., 2002; Peer et al., 2007) y la reducción de visitas a urgencias e ingresos hospitalarios (Raudino et al., 2014).

En este contexto, resulta necesario garantizar la aplicación de intervenciones eficaces en la práctica clínica que promuevan la integración comunitaria de pacientes con trastorno mental grave. Así, en los trabajos que componen la presente Tesis Doctoral queda de manifiesto que el aislamiento social y un funcionamiento social deficitario son factores relacionados con un curso pobre e incluso con mortalidad prematura en trastornos mentales graves. Por tanto, los resultados de los tres trabajos apoyan la necesidad de incluir programas de tratamiento diseñados para desarrollar las habilidades necesarias que permitan aumentar su red social y su integración comunitaria.

Referente a la carga familiar, diferentes autores han relacionado un descenso de la misma con un pronóstico favorable en pacientes con trastorno mental grave. En concreto, un nivel inferior de carga familiar se ha asociado con una reducción de la emoción expresada y, en consecuencia, menos recaídas y hospitalizaciones. Por tanto, además de programas dirigidos a intervenir con los pacientes, también resulta necesario diseñar estrategias que tengan como diana terapéutica a los familiares para dotarles de los recursos que permitan un cuidado efectivo y un descenso de la carga percibida.

En suma, la aplicación de intervenciones dirigidas a favorecer la adaptación e integración social de los pacientes y un cuidado efectivo por parte de sus familiares contribuiría a mejorar la evolución de los pacientes.

7. CONCLUSIONES

El objetivo del primer estudio de la presente Tesis Doctoral era determinar las diferencias de género en problemas de conducta y la relación con la carga familiar en pacientes con trastorno mental grave.

Los resultados confirman diferencias significativas en problemas de conducta según el género. En concreto, los hombres presentan más problemas de conducta en la dimensión descontrol de impulsos y en problemas de conducta graves. También encontramos una correlación entre la mayor presencia de problemas de comportamiento y un nivel superior de carga percibida por los familiares de los pacientes. En específico, la correlación es negativa para CF 1 (¿se siente usted capaz de sobrellevar la enfermedad o trastorno y los problemas que ocasiona?) y positiva para CF 2 (¿con qué frecuencia se ve usted desbordado/a por estos problemas de comportamiento/enfermedad?) de carga familiar. Respecto a la predicción de los problemas de comportamiento sobre la carga familiar percibida, la inactividad/retirada social es la dimensión con mayor poder predictivo en hombres y mujeres.

El propósito del segundo estudio de la presente Tesis Doctoral era determinar la influencia del funcionamiento social y los problemas de conducta en la evolución de trastornos psicóticos.

Respecto al funcionamiento social, los resultados hallados muestran una mejoría significativa de la dimensión independencia-ejecución en otros trastornos psicóticos, no objetivándose diferencias significativas en esquizofrenia y trastorno bipolar durante el seguimiento. Referente a los problemas de comportamiento, en el grupo de otros trastornos psicóticos disminuyen de forma significativa los problemas de comportamiento moderados, no hallando diferencias significativas en esquizofrenia y trastorno bipolar.

Referente a la evolución del funcionamiento social, se identifican tres variables con capacidad predictiva: funcionamiento social fase I, inactividad/retirada social y nivel educativo.

En cuanto al género, las mujeres tienen un mayor nivel de funcionamiento social con independencia de la fase en las dimensiones aislamiento/integración social, comportamiento interpersonal, independencia-ejecución, independencia-competencia y funcionamiento social total.

En conclusión, este estudio refuerza la necesidad de reforzar la atención al área funcional en esquizofrenia y trastornos relacionados. Consecuentemente, existe la necesidad de incluir programas de tratamientos psicosociales en fases tempranas que contribuyan a mejorar el curso y favorezcan la recuperación.

Por último, en el tercer trabajo de la Tesis Doctoral, el factor funcionamiento social fue incluido en un modelo predictivo sobre la mortalidad prematura en pacientes con trastorno mental grave. En este caso el objetivo del estudio era analizar la posible relación entre el funcionamiento social y sus diferentes dimensiones y la supervivencia en pacientes con trastornos psicóticos durante un periodo de seguimiento de 10 años.

Los resultados hallados confirman que un nivel de funcionamiento social conservado es un factor protector de la supervivencia en trastornos mentales graves. En concreto, encontramos diferencias significativas en mortalidad en la dimensión comportamiento interpersonal del funcionamiento social. Referente al modelo predictivo, el análisis de regresión de cox identifica un funcionamiento deficitario en comportamiento interpersonal y una edad superior como factores predictores de una mortalidad prematura. Además, un funcionamiento social conservado en el resto de áreas dimensionales actúa como factor protector de un curso favorable. Por tanto, nuestros resultados manifiestan la

necesidad de aplicar intervenciones psicológicas basadas en la evidencia en fases tempranas del trastorno enfocadas en la recuperación del funcionamiento social.

En suma, se puede concluir la relevancia e impacto que tienen tanto el funcionamiento social como los problemas de conducta sobre la adaptación social y comunitaria y un curso conservado en trastornos mentales graves. Así mismo, entre las diversas variables asociadas al funcionamiento familiar, el factor carga familiar también ejerce influencia sobre la adaptación e integración comunitaria de pacientes con trastorno mental grave. En concreto, se observa un incremento en el nivel de percepción de carga a medida que los pacientes presentan mayores problemas de conducta.

8. RESUMEN

En la presente Tesis Doctoral se han realizado tres trabajos empíricos y novedosos que analizan variables psicosociales que afectan a la evolución y adaptación social de los pacientes con trastorno mental grave.

En concreto, en el primer trabajo el objetivo era estudiar las diferencias de género en problemas de comportamiento y la relación con el nivel de carga familiar percibida. Para ello se administró el Inventario de Problemas de Conducta y dos ítems relativos a la carga familiar percibida (CF 1: "¿se siente usted capaz de sobrellevar la enfermedad o trastorno y los problemas que ocasiona?" y CF 2: "¿con qué frecuencia se ve usted desbordado/a por estos problemas de comportamiento/enfermedad?") a 235 familiares de pacientes con trastorno mental grave atendidos en una Unidad de Salud Mental Comunitaria y se aplicó un análisis de regresión múltiple para predecir la carga familiar. Se obtienen diferencias desfavorables en los hombres en descontrol de impulsos y en problemas de conducta graves, mientras que la carga familiar es explicada principalmente por problemas de conducta relacionados con la inactividad/retirada social.

El objetivo del segundo trabajo era analizar la evolución del funcionamiento social y de los problemas de comportamiento estableciendo las diferencias según diagnóstico y género durante un periodo de seguimiento de diez años en pacientes con trastorno mental grave. Con tal finalidad, la Escala de Funcionamiento Social y el Inventario de Problemas de Conducta fueron administrados en dos periodos temporales diferentes, fase I (2003-2007) y II (2014-2017), a 100 familiares claves de pacientes que estaban en tratamiento en una Unidad de Salud Mental Comunitaria. Se aplicaron diversas pruebas estadísticas: *t*-test para muestras relacionadas, un análisis de la varianza y un análisis mixto de la varianza para estudiar la evolución y las diferencias en funcionamiento social y problemas de comportamiento. Posteriormente, se efectuó un análisis de regresión lineal múltiple

por pasos para predecir la evolución del funcionamiento social. Los resultados obtenidos no muestran deterioro en la evolución del funcionamiento social ni en problemas de conducta. Respecto al género, son las mujeres las que presentan mayores puntuaciones en varias dimensiones del funcionamiento social, no existiendo diferencias en problemas de conducta. Referente a la predicción del curso del funcionamiento social, el funcionamiento social previo, la dimensión inactividad/retirada social y el nivel educativo son factores con capacidad explicativa. Por tanto, los resultados obtenidos evidencian la necesidad de implementar programas de intervención psicosocial que promuevan la recuperación funcional y eviten la cronicidad.

Por último, el propósito del tercer trabajo presentado era estudiar la posible relación entre el funcionamiento social y sus diferentes dimensiones y la supervivencia en pacientes con trastorno mental grave durante un periodo de seguimiento de 10 años. Para ello, la Escala de Funcionamiento Social fue administrada a 163 familiares claves de pacientes que estaban en tratamiento en una Unidad de Salud Mental Comunitaria. Los resultados identifican que un nivel de funcionamiento social conservado es un factor protector de la supervivencia. En concreto, el análisis de regresión de cox muestra como un funcionamiento deficitario en comportamiento interpersonal y una edad superior son factores que predicen una mortalidad prematura. Por tanto, los hallazgos obtenidos exponen la necesidad de aplicar intervenciones psicológicas basadas en la evidencia en fases tempranas del trastorno que estimulen la recuperación del funcionamiento social.

Las tres variables estudiadas a lo largo de la presente Tesis Doctoral (problemas de conducta, carga familiar percibida y funcionamiento social) han demostrado ser relevantes en la predicción del curso evolutivo de los trastornos mentales graves. Por tanto, es pertinente y necesario que estas variables puedan ser incluidas en próximos estudios que aborden la evolución de trastornos mentales graves.

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10. ANEXOS

10.1. Separata del primer trabajo titulado: "Gender influence on severe mental disorders: Relationship between behavior problems and family burden"

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Gender Influence on severe Mental Disorders: Relationship between Behavior Problems and Family Burden

Antonio Vázquez-Reyes[a], Agustín Martín-Rodríguez[b], María Ángeles Pérez-San-Gregorio[b], and Antonio J. Vázquez-Morejón[a, b]

[a]University Hospital Virgen del Rocío, Seville, Spain; [b]University of Seville, Spain

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ABSTRACT

Gender differences in behavior problems and their relationship with family burden in severe mental disorders were analyzed. The Behavior Problems Inventory (BPI) and two items related to family burden (FB 1: "Do you feel able to endure the illness or disorder and the problems it causes?" and FB 2: "How often are you overwhelmed by these behavior/illness problems?") were administered to 235 key informants under treatment in a community mental health unit. The results show that men presented more behavior problems and family burden, with significant differences in impulse dyscontrol and severe behavior problems. A positive correlation was found between behavior problems and family burden, where the inactivity/social withdrawal dimension was the best predictor of family load for men and women. We conclude that men have more behavior problems and that the inactivity/social withdrawal dimension has the most explanatory power for family burden in both men and women.

Influencia del género en trastornos mentales graves: relación entre problemas de comportamiento y carga familiar

Palabras clave:
Problemas de comportamiento
Trastornos mentales graves
Carga familiar
Descontrol de impulsos
Aislamiento social

RESUMEN

Se analizan las diferencias de género en problemas de conducta y su relación con la carga familiar en trastornos mentales graves. El Inventario de Problemas de Conducta (BPI) y dos ítems relativos a la carga familiar ("¿Se siente usted capaz de sobrellevar la enfermedad o trastorno y los problemas que ocasiona?" y "¿Con qué frecuencia se ve usted desbordado/a por estos problemas de comportamiento/enfermedad?") se administraron a 235 informantes clave de pacientes en tratamiento en una unidad de Salud Mental Comunitaria. Los hombres presentaban mayores problemas de conducta y carga familiar, existiendo diferencias significativas en descontrol de impulsos y en problemas de comportamiento graves. Se halla una correlación positiva entre problemas de comportamiento y carga familiar, siendo la dimensión inactividad/aislamiento social la mejor predictora de carga familiar. Respecto a la carga familiar, es la dimensión inactividad/aislamiento social la que posee mayor capacidad explicativa en hombres y mujeres.

The study of severe mental disorders has a very relevant place in mental health due to its psychopathological richness and variability, their transfer to behavioral problems (Wykes & Sturt, 1986), and their personal, family, social, and economic impact (Jin & Mosweu, 2017).

In this context, gender is a variable which has been acquiring relevance in the study and understanding of severe mental disorders (Jiménez-García-Bóveda & Vázquez-Morejón, 2012; Ordóñez et al., 2016). Due to discrimination undergone by the female population insofar as research on their needs (Goldstein & Tsuang, 1990; Hosang & Bhui, 2018) and the influence which stereotyped roles of males appear to exert (assumption of more risk conduct, use of violence, dominance over others, etc.) on the psychopathology of men (Mahalik et al., 2003; Tager et al., 2010), in recent years a need has arisen to progress in understanding the impact of gender on severe mental disorders. From this perspective, the inclusion of a gender-sensitive focus is pertinent for early detection, evaluation, and clinical intervention adjusted to individual needs.

Other studies focusing on gender differences have found more externalizing disorders in men and internalizing in women (Zahn-Waxler et al., 2008). Traditionally, study has concentrated on clinical variables (prodromal, duration of untreated psychosis, positive and

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Correspondence: antvazrey90@gmail.com (A. Vázquez-Reyes).

negative symptoms, etc.), with inconstant, not very conclusive results (Koster et al., 2008; Morgan et al., 2008).

The diversity of results underlines how these clinical variables can become unspecific, as patients with the same diagnosis have different symptoms (APA, 2013), which is the main reason studies focus on elements common to all, such as affectation in social functioning (Carpenter & Strauss, 1991), behavior problems (Vázquez-Morejón et al., 2018), and family burden (Awad & Voruganti, 2008; Möller-Leimkühler & Wiesheu, 2012).

Research generally emphasizes better social functioning in women, both premorbid and over the course of the illness (Morgan et al., 2008; Thorup et al., 2007). Females specifically show better social functioning in the areas evaluating autonomy and employment, while there are no significant differences in gender in dimensions such as social integration, communication, or leisure (Jiménez-García-Bóveda et al., 2000).

In social functioning, Brewin et al. (1987) described behavior problems as a construct that can interfere with adaptation and social functioning in such patients. From this perspective, behavior problems are understood as the behavioral expression of the characteristic psychopathology of psychosis and related disorders (Wykes & Sturt, 1986). Due to this conceptualization, its study is progressively acquiring more relevance in view of the need to include objective, observable approaches which enable the study of adaptation of these patients to their community context (Cella et al., 2014).

Along these lines, several studies have attempted to delimit the main behavior problems in this clinical population. Harvey et al. (1996) found four behavior problem factors in schizophrenia (social isolation, altered thinking, antisocial behavior, and depression) which were later replicated and confirmed by Curson et al. (1999). Recently, Vázquez-Morejón et al. (2018) found three factors (inactivity or social isolation problems, active problems, and impulse dyscontrol) which included the main behavior problems in psychosis and related disorders.

Previous studies have explored the relationship between behavior problems and levels of autonomy (Wykes, 1982), family burden (Othman & Salleh, 2008), and family's capacity for coping (Vázquez-Morejón et al., 2013). However, there is little knowledge of the differences in behavior problems by gender and their relationship with family burden.

Thus, in a scientific context in which interest in studying the factors common to functional affectation is gradually growing, the objective of our study was to explore the differences in behavior problems between men and women and their possible relationship with family burden.

Method

Participants

The study sample consisted of 235 key family members of patients diagnosed with a severe mental disorder: schizophrenia (ICD-10 F.20), other psychotic disorders (ICD-10 F.21-F.29), or bipolar disorder Type 1 (ICD-10 F.31).

The mean age of the patients was 40.13 (*SD* = 11.67, range = 18-65); 152 were men (64.7%) and 83 women (35.3%). The distribution by marital status was: 178 single (75.7%), 38 married (16.2%), 13 separated (5.5%), and 6 widowed (2.6%). They were diagnosed with the following disorders: 132 with schizophrenia (56.2%), 60 with psychotic disorders (25.5%), and 43 with bipolar disorder Type 1. Informants were: 113 mothers (48.1%), 37 fathers (15.7%), 26 spouses (11.1%), 35 siblings (14.9%), and 24 other relatives (10.2%). There were 171 women (72.8%) and 64 men (27.2%).

All the patients in treatment in a Community Mental Health Unit (CMHU) at the time the study was begun who met the following inclusion criteria: 1) of legal age, 2) had any of the diagnoses mentioned above, and 3) agreed to participate in the evaluation. Criteria for the inclusion of family members were that their participation in the study was voluntary and they had been selected by the patient as persons with the most knowledge of their condition. Thus, key family members were in charge of filling out the evaluation instruments.

Instruments and Measures

Behavior Problem Inventory (BPI). The BPI (Vázquez-Morejón et al., 2018) was designed as a rapid and efficient measure of the most representative behavior problems of individuals with psychosis and related disorders. It consists of 14 items and three dimensions (identified by factor analysis): inactivity/social withdrawal (points vary from 0 to 15), active problems (0 to 15 points), and impulse dyscontrol (0 to 12 points). Two other scores are also found: moderate behavior problems (MBP, number of items with score equal to or over 2, where scores are 0 to 14) and severe behavior problems (SBP, number of items with score equal to 3, where scores vary from 0 to 14). The higher the score, the greater the behavior problems. The answers refer to behavior observed during the last three months rated on a Likert-type scale where 0 = *never*, 1 = *hardly ever*, 2 = *sometimes*, and 3 = *often*.

BPI psychometric properties support both validity and reliability, with excellent internal consistency (Cronbach's alpha) for the 14 items (α = .85), for inactivity/social withdrawal (α = .76) and for active problems (α = .80), while for the impulse dyscontrol dimension the internal consistency is rather questionable (α = .56). Temporal reliability measured by the total score of behavior problems in 28 patients was satisfactory (r = .82, p < .001). Furthermore, empirical evidence shows significant correlations supporting both concurrent validity with the Social Behaviour Schedule (SBS) and construct validity with the Social Functioning Scale (SFS) (Vázquez-Morejón et al., 2018).

Perceived family burden. Family burden was evaluated by asking a relative to respond to the following items: "Do you feel able to endure the illness or disorder and the problems it causes?" (FB 1) and "How often are you overwhelmed by these behavior/illness problems?" (FB 2). Both were answered on a Likert-type scale where 0 = *not at all*, 1 = *a little*, 2 = *somewhat*, 3 = *quite often*, and 4 = *a lot*. A score is also found for total family burden resulting from the mean of the scores on both items.

Procedure

The sample of 235 patients was chosen from a database of people with severe mental disorders at a Virgen del Rocío University Hospital CMHU. Patients who were under treatment and met criteria for inclusion at the start of the project were selected. The diagnosis had been made by a referral clinical psychologist or psychiatrist in each case based on the clinical history and psychopathological exploration.

During the usual psychological evaluation of the patients being followed up, a member of the team (the one with the closest contact and/or confidence with family) requested the participation of key family members and told them that it was entirely voluntary and, if they accepted, they were given the evaluation instruments to fill in.

Statistical Analysis

Analyses were done using the SPSS v.24 statistical package. First, a descriptive analysis was carried out to study gender differences in behavior problems and perceived family burden (with the *t*-test for independent samples). Before the analysis, data were checked for non-normal distribution using the Kolmogorov-Smirnov test.

Table 1. Descriptive Analysis of Behavior Problems Found with the Behavior Problems Inventory (*N* = 235)

	Minimum	1st Quartile	Median	Mean	3rd Quartile	Maximum
Nervousness (BPI 1)	0	1	2	2	2	3
Talking about odd, strange things (BPI 2)	0	0	0	1	2	3
Irritability (BPI 3)	0	0	1	1	2	3
Avoiding others, isolation (BPI 4)	0	0	1	1	2	3
Laughing or talking to oneself (BPI 5)	0	0	0	1	1	3
Insulting others (BPI 6)	0	0	0	0	1	3
Breaking or hitting things (BPI 7)	0	0	0	0	0	3
Hitting people (BPI 8)	0	0	0	0	0	3
Doing odd, strange things (BPI 9)	0	0	0	0	1	3
Attempting self-harm or suicide (BPI 10)	0	0	0	0	0	3
No will to live, sad, crying (BPI 11)	0	0	0	1	2	3
Not keeping clean (BPI 12)	0	0	0	1	1	3
Taking alcohol or drugs (BPI13)	0	0	0	0	0	3
Lying around, not do anything all day long (BPI 14)	0	0	1	1	2	3
Basic	0	3	5	6	8	15
Active	0	1	3	4	6	15
Impulse dyscontrol	0	0	0	1	1	12
MBP	0	1	3	4	6	14
SBP	0	0	0	1	1.25	11

Note. Basic = Inactivity/social withdrawal dimension; Active = Active problems dimension; Impulse dyscontrol = Impulse dyscontrol dimension; MBP = Moderate behavior problems; SBP = Severe behavior problems.

Table 2. Gender Differences in Behavior Problems and Family Burden

	Men		Women				
	M	*SD*	*M*	*SD*	*p*	Cohen's *d*	CI
BPI1	1.60	1.03	1.67	0.95	.480	-0.093 N	[-.176, .363]
BPI2	0.91	1.02	0.77	1.04	.310	0.133 N	[-.401, .135]
BPI3	1.33	1.05	1.34	0.95	.963	-0.006 N	[-.262, .274]
BPI4	1.45	1.07	1.20	1.12	.069	0.239 S	[-.508, .031]
BPI5	0.78	1.11	0.52	0.91	.065	0.242 S	[-.512, .031]
BPI6	0.51	0.91	0.43	0.78	.518	0.085 N	[-.352, .183]
BPI7	0.40	0.86	0.22	0.61	.069	0.238 S	[-.507, .031]
BPI8	0.13	0.51	0.08	0.32	.416	0.106 S	[-.374, .162]
BPI9	0.43	0.78	0.37	0.73	.566	0.075 N	[-.343, .193]
BPI10	0.14	0.52	0.10	0.34	.478	0.093 N	[-.361, .175]
BPI11	0.80	1.10	0.84	1.01	.763	-0.040 N	[-.228, .307]
BPI12	0.66	0.92	0.37	0.75	.009	0.346 S	[-.617, -.074]
BPI13	0.51	0.93	0.16	0.56	.001	0.429 S	[-.702, -.155]
BPI14	1.46	1.18	0.97	1.09	.001	0.432 S	[-.704, -.159]
Basic	5.93	3.80	5.06	3.70	.086	0.228 S	[-.500, .045]
Active	3.91	3.71	3.48	3.49	.358	0.121 N	[-.390, .149]
Impulse dyscontrol	1.17	2.04	0.56	1.22	.010	0.339 S	[-.611, -.067]
MBP	3.84	0.96	3.10	3.01	.078	0.234 S	[-.508, .040]
SBP	1.38	1.09	0.84	1.66	.043	0.269 S	[-.543, .006]
FB1	2.80	0.96	2.73	0.93	.596	0.071 N	[-.347, .205]
FB2	1.97	1.09	1.70	1.05	.063	0.251 S	[-.526, .026]
FB total	1.58	0.87	1.50	0.83	.728	0.094 N	[-.160, .322]

Note. BPI = Behavior Problems Inventory; Basic = Inactivity/social withdrawal dimension; Active = Active problems dimension; Impulse dyscontrol = Impulse dyscontrol dimension; MBP = Moderate behavior problems; SBP = Severe behavior problems; FB = Family burden; CI = Confidence interval; N = Null effect size; S = Small effect size.

However, the Levene test for equality of variances was not significant, so the homoscedasticity criterion was met. Cohen's *d* was used to calculate the effect size (Cohen, 1988).

Correlations between items and BPI dimensions and perceived family burden were also studied with Pearson's correlation coefficient. Correlations are interpreted following Cohen's (1988) guidelines, according to which the value of *r* classifies the correlation as small (*r* = .10 - .29), medium (*r* = .30 - .49) or large (*r* = .50 - 1.0).

Finally, a stepwise multiple linear regression analysis was performed to predict the increase in family burden (criterion or dependent variable) using three predictor or independent variables that referred to the behavior problem dimensions (inactivity/social withdrawal, active problems, and impulse dyscontrol). Compliance with the statistical assumptions was confirmed before making the multiple linear regression analysis (linearity, independence of residuals, homoscedasticity, and no multicollinearity).

Table 3. Correlations between Behavior Problems and Family Burden

		BPI1	BPI2	BPI3	BPI4	BPI5	BPI6	BPI7	BPI8	BPI9	BPI10	BPI11	BPI12	BPI13	BPI14
FB1	*r*	-.25**	-.21*	-.26**	-.215*	-.118	-.15	-.186*	-.045	-.113	-.102	-.274**	-.287**	-.136	-.253**
	CI	[-.457, .029]	[-.329, -.077]	[-.377, -.131]	[-.427, .019]	[-.342, .119]	[-.371, .086]	[-.402, .049]	[-.275, .191]	[-.338, .123]	[-.328, .134]	[-.477, -.043]	[-.488, -.057]	[-.359, .101]	[-.46, -.021]
FB2	*r*	.353**	.314**	.419**	.367**	.204*	.294**	.244**	.123	.203*	.179*	.377**	.314**	.144	.395**
	CI	[.128, .543]	[.085, .511]	[.205, .595]	[.145, .553]	[-.032, .418]	[.064, .494]	[.010, .452]	[-.114, .347]	[-.032, .418]	[-.057, .397]	[.157, .562]	[.086, .511]	[-.094, .366]	[.177, .576]

Note. BPI = Behavior Problems Inventory; FB = Family burden; CI = Confidence interval.
*< .01., **< .001.

Results

Descriptive Analysis

Table 1 shows the mean, median, Q1 and Q3, and the minimum and maximum scores on the 14 items, three dimensions (inactivity/social withdrawal, active problems, and impulse dyscontrol), MBP, and SBP.

Item number 1 ("nervousness") showed the highest mean, median, and Q1and Q3 scores, while the item with the lowest mean, median, and Q1and Q3 scores was number 13 ("Taking alcohol or drugs"). The inactivity/social withdrawal dimension had the highest mean, median, and Q1and Q3 scores, while the impulse dyscontrol dimension had the lowest scores.

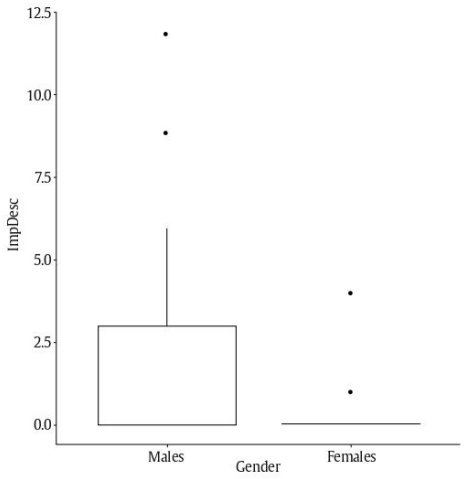

Figure 1. Impulse Dyscontrol in Other Psychotic Disorders by Gender.

Gender Differences

Significant gender differences were observed in the scores on behavior problems (Table 2). On items BPI 12 ("Not keeping clean"; p = .009, d = 0.346), BPI 13 ("Taking alcohol or drugs"; p = .001, d = 0.429) and BPI 14 ("Lying around, not do anything all day long"; p = .001, d = 0.432), there were more behavior problems among the men. Similarly, men also scored higher on the impulse dyscontrol dimension (p = .01, d = 0.339) and on SBP (p = .043, d = 0.269). Men scored higher on item FB 2 on family burden although it was not statistically significant.

Gender Differences in Behavior Problems by Diagnosis

Figure 1 shows that men diagnosed with other psychotic disorders had significantly more behavior problems in the impulse dyscontrol dimension (p = .011, d = 0.744). No significant gender differences were found in the inactivity/social withdrawal, active problems or impulse dyscontrol dimensions among patients diagnosed with schizophrenia or bipolar disorder Type 1.

Correlations between Behavior Problems and Family Burden

The scores showed significant correlations between behavior problems and family burden (Table 3). Behavior problems most closely associated with family coping capacity (FB 1) were items BPI 3 ("Irritability"), BPI 11 ("No will to live, sad, crying") and BPI 12 ("Not keeping clean"), all with small correlations. The most significant correlations regarding family perception of being overwhelmed (FB 2) pertained to items BPI 1 ("Nervousness"), BPI 2 ("Talking about odd, strange things"), BPI 3 ("Irritability"), BPI 4 ("Avoiding others, isolation"), BPI 6 ("Insulting others"), BPI 11 ("No will to live, sad, crying"), BPI 12 ("Not keeping clean"), and BPI 14 ("Lying around, not do anything all day long"), all with a medium correlation. Correlation with family burden was negative for FB 1 and positive for FB 2.

All of the dimensions were negatively correlated with coping with the illness (FB 1) and positive with perception of being overwhelmed (FB 2) (Table 4). The dimension which was the most strongly associated with family burden was inactivity/social withdrawal (FB 1, r = -.351, p = < .001; FB 2, r = .480, p = < .001), followed by active problems (FB 1, r = -.256, p = < .001; FB 2, r = .414, p = < .001), and in last place, impulse dyscontrol (FB 1, r = -.220, p < .01; FB 2, r = .275, p < .001).

Table 4. Correlations between Behavior Problems Dimension and Family Burden

		Basic	Active	Impulse Dyscontrol
FB1	*r*	-.351***	-.256***	-.220**
	CI	[-.506, -.174]	[-.423, -.072]	[-.392, -.034]
FB2	*r*	.480***	.414***	.275***
	CI	[.32, .613]	[.246, .559]	[.092, .440]

Note. Basic = Inactivity/social withdrawal dimension; Active = Active problems dimension; Impulse dyscontrol = Impulse dyscontrol dimension; FB = Family burden; CI = Confidence interval.
**p < .01, ***p < .001

Family Burden Predictor

The results of the multiple linear regression analysis with family burden as the dependent variable and the inactivity/social withdrawal, active problems, and impulse dyscontrol dimensions as predictors are shown in Table 5. The final model identified the inactivity/social withdrawal dimension as the only one able to predict family burden in men, $F_{(3, 136)}$ = 12.55, p < .001, and women, $F_{(3, 69)}$ = 12.56, p < .001. In the rest of the dimensions, neither active problems nor impulse dyscontrol were good gender predictors of

Table 5. Behavior Problems Predicting Family Burden by Gender

Predictor variables		*B*	*SE*	β	*t* (*p*)	R^2	Δ*R*
Men							
	Step 1					.203	.197
	Basic	0.20	.03	.45	5.93***		
	Step 2					.212	.201
	Basic	0.17	.04	.37	3.86***		
	Active	0.06	.05	.21	1.25 (.215)		
	Step 3					.217	.200
	Basic	0.16	.04	.37	3.73***		
	Active	0.04	.05	.09	0.82 (.415)		
	Impulse dyscontrol	0.07	.08	.08	0.92 (.361)		
Women							
	Step 1					.349	.340
	Basic	0.27	.04	.59	6.17***		
	Step 2					.351	.332
	Basic	0.28	.06	.63	4.80***		
	Active	-0.03	.06	-.06	-0.44 (.660)		
	Step 3					.353	.325
	Basic	0.28	.06	.62	4.60***		
	Active	-0.04	.06	-.08	-0.57 (.572)		
	Impulse dyscontrol	0.07	.15	.06	0.49 (.630)		

Note. Basic = Inactivity/social withdrawal dimension; Active = Active problem dimension; Impulse dyscontrol = Impulse dyscontrol dimension.
***$p < .001$.

family burden. This model explained 35.3% ($R^2 = .353$) of the variance observed in family burden for women and 21.7% ($R^2 = .217$) of family burden for men.

Discussion

In general, the results show significant gender differences in behavior problems which were strongly related to the level of family burden perceived by family members who had frequent contact with the patients.

Overall, men scored higher in behavior problems and in family perception of being overwhelmed by behavior problems. In agreement with previous research (Koster et al., 2008; Thorup et al., 2007), men had significantly greater impulse dyscontrol behavior problems than women while there were no significant differences in active problem dimensions or inactivity/social withdrawal. Men also showed significant differences in SBP, mainly explained by higher scores on the impulse dyscontrol behavior dimension. The results are in agreement with studies that emphasize the importance of socialization in men learning maladaptive emotional control strategies, associated with an increase in behavioral disinhibition, unhealthy behaviors, or acts of aggression by men (Gallagher et al., 2014; Panno et al., 2013).

Men were found to score significantly higher on specific behavior problems in items BPI 12 ("Not keeping clean"), BPI 13 ("Taking alcohol or drugs"), and BPI 14 ("Lying around, not do anything all day long"), which evaluate behaviors in the inactivity/social withdrawal dimension. These results may be related to the fact that women show better social functioning in the areas of autonomy and competence (Jiménez-García-Bóveda et al., 2000).

Results of the relationship between behavior problems and family burden were in line with Nordstroem et al. (2017) and Koutra et al. (2016), who suggested that family burden is greater when patients have a more severe and persistent psychopathology. Considering behavior problems as the expression of the underlying psychopathology (Wykes & Sturt, 1986), our study demonstrated that behavior problems are related to an increase in family burden, especially when such behavior is in the inactivity/social withdrawal dimension, and, to a lesser extent, behavior related to active problems and impulse dyscontrol.

With regard to the evolution of the illness, emotion expressed has been shown to be a relevant construct in predicting relapse in patients with schizophrenia (Möller-Leimkühler & Wiesheu, 2012). Álvarez-Jiménez et al. (2012) emphasized the influence of critical and hostile comments of the main caregivers on relapse, which could be partially explained by the impact of behavior problems on family burden and its consequential effect on the increase in emotion expressed by main caregivers.

Our results regarding the relationship between gender and family burden are in agreement with Mors et al. (1992), who suggested that the burden is heavier on the families of men. Although not statistically significant, it was observed that men's families tended to be more intensely overwhelmed by the illness (FB 2). Coinciding with the study by Awad and Voruganti (2008), which related the increase in family burden with social impairment, our analysis found that the inactivity/social withdrawal dimension was the best predictor of family burden regardless of gender.

Our findings seem to indicate that there are differential gender factors in the explanation for family burden. It is important to reflect on and study these differences to find out whether the roles culturally assigned to men and women (Goldstein & Tsuang, 1990), which have traditionally been more permissive with males, or the presence of psychosocial variables, may better explain male burden (social functioning, recovery time, treatment adherence, type of treatment received, quality of life, etc.).

One of the limitations is the evaluation of behavior problems by a single family member who frequently interacted with the patient, and it might be recommendable to include other evaluation sources (other professionals, such as clinical psychologist, psychiatrist, or nurse) who could attribute behavior problems more objectivity and avoid possible bias (Sabbag et al., 2011). Another limitation is the procedure for measuring family burden, which is based on subjective evaluation with only two questions. This might have been more objective with an instrument with good psychometric properties such as the Involvement Evaluation Questionnaire (IEQ) (Schene & van Wijngaarden, 1992) or the Zarit Caregiver Burden Scale (Zarit et al., 1980). Finally, participants were selected from a single CMHU, so the inclusion of patients from other healthcare centers would have been more representative.

Future studies could approach the relationship between behavior problems and gender in other functional dimensions affected by severe mental disorders, such as social functioning, recovery, quality of life, or attempted self-harm. More progress in identifying the differential factors that contribute to explaining family burden in

men and women is still necessary. Finally, it would also be of interest to include a longitudinal perspective with which the relationship of these variables and their evolution over time may be studied.

In conclusion, the results confirm the presence of more behavior problems in men in all three dimensions, inactivity/social withdrawal, active problems, and impulse dyscontrol. Inactivity/social withdrawal was the dimension with the most predictive power for burden in both men and women.

Conflict of Interest

The authors of this article declare no conflict of interest.

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10.2. Separata del segundo trabajo titulado: "Ten-year follow-up of social functioning and behaviour problems in people with schizophrenia and related disorders"

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Ten-year follow-up of social functioning and behaviour problems in people with schizophrenia and related disorders

Antonio Vázquez-Reyes[1], María Ángeles Pérez-San-Gregorio[2], Agustín Martín-Rodríguez[2] and Antonio J Vázquez-Morejón[1,2]

Abstract

Background: In recent years, several variables in the course of schizophrenia and related psychotic disorders have been studied. However, an instrumental analysis of the evolution of social functioning and behaviour problems has scarcely been explored.

Aim: To analyse the evolution of social functioning and behaviour problems and find any diagnosis or gender differences.

Method: The Social Functioning Scale (SFS) and the Behaviour Problems Inventory (BPI) were administered in Stages I (2003–2007) and II (2014–2017) to 100 close relatives of patients under treatment at a Community Mental Health Unit. A related samples t-test, analysis of variance and multivariate analysis of variance were performed to study the evolution and differences in social functioning and behaviour problems. Then a stepwise multiple linear regression analysis was done to predict the evolution of social functioning.

Results: No deterioration in the evolution of social functioning or behaviour problems was observed, and schizophrenia patient scores were lower. Women scored higher in withdrawal/social engagement, interpersonal behaviour, independence-performance, independence-competence and total social functioning, with no significant differences in behaviour problems. Previous social functioning, underactivity/social withdrawal and education are predictive factors in the evolution of social functioning. Conclusion: The results show the need for implementing psychosocial intervention programs that promote functional recovery and keep problems from becoming chronic.

Keywords

schizophrenia, psychotic disorders, bipolar disorders, social functioning, behaviour problems, gender

Introduction

Schizophrenia and related psychotic disorders, which make up most of the severe mental disorders and are a public health problem, have been associated with significant deterioration in social functioning (Grove et al., 2016), an increase in disability (World Health Organization [WHO], 2011) and considerable socioeconomic cost (Chong et al., 2016; Knapp et al., 2004).

Having surpassed the classic view of progressive deterioration and poor course, and reductionist attention to clinical symptoms (Bleuler, 1950; Kraeplin, 1919), the functional area emerges as a core dimension of recovery (Best et al., 2020; Correll, 2020). Studies have emphasized achievement in psychosocial domains as indicators of favourable evolution (Buonocore, 2018; Liberman et al., 2002; Morin & Franck, 2017). Thus, social functioning has become a strategic area in the study of severe mental disorders, and there is agreement on its consideration as a robust marker of treatment success ahead of clinical symptoms (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007), making it an essential factor for community adaptation (Johnstone et al., 1990) and evolution of the illness (Rajkumar & Thara, 1989).

Social functioning is a multidimensional construct referring to personal skills for everyday social tasks and an adequate social life (Birchwood et al., 1990; Hirschfeld et al., 2000). It can be analysed on three levels: (1) social achievements, with global measures such as education, marital status or occupation (Hambrecht et al., 1992), (2) social roles, referring to the execution of certain roles and

[1]Mental Health Service, University Hospital Virgen del Rocío, Seville, Spain
[2]Faculty of Psychology, Department of Personality, Assessment, and Psychological Treatment, University of Seville, Seville, Spain

Corresponding author:
Antonio Vázquez-Reyes, Mental Health Service, University Hospital Virgen del Rocío, Manuel Siurot s/n, Seville 41013, Spain.
Email: antvazrey90@gmail.com

(3) instrumental behaviour, which involves specific analysis of functioning in different areas and dimensions (Mueser & Tarrier, 1998). Nevertheless, most studies have analysed global aspects or social achievements, ignoring instrumental analysis of social functioning and impeding identification of specific patient needs.

Among other factors, behaviour problems, understood as the behavioural manifestation of underlying psychopathology (Wykes & Sturt, 1986), are closely linked to adaptation and social adjustment (Brewin et al., 1987). However, even though there are studies relating behaviour problems with autonomy (Vázquez-Morejón & Jiménez-García-Bóveda, 1994; Wykes, 1982), family burden (Bellido-Zanin et al., 2017b; Othman & Salleh, 2008) or family coping (Vázquez-Morejón et al., 2013), they are limited to analysing their course and possible relationship between behaviour problems and social functioning.

In addition to behaviour problems, diagnosis is a variable related to differences in the evolution of social functioning. Despite studies having found stability and even recovery during the course of schizophrenia (Liberman et al., 2002; Liberman & Kopelowicz, 2002; Strauss et al., 2010), there is a consensus that social functioning is more deteriorated in it than in other psychotic disorders or bipolar disorder that have a more favourable prognosis (Gee et al., 2016; Harrow et al., 2005; Robinson et al., 2004). However, studies have focused mainly on analysis of global social functioning, impeding identification of specific dimensions that are more affected, and therefore, need more clinical attention.

Gender is also a factor related to heterogeneity in premorbid social functioning as well as during the course of the illness (Andia et al., 1995). Some studies have found better results in women, both premorbid and during the course of illness (Haas & Sweeney, 1992; Leung & Chue, 2000; Thorup et al., 2007). In this sense, the best social adjustment during the course of the illness has been associated with more premorbid social functioning, better cognitive functioning and late age of onset (Castle et al., 2000; Liberman et al., 2002). However, again, most gender studies do not analyse the social functioning dimensions, so it cannot be known whether better social functioning in women is due to higher performance in all areas or in some of them, or whether there are specific gender needs (Haas et al., 1990; Jiménez-García-Bóveda et al., 2000).

Our objective was to study the evolution of social functioning and behaviour problems, and find any diagnosis or gender differences during a ten-year follow-up in patients with schizophrenia and related psychotic disorders.

Method

Participants

The study sample consisted of 100 patients diagnosed with schizophrenia and related psychotic disorders: schizophrenia (ICD-10 F.20, $n=55$), other psychotic disorders (ICD-10 F.21–F.29, $n=28$) and bipolar type I disorder (ICD-10 F.31, $n=17$). All of them were in treatment at a Community Mental Health Unit (CMHU, Virgen del Rocío University Hospital, Seville, Spain) in two different periods: 2003–2007 (Stage I) and 2014–2017 (Stage II).

Evaluation tests were completed by close relatives who had frequent contact with the patient. Of the original number of participants, 15 would not let their close relative fill in the evaluation, 14 had no close relative available and 44 had been transferred to another healthcare district, leaving a total of 100 patients who completed the follow-up period (Figure 1). Of these, 64 were men (64%) and 36 women (36%). The mean age of participants in Stage I was 38.26 ($SD=10.65$; range=18–65), while in Stage II it was 51.42 ($SD=10.51$; range=30–77). The distribution by marital status was 77 single (77%), 13 married (13%), 9 separated (9%) and 1 widow (1%) in Stage I, while in Stage II 77 were single (77%), 12 married (12%), 10 separated (10%) and 1 widow (1%).

Close relatives in Stage I were: 60 mothers (60%), 16 fathers (16%), 8 spouses (8%), 12 siblings (12%), 4 other family members (4%). Of these, 74 (74%) were women and 26 (26%) were men. In Stage II, 48 (48%) were mothers, 5 fathers (5%), 10 spouses (10%), 29 siblings (29%) and 8 other family members (8%). Of the total, 71 (71%) were women and 29 (29%) men.

The inclusion criteria were: (1) be of legal age, (2) have been diagnosed with schizophrenia or related psychotic disorders, (3) agree to participate in the study. Inclusion criteria for close relatives were voluntary participation in the study and have been selected by the patient as the person knowing most about their condition. The exclusion criteria were having a severe organic disease or abuse or dependence on toxic substances.

Instruments and measures

Social Functioning Scale (*SFS*, Birchwood et al., 1990): This scale evaluates the most significant facets of social functioning in schizophrenia patients. It has 77 items divided in seven dimensions: withdrawal/social engagement scored from 0 to 15, interpersonal behaviour scored from 0 to 9, prosocial activities scored from 0 to 66, recreation scored from 0 to 45, independence-performance scored from 0 to 39, independence-competence scored from 13 to 39 and employment/occupation scored from 0 to 10. Higher scores show higher level functioning in each dimension. A total score classifies the social functioning level as low (<96points), medium (96–106) or high (>106).

The scale has a self-report version (SFS-SR) to be filled out by the patient and an informant-report (SFS-IR) filled in by a relative who knows the patient well. For this study, we used the SFS-IR because it has demonstrated more sensitivity in evaluating social functioning than the SFS-SR, which has a higher tendency to self-evaluation bias (Jiménez-García-Bóveda et al., 2000).

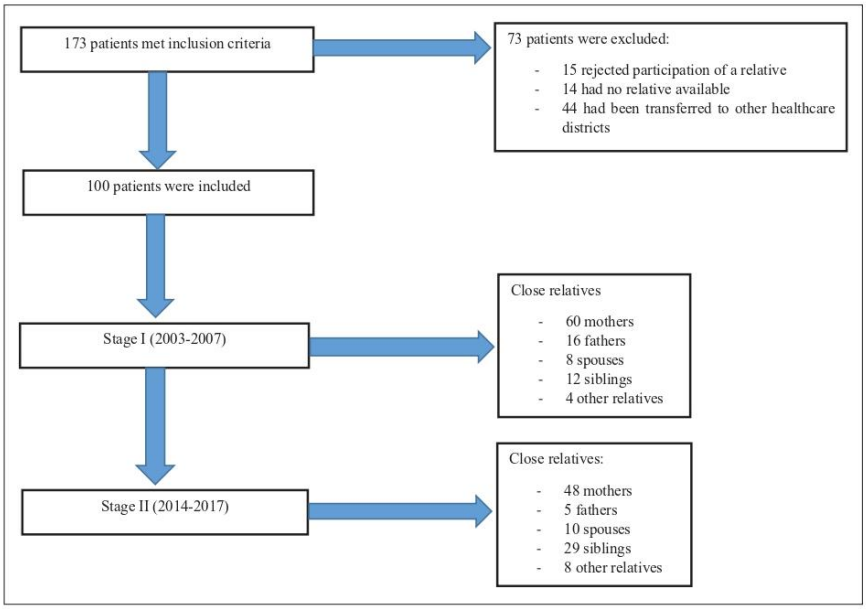

Figure 1. Flow chart for selection of participants in the study.

Studies of the psychometric properties of both the English version of this instrument (Birchwood et al., 1990) and its Spanish adaptation (Vázquez-Morejón & Jiménez-García-Bóveda, 2000) have supported its validity and reliability, and internal consistency (Cronbach's alpha) of $\alpha = .85$, and three-month temporal reliability $\alpha = .84$. The internal consistency in our sample for Stage I was: withdrawal/social engagement $\alpha = .55$, interpersonal behaviour $\alpha = .58$, prosocial activities $\alpha = .84$, recreation $\alpha = .70$, independence-performance $\alpha = .83$, independence-competence $\alpha = .87$, employment/occupation $\alpha = .37$ and total $\alpha = .91$. In Stage II it was: withdrawal/social engagement $\alpha = .57$, interpersonal behaviour $\alpha = .68$, prosocial activities $\alpha = .86$, recreation $\alpha = .79$, independence-performance $\alpha = .87$, independence-competence $\alpha = .89$, employment/occupation $\alpha = .31$ and total $\alpha = .93$. We selected this instrument because it can evaluate specific areas of social functioning, and furthermore, its items refer to observable quantifiable behaviours, reducing possible evaluation bias.

The Behaviour Problem Inventory (*BPI*, Vázquez-Morejón et al., 2005, 2018): Was designed to evaluate behaviour problems in patients with psychotic disorders. It has 14 items and three dimensions: underactivity/social withdrawal (scored from 0 to 15), active problems (scored from 0 to 15) and lack of impulse control (scored from 0 to 12). Two more indices can be found: moderate behaviour problems (MBP, number of items with scores equal to or over 2, scored from 0 to 14) and severe behaviour problems (SBP, number of items with score equal to 3, scored from 0 to 14). Higher scores indicate worse behaviour problems. The answers refer to observable behaviour during the three last months on a Likert-type scale: 0=never, 1=a few times, 2=sometimes and 3=often.

Internal consistency in our sample in Stage I was: underactivity/social withdrawal $\alpha = .75$, active problems $\alpha = .84$, lack of impulse control $\alpha = .70$, total $\alpha = .87$; and in Stage II: underactivity/social withdrawal $\alpha = .78$, active problems $\alpha = .82$, lack of impulse control $\alpha = .64$, total $\alpha = .88$.

Procedure

The 173 patients were selected from a census of patients with schizophrenia and related psychotic disorders as diagnosed by a clinical psychologist or psychiatrist based on psychopathological exploration and clinical history at a Virgen del Rocío University Hospital CMHU. As shown in Figure 1, 100 patients were selected; all of them were in treatment in 2003–2007 (Stage I) and 2014–2017 (Stage II).

Table 1. Descriptive analysis of social functioning and behaviour problems ($N = 100$).

	Stage I ($n = 100$)						Stage II ($n = 100$)					
	Minimum	Q1	Median	Mean	Q3	Maximum	Minimum	Q1	Median	Mean	Q3	Maximum
Withdrawal/social engagement	0	8	10	9.47	11	14	3	7	10	9.43	11	15
Interpersonal behaviour	0	4	6	5.80	8	9	0	4	6	5.82	8	9
Prosocial activities	3	19	24	23.97	29	39	5	20	24	25.03	33.75	39
Recreation	3	11	15	15.07	19	32	2	10	15	15.12	20	36
Independence-performance	0	8	13	15.22	22	42	0	6	12	14.85	22	46
Independence-competence	13	30	34	32.94	37	39	16	29	34	32.92	37	39
Employment/occupation	0	2	4	5.02	9	10	0	2	5	4.77	8	10
Total SF	33	87.25	109.50	107.49	129	170	31	88.25	105.50	107.94	132.75	182
Underactivity/social withdrawal	0	3	6	6.02	9	14	0	2	6	5.85	9	14
Active problems	0	1	3	3.96	7	15	0	1	3	3.90	5.25	15
Lack of impulse control	0	0	0	0.93	1	12	0	0	0	0.84	1	9
MBP	0	1	3	3.78	6	14	0	1	3	3.46	5	12
SBP	0	0	0	1.15	1	10	0	0	0	1.20	1.25	12

Total SF = total social functioning; MBP = moderate behaviour problems; SBP = severe behaviour problems.

In Stage I of psychological evaluation, during the programmed checkups at the centre, a member of the team (who had the most contact with and/or knew the family) requested the participation of close relatives and informed them that it was voluntary, and if they agreed, gave them the evaluation instruments to be filled out.

At the end of Stage I evaluation and the ten-year follow-up, Stage II of the psychometric evaluation began. Contextualized within the follow-up checkups and as a normal part of the psychological evaluation, a member of the team again asked the close relatives of each patient for their voluntary participation in the study, and if they wanted to participate, they were given the evaluation scales to be filled out. In this second evaluation period, the close relative might not have been the same one who participated in Stage I, because that person either had an organic disease, was deceased or not available for exceptional reasons. However, those who were different from Stage I were a minority and met the criterion of knowing the current state of the patient well.

Statistical analysis

The analyses were done using SPSS v.24. First, multiple analyses of variance were done to measure the influence of two independent factors (each one with two levels: Stage [Stage I and Stage II] and gender [men and women]) on social functioning and behaviour problems in severe mental disorders. The evolution and differences in social functioning and behaviour problems were also studied by diagnosis (related samples *t*-test and analysis of variance). Data had previously been tested with the Kolmogorov–Smirnov test and found to follow a normal distribution, and the Levene test checked that the homoscedasticity criterion was met. The effect size was calculated with Cohen's *d*, interpreted as: $d < 0.20$ = null; $d \geq 0.20 < 0.50$ = small; $d \geq 0.50 < 0.80$ = medium; $d \geq 0.80$ = large (Cohen, 1988).

Finally, a stepwise linear regression analysis was done to predict the evolution of total social functioning in Stage II (criterion or dependent variable) through the following predictor or independent variables: total social functioning in Stage I, behaviour problems (underactivity/social withdrawal, active problems and lack of impulse control), education, age and diagnosis, all measured in Stage II. It was previously confirmed that statistical assumptions for multiple linear regression analysis had been met (linearity, residual independence, homoscedasticity and non-multicollinearity).

Results

Descriptive analysis

Table 1 shows the mean, median, Q1 and Q3, and the minimum and maximum scores on the social functioning dimensions and behaviour problems in Stages I and II. Table 2 shows the mean and standard deviation in both stages by diagnosis and gender.

Social Functioning, Behaviour Problems and diagnosis

Patients with other psychotic disorders showed a significant increase in the evolution of their social functioning in independence-performance ($p = .035$, $d = -0.314$, small effect size), while there were no significant differences in schizophrenia or bipolar disorder patients. Moderate behaviour

Table 2. Total social functioning, moderate and severe behaviour problems.

	Schizophrenia ($n=55$)		Other psychotic disorders ($n=28$)		BAD ($n=17$)		Men ($n=64$)		Women ($n=36$)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Stage I										
Total SF	99.65	26.53	115.25	29.12	120.06	24.91	100.42	27.71	120.06	24.68
MBP	3.73	2.68	4.63	3.52	2.38	3.07	3.97	3.03	3.44	3.14
SBP	1.18	1.69	1.52	2.49	.44	1.03	1.38	2.04	0.74	1.48
Stage II										
Total SF	97.98	27.44	122.82	33.12	115.65	28.30	102.91	32.92	116.89	25.62
MBP	4.14	2.85	2.93	2.69	2.19	1.47	3.56	2.75	3.26	2.77
SBP	1.24	1.79	1.33	2.76	.69	1.01	1.31	2.16	1.00	1.67

BAD = bipolar affective disorder; SD = standard deviation; Total SF = total social functioning; MBP = moderate behaviour problems; SBP = severe behaviour problems.

problems also diminished significantly in the group with other psychotic disorders ($p=.031$, $d=0.542$, moderate effect size), but no significant differences were found in schizophrenia or bipolar disorder patients either (Table 3).

With regard to differences between diagnostic categories, in Stage I patients with schizophrenia had significantly lower scores than patients with bipolar disorder in interpersonal behaviour ($p=.007$, $d=-0.991$, large effect size). They also had a lower score in employment/occupation than other psychotic disorders ($p=.008$, $d=-0.733$, moderate effect size) or bipolar disorder ($p=.012$, $d=-0.794$, moderate effect size), and social functioning compared to psychotic disorders ($p=.044$, $d=-0.560$, moderate effect size) and bipolar disorder ($p=.023$, $d=-0.793$, moderate effect size). Patients with other psychotic disorders had a higher score than patients with bipolar disorder in active problems ($p=.038$, $d=0.775$, moderate effect size). Furthermore, schizophrenia patients scored lower than those with psychotic disorders in recreation with important effect sizes ($d=-0.515$, moderate effect size) and those with bipolar disorder in prosocial activities (d=−0.526, moderate effect size), recreation ($d=-0.565$, moderate effect size) and independence-performance ($d=-0.588$, moderate effect size), while they had higher scores than those with bipolar disorder in active problems ($d=0.767$, moderate effect size) and severe behaviour problems ($d=0.507$, moderate effect size). Patients with other psychotic disorders scored lower than those with bipolar disorder in interpersonal behaviour ($d=-0.597$, moderate effect size) and higher in moderate behaviour problems ($d=0.681$, moderate effect size) and in severe behaviour problems ($d=0.557$, moderate effect size) (Table 4).

In Stage II, schizophrenia patients scored lower than those with other psychotic disorders in prosocial activities ($p=.022$, $d=-0.611$, moderate effect size), recreation ($p=.002$, $d=-0.783$, moderate effect size), independence-performance ($p=.023$, $d=-0.618$, moderate effect size), independence-competence ($p=.031$, $d=-0.597$, moderate effect size), employment/occupation ($p=.000$, $d=-0.902$, large effect size), and total social functioning ($p=.001$, $d=-0.817$, large effect size). Differences between schizophrenia patients and those with bipolar disorder were also unfavourable to schizophrenia in interpersonal behaviour ($p=.002$, $d=-1.162$, large effect size), employment/occupation ($p=.000$, $d=-1.125$, large effect size), active problems ($p=.010$, $d=1.000$, large effect size) and moderate behaviour problems ($p=.015$, $d=0.928$, large effect size). In addition, schizophrenia patient scores were higher than those of psychotic disorder patients, also with important effect sizes, in underactivity/social withdrawal ($d=0.507$, moderate effect size) and in moderate behaviour problems ($d=0.506$, moderate effect size), while they had lower scores than bipolar disorder patients in independence-competence ($d=-0.662$, moderate effect size) and in total social functioning ($d=-0.634$, moderate effect size), and higher scores in lack of impulse control ($d=0.527$, moderate effect size). Lastly, other psychotic disorders scored lower than bipolar disorder patients in interpersonal behaviour ($d=-0.603$, moderate effect size) and higher in active problems ($d=0.513$, moderate effect size) (Table 4).

Social functioning, behaviour problems, gender and stage

Tables 5 and 6 show the results of multivariate analysis of variance and associated effect sizes. No statistically significant interaction effects were found in the social functioning variables or behaviour problems. The only statistically significant main effect was the influence of gender on social functioning, where women had higher scores regardless of stage in the withdrawal/social engagement ($p=.009$, $d=0.472$, small effect size), interpersonal behaviour ($p=.017$, $d=0.452$, small effect size), independence-performance ($p=.000$, $d=0.837$, large effect size), independence-competence ($p=.003$, $d=0.550$, moderate effect size) and total social functioning ($p=.002$, $d=0.603$, moderate effect size) dimensions.

Table 3. Evolution of social functioning and behaviour problems by diagnosis.

	Schizophrenia ($n = 55$)						Other psychotic disorders ($n = 28$)						BAD ($n = 17$)					
	M I	*SD* I	*M* II	*SD* II	*p*	*d*	*M* I	*SD* I	*M* II	*SD* II	*p*	*d*	*M* I	*SD* I	*M* II	*SD* II	*p*	*d*
Withdrawal/social engagement	9.05	2.84	9.31	3.02	.575	−0.089 N	10.00	2.82	9.68	2.96	.739	0.111 N	9.94	2.05	9.41	3.12	.275	0.201 S
Interpersonal behaviour	5.27	2.26	5.16	2.28	.747	0.048 N	5.93	2.68	6.07	2.93	.433	−0.050 N	7.29	1.79	7.53	1.77	1.000	−0.135 N
Prosocial activities	13.45	9.57	12.44	8.81	.438	0.110 N	16.96	10.53	18.93	12.18	.269	−0.173 N	18.06	7.89	15.94	10.84	.331	0.224 S
Recreation	13.62	5.62	13.16	6.54	.616	0.075 N	16.64	6.09	18.68	7.51	.180	−0.298 S	17.18	6.91	15.59	6.65	.382	0.234 S
Independence-performance	22.15	7.40	23.09	8.78	.432	−0.116 N	25.82	8.44	28.54	8.87	.035	−0.314 S	26.82	8.46	25.53	7.54	.424	0.161 N
Independence-competence	32.20	4.72	31.42	5.81	.326	0.147 N	33.64	5.90	34.71	5.19	.468	−0.193 N	34.18	6.45	34.82	4.35	.480	−0.116 N
Employment/occupation	3.91	3.28	3.40	3.03	.280	0.162 N	6.25	3.10	6.21	3.20	1.000	0.013 N	6.59	3.47	6.82	3.05	.526	−0.070 N
Total SF	99.65	26.53	97.98	27.44	.652	0.062 N	115.25	29.12	122.82	33.12	.138	−0.243 S	120.06	24.91	115.65	28.30	.526	0.165 N
Underactivity/social withdrawal	6.20	3.40	6.63	3.71	.494	−0.121 N	6.26	3.68	4.96	3.78	.113	0.349 S	4.88	3.95	5.00	3.58	.905	−0.032 N
Active problems	4.14	3.35	4.67	3.73	.358	−0.150 N	4.74	4.50	3.48	3.74	.186	0.305 S	1.81	2.88	2.00	1.63	.819	−0.081 N
Lack of impulse control	.82	1.37	1.02	1.71	.446	−0.129 N	1.30	2.55	.74	1.83	.253	0.252 S	.62	1.54	.38	.89	.609	0.191 N
MBP	3.73	2.68	4.14	2.85	.365	−0.148 N	4.63	3.52	2.93	2.69	.031	0.542 M	2.38	3.07	2.19	1.47	.814	0.079 N
SBP	1.18	1.69	1.24	1.63	.866	−0.036 N	1.52	2.49	1.33	2.76	.742	0.072 N	.44	1.03	.69	1.01	.534	−0.245 S

BAD = bipolar affective disorder; *M* I = mean stage I; *M* II = mean stage II; *SD* I = standard deviation stage I; *SD* II = standard deviation stage II; *N* = null effect size; *S* = small effect size; *M* = medium effect size; L = large effect size; Total SF = total social functioning; MBP = moderate behaviour problems; SBP = severe behaviour problems.

Table 4. Differences in social functioning and behaviour problems by diagnosis.

			Stage I				Stage II			
			Mean difference	Error	*p*	Cohen's *d*	Mean difference	Error	*p*	Cohen's *d*
Withdrawal/social engagement	Schizophrenia	Other psychotic	−.95	.63	.413	−0.336 S	−.37	.70	1.000	−0.120 N
		BAD	−.89	.75	.729	−0.359 S	−.10	.84	1.000	−0.033 N
	Other psychotic	BAD	.06	.63	.413	0.024 N	.27	.93	1.000	0.085 N
Interpersonal behaviour	Schizophrenia	Other psychotic	−.66	.54	.679	−0.265 S	−.91	.56	.322	−0.347 S
		BAD	−2.02	.64	.007	−0.991 L	−2.37	.67	.002	−1.162 L
	Other psychotic	BAD	−1.37	.71	.176	−0.597 M	−1.46	.74	.155	−0.603 M
Prosocial activities	Schizophrenia	Other psychotic	−3.51	2.23	.355	−0.346 S	−6.49	2.37	.022	−0.611 M
		BAD	−4.60	2.66	.261	−0.526 M	−3.50	2.83	.655	−0.354 S
	Other psychotic	BAD	−1.09	2.95	1.000	−0.118 N	2.99	3.13	1.000	0.259 S
Recreation	Schizophrenia	Other psychotic	−3.02	1.39	.096	−0.515 M	−5.14	1.59	.002	−0.783 M
		BAD	−3.56	1.66	.104	−0.565 M	−2.42	1.90	.613	−0.368 S
	Other psychotic	BAD	−.53	1.84	1.000	−0.082 N	3.09	2.10	.435	0.436 S
Independence-performance	Schizophrenia	Other psychotic	−3.68	1.83	.142	−0.462 S	−5.44	2.00	.023	−0.618 M
		BAD	−4.68	2.19	.105	−0.588 M	−2.43	2.39	.931	−0.298 S
	Other psychotic	BAD	−1.01	2.42	1.000	−0.118 N	3.01	2.65	.778	0.366 S
Independence-competence	Schizophrenia	Other psychotic	−1.44	1.25	.753	−0.270 S	−3.30	1.26	.031	−0.597 S
		BAD	−4.60	2.66	.261	−0.350 S	−3.41	1.51	.078	−0.662 S
	Other psychotic	BAD	−1.09	2.95	1.000	−0.087 N	−.11	1.67	1.000	−0.023 N
Employment/ occupation	Schizophrenia	Other psychotic	−2.34	.76	.008	−0.733 S	−2.81	.72	.000	−0.902 L
		BAD	−2.68	.91	.012	−0.794 S	−3.42	.86	.000	−1.125 L
	Other psychotic	BAD	−.34	1.01	1.000	−0.103 N	−.61	.95	1.000	−0.195 N
Total SF	Schizophrenia	Other psychotic	−15.60	6.27	.044	−0.560 M	−24.84	6.79	.001	−0.817 L
		BAD	−20.40	7.50	.023	−0.793 M	−17.66	8.12	.096	−0.634 M
	Other psychotic	BAD	−4.81	8.31	1.000	−0.177 N	7.17	8.99	1.000	0.233 S
Underactivity/social withdrawal	Schizophrenia	Other psychotic	−0.01	.85	1.000	−0.002 N	1.91	.87	.089	0.507 M
		BAD	1.38	1.02	.543	0.372 S	1.76	1.03	.277	0.489 S
	Other psychotic	BAD	1.38	1.13	.666	0.362 S	−.155	1.14	1.000	−0.041 N
Active problems	Schizophrenia	Other psychotic	−.53	.87	1.000	−0.133 N	1.47	.82	.232	0.388 S
		BAD	2.40	1.04	.072	0.767 M	2.95	.98	.010	1.000 L
	Other psychotic	BAD	2.93	1.15	.038	0.775 M	1.47	.824	.232	0.513 M
Lack of impulse control	Schizophrenia	Other psychotic	−.47	.43	.825	−0.230 S	.34	.37	1.000	0.200 S
		BAD	.20	.52	1.000	0.138 N	.70	.45	.370	0.527 M
	Other psychotic	BAD	.67	.57	.722	0.318 S	.36	.50	1.000	0.255 S
MBP	Schizophrenia	Other psychotic	−.86	.71	.690	−0.275 S	1.40	.62	.074	0.506 M
		BAD	1.39	.86	.323	0.482 S	2.11	.73	.015	0.928 L
	Other psychotic	BAD	2.25	.95	.058	0.681 M	.70	.81	1.000	0.323 S
SBP	Schizophrenia	Other psychotic	−.35	.44	1.000	−0.164 N	.05	.47	1.000	0.022 N
		BAD	.74	.53	.513	0.507 M	.69	.56	.654	0.477 S
	Other psychotic	BAD	1.08	.58	.208	0.557 M	.64	.62	.908	0.313 S

BAD = bipolar affective disorder; Total SF = total social functioning; MBP = moderate behaviour problems; SBP = severe behaviour problems; N = null effect size; S = small effect size; M = medium effect size; L = large effect size.

Table 5. Evolution of social functioning by gender and stage.

Psychosocial variables	Means		*SD*		Main effects		Cohen's *d*		Interaction effects
	Gender	Stage	Gender	Stage	Gender	Stage	Gender	Stage	$F_{(1,98)}$ *(p)*
	Men	I	Men	I	$F_{(1,98)}$ *(p)*	$F_{(1,98)}$ *(p)*			
	Women	II	Women	II					
Withdrawal/social engagement	8.99 10.27	9.47 9.43	3.03 2.35	2.73 2.99	7.036 (.009)	0.132 (.717)	0.472 S	0.014 N	0.765 (.384)
Interpersonal behaviour	5.43 6.50	5.80 5.82	2.56 2.16	2.41 2.54	5.863 (.017)	0.027 (.869)	0.452 S	−0.008 N	0.087 (.769)
Prosocial activities	14.19 16.55	15.22 14.85	9.99 10.21	9.70 10.49	2.147 (.146)	0.000 (.997)	0.234 S	0.036 N	0.046 (.831)
Recreation	14.50 16.17	15.07 15.12	6.81 6.32	6.14 7.18	1.662 (.200)	0.244 (.622)	0.254 S	−0.007 N	0.244 (.622)
Independence-performance	22.19 28.61	23.97 25.03	8.29 6.98	8.07 8.85	22.325 (.000)	0.489 (.486)	0.837 L	−0.125 N	2.564 (.113)
Independence-competence	31.90 34.77	32.94 32.92	5.63 4.77	5.39 4.32	9.540 (.003)	0.045 (.833)	0.550 M	0.004 N	0.409 (.524)
Employment/occupation	4.49 5.63	5.02 4.77	3.49 3.77	3.46 3.42	3.54 (.063)	0.497 (.482)	0.313 S	0.073 N	0.014 (.907)
Total SF	101.67 118.48	107.49 107.94	30.32 25.16	28.18 31.10	10.45 (.002)	0.014 (.905)	0.603 M	−0.015 N	0.990 (.322)

SD = standard deviation; Total SF = total social functioning; N = null effect size; S = small effect size; M = medium effect size; L = large effect size.

Table 6. Evolution of behaviour problems by gender and stage.

Psychosocial variables	Means		*SD*		Main effects		Cohen's *d*		Interaction effects
	Gender	Stage	Gender	Stage	Gender	Stage	Gender	Stage	$F_{(1,98)}$ *(p)*
	Men	I	Men	I	$F_{(1,98)}$ *(p)*	$F_{(1,98)}$ *(p)*			
	Women	II	Women	II					
Underactivity/social withdrawal	6.35 5.15	5.99 5.87	3.58 3.73	3.57 3.76	3.620 (.060)	0.006 (.940)	0.328 S	0.033 N	1.190 (.278)
Active problems	3.90 3.88	3.91 3.87	3.75 3.56	3.75 3.58	0.001 (.972)	0.037 (.847)	0.005 N	0.011 N	0.114 (.737)
Lack of impulse control	0.95 0.76	0.93 0.83	1.83 1.53	1.81 1.64	.376 (.541)	0.155 (.694)	0.112 N	0.058 N	1.035 (.312)
MBP	3.74 3.36	3.76 3.46	2.87 2.95	3.07 2.71	.560 (.456)	.366 (.547)	0.131 N	0.222 S	.366 (.547)
SBP	1.32 0.88	1.15 1.17	2.06 1.60	1.89 1.94	1.876 (.174)	.104 (.748)	0.239 S	−0.010 N	.663 (.417)

SD = standard deviation; MBP = moderate behaviour problems; SBP = severe behaviour problems; N = null effect size; S = small effect size; M = medium effect size; L = large effect size.

Predictors of social functioning

The results of multiple linear regression analysis with total social functioning in Stage II as the dependent variable and as independent variables, total social functioning in Stage I, behaviour problems (underactivity/social withdrawal, active problems and lack of impulse control) education, age and diagnosis (measured in Stage II), are shown in Table 7. The final model [$F_{(3,99)} = 34.85$, $p = .000$] identified three predictor variables: Stage I social functioning ($p = .000$), underactivity/social withdrawal ($p = .000$) and education ($p = .016$). On the contrary, active problems, lack of impulse control, age and diagnosis were not significant and were eliminated by the model. This model explained

Table 7. Prediction of total social functioning in stage II.

Predictor variables	*B*	*SE*	β	*t* (*p*)	R^2	ΔR
Step 1					.337	.330
Social functioning stage I	.641	.092	.580	6.982 (*p* = .000)		
Step 2					.496	.486
Social functioning stage I	.538	.083	.488	6.523 (*p* = .000)		
Underactivity/social withdrawal	−3.391	.618	−.410	−5.484 (*p* = .000)		
Step 3					.527	.512
Social functioning stage I	.465	.086	.422	5.433 (*p* = .000)		
Underactivity/social withdrawal	−3.295	.604	−.398	−5.459 (*p* = .000)		
Education level	4.704	1.909	.188	2.465 (*p* = .016)		

51.2% ($R^2 = 0.512$) of the variance observed in total social functioning in Stage II.

Discussion

Overall, our results reinforce studies on schizophrenia and related psychotic disorders that emphasize stability and functional recovery during its course, surpassing the classical view of progressive functional deterioration.

In agreement with previous research (Häfner et al., 1995; Liberman et al., 2002; Strauss et al., 2010), our findings on the evolution of the social functioning dimensions and behaviour problems show a period of stability in patients with schizophrenia. This stability seems to reflect the efficacy of intervention applied to contain possible functional deterioration, but insufficient to stimulate recovery, so a need emerges to develop psychosocial treatments that strengthen the functional area (Liberman & Kopelowicz, 2002; Ventriglio et al., 2020). Major studies with at least 20 years of follow-up of chronic schizophrenia patients in rehabilitation programs have found social recovery of 50% to 68% of the participants (Harding et al., 1987a, 1987b, 1992). Therefore, our results demonstrate the need for developing and ensuring access to psychosocial intervention based on evidence in the early stages that promote recovery through training in social skills, supporting employment, prosocial community training or family intervention, to facilitate community adaptation and integration and avoid chronicity (Armijo et al., 2013; Leopold et al., 2020; Norman et al., 2017; Rummel-Kluge & Kissling, 2008).

The results for other psychotic disorders coincide with previous studies which have shown recovery of social functioning (Gee et al., 2016; Harrow et al., 2005; Robinson et al., 2004), significantly increasing skills related to independence-performance and their consequent community adaptation. In agreement with Tohen et al. (2000), there were no differences from bipolar disorder patients after follow-up. However, even though schizophrenia evolved favourably, it would be important to include these patients in psychosocial treatment programs that stimulate overall functional recovery.

Gender differences, supporting previous studies, showed that women had better total social functioning throughout the course of the illness (Leung & Chue, 2000; Morgan et al., 2008; Thorup et al., 2007). An instrumental analysis identified differences favourable to women in four dimensions: withdrawal/social engagement, interpersonal behaviour, independence-performance and independence-competence. Coinciding with the results found by Jiménez-García-Bóveda et al. (2000), the differences in independence-performance and independence-competence may be motivated by cultural discrepancies in gender roles (Goldstein & Tsuang, 1990; Mayston et al., 2020), since the items refer to tasks related to performance in the home, which are mostly associated with women. Withdrawal/social engagement and interpersonal behaviour are both dimensions reflecting a deficit in social skills that could impede community integration of men, also therefore justifying from a gender perspective the need to develop psychosocial rehabilitation programs based on evidence and adapted to individual needs. With regard to behaviour problems, contrary to previous studies that show higher intensity and persistence of psychopathology in men (Chang et al., 2011; Hui et al., 2014; Segarra et al., 2012), the results did not show any significant gender differences in behaviour problems.

In line with earlier studies, previous social functioning and underactivity/social withdrawal problems are powerful variables for explaining the evolution of social functioning (Castle et al., 2000; Liberman et al., 2002). Thus, deterioration in social functioning and presence of underactivity/social withdrawal problems are related to a poor course and heavier use of healthcare resources (Bellido-Zanín et al., 2017a; Raudino et al., 2014), and both factors become priority targets of treatment to avoid evolution toward chronicity. Of the sociodemographic variables, social isolation has been associated as a factor in poor prognosis (Harvey et al., 2007), so it was expected for a higher level of education to exert a protective role, probably explained by greater social and cognitive skills required in higher education.

Among the limitations, it should be mentioned that social functioning and behaviour problem evaluation was

done by a single family member who had frequent contact with the patient, and this person could have been different in Stages I and II, so it would be recommendable to include other sources of evaluation (other clinical psychology, psychiatry or nursing professionals) who could provide the psychometric assessment with greater objectivity and avoid any bias (Sabbag et al., 2011). Moreover, the participants were selected from a single CMHU, and inclusion of patients from other healthcare centres would have been more representative.

Future research could study what psychotherapeutic intervention and what associated characteristics (intensity, frequency, group or individual, and so forth) contribute to promoting recovery of social functioning and behaviour problems. It would also be of interest to study what other factors are involved in recovery of social functioning beyond behaviour problems and education, and which contribute to explaining gender differences.

In conclusion, our study reinforces the need for attention to the functional area in schizophrenia and related disorders. The results confirm the importance of previous social functioning and problems related to underactivity/social withdrawal during the course of social functioning. Therefore, there is a need to include psychosocial treatment programs in the early stages that contribute to improving the course and favour recovery.

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ORCID iD

Antonio Vázquez-Reyes https://orcid.org/0000-0002-2222-5329

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10.3. Separata del tercer trabajo titulado: "Survival of patients with severe mental disorders: Influence of social functioning"

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Survival of patients with severe mental disorders: Influence of social functioning

Antonio Vázquez-Reyes[1*], Agustín Martín-Rodríguez[2*], María Ángeles Pérez-San-Gregorio[2*] and Antonio J. Vázquez-Morejón[1,2*]

Abstract

Background: Patients with severe mental disorders have a high risk of premature death due to the interaction of various factors. Social functioning is a strategic functional factor in understanding the course of psychotic disorders.

Aim: Analyze the relationship between social functioning and its various dimensions and survival during a 10-year follow-up.

Method: The Social Functioning Scale (SFS) was administered to 163 close relatives of patients under treatment at a Community Mental Health Unit. Survival was described by Kaplan–Meier analysis and any differences in survival by level of social functioning were found by long-rank analysis. Finally, Cox regression was used to predict premature mortality.

Results: Significant differences in mortality were identified in the interpersonal behavior dimension of social functioning, while there were no significant gender or diagnostic differences in the rest of the dimensions. The interpersonal behavior dimension and age were found to be factors predicting premature death.

Conclusion: These findings show the protective effect of social functioning retained by patients with psychotic disorders on their survival, and the need to apply evidence-based psychotherapy focused on recovery of social functioning in the early stages of the disorder.

Keywords

Schizophrenia, psychotic disorders, bipolar disorder, course, premature death

Introduction

Severe mental disorders are defined as psychotic spectrum disorders associated with severe functional impairment which have evolved over two or more years (National Institute of Mental Health, 1987). These disorders have a high risk of premature death, with a life expectancy 10–15 years lower than the general population (Chan et al., 2022; Laursen et al., 2017; Oakley et al., 2018; Simon et al., 2018). In schizophrenia, the specific mortality rate is 2 to 4 times higher than in the general population, and may increase up to 12 to 15 times in young patients (Hjorthøj et al., 2017; Laursen, 2011; Saha et al., 2007). Contrary to the increase in life expectancy in the general population during recent decades, the mortality gap of patients with psychotic disorders remains stable, and some studies even show that it has increased in recent years (Gur, et al., 2018; Nielsen et al., 2013). These are undoubtedly alarming data which make it an important public health problem.

This high mortality rate has been associated with interaction of several risk factors, including: (a) those related to the patient: psychosis, negative symptoms, cognitive impairment and unhealthy lifestyle; (b) related to treatment: absence or insufficient psychological treatment and adverse effects of medication; and (c) related to healthcare services: difficult access to specific treatments, both for mental pathologies and other comorbid somatic pathologies diagnosed (De Hert, Cohen, Bobes, Cetkovich-Bakmas, Leucht, et al., 2011; De Hert, Correll, Bobes, Cetkovich-Bakmas, Cohen, et al., 2011). Casuistically, premature death may be divided into natural causes, of which the cardiovascular, metabolic, and respiratory diseases are the most prevalent (Correll et al., 2017; Vancampfort et al., 2015, 2016), and non-natural causes, such as accidents and suicide (Björkenstam et al.,

[1]Mental Health Service, University Hospital Virgen del Rocío, Seville, Spain
[2]Faculty of Psychology, Department of Personality, Assessment, and Psychological Treatment. University of Seville, Seville, Spain

*AV-R, AM-R, MÁP-S-G and AJV-M contributed equally

Corresponding author:
Antonio Vázquez-Reyes, Unidad de Salud Mental Comunitaria Guadalquivir. Hospital Universitario Virgen del Rocío, Calle Manuel Siurot s/n., Sevilla 41013, Spain,
Email: antvazrey90@gmail.com

2014; Zaheer et al., 2018), in which contextual factors like alterations in family dynamics, social functioning deficits, and behavior problems have the heaviest weight (Bellido-Zanin et al., 2015, 2017; Koutra et al., 2014; Thompson et al., 2019).

More profound study of functional factors has underlined some psychosocial achievements as indicators of a favorable course in psychosis (Harding et al., 1987a, 1987b; Liberman et al., 2002; J. S. Strauss & Carpenter, 1977). In this context, social functioning emerges as a core area in psychotic disorders, with agreement on its contribution to community adaptation (Johnstone et al., 1990), favorable evolution of the disease (Rajkumar & Thara, 1989), and treatment success (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007), and may become a protective factor for survival in psychosis.

Social functioning is a multidimensional construct referring to personal qualities for developing social activities and maintaining an optimum social life (Birchwood et al., 1990; Hirschfeld et al., 2000). It is studied on several levels: (1) social achievements, with overall measures such as education, marital status, or occupation (Hambrecht et al., 1992), (2) social roles, referring to development of specific roles, such as at work or in marriage, and (3) instrumental behavior, which involves the detailed study of functioning in different areas and dimensions, such as interpersonal behavior or leisure activities (Birchwood et al., 1990; Mueser & Tarrier, 1998). However, most studies focus on analyzing social functioning through overall aspects or social achievements (Gardner et al., 2019; Kua et al., 2003; Nevarez-Flores et al., 2019; Velthrost et al., 2017), and do not include an overall and dimensional analysis using specific instruments and their possible relationship as a protective factor for survival.

As far as we know, social functioning and its various dimensions have not been explored as a predictive variable in the analysis of survival in patients with psychotic disorders. The objective of our study was to analyze any relationship between social functioning and its dimensions and survival of patients with psychotic disorders during a 10-year follow-up period.

Method

Participants

The study sample consisted of 163 patients diagnosed with schizophrenia and related psychotic disorders: 94 (57.7%) with schizophrenia (ICD-10 F20), 44 (27.0%) with other psychotic disorders (ICD-10 F21–F29), and 25 (15.3%) with bipolar disorder type 1 (ICD-10 F31) who were under treatment at a Community Mental Health Unit (CMHU, Virgen del Rocio University Hospital, Seville, Spain) at the beginning of follow-up. Of these, 106 were men (65%) and 57 women (35%). The mean age of the patients was 41.83 ($SD = 12.82$; range = 18–77). Marital status was: 123 single (75.5%), 25 married (15.3%), 14 separated (8.6%), and 1 widow (0.6%).

Social functioning was evaluated by close relatives who had frequent contact with the patient at the beginning of the study. Participation was the following: 82 mothers (50.3%), 28 fathers (17.2%), 19 spouses (11.7%), 23 siblings (14.1%), and 11 other family members (6.7%). Inclusion criteria were: (1) legal age, (2) diagnosis of schizophrenia or related psychotic disorders, and (3) agree to participate in the study. For close relatives, the inclusion criteria were voluntary participation in the study and having been selected by the patient as the person with the most knowledge of their condition. Exclusion criteria were severe organic disease and substance abuse or dependence.

Instruments and measures

The Social Functioning Scale (SFS, Birchwood et al., 1990) evaluates the most relevant areas of social functioning in schizophrenia and psychotic disorders. It is comprised of 77 items divided into seven dimensions: withdrawal/social engagement with scores of 0 to 15 (items such as 'How often do you leave your home?'), interpersonal behavior with scores of 0 to 9 (with items like 'Do you feel uncomfortable in a group of people?'), prosocial activities with scores of 0 to 66 (with items like 'visit interesting places' or 'go to parties'), recreation with scores of 0 to 45 (with items like 'go for walks' or 'go shopping'), independence-performance with scores of 0 to 39, and independence-competence with scores of 13 to 39. Although the last two dimensions contain the same items, in one, it is the perceived capacity that is evaluated and in the other it is the task really performed that is asked about (with items such as 'prepare and cook meals' or 'manage money'). Finally, employment/occupation with scores of 0 to 10 (with items such as 'Do you have a regular job?' or 'If you have a job: what kind of work?'). The items are scored from a minimum of 0 to maximum of 3, where higher scores show better social functioning. A total score also divides overall social functioning into low (<96 puntos), medium (96–106), and high (>106).

The instrument has two versions: self-report (SFS-SR), which is filled in by the patient and informant-report (SFS-IR), which is filled out by a close relative. The SFS-IR shows better sensitivity and fit (Jiménez-García-Bóveda et al., 2000), and was therefore the one used in this study. Its psychometric characteristics in both the English version (Birchwood et al., 1990) and its Spanish adaptation (Vázquez-Morejón & Jiménez-García-Bóveda, 2000), reinforce the validity and reliability of the scale, with an internal consistency (Cronbach's alpha) of $\alpha = .85$ and temporal reliability at 3 months of $\alpha = .84$. In our sample, internal consistency was the following: withdrawal/social engagement $\alpha = .61$, interpersonal behavior $\alpha = .86$, prosocial activities

Table 1. Descriptive analysis of social functioning by diagnosis and gender ($N = 163$).

	Schizophrenia ($n = 94$)		Other psychotic ($n = 44$)		BAD ($n = 25$)		Men ($n = 106$)		Women ($n = 57$)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Withdrawal/social engagement	9.22	2.67	9.95	3.07	9.44	2.35	9.01	2.86	10.28	2.30
Interpersonal behavior	5.55	2.35	6.27	2.47	7.48	1.41	5.75	2.38	6.60	2.23
Prosocial activities	13.55	9.66	17.11	10.53	15.08	8.21	13.61	8.99	16.86	10.83
Recreation	14.63	6.42	15.73	6.38	15.40	7.36	14.37	6.64	16.30	6.20
Independence-performance	23.41	8.48	24.91	9.23	26.40	8.39	21.84	7.72	28.80	8.65
Independence-competence	32.96	4.93	34.09	6.16	33.72	6.61	32.56	5.28	34.91	5.75
Employment/occupation	4.10	3.52	6.07	3.27	6.44	3.76	4.46	3.48	5.98	3.71
Total SF	103.44	28.85	114.14	31.70	113.96	26.36	101.59	27.89	119.74	29.24
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
SF Low	35	37.2	10	22.7	8	32.0	42	39.6	11	19.3
SF Medium	13	13.9	7	15.9	1	4.0	14	13.2	7	12.3
SF High	46	48.9	27	61.4	16	64.0	50	47.2	39	68.4

Note. BAD = bipolar affective disorder.

$\alpha = .85$, recreation $\alpha = .72$, independence-performance $\alpha = .86$, independence-competence $\alpha = .87$, employment/occupation $\alpha = .36$, and total $\alpha = .91$. This scale was selected because it is widely used for evaluating psychotic disorders and for the dimensional richness that can be studied with it. Furthermore, its items refer to observable and quantifiable behaviors, reducing any possible bias and making the evaluation more objective.

Procedure

The participants were selected based on a census of users with schizophrenia and other psychotic disorders who were under treatment at the beginning of the study and met the inclusion criteria. The diagnosis had been made by a clinical psychologist or psychiatrist referring to each patient based on their clinical history and psychopathological exploration.

In a first stage, framed by appointments for checkups at the CMHU, according to the psychological evaluation protocol of the patients under treatment, a member of the team (the one with the most contact and/or confidence with the family) was responsible for requesting the participation of close relatives, and if they accepted, gave them the social functioning scale for its completion.

In a second stage, the patients who continued in the follow-up were tested when they went to their scheduled checkups at the CMHU for 10 years. Deaths were reported using the hospital computer application which updates the clinical history for each patient.

Statistical analysis

Analyses were performed using SPSS v.24. First the Kaplan–Meier method was employed to describe patient survival during the 10-year follow-up. Then a long-rank analysis was done to study whether there were any differences in the survival curves between patients with high, medium, or low social functioning. Finally, a Cox regression analysis was done to predict mortality. Data had previously been checked by the Kolmogorov–Smirnov test to see that they followed a normal distribution and homoscedasticity was checked by the Levene's test. The Cohen's d was used to calculate the effect size, interpreted as: $d < 0.20$ = null; $\geq 0.20 < 0.50$ = small; $\geq 0.50 < 0.80$ = moderate; and ≥ 0.80 = large (Cohen, 1988).

Results

Descriptive analysis

Table 1 shows the analysis of the dimensions, the overall score and low, medium, and high social functioning levels by diagnosis and gender. Patients with schizophrenia had a lower mean score on the various dimensions and in total social functioning, and men had a lower mean score in social functioning than women.

Survival analysis

Figure 1 presents the distribution of mortality in the study. As shown, 20 patients died during the follow-up period, of whom 16 were men and 4 were women, while 143 continued under treatment at the end of the follow-up, with a mean survival of 9.43 years. By diagnosis, 12 had schizophrenia, 6 other psychotic disorders and 2 had bipolar disorder. As shown in Table 2, no significant differences in mortality were found between schizophrenia and other psychotic disorders ($p = .990$, $d = -0.029$, null effect size), between schizophrenia and bipolar disorder ($p = .815$,

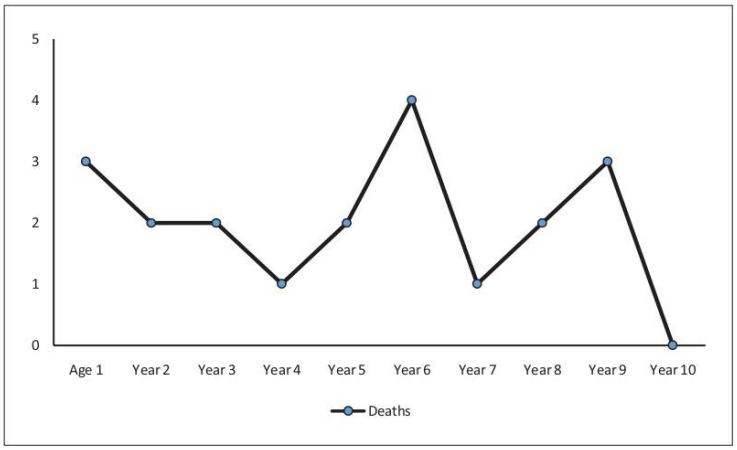

Figure 1. Distribution of deaths.

Table 2. Differences in survival by diagnosis.

		Mean difference	Error	*p* Value	Cohen's *d*
Schizophrenia ($n=94$)	Other psychotic ($n=44$)	−.01	.06	.990	−0.029 N
	BAD ($n=25$)	−.05	.07	.815	0.160 N
Other psychotic ($n=44$)	BAD ($n=25$)	.06	.08	.793	0.189 N

Note. N = null effect size.

$d=0.160$, null effect size) or between other psychotic disorders and bipolar disorder ($p=.793$, $d=0.189$, null effect size). Neither were there any significant differences by gender ($p=.136$, $d=0.255$, small effect size) (Table 3).

There were no significant differences in mortality between patients with low, medium, or high levels ($\chi^2(2)=.271$, $p=.873$) of social functioning (Figure 2). The mean age of mortality was: low=44.67; medium=52.83; high=63.

Predictors of premature death

The results of the Cox regression analysis with mortality as the dependent variable and social functioning (withdrawal/social engagement, interpersonal behavior, prosocial activities, recreation, independence-performance, independence-competence, and employment/occupation) and age as the independent predictor variables may be seen in Table 4. The final model [$\chi^2(9)$ $p=.010$] identified two variables with predictive capacity: interpersonal behavior ($p=.045$) and age ($p=.018$). Specifically, deficient functioning in interpersonal behavior and older age were predictors of premature death. On the contrary, the rest of the dimensions had no explanatory power.

Analysis of the interpersonal behavior factor found that the items with the lowest mean scores were 2 ('have a stable partner', mean=.67), 9 ('Do you feel uncomfortable in a group of people?', mean 1.46) and 10 ('Do you prefer to spend time alone?', mean 1.17). As shown in Table 1, the interpersonal behavior dimension also had the lowest score in schizophrenia and in men in all the dimensions comprising social functioning.

Discussion

In general, the results found social functioning to be a role protector for survival in psychotic disorders. These results agree with previous research that underlines the importance of social functioning as a strategic factor in understanding the course of psychotic disorders (Liberman et al., 2002; Morin & Franck, 2017), and specifically, with an association between patients social functioning maintained and community integration (Johnstone et al., 1990), positive prognosis of the disease (Rajkumar & Thara, 1989), and meeting treatment goals (Burns & Patrick, 2007; Liberman et al., 2002; Peer et al., 2007).

Our findings showed a trend of higher premature death in patients with lower social functioning. These results can

Table 3. Differences in survival by gender.

Men ($n = 106$)		Women ($n = 57$)		p Value	Cohen's d	CI
M	*SD*	*M*	*SD*			
0.15	0.36	0.07	0.26	.136	0.255 S	[−0.026, 0.187]

Note. S = small effect size.

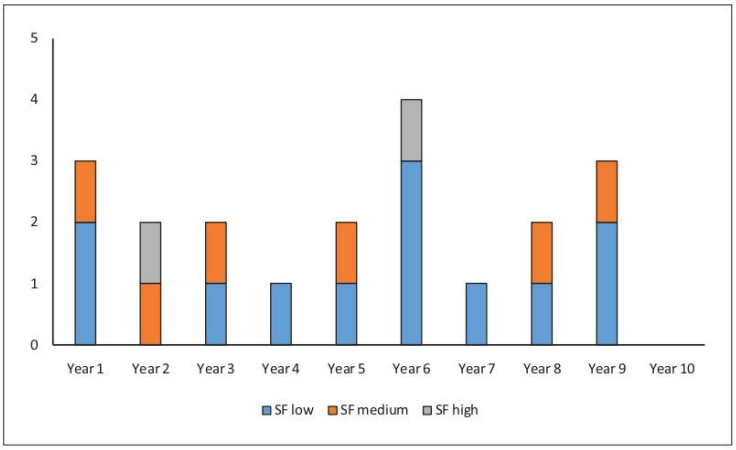

Figure 2. Distribution of deaths between low–medium–high social functioning.

Table 4. Prediction of death.

χ^2	*df*	p Value		
21.663	9	.010		
Predictor variables	*B*	*SE*	*p*	C.I.
Withdrawal/social engagement	−.088	.105	.405	[.745, 1.126]
Interpersonal behavior	.309	.154	.045	[1.007, 1.843]
Prosocial activities	.074	.047	.116	[.982, 1.180]
Recreation	−.050	.059	.396	[.848, 1.067]
Independence-performance	−.044	.039	.261	[.887, 1.033]
Independence-competence	−.027	.051	.599	[.882, 1.075]
Employment/occupation	−.089	.075	.236	[.790, 1.060]
Age	.044	.019	.018	[1.008, 1.084]

be related to previous studies that have shown an association between impairment of the social area in early stages of the disorder and increase in autolytic behavior and suicide (Anderson et al., 2018; Kurdyak et al., 2021). Furthermore, severe impairment of social functioning in early stages has also been related to an unfavorable prognosis strengthening social isolation and use of toxic substances, alteration of family dynamics and more use of healthcare resources (Harvey et al., 2007; He et al., 2021; Raudino et al., 2014; Velthrost et al., 2017).

Our instrumental analysis of social functioning showed that deficiency in interpersonal behavior can predict premature death, exerting a protective role for maintaining functioning in other dimensions. In view of the content of the items, impaired interpersonal behavior may be related to a poor social network, both in size and

quality of the interaction (Guerrero-Jiménez et al., 2022). The possible relationship between interpersonal behavior and social support must be studied as there is a consensus that the social network is a relevant factor in understanding the course of psychotic disorders, emphasizing associations between a deficit in social support and an increase in clinical symptoms, chronicity and premature death in psychosis (Degnan et al, 2018; Holt-Lunstad et al, 2015; Vázquez-Morejón et al., 2018).

There were no significant differences in mortality by diagnostic category in the 10-year follow-up. One possible explanation is that social functioning may undergo stability and recovery during the course of schizophrenia and in other psychotic disorders if effective interventions, such as training in social skills, job support, assertive community training, or family interventions are developed (Armijo et al., 2013; Gee et al., 2016; Harrow et al., 2005; G. Strauss et al., 2010). Therefore, psychosocial intervention in the early stages that stimulates social functioning, and indirectly, contributes to clinical and functional recovery, must be guaranteed (Michel et al., 2017; Schmidt et al., 2015).

The strengths of this study that should be mentioned are that it is longitudinal following up patients with severe mental disorders for 10 years, and second, that evaluation of social functioning was done by a close relative, which decreases any self-evaluative biases. With respect to the limitations, the sample size was small because it was a longitudinal study in a single CMHU, so inclusion of patients from other care centers would have provided our study with stronger representativeness and results. We also think it worth mentioning that we could not control for the specific causes of mortality of patients who died during the follow-up, whether from natural causes or not. Finally, social functioning evaluation was done by a single family member, and it might be of interest to include other members of the family or professionals (clinical psychologists, psychiatrists or nurses) who could make a more objective evaluation (Sabbag et al., 2011).

Future research could study what variables (frequency, intensity, individual or group, etc.) of effective psychological intervention in psychotic disorders best explain favorable evolution of social functioning and its protective effect on survival. It would also be of interest to study the possible relationship between social functioning and suicidal behavior, and suicide committed during both first psychotic episodes and during the course of the disorder, any gender differences and factors that could be explaining that variability.

In conclusion, our study emphasizes the importance of psychosocial factors in the course of psychotic disorders. The results confirm the protective effect of social functioning for survival, underlining a deficit in interpersonal behavior as a predictive dimension of premature death. Therefore, we believe that psychological intervention based on evidence directed at social functioning must be applied in the early stages of the disorder.

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Conflict of interest

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ORCID iD

Antonio Vázquez-Reyes https://orcid.org/0000-0002-2222-5329

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