Psychiatry Research 332 (2024) 115707

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Comparison of subjective quality of life domains in schizophrenia, mood, and anxiety disorders; an individual patient data meta-analysis

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ARTICLE INFO

Keywords:
SQoL
Serious mental illness
SMI

ABSTRACT

This study sought to compare satisfaction with different subjective quality of life domains across individuals with three different mental health disorders. Samples from four separate studies were combined to conduct a one-step individual patient data meta-analysis. 5329 individuals with either a schizophrenia (n = 1839), mood (n = 1650), or anxiety disorder (n = 1840) were included. Mean satisfaction ratings for each life domain were compared across disorders. Associations between satisfaction ratings and personal characteristics were investigated using multivariable mixed effect models. Results showed that individuals with an anxiety disorder had the widest range of scores and reported lower satisfaction in most domains compared to those with a schizophrenia or mood disorder. Individuals with a schizophrenia disorder rated domains to do with 'others', such as relationships with family and sex life, as lower than individuals with a mood or anxiety disorder. Satisfaction ratings were often more impacted by personal characteristics, such as employment status, than by diagnostic category. These results demonstrate that specific life areas are impacted differently in the three mental health disorders studied. However, further research needs to consider the impact of personal characteristics across disorders, and the subjective quality of life in individuals with anxiety disorders in particular warrants further investigation.

1. Introduction

Subjective quality of life (SQoL) has been described as an individual's subjective evaluation of their life (Carpiniello et al., 1997), and is commonly assessed through self-reported satisfaction with life. It is widely recognised that individuals with serious mental illnesses (SMI) report lower satisfaction with life than the general population (Berghöfer et al., 2020; Bourland et al., 2000; Dong et al., 2019; Mendlowicz and Stein, 2000; Stengler-Wenzke et al., 2006), making it an important target for treatment.

Individuals with schizophrenia, or related, disorders tend to report higher SQoL than individuals with mood or anxiety disorders (Braga et al., 2005; Goppoldova et al., 2008; Sum et al., 2021; Tan et al., 2019). However, most research comparing these disorders use symptom based scale measures of depression and/or anxiety, such as the Brief Psychiatric Rating Scale (BPRS) or the Positive and Negative Symptom Scale (PANSS) (Andrianarisoa et al., 2017; Fond et al., 2020; Huppert and Smith, 2001; Nemoto et al., 2020; Pascal de Raykeer et al., 2019; Subodh and Grover, 2020; Tan and Rossell, 2016), as opposed to comparing disorders directly based on diagnostic criteria. Although investigating the impact of depressive or anxiety symptoms on SQoL is important, directly comparing SQoL in individuals with different disorders would facilitate clearer investigation of any differences that are specific to each disorder.

Moreover, whilst there is a significant body of research on SQoL in individuals with mood and schizophrenia disorders (Alessandrini et al., 2016; Andrianarisoa et al., 2017; Berlim et al., 2003; Carpiniello et al., 1997; Cuoco et al., 2022; Daly et al., 2010; Dong et al., 2019; Ehrminger et al., 2022; Eklund and Bäckström, 2005; Fond et al., 2020; Fujino et al., 2016; Holubova et al., 2017; Huppert and Smith, 2001; Jung et al., 2012; Kuehner, 2002; Meesters et al., 2013; Nemoto et al., 2020; Pascal de Raykeer et al., 2019; Rotstein et al., 2022; Savill et al., 2016; Subodh and Grover, 2020; Sum et al., 2021; Takeda et al., 2019; Tan et al., 2022; Wang et al., 2020; Weber et al., 2015; Xiang et al., 2008) there are far fewer studies exploring SQoL in those with an anxiety disorder. The available evidence suggests individuals with an anxiety disorder report particularly low satisfaction with life when compared to individuals with schizophrenia or mood disorders (Goppoldova et al., 2008; Priebe

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https://doi.org/10.1016/j.psychres.2023.115707
Received 6 March 2023; Received in revised form 19 December 2023; Accepted 28 December 2023
Available online 3 January 2024

et al., 2010b; Rapaport et al., 2005; Stengler-Wenzke et al., 2006), and even when anxiety is present as a comorbid disorder (Braga et al., 2005). However, some findings suggest in some cases those with mood disorders report lower SQoL (Berghöfer et al., 2020; Goppoldova et al., 2008). Given the lack of clarity, further research on SQoL in SMI is required, including those with an anxiety disorder.

Past research that has directly compared SQoL in individuals with a schizophrenia, mood, or anxiety disorder have all used global or composite scores of SQoL, rather than investigating individual SQoL domains representing different life areas (Goppoldova et al., 2008; Priebe et al., 2010b). Overall, composite scores risk diluting or masking the impact that individual poorly rated life domains may have on SQoL in that particular disorder (Rapaport et al., 2005). Investigating specific, individual domain scores would enable reaching conclusions about whether the level of satisfaction with particular areas of life is impacted differently in different disorders. Moreover, areas that are poorly rated could be identified and targeted in treatment.

So far the available evidence suggests there are some differences in SQoL between individuals with different SMI, but it is limited by either failing to directly compare disorders or by only investigating composite scores of SQoL. Therefore, this study aims to directly compare how individuals with different mental health disorders evaluate satisfaction with different SQoL domains, and to investigate any associations between their personal characteristics and reported satisfaction scores.

2. Methods

2.1. Design

Samples from four independent studies were combined to enable a one-step individual patient data meta-analysis. This approach allows the investigation of participant level characteristics (Riley et al., 2010; Tierney et al., 2015). By using a one-step approach all individual patient data is investigated in one analysis, while clustering within each included study is accounted for by fitting the study as a random effect in the statistical models (Riley et al., 2010; Tierney et al., 2015).

All four studies met the following criteria: (a) SQoL was measured using the same standardised measure - the Manchester Short Assessment of Quality of Life (MANSA) (Priebe et al., 1999); (b) presence of either: a schizophrenia or related disorder (F20–29), a mood disorder (F30–39), or an anxiety or related disorder (F40–48), which was established using ICD-10 criteria; (c) symptoms were assessed by either a treating clinician or trained researchers; and d) the full anonymised data set was available, allowing an individual patient data analysis.

The four studies consisted of two observational studies, a natural experiment, and a randomised controlled trial. The CONNECT study investigated the long-term social and clinical outcomes of people who had experienced war in the Balkans across eight countries (Bogic et al., 2012; Matanov et al., 2013; Priebe et al., 2010a). The EUNOMIA/InvolvE study investigated the outcomes of coercive in-patient treatment across 11 countries (Priebe et al., 2009; Raboch et al., 2010). The EDEN trial compared inpatient care with day hospital treatment across five European countries (Kallert et al., 2007). The COFI trial compared the outcomes of approaches in mental health services, with and without continuity of care, across five European countries (Giacco et al., 2018). Results and details of all four studies have previously been published. One analysable dataset was created by merging data from all four studies. These datasets were chosen as they all (1) contained complete data for each participant for the same measure of SQoL, allowing full analysis of each item on the MANSA (2) included participants with a relevant disorder and (3) were available to the authors. Scores on individual MANSA items have been investigated previously in populations of individuals with schizophrenia and related disorders (Laxhman et al., 2017) and major depression (Jerome et al., 2023). This analysis will contribute to this emerging body of literature through the direct comparison of these SQoL item scores in individuals with a schizophrenia disorder, mood disorder, or anxiety disorder.

All studies included in this analysis received a favourable ethical opinion from the relevant bodies and obtained informed consent from their participants (see supplementary file 1 for full details of the ethical reviews obtained).

2.2. Participants

All four studies included samples with a range of disorders, and only people with either a schizophrenia or related disorder, mood disorder, or anxiety or related disorder according to ICD-10 diagnostic criteria (F20–29, F30–39, or F40–48) were selected for this analysis. To reduce potential inaccuracies through imputing of missing data when comparing ratings of different life domains, only participants with complete ratings of all life domains in the MANSA at baseline were included.

2.3. Measures

SQoL was collected using the MANSA (Priebe et al., 1999). The MANSA consists of 11 specific life domains (employment situation, financial situation, number and quality of friendships, leisure activities, accommodation, personal safety, people that they live with or living alone, sex life, relationship with their family, physical health and mental health) and one 'life as a whole' domain that people rate their satisfaction with. Each domain is rated on a 7-point scale, from 1 ('couldn't be worse') to 7 ('couldn't be better'), with 4 representing the mid-point.

As part of the baseline assessment in all four studies diagnostic category, marital status, age, gender, employment status, living situation, and education level were also collected.

Symptom severity was assessed and rated by an observer on the Brief Symptom Inventory (BSI) (Derogatis, 1993) in the CONNECT study, on the Clinical Global Impressions (CGI) scale (Guy, 1976) in the COFI trial, and on the Brief Psychiatric Rating Scale (BPRS) (Ventura et al., 1993) in EUNOMIA/InvolvE and the EDEN study. For this analysis a composite variable for overall symptom severity was created from *T*-scores of the BSI global score, CGI score, and BPRS total score. This approach preserves the distribution of the original scores and is deemed appropriate for measures which are considered equal (Song et al., 2013).

2.4. Analysis

Mean satisfaction ratings for each item in the MANSA were calculated for each diagnostic group.

Characteristics that are frequently reported as being associated with SQoL in the literature, and which were available in our dataset, were then explored, through investigating their association with each MANSA domain. The characteristics investigated were: diagnostic category, symptom severity, gender, age, marital status, living situation, employment status, and education level (Berghöfer et al., 2020; Berlim et al., 2008; Daly et al., 2010; Dong et al., 2019; Eklund and Bäckström, 2005; Grendas et al., 2017; Jung et al., 2012; Kuehner and Buerger, 2005; Nemoto et al., 2020; Priebe et al., 2010b; Rapaport et al., 2005; Stengler-Wenzke et al., 2006).

A number of characteristics were categorised into mutually exclusive groups due to small numbers. Marital status was reduced to "Married; Unmarried; and Other" where married, cohabiting and civil partnership were combined into "Married", and widowed, divorced, and separated were combined into "Other". Living situation was dichotomised into "Living alone v. Living with others" where living alone and shared accommodation, specifically accommodation not shared with either family or friends, were combined into "Living alone", and living with partner/family and living with friends were combined into "Living with others". Employment status was reduced to "Paid employment; No paid employment; Student; and Other" where retired, voluntary employment, housewife/husband, sheltered employment, and disabled were

combined into "Other".

Descriptive statistics are reported for the included characteristics as means and proportions excluding missing data. Demographic data had <0.1 % missing data, with only education level having 52.2 % of data missing. No data was missing for any items on the MANSA due to the eligibility criteria for inclusion in this dataset.

For symptom severity, the percentage of the population in the lowest quartile is presented in Table 1. Due to the transformation of symptom severity scores into *T*-scores the mean is always 50, representing the average of the raw data as opposed to a meaningful score in its own right (Iverson, 2011), with the distribution of the raw data preserved in the *T*-scores. Therefore, the percentile ranks provide a more meaningful comparison of symptom severity across diagnostic groups than presenting average scores.

Associations between characteristics and the mean MANSA domain scores were tested using mixed-effect multivariable linear models with the MANSA domains as the dependent variables. Study was fitted as a random effect in every model, and characteristics were fitted as fixed effects.

Due to having a large amount of missing data in education level, including this characteristic in the multivariable models would have excluded over 50 % of our participants from the final stage of analysis. However, as there is still a significant number of participants with data for education level in the dataset, it remains worthwhile to investigate. Therefore, education level was tested in separate univariable linear models. Each model contained a MANSA domain as the dependent variable, with study fitted as a random effect and education level fitted as a fixed effect.

All analyses were conducted in IBM SPSS Statistics version 27.0.

Table 1
Participant demographics for each disorder.

Characteristics	Schizophrenia $N = 1839$	Anxiety $N = 1840$	Mood $N = 1650$
Age, mean (SD)	38.4 (11.8)	42.4 (11.6)	42.8 (11.8)
Male, %	60.4	42.1	43.4
Marital Status, %			
Married	23.7	62.1	43.5
Unmarried	60.7	20.9	33.8
Other (e.g. separated/divorced)	15.6	17.0	22.7
Living situation, %			
Alone	49.7	13.6	30.0
With others	50.3	86.4	70.0
Employment, %			
Paid	18.5	33.2	35.9
No paid employment	41.9	8.5	28.6
Student	5.7	40.8	13.6
Other (e.g. retired/disabled)	33.8	17.5	21.9
Education, %			
Primary or lower	16.8	14.4	14.6
Secondary	32.7	28.2	29.0
Further education	31.7	35.5	40.7
Higher education	13.0	15.7	11.0
Other	5.7	6.3	4.7
Symptom severity, % in lowest quartile of severity	21.0	28.0	29.2
Study, N			
COFI	671	343	756
CONNECT	43	1304	314
EDEN	187	144	217
EUNOMIA/InvolvE	938	49	363

SD = Standard Deviation.
COFI = Comparing policy framework, structure, effectiveness and cost-effectiveness of functional and integrated systems of mental health care.
CONNECT = Components, organization, costs and outcomes of health care and community based interventions for people with posttraumatic stress following war and conflict in the Balkans.
EDEN = European Day Hospital Evaluation.
EUNOMIA/InvolvE = European Evaluation of Coercion in Psychiatry and Harmonisation of Best Clinical Practise/Outcomes for Involuntary Hospital Admission in England.

3. Results

3.1. Participant characteristics

In total 5329 participants across the four studies included in the dataset met our inclusion criteria. Table 1 shows the personal characteristics of the participants, grouped by diagnostic category.

There were some differences between the diagnostic groups in their personal characteristics. Those with a schizophrenia disorder were more likely to be male (60.4 %), unmarried (60.7 %), living alone (49.7 %), and unemployed (41.9 %) in comparison to those with a mood or anxiety disorder.

Individuals with an anxiety disorder were more likely to be married (62.1 %), living with others (86.4 %), and a student (40.8 %) than individuals with a mood or schizophrenia disorder.

However, the mean age (and standard deviations) and education level of participants across the three disorders were remarkably similar.

3.2. Satisfaction ratings of individual SQoL domains

The mean satisfaction ratings for each MANSA domain and the overall mean MANSA score, by disorder, are shown in Table 2.

Fig. 1 shows the profile of mean MANSA domain scores for each disorder graphically.

Despite the pattern of MANSA domain scores, and overall mean score, being broadly similar for each disorder, there are some differences when looking at individual domains. Individuals with a schizophrenia disorder on average reported higher satisfaction with most domains compared to individuals with a mood or anxiety disorder, except for domains to do with 'others', such as satisfaction with the people they live with and their sex life.

Individuals with an anxiety disorder reported the widest range of scores, having both the highest (5.34 for relationship with family) and lowest (3.11 for financial situation) mean satisfaction in individual domains across the whole dataset. People with an anxiety disorder reported lower satisfaction on average with their employment situation, financial situation, physical and mental health, but also reported higher satisfaction with the people they live with and their relationship with family, than individuals with a mood or schizophrenia disorder.

Individuals with a schizophrenia disorder had the narrowest range of scores with only a 1.07 difference between their highest and lowest rated domain. Only satisfaction with their financial situation and sex life were rated lower than 4, and no domains were rated 5 or higher. Individuals with a mood disorder only rated their satisfaction with their

Table 2
Mean satisfaction scores on the MANSA for each disorder.

Satisfaction with, mean (SD)	Schizophrenia $N = 1839$	Anxiety $N = 1840$	Mood $N = 1650$
Life as a whole	4.35 (1.7)	3.87 (1.5)	4.12 (1.7)
Employment	4.06 (1.8)	3.38 (1.8)	3.88 (1.8)
Financial situation	3.79 (1.8)	3.11 (1.6)	3.64 (1.8)
Friendships	4.55 (1.7)	4.64 (1.5)	4.80 (1.7)
Leisure activities	4.54 (1.7)	3.97 (1.6)	4.27 (1.7)
Accommodation	4.75 (1.8)	4.65 (1.7)	4.89 (1.8)
Personal safety	4.68 (1.8)	4.71 (1.5)	4.94 (1.6)
People living with	4.86 (1.7)	5.29 (1.5)	5.14 (1.7)
Sex life	3.93 (1.9)	4.40 (1.8)	4.07 (2.0)
Relationship with family	4.72 (1.7)	5.34 (1.5)	4.92 (1.7)
Physical health	4.65 (1.7)	4.01 (1.6)	4.35 (1.7)
Mental health	4.49 (1.8)	3.91 (1.7)	4.19 (1.8)
Mean score	4.45 (1.0)	4.27 (1.0)	4.43 (1.0)

MANSA = Manchester Short Assessment of Quality of Life.
SD = Standard Deviation.

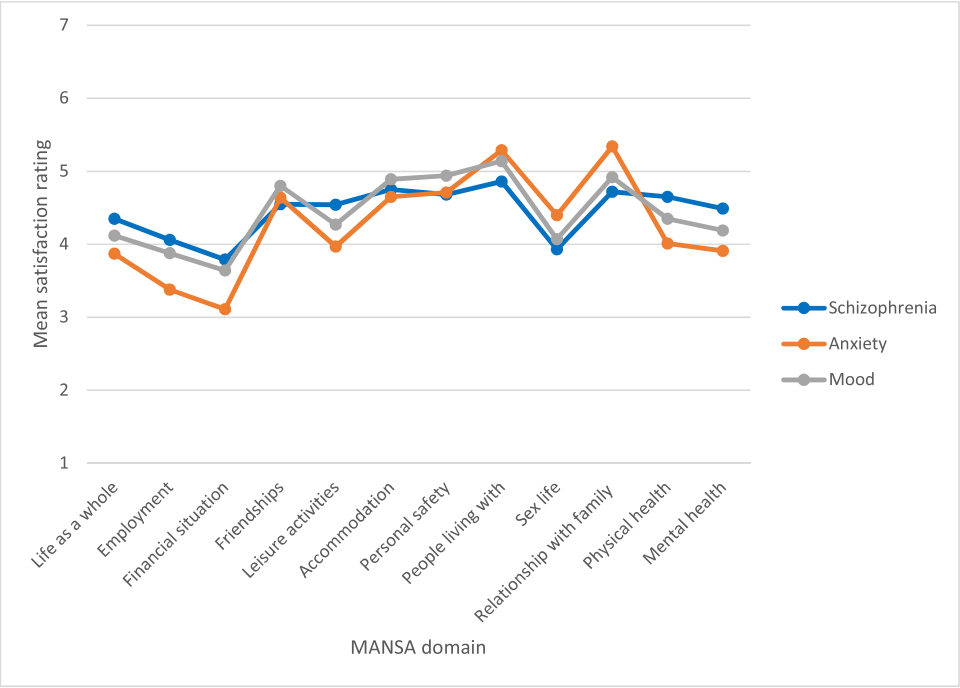

Fig. 1. Profile of specific MANSA domain satisfaction ratings for each disorder.

Table 3
Multivariable associations of participant characteristics with satisfaction ratings of each MANSA domain (showing fixed effect coefficients). Education level investigated in separate univariable models.

	MANSA domain											
	Life as a whole	Employment	Finance	Friendships	Leisure	Accommodation	Safety	People living with	Sex life	Family	Physical Health	Mental Health
Clinical												
Disorder												
Schizophrenia v. Mood	0.32*	0.16	0.11	−0.18*	0.20*	−0.04	−0.11	0.02	0.06	0.15*	0.22*	0.37*
Anxiety v. Mood	−0.18*	−0.09	−0.17	−0.14	−0.07	−0.16	−0.29*	−0.18*	−0.03	−0.04	−0.35*	−0.51*
Symptom severity	−0.03*	−0.02*	−0.01*	−0.02*	−0.02*	−0.01*	−0.03*	−0.02*	−0.03*	−0.02*	−0.03*	−0.04*
Sociodemographic												
Female v. Male	0.05	0.16*	0.12	0.08	0.03	0.10	−0.13*	0.01	0.07	−0.09	−0.10	−0.02
Age	−0.00	0.00	0.00	−0.00	0.00	0.01*	−0.00	−0.00	−0.02*	0.00	−0.01*	0.00
Marital status												
Single v. Other	0.21*	0.37*	0.44*	0.09	0.15	0.32*	0.16	0.30*	0.13	0.20*	0.18	0.24*
Partnered v. Other	0.24*	0.18	0.41*	0.09	0.05	0.29*	0.16	0.43*	0.71*	0.46*	0.05	0.00
Living alone v. With others	−0.06	−0.13	0.08	−0.02	−0.04	−0.01	−0.09	−0.61*	−0.07	−0.21*	−0.11	−0.12
Employment status												
Paid v. Student	0.30*	1.16*	0.55*	0.16	0.25*	0.29*	0.14	0.19*	0.08	0.05	0.38*	0.32*
Other v. Student	0.11	0.72*	0.28*	−0.21*	0.09	0.13	−0.07	−0.02	−0.26*	−0.12	−0.02	−0.01
Unemployed v. Student	−0.07	−0.06	−0.07	−0.17	−0.04	−0.14	−0.11	−0.02	−0.26*	−0.12	−0.01	0.08
Education level												
Primary v. Other	−0.33	−0.01	−0.06	−0.27	−0.19	−0.24	0.03	−0.16	−0.31	−0.66*	−0.24	−0.47*
Secondary v. Other	−0.21	−0.09	−0.04	−0.18	−0.18	−0.15	0.07	−0.12	−0.17	−0.52*	0.01	−0.09
Further v. Other	−0.17	0.02	0.17	−0.08	−0.12	−0.06	0.08	−0.11	−0.21	−0.48*	0.04	−0.19
Higher v. Other	−0.18	0.11	0.16	−0.00	0.22	0.07	0.32	0.09	0.09	−0.49*	0.23	−0.25

* p value <0.01
MANSA = Manchester Short Assessment of Quality of Life.

employment situation and financial situation as below 4, but also rated their satisfaction with the people they live with as above 5.

3.3. Associations of personal characteristics with individual SQoL domains

The associations between personal characteristics and the MANSA domains are shown in Table 3.

Marital status, employment status, symptom severity and diagnostic group were associated with most, if not all, MANSA domains. Having an 'Other' marital status, which included being separated, divorced or widowed, was associated with lower reported satisfaction in most domains. This association was strongest for satisfaction with sex life, where having a partner was associated with a 0.71 higher satisfaction score on average. Being in paid employment was associated with higher reported satisfaction in all domains, with the biggest impact identified for satisfaction with employment situation, where a 1.16 higher satisfaction score on average was reported by employed participants. Higher symptom severity was associated with lower reported satisfaction in all domains.

Having a schizophrenia disorder was associated with higher reported satisfaction in most domains, except for satisfaction with the number and quality of their friendships, accommodation, and personal safety. Having an anxiety disorder on the other hand was associated with lower reported satisfaction across the domains. This difference is most apparent in satisfaction with life as a whole, physical health, and mental health. Within these domains, disorder appears to have the biggest impact on reported satisfaction. The biggest difference appears for satisfaction with mental health. Individuals with a schizophrenia disorder, on average, reported a score 0.37 higher than those with a mood disorder, whereas those with an anxiety disorder reported a score 0.51 lower. In most other domains other personal characteristics seem to have a bigger impact on reported satisfaction.

The only significant association between education level and a SQoL domain was found for satisfaction with relationship with family, where those with an 'other' education level reported higher satisfaction than those with primary, secondary, further, or higher education. An 'other' education level included a variety of training or job-related qualifications that were not directly related to a particular stage of education.

Given the differences between diagnostic groups in baseline demographics, models adjusting for gender, marital status, living situation and employment status were generated by including these variables as random effects. There were no differences in the results based on this adjustment.

4. Discussion

This study establishes that there are differences between individuals with three different mental health disorders in their reported level of satisfaction with specific SQoL domains. Individuals with an anxiety disorder reported the widest range of scores, and having this disorder was associated with lower scores across most domains. Conversely, individuals with a schizophrenia or related disorder reported a much smaller range of scores, and having these disorders were associated with higher reported satisfaction in most domains.

These findings demonstrate the importance of investigating individual SQoL domains as opposed to relying on global scores. The overall mean MANSA score in our sample was similar between all three disorders, and at roughly the middle of the scale, suggesting neither particular satisfaction nor dissatisfaction in overall SQoL, and no differences between the groups. However, looking within specific domains we identified several differences in reported satisfaction both between and within disorders where some domains were rated particularly high and others particularly low. Exclusively reporting global scores means that these either particularly problematic or positively perceived life domains are missed, with potential implications for treatment.

In most domains personal characteristics other than diagnostic category had a bigger impact on reported satisfaction. Satisfaction with their job or financial situation had a strong association with employment status, where those in paid employment reported much higher satisfaction. Satisfaction with the people they live with and relationship with family were both significantly higher for those who had a partner and were living with others. These associations are perhaps unsurprising and intuitive. Although diagnostic category in itself did not appear to have such a big impact on these domains in the statistical models, often it still showed a significant association, and it is important to consider how it may affect other characteristics. For example, only 35.9 % of individuals with a mood disorder were in paid employment, and 49.7 % of individuals with a schizophrenia disorder were living alone.

Symptom severity was the only characteristic investigated that was significantly associated with every domain. However, other personal characteristics remained associated with SQoL domains in the multivariable models, often having a large impact on reported satisfaction, even when symptom severity was included in the same model. This suggests symptom severity is not the only important characteristic affecting SQoL.

Individuals with a mood disorder, whilst showing a similar pattern of results to those with an anxiety disorder, did not rate most domains as low as those with an anxiety disorder. Moreover, individuals with a mood disorder were, on average, explicitly satisfied with the people they live with. These results therefore do not support the widely held view that there is a general negative bias of perception in depressive disorders (Holubova et al., 2016). Instead they suggest those with a depressive disorder distinguish between different SQoL domains and in fact rate some of them positively. Indeed it appears individuals with an anxiety disorder have a particularly negatively impacted SQoL, suggesting further research into improving SQoL in individuals with anxiety disorders is warranted.

4.1. Comparison with existing literature

The findings from this study match previous research finding that individuals with schizophrenia and related disorders reported higher SQoL than those with other SMI (Berghöfer et al., 2020; Goppoldova et al., 2008). However, previous research has had mixed findings regarding whether individuals with mood or anxiety disorders reported the lowest SQoL. Some research has found the lowest SQoL at inpatient admission is reported by individuals with mood disorders, while at discharge those with anxiety report lower (Goppoldova et al., 2008). Others found while those with anxiety have the lowest global score, those with depressive disorders tend to score lower when subscales are investigated (Berghöfer et al., 2020). Moreover, research concluding that depression has the biggest impact on SQoL often fail to investigate anxiety at all (Alessandrini et al., 2016; Andrianarisoa et al., 2017). Our study found those with anxiety disorders tended to report lower satisfaction than individuals with mood disorders in most domains. This emphasises the need for further research into SQoL in individuals with anxiety disorders where it seems particularly negatively impacted, and a focus on improving SQoL for these individuals in treatment.

In individuals with a schizophrenia, or related, disorder, domains related to 'others' were not rated as highly as in individuals with a mood or anxiety disorder. Moreover, the only domain where a schizophrenia disorder was significantly associated with lower reported satisfaction was in the number and quality of their friendships. Previous research has found higher social functioning to be associated with better reported SQoL in individuals with schizophrenia (Alessandrini et al., 2016), and psychotic symptoms and neurocognition to be associated with SQoL via functioning (Alessandrini et al., 2016). Experiential deficits, including asociality, have also been negatively associated with SQoL in outpatients with schizophrenia (Savill et al., 2016). Therefore, symptoms and traits typical of schizophrenia disorders may impact SQoL domains related to 'others' and contribute to the lower satisfaction with these. Moreover,

individuals with psychotic disorders report fewer social contacts than those with mood disorders (Giacco et al., 2016), and a higher proportion of individuals with a schizophrenia disorder were living alone and unmarried in our sample. This increased social isolation could explain the lower reported satisfaction with friendships.

Laxhman et al. (2017) found satisfaction with sex life was the lowest rated domain for individuals with a schizophrenia disorder. Although sex life was not the lowest rated domain in our results, it was one of only two rated with explicit dissatisfaction for individuals with a schizophrenia disorder, suggesting it may be particularly problematic for those individuals. However, diagnostic category was not significantly associated with reported satisfaction with sex life in the multivariable models. In contrast, having a partner was significantly associated with higher reported satisfaction with this domain, and one of the strongest associations found in the analysis. This could suggest that rather than the disorder in itself contributing to lower satisfaction with this domain, it is the fact that individuals with schizophrenia are more likely to be unmarried, living alone, and socially isolated. Further investigation into the perception of sex life in individuals with schizophrenia could help to uncover the reasons behind these results.

Kuehner (2002) found social related SQoL domains were rated poorly in depressed individuals, and suggested this may reflect greater interpersonal need and social impairment. In contrast, our results indicate that depressive disorders are associated with more positive ratings in social related domains, such as satisfaction with the number and quality of their friendships. Actual or perceived social support has been found to be protective against depressive symptoms and disorders, as well as social networks seeming to provide a buffering effect on depression (Wickramaratne et al., 2022). In our study, 43.5 % of individuals with a mood disorder had a partner and 70 % were living with others. Although these proportions were not as high as for those with an anxiety disorder, perhaps in mood disorders any presence of social context or support may be perceived as beneficial, contributing to the higher SQoL scores in these domains. Further investigation of social networks and support in individuals with mood disorders could help identify in what ways these are most advantageous.

Previous research has speculated that for those with a schizophrenia, or related, disorder, a lack of insight results in more positively reported SQoL than in other disorders (Goppoldova et al., 2008; Stengler-Wenzke et al., 2006). The narrow range of, and generally more positive, scores reported by this group in our study could be seen as supporting this. However, there are mixed findings regarding whether impaired SQoL is associated with impaired or increased insight in individuals with schizophrenia (Davis et al., 2020; Ehrminger et al., 2022; Fond et al., 2020). Negative symptoms, such as blunted affect and anhedonia, typical in schizophrenia disorders, could also explain why individuals with such disorders have a narrower range of scores than individuals with mood or anxiety disorders, and why none were rated with explicit satisfaction. The inability to experience pleasure or to express emotions may result in ratings closer to the middle of the scale. However, despite individuals with schizophrenia having a smaller range of scores, and generally higher SQoL, some domains were still rated with explicit dissatisfaction. This suggests a lack of insight or presence of negative symptoms cannot entirely explain the level of satisfaction across SQoL domains reported by individuals with schizophrenia disorders. Moreover, regardless of whether reported satisfaction is impacted by a lack of insight or not, SQoL is based on the individual's perception of their situation, and consequently remains clinically relevant.

Anxiety traits, such as hyperarousal and perceived threat, have been suggested to contribute to lower SQoL scores (Huppert et al., 2001). This could explain the generally low satisfaction found across domains for those with an anxiety disorder in our results, and in particular the impact the presence of an anxiety disorder seems to have on satisfaction with personal safety. However, there is very little literature investigating specific anxiety traits in relation to SQoL. Most research so far has focused on individuals with post-traumatic stress disorder, finding various symptoms to be associated with SQoL (Li et al., 2022), with intrusion and hyperarousal in particular being associated with lower SQoL (Lončar et al., 2014). The lack of research in this area is consistent with the lack of research generally into SQoL in individuals with anxiety and related disorders, again demonstrating that further research in this population is needed.

Finally, MANSA scores in the general population have some consistency with our findings in that satisfaction with employment and financial situation were also rated with explicit dissatisfaction (Matanov et al., 2013). However, the remaining life domains were mostly rated with explicit satisfaction, in contrast to our sample where only one or two, or none in the case of those with a schizophrenia disorder, were rated with explicit satisfaction. This supports the consensus that SQoL is generally negatively impacted in individuals with SMI, but also suggests that areas reported as particularly problematic may be experienced as such regardless of whether an individual has a mental health disorder or not. This is further supported by diagnostic category not being significantly associated with these domains in our multivariable models. However, it is also possible that employment and financial situation were particularly negatively impacted given the war-affected population investigated in Matanov et al. (2013) study. Further comparisons with a general population sample would identify areas uniquely affected in individuals with SMI.

4.2. Strengths and limitations

This study has several strengths. SQoL was measured in all samples using the MANSA, which has well-established psychometric properties with good reliability, construct validity, and internal consistency (Björkman and Svensson, 2005; Priebe et al., 1999). The total sample size included in this analysis was very large with over 5300 participants, and over 1600 for each diagnostic group. This represents a significant contribution to the literature particularly by including such a large sample of individuals with an anxiety disorder. By conducting an individual patient data meta-analysis as much detail as possible has been kept in the analysis, and with no missing data for any MANSA domains satisfaction ratings were not influenced by imputed data. Further, by including samples from a variety of countries and settings our findings convey an overall reflection of SQoL in individuals with SMI, as opposed to being specific to one particular study, setting or even country. However, all studies were conducted in Europe and future research would benefit from investigating the same measures in non-European countries to identify if there are any differences based on other cultural or geographical factors.

This study is not without limitations. First, there were no disorder-specific measures of symptom severity available. Instead the analysis had to rely on more general symptom scales, meaning the impact of disorder-specific symptoms may have been underestimated. However, given the comparison of different diagnostic groups in this study, the use of general symptom scales has allowed for the comparison of symptom severity across three disorders. Second, some personal characteristic categories were collapsed in order to have sufficient group sizes to enable the analysis used in this study, resulting in some information from less frequent characteristics being lost. Moreover, education level had >50 % missing data meaning it could only be investigated in separate models, and its impact on other characteristics may also be lost. However, given that education level was only associated with one SQoL domain, it is unlikely we would have found an impact in the multivariable models. The majority of participants with anxiety in our study were from the CONNECT study, meaning they were predominantly individuals who had experienced war, and may not be representative of general populations with anxiety disorders. However, over 530 participants with anxiety came from the other three studies, contributing a significant proportion of the sample, and study was controlled for in the analysis to limit the impact of any one particular sample. Finally, our selection of datasets was based on convenience and was limited to those

that were available to us and applied a consistent methodology. At the same time, this approach ensured reliability in how the assessments and outcomes were completed and guaranteed a full dataset for the MANSA, our main outcome of interest.

4.3. Implications

Individuals with different disorders appear to be uniquely satisfied or dissatisfied with certain life domains. Clinicians could focus on domains of particular dissatisfaction as treatment targets or, alternatively, utilise domains of satisfaction as potential resources in treatment, when adopting a strengths-based or resource-orientated approach. Moreover, considering the individuals other characteristics, such as marital or employment status, and how those might promote or negatively affect SQoL is also an important clinical consideration.

5. Conclusions

This analysis has shown that although individuals with SMI on average report similar patterns of satisfaction with different life domains, there are differences between diagnostic groups that could be explored in treatment. These findings highlight the importance of investigating specific SQoL domains as opposed to global scores. The impact of other personal characteristics on SQoL and in different disorders should be explored in treatment and in further research. In particular, individuals with anxiety disorders require further investigation to explore how SQoL is impacted and how satisfaction can be improved in this population.

Funding

Funding: This work was supported by the National Institute for Health and Care Research (NIHR) [TACK, RP-PG-0615–20010]. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. The NIHR had no role in the study design, data collection, analysis, interpretation of data, writing of the report, or decision to submit for publication.

CRediT authorship contribution statement

Lauren Jerome: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Aleksandra Matanov:** Investigation, Writing – review & editing. **Victoria Bird:** Conceptualization, Funding acquisition, Investigation, Methodology, Resources, Supervision, Writing – review & editing. **Stefan Priebe:** Conceptualization, Funding acquisition, Investigation, Resources, Supervision, Writing – review & editing. **Philip McNamee:** Writing – review & editing.

Declaration of competing interest

None.

Acknowledgment

We would like to thank all of the research staff and participants involved in all four studies included in this analysis, without whom this analysis would not have been possible. Additionally we would like to thank all of our colleagues at the Youth Resilience Unit and the Unit for Social and Community Psychiatry for their suggestions and comments on this manuscript.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2023.115707.

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