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Measuring social environment factors of inpatients and outpatients with depression in Germany: a cross-sectional study

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ABSTRACT

Background Social environment characteristics, including social relationships and cultural milieus, may influence the occurrence, course and management of depression. Effective questionnaires are needed to measure these factors and improve disease management.

Objective We aimed to (1) evaluate the social environment, such as social isolation, social disability and social cohesion of depressed inpatients and outpatients, and (2) discuss the suitability of standardised questionnaires measuring it.

Methods This cross-sectional study included adult patients with unipolar depression from a psychiatric hospital and general practitioner (GP) practices in Bavaria, Germany. Social isolation, disability and cohesion were measured using the *Lubben Social Network Scale* (LSNS), the *WHO Disability Assessment Schedule* (WHODAS) and the *Social Cohesion and Trust Scale* (SCTS), respectively. The suitability of these questionnaires was assessed with a context-specific quality appraisal.

Findings Among 282 included patients (mean age 38.8 years, SD=13.3), 69.5% were inpatients and 30.5% were outpatients. Social isolation prevalence was 52.5%. Social disability was higher in our cohort than in the general population ($p<0.001$). LSNS and WHODAS showed no differences between inpatients and outpatients, and suggest good clinical suitability. The SCTS showed shortcomings in applicability and comparability.

Conclusion People with depression, whether treated in psychiatric hospitals or in GP practices, reported more social isolation and social disability than the general population.

Clinical implications Researchers and clinicians should monitor social aspects as potential intervention targets to support patient management. Social environment questionnaires should be selected carefully, ideally guided by guidelines or medical associations, to enhance the understanding, comparability and implementation.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ The occurrence, course and management of unipolar depression may be influenced by social contextual factors.

⇒ The 'social environment' is a comprehensive construct, yet there is no consensus on its operationalisation in clinical practice.

WHAT THIS STUDY ADDS

⇒ This study presents further evidence of a high prevalence of social isolation and social disability in patients with depression.

⇒ The social environment factors should be assessed regardless of whether patients are treated in a hospital or general practitioner setting.

⇒ The selection of an appropriate questionnaire for the social environment needs further research.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Future routine monitoring of social environment aspects may help to better understand their contribution to mental health problems, and may guide the design and planning of interventions.

⇒ Questionnaires should be carefully selected based on criteria that ensure their context-specific applicability. Recommendations from guidelines, medical associations or expert consortia can help identify suitable questionnaires, thereby facilitating the broader implementation of social context monitoring.

⇒ This approach could enhance our understanding of the role social context plays in the development and management of mental health problems.

BACKGROUND

Despite the global rise of mental health problems, the social environment as a contributing factor to the development, course and potential resource

KEY MESSAGES

- ⇒ Risk of social isolation is four times higher in patients with depression compared with the general population.
- ⇒ Patients with depression reported higher levels of social disability compared with the general population.
- ⇒ Social isolation and social disability levels were similar between inpatients treated in a psychiatric clinic and outpatients from general practitioner practices, but were significantly lower in the general population.
- ⇒ Between socially isolated and non-isolated patients, there were no significant differences in depression severity or social disability.
- ⇒ Standardised social environment questionnaires should be used to inform and improve depression management.

for disease management is still underexplored and underused. Although social disability is particularly prevalent in individuals with unipolar depression,[1] social environment characteristics for this condition are insufficiently assessed in research and clinical settings.[2] Establishing evidence on social environment characteristics and developing robust measurement methods is essential for identifying intervention targets at both health service and community levels.

The social environment encompasses social ties and cultural milieus,[3] including concepts such as social networks, social disability and social cohesion, among others.

Social network refers to structures defined by the quantity and quality of interpersonal relationships and connections, where members can support and interact with each other.[4] Limited social networks can lead to social isolation, which is strongly associated with an increased risk of long-term mental health problems, particularly among adolescents and young adults.[5]

Social disability or functioning describes a person's long-term contextual ability to engage with others and to 'perform and fulfil normal social roles', comprising social and family roles as well as self-care.[6]

Social cohesion is understood as a defining feature of a contextual unit—such as a community, neighbourhood or district. While related, it is distinct from other social determinants of health (SDoH) that operate at the individual level.[7] Cohesive neighbourhoods are characterised by trust and collaboration among residents to achieve a common goal, which in turn can influence the well-being and health of their residents, even in the absence of direct network support.[8] High neighbourhood cohesion during childhood is closely linked to a lower incidence of mental health problems in adolescence.[9]

Social problems are often noted by medical professionals as accompanying circumstances to other issues but are rarely monitored in a structured manner.[10] While psychosocial risk screening is more common in paediatrics and obstetrics,[11] the German guideline also recommends its use for patients with unipolar depression.[12] However, the guideline does not specify when the screening should take place, what aspects should be assessed or how the assessment should be carried out. Therefore, guidance for researchers and clinicians to systematically monitor the SDoH of the individual patients is needed.[13]

One potential approach is to report SDoH through the codes of the *International Classification of Disease 11* (ICD-11) and *International Classification of Functioning, Disability and Health* (ICF), codified under the heading 'factors influencing health status'. These codes focus on functioning rather than the disease itself, but they do not capture the SDoH to a satisfactory extent.[13] Standardised questionnaires are another monitoring option, but the choice of screening tool depends on the clinical setting and context,[11] and a comprehensive decision-support system to guide tool selection has not yet been established.

Despite growing evidence of the benefits of social interventions for patients with depression,[14] these interventions—particularly those involving community-based resources—remain underused.[15] To better understand the contribution of the social environment and to integrate potential resources and interventions, routine monitoring of the social environment is essential.

This study aims to enhance the understanding of social environment factors accompanying depression. Therefore, the objectives are to describe the social environment characteristics of patients with depression and to discuss the suitability of the applied questionnaires for routine monitoring in two clinical settings.

Objectives

More specifically, we aimed to address the following research questions:

1. Do the levels of social isolation, social disability and social cohesion differ between patients with depression receiving treatment in a hospital setting compared with those receiving treatment in a general practitioner (GP) practice setting?
2. What are the strengths and weaknesses of the social environment questionnaires used, and are they suitable for patients with depression in a clinical setting?

METHODS

Population and study design

This cross-sectional study evaluated the social environment of patients with unipolar depression from a psychiatric hospital and from GP settings. The study was conducted within the research network *Predictors and Clinical Outcomes in Depressive Disorders* (POKAL).[16] Data for inpatients were obtained from the *Metabolism in Psychiatry* (MIP-3) cohort study, where hospitalised patients were recruited from the psychiatric clinic of LMU Munich, Germany between December 2021 and July 2023 (data export: 30 September 2024). Details are described in the study protocol.[17] This cohort is referred to as 'inpatients' within this manuscript. Data from the GP setting were collected within the POKAL-PSY study,[18] which recruited patients from GP practices in Bavaria, Germany (data export: 30 September 2024). This cohort is referred to as 'outpatients'. Further details are described elsewhere.[18] When both study populations are combined, they are referred to as 'total sample'.

Inclusion criteria for all patients were an age between 18 and 70 years, and a diagnosis of unipolar depression, confirmed by the Structured Clinical Interview (SCID)-5 and Montgomery–Åsberg Depression Rating Scale (MADRS) (score of ≥14) in the MIP-3 cohort, and by the SCID-5 in the POKAL-PSY cohort. All participants provided written informed consent before participation.

The study was reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (www.strobe-statement.org, online supplemental table 1).

Variables

Sociodemographic variables

Sociodemographic variables were described as follows: age (categorised into age groups), sex assigned at birth (female, male), marital status (in a relationship, single), biological children (yes, no), educational level (categorised according to the Comparative Analysis of Social Mobility in Industrial Nations education scale: low, intermediate, high), household size (1–5+ persons), employment status over the past year (employed, unemployed), working hours/week, financial difficulties over the past year (no, once, multiple times), migration background in the family (yes, no), history of mental health problems—without dementia—in the family (yes, no), parents separated (yes, no), age at onset of mental health problems (in years), age at first psychiatric aid for mental health problems (in years), discrimination over the lifespan (at school, work, in public, regarding housing: yes, no).

Social environment questionnaires

The key questionnaires used to evaluate social factors were analysed as follows:

Social isolation

The 6-item *Lubben Social Network Scale-6* (LSNS) is a self-reported measure of social networks and the risk of social isolation related to family and friends. It uses a 6-point scale to assess the number of network members with whom the respondent (a) is in contact with at least once a month, (b) feels at ease discussing private matters and (c) feels close enough to call for help. A cut-off score of ≤12 was used to dichotomise the variable into 'at risk' and 'not at risk' for social isolation.[19]

Social disability

The 12-item *WHO Disability Assessment Schedule 2.0* (WHODAS) is a generic questionnaire designed to measure disability and functional impairments. The WHODAS operationalises the ICF by surveying six domains: (1) cognition, (2) mobility, (3) self-care, (4) getting along, (5) life activities and (6) participation.[20] All domains are part of the ICF depression core set and describe the individual's activity and participation levels.[21] Domain scores were calculated using the simple sum method. Higher scores indicate greater disability.[20]

Social cohesion

The *Social Cohesion and Trust Scale* (SCTS) is a 5-item scale that measures neighbourhood social cohesion, as suggested by Sampson *et al*.[22] Respondents were asked to rate to what extent they agree that 'people around here are willing to help their neighbours', 'this is a close-knit neighbourhood', 'people in this neighbourhood can be trusted', 'people in this neighbourhood generally do not get along with each other' and 'people in this neighbourhood do not share the same values'. The scale ranges from 0 to 20, with lower scores indicating higher levels of social cohesion.

Justification for questionnaire selection

The questionnaire selection was based on an a priori evidence search and expert consensus within POKAL, and was guided by the referenced study protocol.[18] The LSNS and the SCTS were selected for their relevance to depression outcomes, as described in a study by Dong *et al* (in preparation, working title: Detecting common mental disorders in low-, middle-, and high-income countries: an integrative multi-national machine learning investigation). The WHODAS was included due to the global rollout of the ICD-11 and ICF frameworks, on which it is based.

Measuring the main outcome of depression

Depression was assessed with the SCID-5. Symptom severity was measured with the *Patient Health Questionnaire* (PHQ-9), and anxiety disorders were evaluated using the *General Anxiety Disorder Scale* (GAD-7).

Other relevant questionnaires to measure covariates

The *Childhood Trauma Questionnaire* (CTQ) assessed exposure to five types of abusive and neglectful behaviours (emotional/sexual/physical abuse and emotional/physical neglect). Cut-off scores are provided in table 1.

Statistical analysis

Descriptive analyses were performed for all variables. Percentages were calculated for categorical variables, while means and standard deviations (SD) or 95% confidence intervals (CIs) were reported for continuous variables. Group differences were assessed based on the normality of the data: t-tests were used for normally distributed data, Mann-Whitney U tests for non-parametric data and χ^2 tests for categorical comparisons. Missing values were imputed using KNN imputation. Multiple testing corrections were applied using the false discovery rate (FDR) method.

Statistical analyses were performed using Python V.3.9.18, with the following packages: Pandas (V.1.5.2), Scipy (V.1.9.3), NumPy (V.1.24.3), Scikit-learn (V.1.2.2).

Customised quality appraisal of social environment questionnaires

To evaluate the suitability and applicability of each applied social environment questionnaire and potentially guide the future selection of tools, we conducted a context-specific quality appraisal for questionnaires. This appraisal was adapted from the criteria outlined in the *database of instruments* from the German Federal Working Group for Rehabilitation (*Bundesarbeitsgemeinschaft für Rehabilitation*) (www.bar-frankfurt.de/service/datenbanken-verzeichnisse/instrumentendatenbank.html). Additional aspects were incorporated to address clinical usefulness and suitability, based on discussions and consensus within the research team. The quality appraisal was informed by the results of patient scores. The following categories were considered:

1. Clinical applicability

Categories: correlation between questionnaire outcome and mental health, adequacy of the tool in the clinical setting, adequacy of the tool for patients with depression, resources required for administration*, relevance to immediate treatment, barrier-free access*, interpretation of results.

2. International comparability

Categories: availability of comparable data for populations and settings*, number of languages in which questionnaire is validated.

3. Test properties

Categories: availability of cut-off scores and minimally clinically important change scores, psychometric properties*, floor and ceiling (F/C) effects, ability to depict the social environment.

Categories adopted from the database of instruments are marked with asterisk (*).

Findings

In total, 282 patients with unipolar depression, with a mean age of 38.8 years (SD=13.3), were included in the final analysis. Among the 255 inpatients initially recruited, 196 met the inclusion criteria. For outpatients, 792 were recruited, of whom

Table 1 Study sample characteristics

Characteristics	Total sample N=282	Inpatients N=196	Outpatients N=86	FDR-corrected p value
Sociodemographic variables				
Age, M (SD)	38.8 (13.3)	38.4 (13.5)	39.9 (12.9)	
Sex, n (%) female	156 (55.3)	97 (49.4)	59 (68.6)	
Age group (years), n (%)				
18–30	98 (34.8)	71 (36.2)	27 (31.4)	
31–45	79 (28.0)	52 (26.5)	27 (31.4)	
46–65	99 (35.1)	69 (35.2)	30 (35.0)	
65+	2 (0.7)	1 (0.5)	1 (1.2)	
Marital status, n (%)				
In a relationship	117 (41.5)	79 (40.3)	38 (44.2)	
Single	165 (58.5)	117 (59.7)	48 (55.8)	
Biological children, n (%)				
Yes	93 (33.0)	64 (32.7)	29 (33.7)	
Number of people in household, n (%)				<0.001
1	100 (35.5)	42 (21.4)	58 (67.4)	
2	91 (32.3)	76 (38.8)	15 (17.4)	
3	43 (15.2)	36 (18.4)	7 (8.1)	
4	34 (12.1)	30 (15.3)	4 (4.7)	
≥5	14 (5.0)	12 (6.1)	2 (2.3)	
Educational level, n (%)				
Low	34 (12.1)	28 (14.3)	6 (7.0)	
Intermediate	54 (19.1)	34 (17.3)	20 (23.3)	
High	194 (68.8)	134 (68.3)	60 (69.8)	
Employment status, n (%)				
Employed	214 (75.9)	142 (72.4)	72 (83.7)	
Unemployed	68 (24.1)	54 (27.6)	14 (16.3)	
Financial difficulties last year, n (%)				
Once	40 (14.2)	29 (14.8)	11 (12.8)	
Multiple times	52 (18.4)	30 (15.4)	22 (25.6)	
No	190 (67.4)	137 (69.9)	53 (61.6)	
Working hours/week, M (SD)	29.6 (14.5)	29.4 (14.9)	28.4 (14.4)	
CTQ-childhood trauma, n (%)	201 (71.3)	132 (67.3)	69 (80.2)	
Emotionally abused, n (%)	110 (39.0)	69 (35.2)	41 (47.7)	
Physically abused, n (%)	46 (16.3)	30 (15.2)	16 (18.6)	
Sexually abused, n (%)	45 (16.0)	25 (12.8)	20 (23.3)	
Emotionally neglected, n (%)	123 (43.6)	78 (39.8)	45 (52.3)	
Physically neglected, n (%)	78 (27.7)	49 (25.0)	28 (32.6)	
Discrimination, n (%)				
Yes	178 (63.1)	125 (63.8)	53 (61.7)	
No	104 (36.9)	71 (36.2)	33 (38.3)	
Psychiatric history				
Age at first psychiatric aid, M (SD)	27.1 (12.6)	27.4 (12.4)	26.5 (13.1)	
Age at onset, M (SD)	21.4 (13.4)	21.7 (13.1)	20.8 (13.9)	
Years between onset and medical help, n (%)				
<1	91 (32.3)	65 (33.2)	26 (30.2)	
1–5	76 (27.0)	52 (26.5)	24 (27.9)	
>5	115 (40.8)	79 (40.3)	36 (41.9)	
Family history				
History of mental health problems in family, n (%)	240 (85.1)	166 (84.7)	74 (86.0)	
Parents separated, n (%)				
Yes	119 (42.2)	79 (40.3)	40 (38.5)	
No	163 (57.8)	117 (59.7)	64 (61.5)	
Migration background in family, n (%)				
Yes	69 (24.5)	49 (25.0)	20 (23.3)	
No	213 (75.5)	147 (75.0)	66 (76.7)	
Mental health, M (SD)				
PHQ-9 sum	24.5 (6.3)	24.7 (6.7)	24.0 (5.0)	
GAD-7 sum	12.4 (5.1)	12.6 (4.9)	11.8 (5.0)	
Social environment, M (SD)				
LSNS sum	12.9 (6.3)	12.7 (6.0)	13.4 (7.03)	
WHODAS sum	30.7 (11.3)	31.0 (10.7)	29.9 (8.7)	
SCTS sum	10.2 (1.8)	10.1 (1.8)	10.31 (1.7)	

CTQ (following cut-off scores applied: sum score ≥36.5; emotional abuse ≥13; physical abuse ≥10; sexual abuse ≥8; emotional neglect ≥15; physical neglect ≥10). SCTS—only significant p values were reported.

CTQ, Childhood Trauma Questionnaire; FDR, false discovery rate; GAD-7, General Anxiety Disorder-7; LSNS, Lubben Social Network Scale; M, mean; PHQ-9, Patients Health Questionnaire-9; SCTS, Social Cohesion and Trust Scale; WHODAS, WHO Disability Assessment Schedule.

86 were included in this study. Details regarding the exclusion process are provided in the online supplemental figure 1 for inpatients and online supplemental figure 2 for outpatients.

In the inpatient group, women and men were almost equally represented (49.5% and 50.5%, respectively). In contrast, women were significantly over-represented in the outpatient group (68.6%) (p=0.004, FDR-corrected=0.02). The inpatient and outpatient groups were largely similar in most socioeconomic aspects. Detailed patient characteristics are presented in table 1.

Social environment measures

LSNS (social isolation)

In the total sample, 52.5% of the patients were at risk of social isolation (cut-off score ≤12), indicating a prevalence four times higher than that of the general population (12.3%).[23] Inpatients and outpatients did not show significant differences in social isolation. In the total sample, the prevalence of social isolation varied across age groups, ranging from 49.0% to 85.7%, but without a linear trend. A comparison of social isolation prevalence across age groups between our sample and the general population is shown in table 2.

Men reported a slightly higher, but not statistically significant, prevalence of social isolation compared with women (58.7% vs 47.4%, respectively, p=0.07) (online supplemental table 2). A comparison between socially isolated and not-isolated patients showed no significant differences in depression severity (PHQ-9) or social disability (WHODAS) (online supplemental table 3).

WHODAS (social disability)

Patients in the total sample reported significantly higher levels of social disability on the WHODAS compared with the general population[24] (30.7 (SD=10.2) vs 18.6 (SD=7.6), p<0.001). Inpatients showed slightly higher disability levels than outpatients, but the difference was not statistically significant (29.8 vs 31.0, p=0.21) (table 1). Differences between patients with depression and the general population were most pronounced in the domains of *cognition*, *getting along*, *life activities* and *participation* (figure 1).

Across all compared groups, patients aged 31–45 years reported the highest levels of social disability (data for patients aged 65+ years were not regarded, due to the small number of observations). Sex-specific comparisons between inpatients and

Table 2 Prevalence of social isolation in different age groups measured with the Lubben Social Network Scale (cut-off ≤12) shown in % (95% CI), in our cohort and reference data[23]

Percent of people at risk of social isolation by age group, % (95% CI)	Total sample N=282	Inpatients N=196	Outpatients N=86	Reference data N=9392
18–39	49.0 (40.9, 57.1)	47.6 (37.9, 57.3)	52.3 (37.3, 67.2)	5.5 (4.7, 6.0)
40–49	56.4 (43.1, 69.6)	55.6 (39.1, 72.0)	57.9 (35.1, 80.7)	12.7 (11.1, 14.2)
50–59	49.2 (36.5, 61.8)	50.0 (35.4, 64.6)	46.7 (20.5, 72.8)	17.9 (15.7, 20.1)
60–69	85.7 (66.7, 104.7)	100 (100, 100)	71.4 (35.3,107.6)	20.7 (18.7, 23.2)
Prevalence across all age groups	52.5 (46.6, 58.3)	52.0 (45.3, 59.1)	53.5 (42.9, 64.1)	12.3 (11.6, 13.0)

outpatients revealed significant differences in two domains: *life activities* in men (6.2 (SD=2.4) vs 4.2 (SD=2.4), p=0.02), and *self-care* in women (3.5 (SD=1.8) vs 2.9 (SD=1.4), p=0.02) (online supplemental table 4).

The WHODAS items with the highest mean scores in the total sample were: *emotionally affected* (3.4 (SD=1.3)), *day-to-day work* (3.3 (SD=1.4)) and *joining community activities* (3.1 (SD=1.3)) (online supplemental figure 3).

SCTS (social cohesion)

Inpatients and outpatients reported similar mean SCTS scores (10.12 (SD=1.8) vs 10.3 (SD=1.73)). No significant differences in SCTS scores were observed between isolated (10.2 (SD=1.9)) and non-isolated patients (10.1 (SD=1.7), p=0.97), or between men (10.3 (SD=1.6)) and women (10.1 (SD=1.9), p=0.22). Slight variations across age groups were observed, but no significant age effect on SCTS scores was identified (data not shown).

Comparable data for the general population were not available for the SCTS.

Customised quality appraisal of questionnaires

To identify appropriate questionnaires for our specific context and setting, we discussed the strengths and weaknesses of the main study questionnaires (LSNS, WHODAS, SCTS). This evaluation considered clinical applicability, international comparability and test properties. The full quality appraisal is provided in the online supplemental table 5, and the summary is presented in table 3.

DISCUSSION

This cross-sectional study of 282 patients within the POKAL consortium provides further evidence of significant social environment deficits among depressed inpatients and outpatients. Over half of the patients with depression in our sample were at risk of social isolation, with a prevalence four times higher than that of the general population. Similarly, social disability levels were elevated in patients with depression compared with the general population. Notably, no differences in social disability were observed between socially isolated and non-isolated patients. Socioeconomic and social environment characteristics were similar between inpatients and outpatients. The quality appraisal suggests that the WHODAS and the LSNS are suitable questionnaires for patients with depression. The WHODAS showed only minor weaknesses, while the SCTS demonstrated major shortcomings.

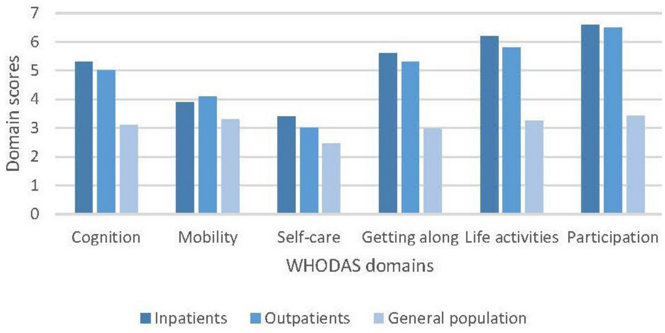

Figure 1 Comparison of the WHO Disability Assessment Schedule (WHODAS) domains measuring social disability in inpatients, outpatients and the general population.

Every second patient—whether inpatient or outpatient—reported being at risk of social isolation according to the LSNS, compared with every eighth person in the general population.[23] This finding might be attributed to the already impaired interpersonal functioning of the patients with depression caused by depression itself on one hand, or it may reflect a pre-existing trait that predisposes individuals to develop depression. Furthermore, the high levels of social isolation could be associated with the high prevalence of childhood trauma in our sample, which might be associated with a poorer ability to integrate socially in later life and therefore explain our results (Eder *et al*, A network analysis approach to loneliness, social support, and adverse childhood experiences in the context of adult depression and treatment response, under revision). Interestingly, depression severity and social disability did not differ in our sample between socially isolated and non-isolated patients. Moreover, another study found that patients with depression with larger social networks achieved better outcomes after 4 weeks (Eder *et al*, under revision), and this underscores the need for routinely monitoring social networks as part of depression management. Such assessments could help identify individuals at higher risk of depression and facilitate the integration of social interventions.[25]

Our cohort showed higher levels of social disability (in the WHODAS) compared with both the general population and individuals with pre-existing mental health conditions[25 26] (online supplemental figure 3). This may be explained because our patients were assessed during a current depressive episode, which tends to intensify impairments. Despite the assumption that inpatients are more severely affected, no differences were found in our sample between inpatients and outpatients. This could indicate a potential underestimation of disability because of recall or selection bias, as only less severely ill individuals may have participated in the study. The elevated social disability in our study aligns with previous research showing that social impairments are both common and debilitating in depression.[1 6] As these impairments can persist for years, even after recovery,[27] detecting and addressing them could improve the patients' quality of life.

Despite the association between neighbourhood social cohesion and adolescent depression,[9] its assessment is not routinely performed in clinical settings. Our findings revealed no differences in social cohesion between inpatients and outpatients, but

Table 3 Summary and adequacy of questionnaires based on the context-specific quality appraisal

Questionnaire	Summary and adequacy of questionnaires		
	Summary	**Adequacy of questionnaire in clinical setting**	**Adequacy of questionnaire for patients with depression**
WHODAS	▶ Well-established measure for functioning and disability ▶ Resource-friendly ▶ Domain scores can inform better about impaired aspects of life than the sum score, but it requires more effort in the analysis ▶ Could serve as a decision-making aid for interventions ▶ Cut-off scores would help to determine significant levels of disability	(+) Direct link to ICF (+) Generic assessment (+) Validated in many contexts and settings (+) Resource-friendly to administer (+) Evaluates social functioning and disability (+) Relevant to immediate treatment (–) No cut-off and MCIC score established (–) Interpretation of results should be done by considering domain scores (multidimensionality)	(+) Good comparability (+) Validated in people with depression (+) Interview and proxy version available/ barrier-free (+) Good psychometric properties (+) Available in many languages (–) Significant floor effects in all domains in inpatients (–) Social disability scores could be distorted if patients are already withdrawn
LSNS	▶ Well-established measure for social isolation ▶ Resource-friendly ▶ Subscores and distribution of item scores should be considered ▶ Could serve as a decision-making aid for interventions ▶ Perceived isolation could be assessed complementarily to monitor all aspects of social isolation ▶ Validation in a young cohort is desirable	(+) Cut-off score established (+) Resource-friendly (+) Relevant to immediate treatment (–) Potentially not sensitive enough to monitor change in the young population (–) Does not measure the full picture of social isolation	(+) Frequently used in patients with depression (+) Evaluates an important risk factor for depression (+) Interview version available (+) Good comparability (–) Designed for old patients (–) Does not consider the digital environment (–) Not validated in this population
SCTS	▶ Validation in a young cohort is desirable ▶ Context-level information relevant for long-term treatment and prevention ▶ Difficult to handle in the clinical setting (lack of cut-offs, etc) and to interpret (same-source and perception bias)	(+) Assesses the context on community level (+) Resource-friendly (–) Little relevance to immediate treatment (–) Not validated in many languages (–) Ecometric analysis needed to overcome perception and same-source bias, hence not easy to interpret	(+) Describes important contextual factor/ resource for depressed individuals (–) Not validated in this population (–) Poor comparability

ICF, International Classification of Functioning, Disability and Health; LSNS, Lubben Social Network Scale; MCIC, minimally clinically important change; SCTS, Social Cohesion and Trust Scale; WHODAS, WHO Disability Assessment Schedule.

the lack of comparable data for the general population highlights the need for further research.

The quality appraisal of the LSNS, WHODAS and SCTS indicated that the LSNS and WHODAS are suitable for clinical use in patients with depression, while the SCTS is not suitable in the clinical context.

The importance of social aspects in mental health is well-established, as demonstrated by this study and the recent EU-wide Eurobarometer survey, which identified social environment as a key contributor to mental well-being.[28] Also, national institutes such as the German Robert Koch Institute recognise social aspects as important,[29] however they lack practical recommendations or structured guidance on selecting and using standardised questionnaires to assess these aspects. Introducing such guidance could potentially be provided by national institutes, medical or public health associations or consortiums to improve nationwide monitoring, providing a more comprehensive understanding of the role and impact of social factors on mental health. In the face of a lack of qualitative data, we tried to build the foundation for guiding structure for a context-specific appraisal of the questionnaires.

Generally, measuring social cohesion poses challenges due to the variety of definitions and approaches to operationalise this concept, as reflected in the vast number of proxy measures for social cohesion.[30] Selecting context-appropriate questionnaires helps ensure that relevant information is not overlooked in the treatment of patients with depression. Certainly, other potentially suitable questionnaires measuring similar social environment aspects, such as the *Global Assessment of Functioning*, the *Social Functioning Scale* or the *Social Network Index*, could have been considered. Furthermore, other relevant social environment constructs, such as subjective social isolation, connectedness and discrimination, could have been of interest. There are contexts in which these questionnaires may be of better use, such as in urban planning and social services. The questionnaires selected within this study were prioritised due to the possibility of directly translating them into treatment or management decisions and recommendations.

Strengths and limitations

The strengths of this study are (1) the comparison of inpatients and outpatients with depression, demonstrating similar levels of social deficits regardless of the treatment setting and (2) a context-specific quality appraisal of questionnaires, providing practical insights into their suitability.

Our findings are not generalisable due to the following limitations: (1) the small sample size from a limited geographical area, where social factors may vary profoundly by region and may be assessed differently in other countries, (2) patients were assessed during the COVID-19 pandemic, when social isolation levels were higher compared with prepandemic conditions. These data were further compared with prepandemic data, which may have inflated the prevalence and the differences in social isolation levels. Also, inpatients were recruited in the highly social clinical environment which may have influenced patients' responses, introducing recall or perception bias, (3) the cross-sectional design of this study does not allow causal inferences, nor insights into longitudinal timing effects. Social deficit, especially social isolation, 'is developmentally intertwined with the experience of poor mental health', consequently social isolation should not be viewed merely as a risk factor or outcome of mental health problems but rather as an integral part of the phenotypic profile of depression.[31]

Further research should involve larger cohort studies to further investigate the relationship between social environment and depression. Assessing additional constructs such as loneliness, connectedness and discrimination could provide a more comprehensive understanding. Furthermore, the development or refinement of tools to measure social cohesion could enhance its assessment and application in both clinical and public health contexts.

CLINICAL IMPLICATIONS

Acknowledging social risk factors as modifiable contributing or co-occurring factors for depression could facilitate the implementation of appropriate interventions and strategies, such as an increased use of psychological therapies that target social skills and reduce social anxiety including *personal effectiveness training*, the *cognitive behavioural analysis system of psychotherapy* or *interpersonal therapy*.

Integrating social environment questionnaires into routine assessments in clinical and community care settings could offer valuable insights into patients' challenges, enabling targeted interventions. On a broader scale, these findings could inform public mental health strategies, incorporating community-level social environment interventions. For this, guidance on the choice of questionnaires applied in different contexts is crucial to obtaining the results needed to design effective interventions.

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Contributors PS and JE contributed equally to this paper. PS, JE and CJ-S formulated the research question and design. JE and LP were responsible for patient recruitment as well as obtaining their consent and conducted the assessments. PS, JE and CJ-S contributed to the statistical analysis and interpretation of the data. JE, LP, MSD, NK, CG and RM were responsible for the data curation and data integrity. PS wrote the original draft, JE performed the calculations and PS and JE created the tables/figures. PS, CJ-S, MK, CD-J, MC and CJ-S contributed to the quality appraisal. PS, JE, LP, PF, MK, MSS, CD-J, ARB, MC, MSD, JG, CG, AS, NK, RM and CJ-S thoroughly and critically revised the manuscript. All authors gave approval of the version to be published. PS acts as the guarantor.

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