

# Assessment of quality of life in patients with schizophrenia and their caregivers in selected Central and Eastern European countries: A literature review



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## ABSTRACT

**Background:** To investigate the impact of schizophrenia on quality of life (QoL) of patients and caregivers in seven CEE countries, by conducting a literature search.

**Methods:** Search was performed in publicly available databases to identify publications from 1995 to 2012 related to schizophrenia and QoL. Publications included those describing health-related QoL data of negative symptoms in patients with schizophrenia.

**Results:** Out of an initial search of 2882 abstracts, 1587 were excluded based on duplication or preliminary screening of titles, and a further 1550 publications were excluded based on screening of the abstracts (1510) or full-texts (40). Thus, 37 primary publications related to QoL of patients with schizophrenia and caregivers were identified. Due to differences observed in the identified studies, it was not possible to make direct comparisons nor to

pool data for analysis. However, it was consistently reported that schizophrenia greatly affected the QoL of patients and had a significant negative impact on the QoL of caregivers, such that their QoL was considered similar to the patients themselves. In addition, patients with schizophrenia experienced significant stigmatization and discrimination. In general, the presence of negative symptoms was not well-documented in the literature and available antipsychotics had limited impact on the treatment of negative symptoms.

**Conclusion:** Schizophrenia significantly reduces QoL of patients and their caregivers. Further research is needed to better understand the drivers of impaired QoL caused by schizophrenia, in particular the negative symptoms of schizophrenia, and how best the burden of illness and associated stigmatization and discrimination may be reduced.

## INTRODUCTION

Schizophrenia is one of the most common psychiatric disorders, affecting approximately 1% of the world's population [36] and is a leading cause of disability [48]. Lifetime prevalence of schizophrenia is high, ranging from 0.4 to 1.4%, due to the early age of onset and chronic course of the disease [36].

The impact schizophrenia upon quality of life (QoL) has been an active area of research for many years. Schizophrenia is ranked among the top ten leading causes of disease-related disability in the world and has consistently demonstrated a major negative impact on QoL [48]. The chronic nature of schizophrenia particularly affects the social dimension of QoL. Decreased cognitive and social skills, and hypersensitivity to criticism and stress, can lead to patients becoming isolated from society and the object of stigmatization [35].

Therefore, treatment goals for patients with schizophrenia not only include reducing the frequency, duration and severity of episodes and overall morbidity, but also improving psychosocial functioning and QoL [34].

Assessment of QoL can provide an additional measure of treatment outcome for patients with schizophrenia. In recent years, a large number of scales have been developed to determine well-being and QoL in patients with schizophrenia [35]. Many individuals with schizophrenia rely on informal daily care, which is typically undertaken by family members, most often parents or siblings [2]. For family members who are caregivers, schizophrenia poses numerous challenges, including management of the patient's illness and adjustment to the negative impact on the patient's daily functioning.

## OBJECTIVE

The aim of the study was to identify available information about the impact of schizophrenia, and particularly the negative symptoms of schizophrenia, on QoL in patients and caregivers across seven Central and Eastern European (CEE) countries. In addition, data on stigmatization and discrimination in patients with schizophrenia was obtained.

## METHODS

A literature search was performed in seven CEE countries (Croatia, Estonia, Hungary, Poland, Serbia, Slovakia and Slovenia). The search strategy for MEDLINE via PubMed, Cochrane Library and Centre for Review and Dissemination databases was developed using the term 'schizophrenia' and its synonyms. A targeted search was performed using specific filters to identify:

- publications from key countries: the country name was combined with the schizophrenia synonyms search strategy
- relevant papers on the negative symptoms of schizophrenia: the term 'negative symptoms' and its synonyms were added as a filter
- publications concerning QoL: terms including 'health 'quality of life' and scale names (for example, 'EQ5D' or the European Quality of Life Scale [EuroQOL]) were added as a filter (this search was conducted only in MEDLINE via PubMed)
- publications concerning burden of schizophrenia: filters including 'stigmatization', 'discrimination', 'costs' and 'burden of disease' were used (this search was conducted in all databases).

In addition to a general search of publicly available databases, a search was conducted locally in each of the participating countries to include publications in local languages. The searched sources of data were: the local HTA agency databases, local patients registries, national medical journals, databases of national health services, national/central statistical office, national psychiatric association and other relevant sources (e.g. PhD thesis).

The search consisted of publications from 1995 to 2012 (primary studies, reviews and systematic reviews) on the QoL, stigmatization and discrimination of patients with schizophrenia (F20 in the International Clas-

sification of Diseases – Version 10 [ICD-10]). All publications that included QoL results were analyzed in relation to assessment of negative symptoms.

**RESULTS**

Quality of life

Out of an initial search of 2882 abstracts, 1295 were excluded based on duplication or preliminary screening of titles and a further 1550 publications were excluded during screening of the abstracts (1510) or full texts (40). The remaining thirty-seven primary publications from the seven CEE countries were included in the analysis (Figure 1; a PRISMA flowchart is provided in the appendix).

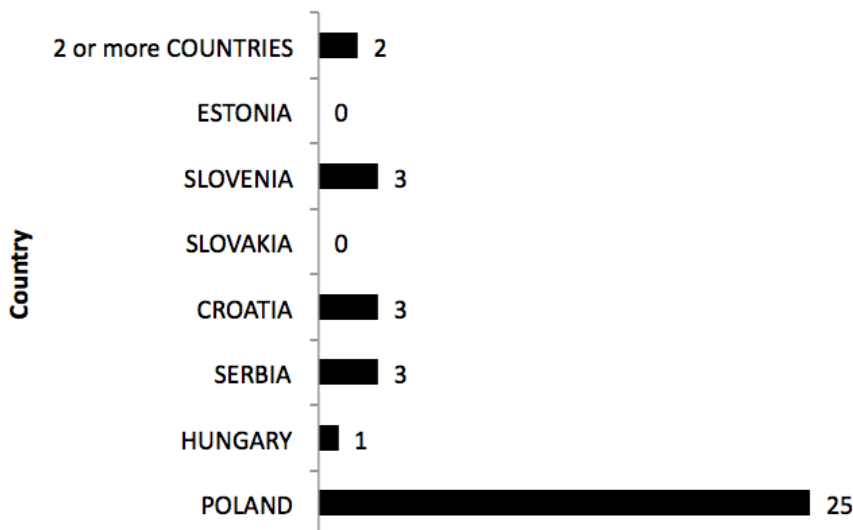


Figure 1. Number of quality of life publications per country

Thirty-five of the studies were based in one country only and two were multinational European studies: StoRMi [12] (involved 22 countries including Croatia, Estonia, Poland,

Slovakia and Slovenia) and EDEN [43] (based on five countries including Poland and Slovakia). A detailed list of all studies is presented in Table 1.

Table 1.  
List of studies included in the analysis

Publication	Country	Instrument(s)	Number of time-points of QoL measurement*	Group evaluated**
Adamowski et al. 2009 [1]	Poland	Specific (MAN-SA)	3	Patients (F20-F29): inpatients vs day-care ward
Cechnicki et al. 2007 [5]	Poland	Specific (QoLI)	1	Patients (F20)
Chądzyńska et al. 2002 [7]	Poland	Specific (Mercier and Templer Scale)	1	Patients vs family members
Chądzyńska et al. 2003 [8]	Poland	Specific (Mercier and Templer Scale)	1	Patients vs family members
Czernikiewicz & Górecka 2003 [10]	Poland	Specific (QLS, SQLS)	1	Patients (F20)
Czernikiewicz et al. 2005 [11]	Poland	Specific (QLS)	1	Patients (F20)
De Marinis et al. 2007 [12]	22 countries (including Croatia, Estonia, Poland, Slovakia, Slovenia)	Generic (SF-36)	3	Patients (F20 or other psychotic disorder): conventional oral antipsychotic vs conventional depot antipsychotic before switching to long acting risperidone
Dernovsek et al. 2001 [13]	Slovenia	Specific + Generic (QLS, EQ-5D)	1	Patients (F20)
Główczak et al. 1997 [14]	Poland	Specific (Mercier and Templer Scale)	1	Patients (F20)
Golubovic et al. 2010 [15]	Serbia	Specific (QLS)	8	Patients (F20 or schizoaffective disorders) treated with: atypical antipsychotics vs classical antipsychotics
Górecka & Czernikiewicz 2004 [16]	Poland	Specific (QLS)	1	Patients (F20)

Publication	Country	Instrument(s)	Number of timepoints of QoL measurement*	Group evaluated**
Górna et al. 2005 [17]	Poland	Specific + Generic (SFS, WHOQOL-BREF)	2	Patients (F20) vs healthy subjects
Górna et al. 2007 [19]	Poland	Specific + Generic (SFS, WHOQOL-BREF)	1	Patients (F20): with depression vs without depression
Górna et al. 2008 [18]	Poland	Specific + Generic (SFS, WHOQOL-BREF)	3	Patients (F20)
Hanuszkiewicz et al. 2007 [20]	Poland	Specific (LQoLP)	1	Patients (F20)
Jaracz et al. 2008 [22]	Poland	Specific (SFS)	3	Patients (F20)
Jarema et al. 1995 [25]	Poland	Generic (SF-36)	2	Patients (F20 or depression): inpatients vs day-hospital vs rehabilitation unit
Jarema et al. 1997 [24]		Generic (SF-36)	1	Patients (F20): inpatients vs patients from day-hospital vs patients from day-care centre
Jarema & Koniecznyńska 2000 [23]	Poland	Generic (SF-36)	2	Patients (F20) (men vs women)
Jarema et al. 2002 [26]	Poland	Generic (SF-36)	2	Patients (F20) (men vs women)
Jukić et al. 2003 [27]	Croatia	Specific (QLS)	1	Patients (F20) treated with: conventional antipsychotics vs novel antipsychotics
Kasperek et al. 2002 [28]	Poland	Specific (QoLQ)	2	Patients (F20) from: social skills training group vs psycho-education group
Konarzewska et al. 2012 [29]	Poland	Specific (QLS)	1	Patients (F20 vs F20 addicted to alcohol)
Koniecznyńska et al. 1997 [30]	Poland	Generic (SF-36)	3	Patients (F20)
Margetić et al. 2011 [31]	Croatia	Generic (Q-LES-Q-SF)	1	Patients (F20) vs relatives (key caregivers) vs healthy people

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Publication	Country	Instrument(s)	Number of timepoints of QoL measurement*	Group evaluated**
Mihajlović et al. 2011 [35]	Serbia	Specific + Generic (SFS, SWLS, WHO-QOL-BREF)	1	Patients (F20) treated with: haloperidol depot vs risperidone long-acting
Opalić & Femić 2008 [37]	Serbia	Specific (combination of LQoLP and MANSA)	1	Patients (F20) vs healthy controls
Pąchalska et al. 2001 [38]	Poland	Specific (QLS)	1	Patients (F20) vs patients incurred a closed-head injury
Pentek et al. 2012 [45]	Hungary	Generic (EQ-5D)	1	Patients (F20) vs general population
Pesek et al. 2010 [41]	Slovenia	Generic (WHO-QOL-BREF)	1	Patients (F20)
Pesek et al. 2011 [40]	Slovenia	Generic (WHO-QOL-BREF)	1	Patients (F20)
Popławska et al. 2004 [42]	Poland	Specific (IMHC 2000)	2	Patients (F20 or depression) treated with: pharmacology and psychoeducation vs pharmacology
Priebe et al. 2011 [43]	5 countries (including Poland and Slovakia)	Specific (MANSA)	4	Patients (F20-F29, F30-F39, F40-F49)
Ružić et al. 2008 [45]	Croatia	Generic (Q-LES-Q)	1	Patients (F20-F29) who committed the crime of murder or attempted murder in state of insanity
Spiridonow et al. 1998 [46]	Poland	Specific (Mercier and Tempier Scale)	1	Patients (F20) vs healthy controls
Tomczak 2005 [50]	Poland	Generic (WHO-QOL-BREF)	1	Patients (F20) vs healthy controls
Tomczak 2006 [49]	Poland	Generic (WHO-QOL-BREF)	1	Patients (F20) vs healthy controls

\*QoL could be evaluated once (at a specific time) or two or more assessments of QoL were carried out in different time period

\*\*F20 = Schizophrenia (according to ICD-10)

MANSA=Manchester Short Assessment of Quality of Life Scale; QoLI=Quality of Life Inventory; QLS=Quality of Life Scale; SQLS=Schizophrenia Quality of Life Scale; SF-36=Short Form (36) Health Survey; EQ-5D=Euro Quality of Life 5-Dimension Scale; SFS=Social Functioning Scale; WHOQOL-BREF=World Health Organization Quality of Life Brief Instrument; LQoLP=Lancashire Quality of Life Profile; QoLQ=Quality of Life Questionnaire; Q-LES-Q-SF=Quality of Life Enjoyment and Satisfaction Questionnaire – Short Form; SWLS=Satisfaction with Life Scale.

We analyzed publications in terms of the number of estimates of QoL (time points), populations in which QoL was assessed and instruments used to evaluate QoL.

Four types of study design were observed, relating to study time-length and relationship factors (Figure 2). In the simplest approach the QoL of the analyzed group was

evaluated once (at a specific time-point). In a more complex approach, two or assessments of QoL carried out at baseline and other pre-specified time-points were compared. Other studies compared the QoL in two or more groups of individuals, either at one time-point or at two or more time-points. The percentage distribution of the various types of studies is presented in Figure 2.

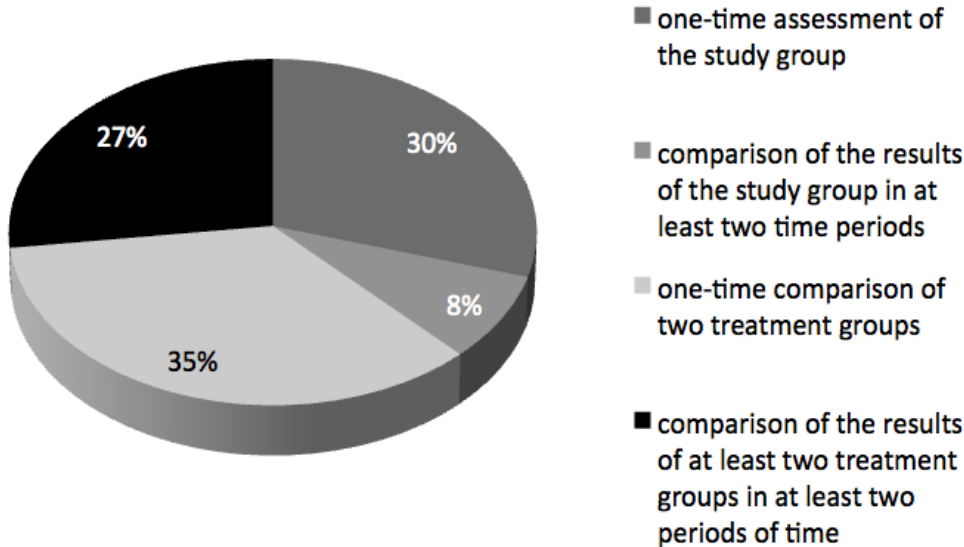


Figure 2. Distribution of studies according to design

The evaluation of patients' QoL was carried out most often by themselves (self-evaluation). However, in some studies, the assessment was made by healthcare professionals (doctors, nurses), caregivers or relatives. In 46% of the studies, QoL of

other groups was also assessed, such as patients with mental disorders other than schizophrenia, caregivers of patients with schizophrenia, healthy people (trial sample) or a sample of age- and country-matched population (Figure 3).

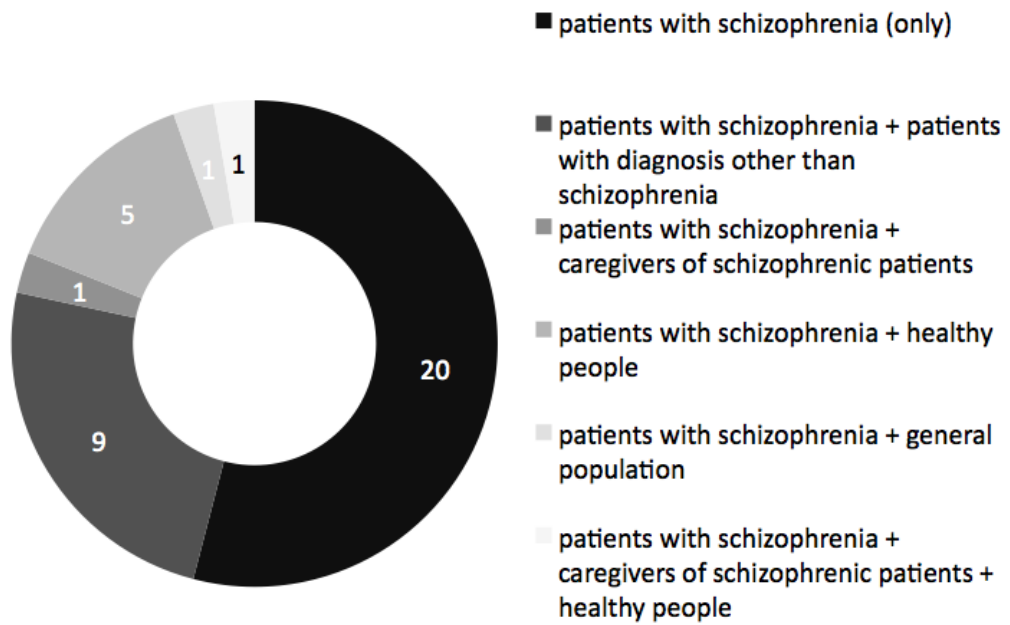


Figure 3. Distribution of 37 studies by evaluated group

Schizophrenia was found to greatly affect the QoL of patients and had a significant negative impact on the QoL of caregivers. Both general QoL questionnaires and those specific for schizophrenia were reported. However, only a few instruments

addressed the impact of negative symptoms on QoL (Figure 4).

Questionnaires not specific for schizophrenia were as follows (a detailed list of studies and instruments are presented in Table 1):

- EQ-5D: includes domains such as Mobility, Self-Care, Usual Activities, Pain/Discomfort And Anxiety/Depression
- Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form (QLESQ-SF): measures satisfaction with domains such as physical health, mood, work and household activities on a 5-point scale
- 7-point Satisfaction with Life Scale (SWLS)
- Short Form-36 (SF-36) questionnaire: includes domains such as Vitality, Physical Functioning, Bodily Pain, General Health Perceptions, Physical Role Functioning, Emotional Role Functioning, Social Role Functioning and Mental Health
- World Health Organization Quality of Life Instrument – BREF (WHOQOL-BREF): includes domains for Overall QoL and General Health, Physical Health, Psychological Status, Social Relationships and Environment
- Quality of Life Questionnaire: includes domains for General Well-Being, Interpersonal Relations, Organizational Activity, Occupational Activity, and Leisure and Recreational Activity.



The disease-specific questionnaires used in assessment of QoL of patients with schizophrenia were as follows (a detailed list of studies and instruments are presented in Table 1):

- Lancashire Quality of Life Profile (LQoLP): an interviewer-administered instrument for patients with chronic mental illness
- Manchester Short Assessment of Quality of Life (MANSA): a questionnaire for patients with severe mental illness (includes some questions about satisfaction with leisure activities and the quality of social relationships based on a 7-point satisfaction scale)
- Quality of Life Interview (QoLI): an instrument dedicated to patients with mental illness
- Heinrichs Quality of Life Scale (QLS): schizophrenia-specific QoL instrument featuring a 21-item scale
- Schizophrenia Quality of Life Scale (SQLS): a brief self-report measure
- Social Functioning Scale (SFS): an instrument developed and validated on outpatients and conducted as a verbal interview.

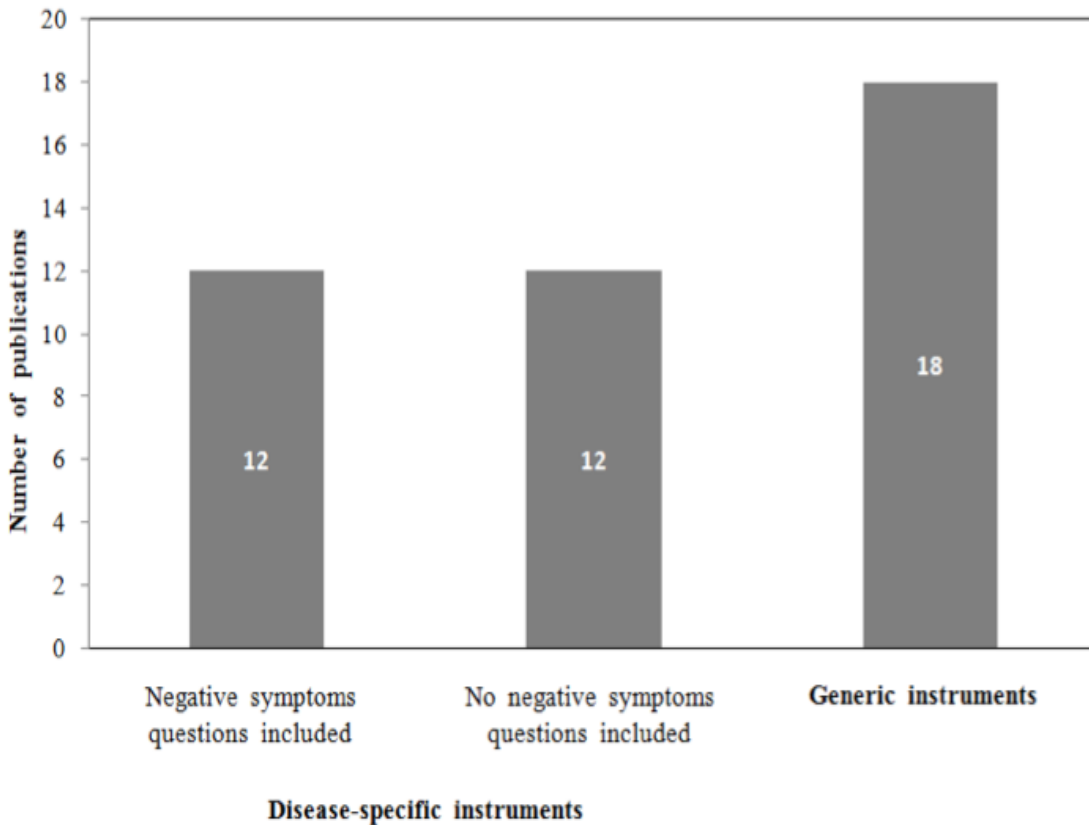


Figure 4. Number of studies with different types of questionnaires

Three other questionnaires less commonly presented in publications were also identified: the Liebermans' Quality of Life Questionnaire (QLQ), Mercier and Temp-

ier Scale and IMHC 2000 (see Table 1). Only a few of the disease-specific QoL instruments measured dimensions relating to negative symptoms, as listed below:

- 
- Lancashire Quality of Life Profile (LQoLP): an extensive interviewer-administered instrument for patients with chronic mental illness including schizophrenia, offering objective QoL indicators and subjective QoL estimates. In addition, the LQoLP assesses positive and negative affect, positive and negative self-esteem and global well-being
  - Heinrichs Quality of Life Scale (QLS): a 21-item scale for patients with schizophrenia based on a semi-structured interview designed to assess deficit symptoms over the preceding 4 weeks. The items are grouped into categories: Intrapsychic Foundations, Instrumental Role and Common Objects and Activities
  - Schizophrenia Quality of Life Scale (SQLS): a 30-item self-report questionnaire designed for patients with schizophrenia, consisting of three scales (Psychosocial, Motivation and energy, and Symptoms and side-effects)
  - Social Functioning Scale (SFS): a 79-item questionnaire that can either be completed by the patient or interviewer and covers Social engagement, Interpersonal communication, Activities of daily living, Recreation, Social activities, Competence at independent living and Occupation/employment.
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The literature confirmed that schizophrenia greatly affects quality of life of caregivers. Three publications demonstrated that the QoL of patients with schizophrenia and their caregivers is similar [7,8,31].

According to the literature, QoL significantly improves after a hospital stay, when compared with QoL at the time of admission [30,42]. However, there was no improvement in QoL for additional hospitalization after the initial hospital stay [13,17,28].

#### Stigmatization and discrimination

In addition to a lower QoL, patients with schizophrenia often experienced stigmatization and discrimination, although definitions of the two differed widely among the publications. Negative attitudes towards people with schizophrenia were also found to be prevalent in the CEE countries.

According to both international and country-specific publications, stigma related to schizophrenia can lead to rejection, discrimination, distress, social isolation, unemployment, homelessness, alcohol and drug abuse, and criminalization, factors which reduce the likelihood of clinical improvement and social reintegration [32,44,51]. As a consequence, stigmatization can also lead to poor attitudes towards physical health care, which is associated with higher mortality rates in patients with schizophrenia [52]. Those patients are often treated poorly with regards to their right to work, personal dignity, right to receive legal justice and equal access to medical treatment [6].

Stigmatization, together with other socioeconomic factors, is a key barrier to employment for patients with schizophrenia [33]. The number of professionally active or studying patients decreases by approxi-



mately one-half after initial hospitalization and the majority of patients receive a disability pension, indicating that vocational situation worsens in patients with schizophrenia during the first few years after hospitalization [22].

According to studies that cover populations from more than one country, the level of discrimination against patients with schizophrenia in European countries (including the seven selected CEE countries) was similar. In a multinational study [3], 42% of examined patients reported moderate or high levels of self-stigma (i.e. a personal response to perceived mental illness stigma) and 69% reported moderate-to-high levels of perceived discrimination. The majority of patients felt that the public hold negative attitudes towards mental health service users.

In a Polish study [4], the most common forms of discrimination experienced by patients were listed as: the feeling of being rejected by other people (87%), breaking off personal contact (50%), a negative public image of a mentally ill person in the media (38%), and problems in the area of employment (31%).

The burden of care on families with one or more family member with schizophrenia is very high [33]. Stigmatization and discrimination are key contributors to this burden in both patients with schizophrenia and their caregivers [9,47].

## DISCUSSION

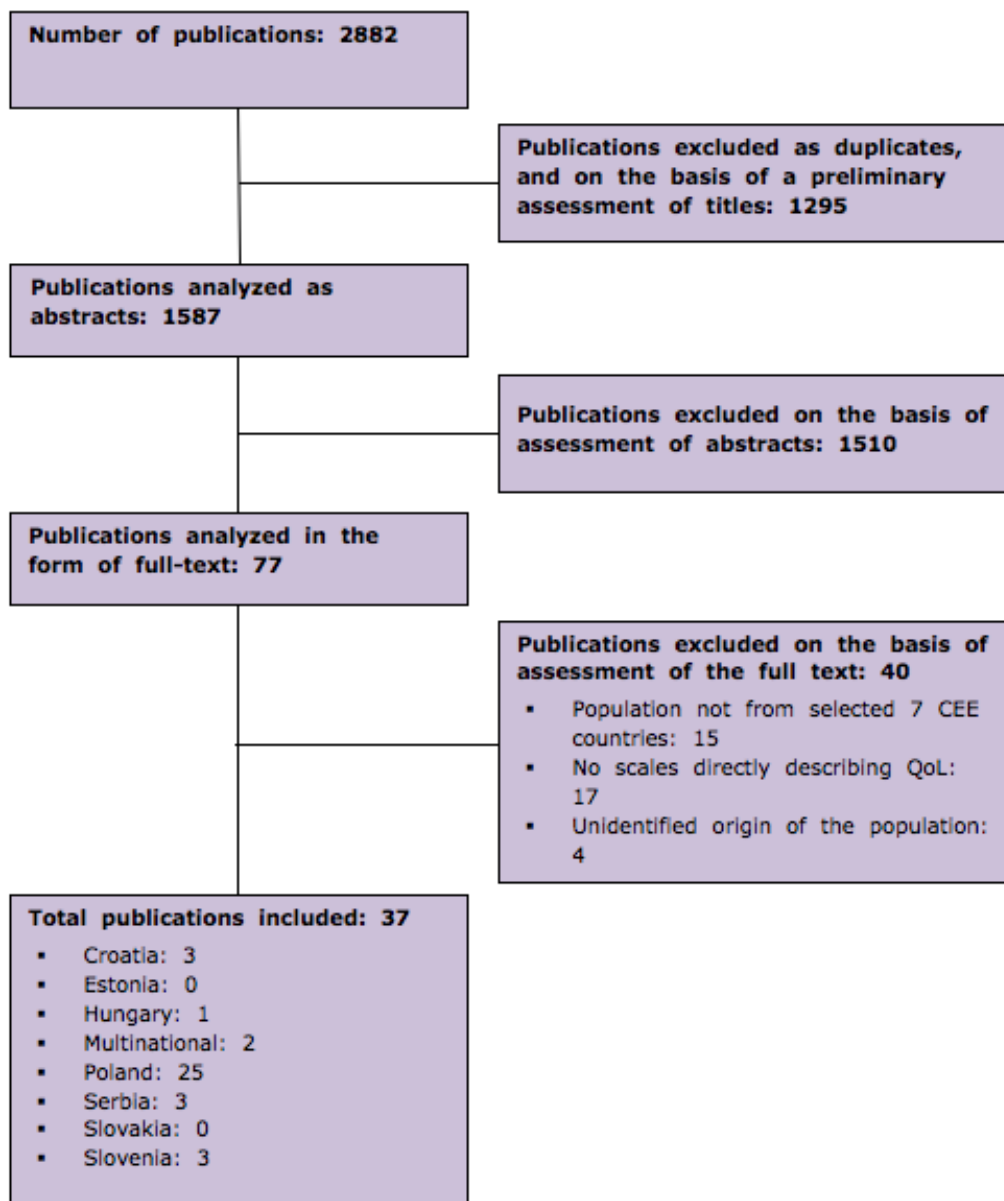
A wide variety of QoL publications were identified in this study. In the 37 articles analysed, 15 instruments had been used to assess the impact of schizophrenia on QoL (5 generic and 10 specific to schizophrenia or mental health disorders). Among the general scales, the World Health Organization of Life Instrument BREF (WHOQOL-BREF) (in eight studies) and SF-36 (in six studies) were most frequently used, whilst among schizophrenia-specific scales, QoL was evaluated most often by the Quality of Life Scale (QLS, Heinrichs, in eight studies) and Social Functioning Scale (SFS, Birchwood, in five studies).

A number of aspects of QoL have been investigated and reported in the literature, including:

- factors affecting the QoL of patients with schizophrenia, caregivers or healthy subjects
- factors influencing treatment choice
- correlations with mental condition, psychopathological symptoms or patient functioning.

The studies also differ significantly depending on their purpose, which influences the design, methodology and overall results. Aims of the studies reported are varied but typically include:

- identification of the factors affecting QoL
- comparison of the QoL of patients with schizophrenia versus other patients, caregivers or healthy subjects
- examination of whether QoL is correlated with mental condition, psychopathological symptoms, or patient everyday functioning
- evaluation of the influence of drugs or course of treatment on QoL



PRISMA Flow Diagram: Quality of life studies (MEDLINE via PubMed)

Due to the variety of data observed in the studies, it is not possible to make direct comparisons or pool data for analysis. However, it was consistently reported that patients with schizophrenia report worse QoL compared with the general population and that there is a significant negative impact on the QoL of caregivers, such that their QoL is similar to patients with schizophrenia. Furthermore, the QoL of patients with schizophrenia, after inpatient treatment, is significantly better than at time of admission to the hospital.

## CONCLUSION

There has been extensive research into the QoL of patients with schizophrenia and it has been consistently reported that schizophrenia significantly reduces the QoL of patients and their caregivers. In CEE countries, patients with schizophrenia experience stigmatization and discrimination, and an associated impact on their QoL and that of their caregivers. There are a number of tools available to assess QoL, but many of these do not specifically measure the negative symptoms of schizophrenia, which are known to negatively impact QoL.

Further research is needed to consolidate the existing body of literature to better understand the drivers of impaired QoL in patients with schizophrenia. In particular, future research could investigate negative symptoms, and how best the burden of illness can be reduced for both patients and caregivers.

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## Conflict of Interest

The authors have no conflicts of interest or financial disclosures to declare, however those who are also employees of Roche had support from Roche for their travel to the project meeting, as part of their responsibilities in the project.

## Appendix

PRISMA Flow Diagram: Quality of life studies (MEDLINE via PubMed)



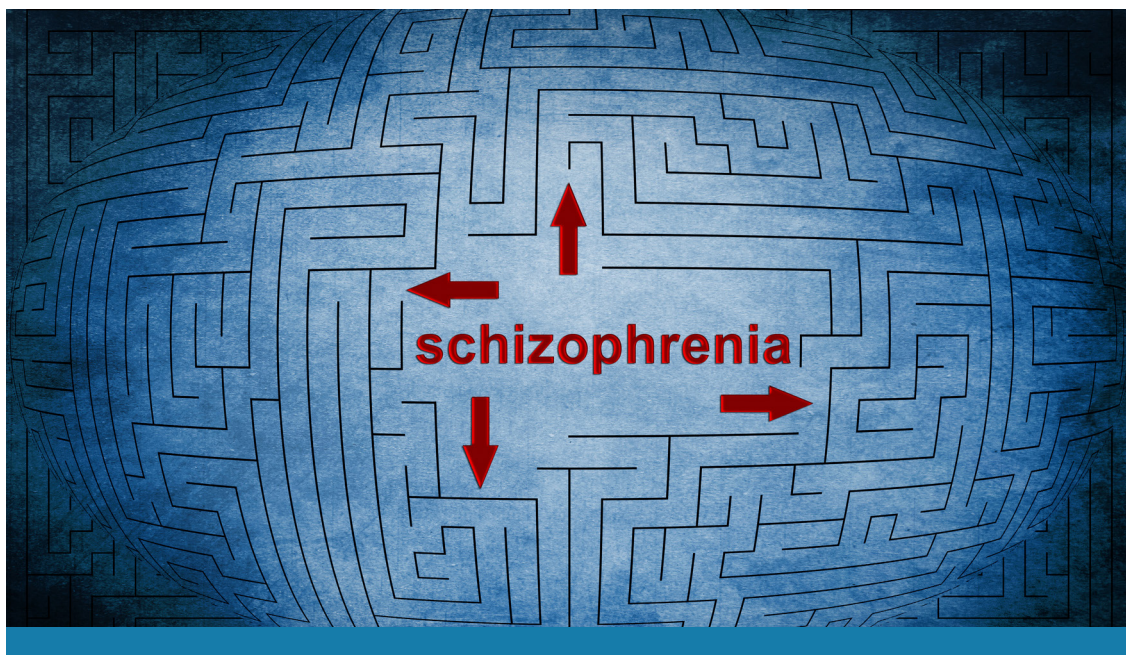
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