

## Differences in subjective quality of life of people with a schizophrenia diagnosis between participants in Occupational Therapy Workshops and those working in a Sheltered Employment Establishment

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### Summary

**Aim.** The research objective was to compare the course of illness among patients with schizophrenia undergoing rehabilitation in Occupational Therapy Workshops (OTW) or employed in the Vocational Development Center “Pensjonat u Pana Cogito” (VDC), with particular focus on quality of life (QoL), and to analyze the relations between QoL and general, social, and cognitive functioning, psychopathological condition and insight in the two groups.

**Method.** The sample comprised 52 subjects (VDC = 25 and OT = 27). The following tools were used: the LQoLP (for quality of life assessment) by Oliver, the PANSS, GAF, and SOFAS scales, the MoCA, RAVLT and RHLB cognitive tests, and the insight questionnaire “My thoughts and feelings”.

**Results.** Differences were found between the groups, to the VDC group’s advantage, in such areas of subjective QoL as: family relationships ( $p \leq 0.05$ ), somatic health ( $p \leq 0.05$ ) and self-esteem ( $p \leq 0.05$ ). In the VDC group, QoL correlated negatively with symptoms of distress and positively with overall insight into symptoms, while in the OTW group it correlated negatively with cognitive function and positively with insight as a reaction to information from others.

**Conclusions.** For people with schizophrenia obtaining and retaining employment in a VDC translates into better outcomes in important areas of quality of life such as family relationships, overall health, and self-esteem. Poorer QoL was associated with the severity of symptoms, in

particular depressive symptoms. People employed in the VDC benefited to a greater extent from autonomous control of symptoms, while among the OTW group an important role was played by others.

**Key words:** quality of life, schizophrenia, employment

## Introduction

In recent years many countries, including Poland, have invested considerable effort and resources in creating sheltered employment for people with a schizophrenia diagnosis. The declared aim of such efforts, aside from improving the social integration of this group, has been to improve their quality of life (QoL). For many years both scholars and therapists have been focusing not only on diagnosis but also on their level of social functioning. One reflection of this is the development of the International Classification of Functioning, Disability and Health (ICF) [1]. One of the aspects of social functioning assessed in the ICF is QoL. The ICF is an indicator of the relation of QoL not so much to health as to the skills possessed by an individual in the context of their specific situation and the influences of their environment [2]. Previous studies have intimated the existence of a link between schizophrenia patients' quality of life and employment (both in meta-analyses [3, 4] and in original research [5–8]). Many patients, even those whose health is stable, have problems finding employment. This may be due either to the side effects of the drugs they take, or to stigmatization [9]. It is for this reason that vocational rehabilitation and sheltered employment programs are so important; these can improve the chances of people with a schizophrenia diagnosis of finding work, and hence also of improving their quality of life. To date the global literature has yielded few works analyzing the link between vocational rehabilitation and rehabilitation through employment, and quality of life. One of the analyses closest to the area of interest to us here is the study by Holzner et al. [10], who found a positive link between a rehabilitation program and the QoL of people with schizophrenia; another is Bryson et al. [11], who described the beneficial link between remuneration and the QoL of schizophrenia patients attending a rehabilitation program. The present study is an attempt to identify and examine differences between the QoL of people undergoing vocational rehabilitation in Occupational Therapy Workshops (OTW) and that of people employed on a sheltered employment scheme in a Vocational Development Center (VDC).

## Research objective

This study included a group ( $n = 52$ ) of participants in Occupational Therapy Workshops (OTW) and people employed on the sheltered employment market in a Vocational Development Center (VDC), “the Hotel u Pana Cogito”. All those taking part in the study were long-term schizophrenia patients with a diagnosis as per DSM-5 criteria. The research objectives were as follows:

1. To compare the demographic, clinical, and social indicators of course of illness in the group attending the OTW rehabilitation with those of the group employed in the VDC.

2. To compare the subjective quality of life (QoL) of people with a schizophrenia diagnosis in the OTW rehabilitation subgroup with that of the people in the subgroup employed in the VDC.
3. To analyze the links between QoL and psychopathological condition, general and social functioning, and cognitive functions and insight in the two subgroups of the study sample.

## Tools and methods

### Subjects

Analysis of the demographic and clinical indicators of the course of illness and general and social functioning reveals a considerable degree of severity of the course of illness (Table 1).

Table 1. **Demographic, clinical, and social variables**

Demographic, clinical, and social variables	Study sample (n = 52)
Gender	F: 22 (42%), M: 30 (58%)
Marital status	Single: 45 (87%), in a relationship: 7 (13%)
Age	41.4 ( $\pm$ 9.0)
Length of education (years)	14.4 ( $\pm$ 3.0)
Duration of illness (years)	19.5 ( $\pm$ 9.0)
No. of episodes	8.4 ( $\pm$ 7.8)
No. of hospitalizations	6.5 ( $\pm$ 5.7)
Medication intake – as chlorpromazine dosage (mg)	550.7 ( $\pm$ 294.4)
PANSS total points	63.1 ( $\pm$ 18.8)
PANSS – positive	14.7 ( $\pm$ 5.1)
PANSS – negative	17.0 ( $\pm$ 7.3)
PANSS – overall	31.4 ( $\pm$ 8.4)
GAF	54.9 ( $\pm$ 14.0)
SOFAS	55.3 ( $\pm$ 12.6)

PANSS – Positive and Negative Syndrome Scale; GAF – General Assessment of Functioning; SOFAS – Social and Occupational Functioning Assessment Scale

The dominant group within the sample were men (58%). There were more single people, with only 13% of the group in relationships, and the long average duration of illness, large numbers of episodes and rehospitalizations, high average intake of neuroleptics, and average GAF and SOFAS scores of below 60 points combine to produce a profile of serious mental illness (SMI).

## Tools

Quality of life was assessed using the Lancashire Quality of Life Profile (LQoLP) interview by Oliver et al. [12]. The subjects gave a subjective evaluation of their satisfaction on a scale of 1–7 in eight domains of their lives: work and education, leisure and participation, religion, finances, living situation, legal and safety, family relationships, and health. The interview contains questions on aspects such as self-confidence and sense of self-worth, as well as a global evaluation of satisfaction. Severity of psychopathological symptoms was assessed using the PANSS [13], general functioning using the GAF scale, and social and vocational functioning using the SOFAS. Both groups underwent a battery of cognitive tests: *the Montreal Cognitive Assessment* (MoCA) [14], Rey’s verbal learning test (RAVLT) [15], and *the Right Hemisphere Language Battery* (RHLB) [16]. Detailed descriptions of these tools and results obtained using them are presented in the paper by Adamczyk et al. [17]. The objective assessment of level of insight was performed using item G12 on the PANSS, and subjective self-evaluation using the 6-point scale of insight “Moje Myśli i Odczucia” (My Thoughts and Feelings) [18]. The study was approved by the UJ CM Bioethics Committee.

## Statistical analysis

The quantitative variables were analyzed with the Student’s *t*-test for independent samples or its non-parametric equivalent the Mann–Whitney *U* test, dependent on distribution. Spearman’s rank correlation coefficient was employed to measure correlation between the continuous and ordinal scales. Qualitative variables were compared using the  $\chi^2$  test. The significance level was set to  $\alpha = 0.05$ . All calculations were performed using STATISTICA 13.1.

## Results

The authors compared demographic data and course of illness indicators between the two study groups, VDC ( $n = 25$ ) and OTW ( $n = 27$ ) (Table 2).

Table 2. Profile of the study sample, divided into the subgroup employed in the Vocational Development Center (VDC) and the occupational therapy participants (OTW)

Demographic, clinical, and social variables	VDC (n=25)	OTW (n=27)	p
Gender	F: 12 (48%) M: 13 (52%)	F: 10 (37%) M: 17 (63%)	$p = 0.42^a$
Marital status	Single: 20 (80%) In a relationship: 5 (20%)	Single: 25 (93%) In a relationship: 2 (7%)	$p = 0.35^a$
Age	42.2 ( $\pm 8.3$ )	40.7 ( $\pm 9.6$ )	$p = 0.55^b$
Length of education (years)	13.9 ( $\pm 2.9$ )	14.9 ( $\pm 3.0$ )	$p = 0.27^b$

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Duration of illness (years)	20.6 ( $\pm$ 9.7)	18.5 ( $\pm$ 3.0)	$p = 0.39^b$
No. of episodes	9.2 ( $\pm$ 8.0)	7.6 ( $\pm$ 7.6)	$p = 0.34^c$
No. of hospitalizations	6.4 ( $\pm$ 6.0)	6.5 ( $\pm$ 5.5)	$p = 0.58^c$
Drug intake – as dosage of chlorpromazine (mg)	548.0 ( $\pm$ 303.6)	553.2 ( $\pm$ 291.3)	$p = 0.95^b$
PANSS total points	55.8 ( $\pm$ 15.0)	70.0 ( $\pm$ 19.6)	$p \leq 0.01^b$
PANSS – positive	13.2 ( $\pm$ 4.6)	16.1 ( $\pm$ 5.2)	$p \leq 0.05^b$
PANSS – negative	14.0 ( $\pm$ 5.6)	19.7 ( $\pm$ 7.7)	$p \leq 0.01^b$
PANSS – total	28.6 ( $\pm$ 7.4)	34.0 ( $\pm$ 8.6)	$p \leq 0.05^b$
GAF	63.9 ( $\pm$ 11.7)	47.8 ( $\pm$ 11.3)	$p \leq 0.001^b$
SOFAS	64.2 ( $\pm$ 10.0)	48.3 ( $\pm$ 9.7)	$p \leq 0.001^b$

<sup>a</sup> $\chi^2$  test, <sup>b</sup> Student's t-test. <sup>c</sup> Mann-Whitney U test

As in both groups we had the patients with the long-term course of illness, the participants did not differ significantly either in terms of any of the demographics assessed or with regard to the course of illness indicators – duration of illness, number of psychotic episodes, number of hospitalizations, or average drug intake. Significant differences – in favor of the group employed in the Vocational Development Center – were found in severity of psychopathological symptoms ( $t = -2.86$ ;  $p \leq 0.01$ ), general function ( $t = 4.68$ ;  $p \leq 0.001$ ), and social function ( $t = 5.38$ ,  $p \leq 0.001$ ).

#### Comparison of QoL in the VDC and OTW groups

The comparisons of the subjective overall QoL and its specific aspects in both subgroups are presented in Table 3.

**Table 3. Comparison of subjective, global evaluations of quality of life and domains thereof in the VDC and OTW subgroups**

QoL – level of satisfaction	VDC (n=25)	OTW (n=27)	$p^c$
QoL – global	3.6 ( $\pm$ 1.0)	3.4 ( $\pm$ 1.0)	$p = 0.53$
Work and education	4.3 ( $\pm$ 0.8)	4.1 ( $\pm$ 0.8)	$p = 0.49$
Leisure and participation	At home: 3.6 ( $\pm$ 1.1) Outside the home: 3.9 ( $\pm$ 1.0)	At home: 3.7 ( $\pm$ 1.0) Outside the home: 3.6 ( $\pm$ 0.9)	$p = 0.57$ $p = 0.27$
Religion	Faith: 3.8 ( $\pm$ 1.2) Participation: 3.8 ( $\pm$ 1.2)	Faith: 3.9 ( $\pm$ 1.2) Participation: 3.5 ( $\pm$ 1.4)	$p = 0.80$ $p = 0.58$

*table continued on the next page*

Finances	Level of wealth: 2.9 ( $\pm 1.1$ ) Disposable income: 2.8 ( $\pm 1.1$ )	Level of wealth: 3.1 ( $\pm 1.2$ ) Disposable income: 3.3 ( $\pm 0.4$ )	$p = 0.45$ $p = 0.27$
Living situation	Conditions: 3.7 ( $\pm 0.8$ ) Independence: 4.0 ( $\pm 1.1$ )	Conditions: 3.7 ( $\pm 1.0$ ) Independence: 3.6 ( $\pm 1.3$ )	$p = 0.96$ $p = 0.41$
Legal and safety	Personal: 3.8 ( $\pm 1.2$ ) Surroundings: 3.9 ( $\pm 1.1$ )	Personal: 3.7 ( $\pm 0.7$ ) Surroundings: 3.7 ( $\pm 0.8$ )	$p = 0.38$ $p = 0.23$
Family relationships	Quality of relationships: 4.4 ( $\pm 0.7$ ) No. of relationships: 4.1 ( $\pm 0.9$ )	Quality of relationships: 3.6 ( $\pm 1.1$ ) No. of relationships: 3.3 ( $\pm 1.3$ )	$p \leq 0.01$ $p \leq 0.05$
Health	3.8 ( $\pm 0.9$ )	3.2 ( $\pm 1.0$ )	$p \leq 0.05$

<sup>c</sup> Mann-Whitney U test

Significant differences were observed between the subgroups – to the advantage of the group working in the social firm – in the domain of family relationships in terms of both quality and quantity of relationships (respectively:  $Z = 2.13$ ,  $p \leq 0.05$ ;  $Z = 2.86$ ,  $p \leq 0.01$ ), and in the health domain ( $Z = 2.19$ ,  $p \leq 0.05$ ). The question on the sense of self-worth was analyzed qualitatively; in the group of employees, 88% claimed to feel that they were someone of value, or at least of equal value to others, compared to 58% in the OTW group ( $\chi^2 = 5.88$ ,  $p \leq 0.05$ ).

The correlations between QoL and individual variable were analyzed separately for each of the two subgroups. (Table 4 and 5)

QoL correlations in the employee (VDC) subgroup.

In terms of assessment of the link between QoL and level of psychopathology and general functioning in the group of people employed in the Vocational Development Center, a negative, average correlation ( $r = -0.42$ ;  $p \leq 0.05$ ) was observed between QoL and severity of emotional distress (the van der Gaag dimension) [19]. No connections were found in this group between QoL and cognitive functions, but the insight study showed a positive link between total score on the questionnaire “My thoughts and feelings”, which reflects the patient’s general level of understanding of their situation, and overall QoL evaluation ( $r = 0.47$ ;  $p \leq 0.05$ ) (Table 4)

Table 4. **Correlations between QoL and intensity of symptoms, general, social, and cognitive functioning, and insight in the VDC group (n = 25)**

Course of illness indicators	R (Spearman)	t (N – 2)	p
Psychopathology and global functioning			
PANSS – total points	-0.04	-0.21	0.84
PANSS – positive (van der Gaag)	-0.10	-0.49	0.63
PANSS – negative (van der Gaag)	-0.30	-1.51	0.15
PANSS – disorganization (van der Gaag)	0.004	0.02	0.99
PANSS – arousal (van der Gaag)	0.07	0.32	0.75

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Course of illness indicators	R (Spearman)	t (N - 2)	p
PANSS – emotional distress (van der Gaag)	-0.42	-2.22	≤0.05
SOFAS (n = 20)	0.06	0.23	0.82
GAF (n = 20)	-0.03	-0.14	0.89
Cognitive functioning			
MoCA – sum	-0.10	-0.48	0.64
RAVLT – sum	-0.38	-1.98	0.06
RHLB – sum	0.27	1.32	0.20
Insight (n = 20)			
INSIGHT – sum	0.47	2.24	≤0.05
INSIGHT – Response to correction from others	0.37	1.67	0.11
INSIGHT – Reality test	0.20	0.85	0.40
INSIGHT – Acceptance of diagnosis	0.31	1.40	0.18
INSIGHT – Appearance	0.31	1.40	0.18
INSIGHT – Awareness of relapse	0.25	1.07	0.30
INSIGHT – Cause of illness	-0.13	-0.55	0.59

### Correlations of quality of life (QoL) in the group attending Occupational Therapy Workshops

In the OTW group, no connections were found between subjective evaluation of QoL and either severity of symptoms or general and social functioning. Average negative correlations were observed between the level of achievement on memory tasks, including aural and verbal learning skills ( $r = -0.39$ ;  $p \leq 0.05$ ), and level of communication and language skills – and life satisfaction ( $r = -0.46$ ;  $p \leq 0.05$ ). In the group of people in Occupational Therapy Workshops (OTW), correlations between QoL and insight were observed for the question on participation of others in increasing awareness in the illness (correction by others) and for help in distinguishing delusions from reality ( $r = 0.45$ ;  $p \leq 0.05$ ) (Table 5).

Table 5. Correlations between QoL and severity of symptoms, general, social, and cognitive functioning, and insight in the OTW group (n = 27)

Spearman's correlation coefficient for QoL	R (Spearman)	t (N - 2)	p
Psychopathology and global functioning			
PANSS – total points	0.14	0.71	0.48
PANSS – positive (van der Gaag)	0.22	1.11	0.28
PANSS – negative (van der Gaag)	-0.01	-0.06	0.90

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Spearman's correlation coefficient for QoL	R (Spearman)	t (N – 2)	p
PANSS – disorganization (van der Gaag)	0.03	0.14	0.89
PANSS – arousal (van der Gaag)	0.11	0.57	0.57
PANSS – emotional distress (van der Gaag)	0.33	1.74	0.09
SOFAS (n = 20)	-0.12	-0.57	0.58
GAF (n = 20)	-0.05	-0.24	0.10
Cognitive functioning			
MoCA – total	-0.31	-1.63	0.12
RAVLT – total	-0.39	-2.14	≤0.05
RHLB – total	-0.46	-2.60	≤0.05
Insight (n = 25)			
INSIGHT – total	0.14	0.69	0.50
INSIGHT – Response to correction from others	0.45	2.42	≤0.05
INSIGHT – Reality test	0.19	0.92	0.37
INSIGHT – Acceptance of diagnosis	-0.14	-0.69	0.50
INSIGHT – Appearance	-0.07	-0.35	0.73
INSIGHT – Awareness of relapse	0.34	1.73	0.10
INSIGHT – Cause of illness	-0.14	-0.69	0.50

## Discussion

At the beginning of these reflections on the outcomes of this study, it is important to stress that the two groups did not differ in terms of demographics or basic course of illness indicators: duration, numbers of episodes and hospitalizations, and drug intake, all of which produced a profile for both groups of patients with long-term serious illness. This makes the effort invested in taking up employment by people who had previously attended Occupational Therapy Workshops (OT)W all the more commendable. Statistically significant differences did occur, however, in the area of severity of psychopathological symptoms and in terms of general and social functioning. The nature of these correlations remains open for discussion. It is probably the case that better health enables patients to take up and remain in work, and consequently employment enables them to take better care of their mental health; it may also be – and this seems most likely – that these links are parallel.

One of the interesting QoL-related outcomes among the Occupational Therapy Workshops participants and the employees of the Vocational Development Center is the observation that employment did not affect overall subjective sense of life satisfaction. A similar outcome was obtained by Priebe et al. [5] and Badura-Brzoza et al.

[20]. Our own previous research also suggested the existence of a process of leveling of evaluation of QoL over years of illness between groups of more and less seriously ill patients with schizophrenia diagnoses [21]. This outcome can probably be explained by the activation of adaptation mechanisms which sustain a sense of wellbeing in an objectively more difficult situation.

However, the fact of having a job for a person with schizophrenia did affect subjective domains of QoL such as family situation, somatic health, and sense of self-worth. The improvement in sense of self-worth and family situation seem understandable and consistent with clinical experience and with the outcomes of previous studies [22–24]. One major difference is due to the financial aspect, as found in the study by Bryson [11]. While in our study no differences were found in patients' evaluation of their financial situation, which was probably due to the support that participants in Occupational Therapy Workshops receive from their families and the state (benefits), the very fact of receiving remuneration for their activeness was nonetheless probably a factor in their improved evaluation of their QoL, even if this did not include an objective improvement in their financial situation.

Patients' improved evaluations of their somatic health may be due not only to their taking greater care of their health in order to retain their jobs, but also to action by the employer in this area (periodic check-ups, extra funds ring-fenced for health care, etc.). Of the few links between psychopathological picture and QoL, an important one is probably the correlation found between greater emotional distress and poorer QoL in the group of employees. The explanation for this is probably that a level of symptoms which is acceptable for those attending Occupational Therapy Workshops, and does not significantly affect their subjective QoL, for those in employment constitutes a significant inconvenience in view of their debilitating effect on functioning as an employee.

This is confirmed by the links between QoL and depressive symptoms found in other studies [25, 26]. The result obtained in the OTW subgroup suggesting a poorer quality of life among those with better cognitive functioning (in terms of memory and learning capabilities, as well as communicative and linguistic skills) may be explained as a function of their greater degree of criticism and awareness of the difficulties and restrictions they face [27].

In both subgroups there were correlations between insight and QoL, though they differed in character. Among the employees a correlation was found between global insight and QoL. This may suggest greater benefit achieved by patients in employment from better control of their symptoms [28]. The fact of having a job to some extent forces closer monitoring of their own state of health, because its deterioration causes disruption to the rhythm of work and potentially even the loss of the job. While in the subgroup of VDC employees global insight was correlated with better QoL, in the OTW group better QoL was associated with the presence of people who helped to achieve a grounding in reality, and to distinguish between reality and illness-related experiences. This would indicate a more 'external', environmental-dependent genesis of the benefits associated with insight in members of the OTW group, thus suggesting the complex nature of the phenomenon of insight overall, and its ambiguous relation to QoL. On the one hand, there are reports in the literature indicating a link between

lack of or lower level of insight, and better QoL (as, for instance, in the abovementioned study by Siu et al. [27] and the work of Margariti et al. [29]), while on the other inverse correlations have also been found [30]. A lot depends on whether QoL is evaluated subjectively or objectively, i.e., by an external observer. In our study we achieved a rather uncommon outcome indicating a positive correlation between insight and subjective QoL. This may be related to the therapeutic context in which the study was conducted. A person attending an intensive rehabilitation program such as that offered by OTW, and in particular by work in a sheltered employment scheme, has less need to deny their symptoms in view of the social context in which they function, which actively supports the process of returning to health and promotes openness in relationships.

It remains a matter for discussion, of course, to what extent the differences found are due to the fact of the patient having accepted employment and managed to retain it for many years, and to what extent the very fact of their having done so indicated that they were a priori in a better state and ready to leave the OTW stage. There can be no doubt, however, that the very prospect of being able to take up employment adds meaning to rehabilitation in the form of Occupational Therapy Workshops and reinforces the aim with which they were instituted. A separate issue is the challenge presented by creating sheltered employment establishments such as the guest house and restaurant “U Pana Cogito” and managing them in such a way as to ensure that the atmosphere there fosters the process of returning to health.

### Conclusions

1. Accepting and retaining work in a Vocational Development Center by a schizophrenia sufferer translates into better outcomes in significant domains of quality of life: family relationships, overall health, and sense of self-worth.
2. The subjective quality of life of people in employment and thus experiencing higher levels of stress and more intensive social interaction falls, as a result of occurrence of psychopathological symptoms, in particular in the area of depression.
3. The better cognitive functioning in those not in employment is associated with a poorer quality of life, thus indicating an interdependence between level of criticism and awareness of their own situation, and life satisfaction.
4. Subjective quality of life correlates positively with the aspect of insight, though this link differs depending on whether or not the person is in employment. Those employed in the Vocational Development Center benefited more from autonomous control of their symptoms, while for those attending Occupational Therapy Workshops third parties played an important role.

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