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Abstract

Objective Work is often a desired goal for people with mental illness, as expressed by both themselves and their relatives. This study investigated the importance of work status, everyday activities and objective life indices for subjective quality of life, with a special focus on quality of life domains.

Method The sample consisted of 103 individuals with severe mental illness in Sweden, a majority of whom had schizophrenia. Interview-based questionnaires were used to assess quality of life (MANSA) and activity factors (SDO, OVal-pd).

Results Work status and activity in terms of actual doing were of some, but minor, importance to subjective quality of life domains, whereas satisfying and valuable activities were consistently associated with most quality of life domains.

Conclusion Although no causal relationship could be established, the findings indicate that open-market work might not be decisive for subjective quality of life, but that satisfying and meaningful everyday activities could contribute to a better life quality for those who have a severe and lasting mental illness.

Keywords Life satisfaction · Community-based psychiatry · Day-care centres · Occupation · Employment

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Introduction

Activity and well-being have shown to be related phenomena, especially subjective appreciations of the activities one is involved in and subjective quality of life [1–5]. Everyday activities may be categorised in different ways, but it is common to distinguish work, home chores, leisure activities and rest/sleep. In western societies, work takes a unique position in this respect. It is highly valued, because it gives incomes, status and structure to life and strengthens one's identity [6–9]. Also people with severe mental illness tend to value work. When asked, about one-third told they wanted regular work [10]. Relatives have pointed out that a structured daily activity, such as work, is one of the most urgent unmet needs among people with mental illness [11].

Several studies have shown that those who have work report better satisfaction with their life quality than those who are without [1, 12–17]. This result is consistent also when controlling for different clinical characteristics, such as diagnosis, psychopathology and history of illness [16]. However, those who do not have a work do not form a homogeneous group, and relatives of people with mental illness have indicated a structured daily activity, not work per se, as an urgent need that has to be met [11]. From theory on daily activities [18, 19] one could expect that any meaningful activity, work or other, would be associated with better quality of life. For example, people visiting day-care centres might have a more advantageous situation than those who have no structured meaningful activity at all. Work in the sense used above tends to mean open-market employment, but the term could also include voluntary work, sheltered work, work performed in cooperatives and day-centres, etc. This was the point of departure for a study of three groups of people with mental

illness, representing different types of work status in terms of regular work/studies, visiting community-based day-care centres/work cooperatives and no regular daily occupation. The groups were compared concerning quality of life and other variables related to health and well-being, but no differences were found [20]. However, that report focussed on health and well-being in a broad respect, including self-rated health, self-mastery, sense of coherence, psychopathology, a summarised index of quality of life, etc., and did not analyse specific life domains. Neither did it address objective quality of life indices, nor whether activity factors, besides work situation, and quality of life were interrelated phenomena. A more detailed analysis of the quality of life data from that project is warranted, not least because aggregated quality of life ratings may hide detailed differences.

The aim of this study was to further describe and compare the objective and subjective quality of life of the sample with mental illness consisting of three groups based on work status described in Eklund et al. [20]. The aim was also to investigate if findings from other projects, in terms of relationships between activity factors and quality of life, could be replicated. In that, further knowledge about quality of life in relation to work status and other activity factors could be obtained, in turn important for how to support people with mental illness to meaningful daily activity.

Methods and material

Sample selection

The principle of informed consent was applied, and a local research ethics committee approved the study. The participants were selected from a Swedish outpatient unit admitting people with severe mental illness, mainly schizophrenia and other psychoses. Inclusion criteria were duration of service contact of at least 2 years and an age of 20–55 years. The intent of these criteria was to ensure a sample of working age individuals who had a certain severity of the mental disorder. Two years of contact with the psychiatric services has been set as a limit when discerning people with severe and persistent mental illness [21]. Exclusion criteria were comorbidity of developmental delay or dementia, being sentenced to psychiatric care or being too confused to participate. To arrive at a sample where people with competitive work or regular studies were represented, no further limitation concerning diagnoses was set.

The register comprised 400 patients who matched the criteria for inclusion. The sample was selected by a combined stratification/randomisation procedure. The eligible patients were first grouped in three strata according to type of employment and work situation. The first stratum

comprised those who spent 10 h per week or more in open-market work or studies. The second was formed by those who weekly spent 10 h or more in regular structured occupations, but not in open-market work or studies. They mostly visited community-based day-care centres or work cooperatives, while a few of them had work training. The third stratum was composed of patients with no regular structured daily activity of at least 10 h per week. The grouping in strata was based on a rating according to these three criteria made by the psychiatrist in charge of the respective patient. The psychiatrists in charge also diagnosed the patients according to ICD-10 [22].

Subsequently, randomised selection from each stratum was made. A power analysis [23, 24] indicated that 35 participants were needed from each stratum. In order to obtain 105 participants who agreed to participate—35 from each stratum—176 eligible patients had to be asked, and the initial randomisation had to be complemented with a second round. This resulted in a participation rate of 60%, which is equal to or better than similar studies, where the data collection is not part of standard clinical procedures [1, 25]. A dropout analysis showed that the participants were somewhat younger than the dropouts (39/42 years, $P = 0.021$) and contained fewer women (45/61%, $P = 0.04$). There was no difference between participants and dropouts in diagnosis.

Instruments

An interview-based questionnaire was used to investigate sociodemographic characteristics. The data collection also comprised assessments of quality of life and activity factors. In order to characterise the participants, an estimate of psychosocial functioning was also included.

Quality of life

The Manchester Short Assessment of Quality of Life (MANSA) [26] was used to assess quality of life. It is a short version of the Lancashire Quality of Life Profile (LQLP) [27]. The Swedish version, found to be psychometrically sound [28], was used. The MANSA is administered as a structured interview and includes the individual's subjective rating of general life satisfaction as well as satisfaction concerning 11 different quality of life domains: work, economic situation, social relations, leisure, housing situation, safety, people one lives with, sexual relations, family relations, and physical and psychological health. These items reflect *subjective quality of life*, and the ratings are made on a seven-point scale from 1 = worst possible to 7 = best possible satisfaction. The mean ratings from the different domains form an overall quality of life score. The MANSA also includes a few items on *objective quality of life*, in terms of money at

one's disposal, access to friends, being accused of crime and being a victim of physical violence.

Everyday activity

Everyday activity was assessed in four different ways. As part of the sociodemographic questionnaire, the respondent was asked how many hours per week he or she spent in productive activities, including open-market work, studies, regular activities other than open-market work or studies, and home-and-household chores. The numbers of hours spent in each category were added into a total estimate of *time spent in productive activities*.

Activity was further measured by means of the instrument Satisfaction with Daily Occupations (SDO), an interview-based instrument with good psychometric properties in terms of content and construct validity, test-retest reliability, internal consistency and discriminating power [29–31]. The instrument comprises nine items regarding the activity areas of work/studies, leisure, domestic chores and personal care. Each item consists of a two-part question. The first part queries whether or not the subject performs the targeted kind of activity at the moment and is answered by yes or no. Every 'yes' renders a score of one, and together these first parts of the items form an *activity level* scale ranging from 1 to 9. The second part of the items asks the subject to rate his/her satisfaction with the activity, regardless of whether he or she presently performs the activity or not. This means, for example, that a person with employment rates his or her satisfaction with having a job, and a subject without rates that condition. A rating scale from 1 = worst possible to 7 = best possible satisfaction is used. The different ratings are added into a *satisfaction with activity* scale ranging from 9 to 63.

The fourth estimate of daily activity was the Occupational Value with pre-defined items (OVal-pd) [32], which assesses the value found in daily activities, here termed *activity value*. It is a self-administered questionnaire with good internal consistency and construct validity when used with the target group. It has 26 predefined items, forming statements describing the value inherent in activity situations, for example, "something important was done", "I was pleased with the result", and "it was a real pleasure to do". The respondent rates how frequently he or she has experienced activity situations imprinted with the values described in the items. A four-point scale from 1 = never to 4 = often is used. A summarised score based on all items was used for this study.

Psychosocial functioning

The Global Assessment of Functioning (GAF) estimates global psychosocial functioning and was used for descriptive purposes in this study. It forms a single rating on a 100-point scale, where a rating of 100 indicates not only absence of pathology, but also positive mental health. GAF is equivalent to the Global Assessment Scale, which has acceptable validity and reliability [33–35].

Data analysis

The MANSA was regarded as an ordinal scale, and non-parametric statistics were considered most appropriate. Associations between categorical variables were analysed by means of the χ^2 test, and group differences were tested by the Mann–Whitney U-test or the Kruskal–Wallis test. In the latter case, Bonferroni corrections were made. Since the work status groups represented three positions on a continuum, from structured daily activity in terms of work/ studies to other structured daily activity to no structured activity, when comparing the groups, a linear trend concerning quality of life domains was tested. For this purpose, the Jonckheere–Terpstra test was used. For the variables of money at one's disposal, a linear trend could not be assumed between the work status groups, since both group II and group III were without paid work. Besides, the data were on a quotient scale, implying that parametric statistics were used to test for differences between the groups, in terms of a one-way ANOVA with Bonferroni corrections.

Spearman rank correlations were used to analyse relationships between the subjective quality of life indicators and the activity variables. In order to account for colinearity among variables, regression analysis was made. An approximation to the non-parametric approach was made by first ranking all variables and then performing stepwise linear regression. When categorical data were entered in these regression models, dummy variables were first created. The software used was the SPSS package, version 14.0.

Results

Characteristics of the participants

The individuals with open-market work or studies were set to form group I, while group II was composed by those who participated in structured daily occupations other than work, mostly visiting day-care centres or work cooperatives, and group III comprised individuals with no regular daily activity. Since the diagnosis was not set at the time of the interview, two subjects had to be excluded later on because of a diagnosis of developmental disorder. This meant that groups I and III included only 34 patients each. Patients were classified into three diagnostic subgroups,

one group with schizophrenia and other psychoses (F20–29), another with mood disorders and neuroses (F30–39 and F40–48), and a heterogeneous third group, where personality disorders and Asperger's syndrome were the most common diagnoses. The distribution of diagnoses differed significantly among the three strata based on occupational situation ($P < 0.001$). Mood disorders and neuroses were more common in group I, with open-marked work or studies, and less common in group II, with community-based activities, while the opposite was found for the grouping of schizophrenia and other psychoses. Moreover, group I scored higher than the other two groups on psychosocial functioning, according to GAF ($P = 0.015$). The work status groups did not differ according to age, gender, civil status, or whether or not they lived with own children. Table 1 shows these demographic and clinical characteristics by group.

Objective and subjective quality of life

The groups based on work status did not differ on the objective quality of life indicators of having a close friend or having met a friend the past week. Only one individual had been accused of crime, and one had been a victim of physical violence the past year, so these variables were not analysed further. The mean (SD) amount of money at one's disposal per month, after taxes and including welfare benefits, and estimated in the Swedish wage level of 2007, corresponded to 1,245 (480) € in group I, 900 (165) € in group II and 935 (230) € in group III. The analyses indicated that group I had more money at their disposal than the other two groups ($P < 0.001$; $P = 0.001$, respectively), but there was no difference between group II and group III in this respect.

Objective quality of life was investigated for relationships with subjective quality of life domains in the sample as a whole. Those who reported having a close friend, 73%, scored higher on satisfaction with friends ($P < 0.001$), but no other life domain. Those who had been with a friend the past week, 72%, also scored higher on satisfaction with friends ($P = 0.008$), and these also scored lower on satisfaction with the people they lived with ($P = 0.023$). The sum of money at one's disposal was associated with satisfaction with one's housing conditions ($r_s = 0.312$; $P = 0.002$). No other association between objective quality of life indicators and a subjective quality of life domain was found, and none at all were identified with respect to overall satisfaction with life or an index based on satisfaction with all 11 life domains.

Work status, everyday activity and subjective quality of life domains

A linear trend between the groups based on work status was found for the subjective quality of life domains of satisfaction with work ($P = 0.005$) and satisfaction with the economic situation ($P = 0.019$), but not for the other domains or for general satisfaction. Regarding a summarised index from the 11 domains, a linear trend appeared too ($P = 0.027$).

Since the groups based on work status differed on diagnosis, it was also investigated whether there was a linear trend among the three diagnostic groupings, presented in Table 1, regarding the subjective quality of life variables. No such linear trend was found on any variable.

Correlation analyses revealed several relationships between the variables pertaining to everyday activity and

Table 1 Characteristics of the participants

	Group I[a] (n = 34)	Group II[b] (n = 35)	Group III[c] (n = 34)
Gender (male/female)	16/18	22/13	18/15
Mean age	39	38.9	39.3
Married/cohabitants	6	1	6
Living with own children	9	4	8
ICD-10 groupings			
F20-29 (schizophrenia, schizotypal and delusional disorders)	14	21	25
F30-39 (mood disorders) and F40-48 (neurotic, stress-related and somatoform disorders)	17	2	4
Other: mainly F60-69 (disorders of adult personality and behaviour) and F80-89 (disorders of psychological developmental origin)	3	12	5
GAF; psychosocial functioning[d]	75 (8.7)	63.2 (8.7)	62.7 (9.6)

[a] Group I, open-market work or regular studies

[b] Group II, community-based day-care centres or work cooperatives

[c] Group III, no regular daily activities

[d] Theoretical range: 1–100, where 100 denotes best possible functioning

the different aspects of quality of life. Linear regression analyses, controlling for diagnosis, were made to sort out colinearity between the activity variables. As shown in Table 2, satisfaction with activity was the dominant variable in explaining different quality of life domains, and was especially closely linked with the summarised index and the domains of leisure and work. Activity value was particularly related to overall life satisfaction and the domain of satisfaction with sexual relations. Together, the activity variables explained 48% of the variation in the summarised index, 37% in leisure and 35% in overall life satisfaction. Quality of life domains with low but significant relationships with activity variables concerned satisfaction with economic situation, friends, personal

safety, people one lives with and family relations. The only quality of life domain without any association with an activity variable was satisfaction with housing conditions.

Diagnosis was of minor importance, and entered only as the third factor in explaining overall satisfaction with life (Table 2). Being diagnosed with mood/anxiety disorders was associated with worse satisfaction, as compared to schizophrenia and other diagnoses.

Discussion

This study yielded some important results regarding the role of work status and other aspects of everyday activity

Table 2 Regression analyses with subjective quality of life variables as dependent factors and variables reflecting everyday activity and diagnosis as independent factors

	Beta	R^2 change	F change	P-value for F change
Overall satisfaction				
Activity value	0.451	0.28	36.78	<0.001
Satisfaction with activity	0.327	0.07	10.50	0.002
Diagnosis (mood/anxiety vs. others)	−0.196	0.04	5.47	0.021
Work				
Satisfaction with activity	0.472	0.22	26.92	<0.001
Economic situation				
Activity level	0.229	0.05	5.16	0.025
Friends				
Satisfaction with activity	0.317	0.10	10.49	0.002
Leisure				
Satisfaction with activity	0.516	0.27	35.21	<0.001
Activity value	0.250	0.06	7.70	0.007
Time spent in productive activity	−0.218	0.04	6.24	0.014
Housing situation				
–	–	–	–	–
Personal safety				
Satisfaction with activity	0.210	0.04	4.33	0.040
People one lives with				
Activity value	0.298	0.09	9.18	0.003
Sexual relations				
Activity value	0.402	0.21	23.63	<0.001
Satisfaction with activity	0.199	0.04	4.26	0.043
Family relations				
Satisfaction with activity	0.272	0.074	7.51	0.007
Physical health				
Satisfaction with activity	0.337	0.18	20.74	<0.001
Activity value	0.301	0.08	10.46	0.002
Psychological health				
Satisfaction with activity	0.335	0.18	21.18	<0.001
Activity value	0.322	0.10	12.22	0.001
Summarised index				
Satisfaction with activity	0.472	0.342	48.87	<0.001
Activity value	0.391	0.141	25.31	<0.001

for subjective quality of life. Work status was shown to be important for those subjective quality of life domains that had a logical link to work status, namely satisfaction with work and economic situation, but also for the summarised index of subjective quality of life. A linear trend was found, meaning that group I had a more satisfying situation than group II in these respects, and group II a more favourable situation than group III. While the former result confirms previous research, this latter result is especially interesting. It indicates that taking part in community-based activity centres is of importance to one's perceived quality of life.

Previous findings of a close and consistent link between subjective appreciation of daily activity and subjective quality of life [1, 4, 5] could be replicated in the present study. Some of the associations found probably have to do with overlapping items in the instruments measuring activity and quality of life, respectively, such as those between satisfaction with activities and satisfaction with the life domains of work and leisure. However, the associations between satisfaction with activities and, for example, the quality of life domains of physical and psychological health could not be explained by instrument effects. Neither could the associations between activity value and the different aspects of quality of life, such as overall life satisfaction and satisfaction with sexual relations. On the other hand, a study like this cannot point to any causal relationships. It is plausible that the relationships are dynamic, and that activity and quality of life enforce each other in a benign circle.

Interestingly, actual doing was hardly at all associated with subjective quality of life, but a related study [3] showed that actual doing was more consistently related to interviewer ratings of health and well-being.

The findings further indicated that objective indices of quality of life were mostly unrelated with subjective quality of life, which is in agreement with a vast flora of research into this topic [36–39]. However, money at one's disposal was of some importance for subjective quality of life, namely satisfaction with the housing situation. Probably, those with more money could afford better housing. Still, the sum of money at one's disposal was not significantly associated with any other life domain, and thus not with satisfaction with the economic situation, which is in line with results from other quality of life research [17, 39]. In fact, in one study a lower income was related to a better quality of life when combined with worse psychopathology [2]. This was explained by the fact that clients with severe psychiatric illness often have a disability allowance and thereby a stable income, although low, and probably that stability brings satisfaction.

The quality of life domains were apparently associated with different factors. Satisfaction with housing conditions was shown to be related to the participants' financial situation, in terms of money at one's disposal, and this quality of life domain was the only one without association to a subjective everyday activity variable. This underscores that quality of life is a multi-faceted phenomenon and that relying only on indexes and general estimates may hide important findings.

Methodological concerns

The response rate in this study was quite low, 60%, but still comparable to or better than studies performed under similar conditions, when the data collection is not integrated with clinical procedures [1, 25]. It is likely that the most ill patients declined participation, which is also indicated by the fairly high GAF value. Thus, the findings of this study might not be valid for people with mental illness in general, and perhaps not for the most ill. Besides, the results are probably valid only for societal systems similar to that of Sweden, where the study was performed, since legislation may influence factors such as working conditions, incentives for work, allowances and economy.

Quality of life in empirical studies is generally operationalised by the instrument used, and this was the case for the present study too. In MANSA each domain is reflected in only one item, which gives a rough estimate of the domains and increases the risk of spurious findings. It could be that the MANSA failed to detect differences between the occupational groups because of this. However, these groups were compared on other health-related and well-being variables in a related study [20], and the results were analogous; no differences were found regarding such self-estimates. Still, the results must be interpreted with caution and need to be replicated in future studies.

Regarding the instruments used, satisfaction with activity and activity value intuitively indicate some overlap. In fact, however, they have been shown to be only loosely related, with less than 10% common variation [29]. This is logical, since one (the SDO) focusses on the satisfaction one perceives with everyday activities, either one's activity level is high or low, while the other (the OVal-pd) focusses on how frequently valued activities are performed. That they are separate phenomena was further underlined by the results from the regression analyses, where they often entered together in the resulting models.

This study was based mainly on non-parametric statistical procedures, since most of the data were on ordinal scales. Making linear regression models on ranked data approximates a non-parametric approach, but may be regarded as unconventional. The reason for not dichotomising the variables and choosing logistic regression instead was to justify the data and take all possible variation into account.

Conclusion

Taken together, the findings indicate that work status and actual doing was of some, but minor, importance to domain-specific quality of life, while subjective perceptions of everyday activity showed consistent relationships to most quality of life domains. This raises the question whether open-market work really is the most desirable goal for the majority of people with mental illness. This must be an individual judgement for each individual, but the results suggest that meaningful and appreciated everyday activities may be an important goal, too. Moreover, improving the access to satisfying and valuable activities is something that can be fairly easily done in the mental health services, and it could give people with mental illness a good opportunity to improve their quality of life.

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