



LUND UNIVERSITY

Psychometric testing of a self-report measure of engagement in productive occupations.

Tjörnstrand, Carina; Bejerholm, Ulrika; Eklund, Mona

Published in:
Canadian Journal of Occupational Therapy

DOI:
[10.1177/0008417413481956](https://doi.org/10.1177/0008417413481956)

2013

[Link to publication](#)

Citation for published version (APA):
Tjörnstrand, C., Bejerholm, U., & Eklund, M. (2013). Psychometric testing of a self-report measure of engagement in productive occupations. *Canadian Journal of Occupational Therapy, 80*(2), 101-110.
<https://doi.org/10.1177/0008417413481956>

Total number of authors:
3

General rights

Unless other specific re-use rights are stated the following general rights apply:
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Psychometric testing of a self-report measure of engagement in productive occupations.

Tjörnstrand, Carina, MSc, OT Reg., Doctoral student¹

Bejerholm, Ulrika PhD, OT Reg., Associate Professor¹

Eklund, Mona, PhD, OT Reg., Professor¹

¹ Lund University, Department of Health Sciences/ Occupational Therapy and Occupational Science, Sweden

Address for correspondence:

Carina Tjörnstrand

Department of Health Sciences/ Occupational Therapy and Occupational Science

Box 157

SE 221 00 Lund

Sweden

Phone: +46 46-222 19 54,

E-mail: carina.tjornstrand@med.lu.se

Abstract

Background. Occupational therapists working with clients in productive occupations explicitly or implicitly assess their clients' occupational engagement.

Purpose. To investigate the psychometric properties of the *Profiles of Occupational Engagement in Severe mental illness: Productive occupations (POES-P)* in terms of internal consistency, initial construct validation, and floor and ceiling effects.

Method. Participants (n=93) from six day centres completed the data collection. Correlations between POES-P and measures with similar and dissimilar attributes were studied.

Findings. A moderate relationship was found between POES-P and occupational satisfaction ($r_s=0.43$), a weaker one with psychosocial functioning ($r_s=0.22$), the association with researcher-assessed participant engagement was slightly higher ($r_s=0.37$) and the relationship with unmet needs was non-significant ($r_s=-0.15$). Internal consistency of the POES-P ($\alpha=0.85$) was good, but the distribution of responses indicated a ceiling effect.

Implications. POES-P seems promising for assessing engagement in work-like occupations but would benefit from further development.

Key words: Severe mental illness, Productive occupations, Day centres, Self-report measure, Psychometrics

Introduction

Occupational engagement is seen as a human necessity for well-being and as an integral part of health. It has been defined as a life-style characteristic and the extent to which a person has a daily rhythm that includes both activity and rest and experiences a sense of meaning when performing their occupations (Bejerholm & Eklund, 2006b). Occupational engagement as a phenomenon is said to capture the clients' connection to the occupations and their investments in them (Edgelow & Krupa, 2011) and it has been described as the ability to perform occupations within a certain context, the range and variety of meaningful occupations, and the routines that a person has (Bejerholm & Eklund, 2007; Edgelow & Krupa, 2011). Jonsson, Josephsson, and Kielhofner (2001) argued that the concept of occupational engagement can be vital when analyzing a client's occupational pattern in order to guide clients when facing occupational transition, such as between work and retirement. The Canadian Model of Occupational Performance and Engagement (CMOP-E) (Townsend & Polatajko, 2007) has particularly acknowledged the importance of occupational engagement. This valuable contribution has highlighted what may be the missing link to explain how occupational performance can generate experiences of meaning (Krupa, 2010).

People with psychiatric disabilities stand a risk of having a low level of occupational engagement and of being passive and socially excluded from society. Many of them may rely on community mental health services such as day centres for their daily occupations (Bejerholm & Eklund, 2004; Catty & Burns, 2001; Catty, Goddard, & Burns, 2005). Some may find it too challenging to engage in competitive employment, and alternatives that offer engagement in other types of occupations are therefore important. In Sweden, people with a psychiatric disability not capable of engaging in competitive employment get access to daily occupations

and alternatives to paid work through the community-based day centres (National Board of Health and Welfare, 2011; Tjörnstrand, Bejerholm, & Eklund, 2011). The occupations performed within day centres have been categorized as social occupations, maintenance occupations, creative occupations, manufacturing occupations, and service and information-oriented occupations (Tjörnstrand et al., 2011). The occupational levels of demand could vary among the day centres. A related study showed that performing an occupation with an individually adjusted level of demand, such as being part of a work group which entails challenges and responsibilities, could be perceived as work regardless of the occupational category (Tjörnstrand, Bejerholm, & Eklund, in press). A day centre can thus be seen as a productivity option available to persons diagnosed with severe mental illnesses (Krupa, McLean, Eastabrook, Bonham, & Baksh, 2003). Productive occupations were defined by Pierce (2001) as occupations that include a goal focused dimension and often give a personal satisfaction. This definition thus goes beyond that of the category of work and is particularly relevant in the case of people with psychiatric disabilities. Coming to a day centre has been shown to be a goal in itself for people with psychiatric disabilities, a reason to get up in the morning, breaking passivity and social seclusion (Bejerholm & Eklund, 2004), and a way of spending productive hours seen as work (Tjörnstrand et al., in press).

When guiding clients to engage in occupations, for example in a day centre, the occupational therapist gains from having an assessment tool that would help him or her to understand the clients' needs and evaluate the intervention. Fuller (2011) identified a need for client-centred instruments in mental health and found a limited number of clinically based studies evidencing the validity and reliability of occupational performance outcome measures used by occupational therapists in mental health practice. She argued that to gain a client-centred perspective an

individualised outcome measure would be suitable, and a self-report could contribute with such a perspective. To our knowledge, however, there is no instrument available that measures self-reported occupational engagement with a focus on productive occupations in work-like settings, revealing a knowledge gap. To meet this requirement the Profile of Occupational Engagement in people with Severe mental illness - Productive occupations (POES-P) was developed on the basis of the Profiles of Occupational Engagement in people with Schizophrenia (POES) (Bejerholm & Eklund, 2006a; Bejerholm, Hansson, & Eklund, 2006). This latter instrument contains of a 24 hour time-use diary (part one), where the client reports his or her occupational performance during that time span. On the basis of the diary content the occupational therapist makes an assessment (part two) of the client's occupational engagement.

The 'P' in POES-P, thus denoting "productive occupations", underlines that the time-use diary focus is only on eight hours spent in productivity and on engagement in such occupations. It may therefore be suitable in work-like settings, such as a day centre. Besides, unlike the POES, the POES-P is a self-report questionnaire where both the diary report and the assessment of occupational engagement are made by the client. Self-reports generate the subjective experience of a construct (Grady, 1988; Streiner & Norman, 2008) and are vital in occupational therapy practice in order to capture the self-perceived occupational barriers and direct best practice in mental health rehabilitation.

Considerations regarding psychometric testing

When developing an instrument it is vital to investigate its psychometric properties (Streiner & Norman, 2008). Internal consistency addresses whether a multiple items questionnaire measures the single underlying concept (construct) it intends to measure (Terwee et al., 2007).

Investigating both ceiling and floor effects is important to indicate the constraints and utility of

the instrument. A ceiling effect would give little opportunity to detect an increase on the measured phenomenon while a floor effect makes it difficult to discern deterioration (Duncan & Howitt, 2004).

Discriminant validation is important to investigate the extent to which the instrument differs from another measure and is an aspect of construct validity (Streiner & Norman, 2008). For example, theory about occupational engagement does not explicitly refer to people's needs as a component of the construct of occupational engagement (Bejerholm & Eklund, 2006b, 2007). Engagement is the person's performance of a variety of meaningful and routine based occupations in different social settings, while a person's unmet needs are about something that is lacking in his or her life. One may be engaged in occupations at a day centre and still have unmet needs, for example regarding help with hygiene or looking after one's home. Accordingly, POES-P should exhibit a low correlation with an instrument for needs assessment, which was therefore chosen to estimate the discriminant validity of the POES-P.

Convergent validation is another way to test construct validity and is assessed by investigating how closely a new scale is related to a measure of a construct to which it should be related according to theory. In the case of POES-P, the level of engagement could hypothetically be related to satisfaction with daily occupations, which in a previous study was shown to be related with occupational engagement (Bejerholm & Eklund, 2006a). Research from the educational field has indicated that there is an association between engagement and satisfaction, in terms of the positive feeling about what one is doing (Wefald & Downey, 2009). Psychosocial functioning in everyday life may also be relevant for the assessment of the convergent validity, because it has been shown to be related to different aspects of subjective perceptions of occupational performance (Bejerholm & Eklund, 2006a; Eklund, Hansson, & Bejerholm, 2001).

Another aspect of convergent validation is to see how the new scale correlates with a measure of the same construct and to evaluate how the scales differ by the measuring process. An ideal way of evaluating this is correlating a self-report against one completed by an observer (Streiner & Norman, 2008). The researchers decided to create an opportunity for this and a tool to enable an alternative way of assessing occupational engagement was developed. The new assessment concerned the researcher's rating of the diary content. This method also meant a variation in perspectives, especially person wise (researcher vs. self-rated). It is thus of course a problem if the instruments used in the validation process have not been psychometrically tested. However, the validation process may be strengthened by stating hypotheses about the magnitude and nature of correlations (Streiner & Norman, 2008).

The aim of the study was thus to examine the psychometric properties in terms of 1) internal consistency, 2) initial construct validation, and 3) floor and ceiling effects of the POES-P. Hypotheses were stated regarding the relationships between the POES-P and other instruments, tested to reveal construct validity as reflected in convergent and discriminant validity. The first hypothesis for this paper was that there would be a moderate relationship between the POES-P ratings and satisfaction with daily occupations. The reason for only expecting a moderate relationship was that occupational engagement has been shown to be a construct in its own right, although partly overlapping with satisfaction (Bejerholm & Eklund, 2006a). Based on research on the POES (Bejerholm & Eklund, 2006a), we also expected a moderate relationship between POES-P and psychosocial functioning. In addition, the research aimed to determine the relationship between the POES-P and another perspective of occupational engagement. We hypothesised a moderate relationship between the researcher's rating and the participant's self-rating. They were both based on the occupations reported in the diary and had a common time

frame, but the person perspectives differed. Regarding the relationship between the POES-P and the assessment of unmet needs a low correlation was hypothesized. The limits set for weak and moderate relationships build upon the interpretation that a correlation of 0.5 or more is large, 0.3 – 0.5 is moderate, and 0.1 – 0.3 is small (Cohen, 1992).

Methods

The development of the POES- P followed a three step strategy proposed by Streiner and Norman (2008), which considers i) the theory on the phenomenon based on research, ii) location of previous instruments, and iii) gathering expert opinions, the latter serving as a source for both content validation and suggested changes.

The theoretical reasoning was supported by reviewing research within the field of occupational engagement and mental health as presented in the introduction. In the second step, POES was the only instrument found to focus on occupational engagement. In accordance with Streiner and Norman (2008) the content of the POES was utilized to develop the POES-P. In the last step two types of experts' opinions were collected. Both researchers' clinical observations when trying the POES-P and consumers' opinions on the content of the POES-P were taken into account.

Study context

This study was conducted in six day centres located in four municipalities in Sweden. The day centres studied were both meeting place-oriented and work-oriented. The former represent more open-access services with a focus on leisure occupations and the latter more scheduled work-like occupational opportunities. The day centres studied, however, mainly constituted a mix of both orientations thus the meeting place-oriented generally presented opportunities for lower levels

and the work-oriented higher levels of occupational demands. As shown in earlier studies from the same sample, a distinct demarcation between the two orientations was impossible to make as the participants used the day centres in accordance with their needs and their current capabilities for low or high demands in occupations (Tjörnstrand, et al., 2011).

The staff at the day centres had varying qualifications, ranging from craft specialists to having a health care degree at the college or undergraduate university level. They were by profession vocational teachers, nurses, social workers, etc. Only a minority were occupational therapists, and those who were had in general a leading position as a manager of the day centre.

Participants

The procedure for selection of participants was as follows: information was given to the staff at the selected units, who then informed eligible participants both orally and in writing. Eligible participants were those having attended the day centre for at least one month, four hours or more per week, and being between 18 - 65 years of age. A key worker, a key contact person among the staff who had worked together with the prospective participant at the day centre, made the initial contact with each individual. This was to conform to the ethical principle of confidentiality. The information was given at a regular meeting at the day centre. After having given oral consent, the participants also gave their written consent, which was then given to one of three interviewers, all of whom were occupational therapists. The interviewers then contacted the participants to make appointments for the questionnaire sessions, which were conducted at the day centres. From a total of 196 eligible participants, 93 handed in their written consent. This sample was large enough to detect a correlation of 0.2, considered as small, as statistically significant (Altman, 1993; Cohen, 1992).

Socio-demographic and clinical characteristics of the sample are compiled in Table 1.

Insert Table 1 about here

Measures

To meet to the aims of this study, the below instruments were used to analyse; internal consistency (1st aim), construct validation of the measurement process and the attribute in terms of convergent validity and discriminant validity (2nd aim), and floor and ceiling effects of the POES-P (3rd aim).

POES-P.

The POES-P was developed on the basis of the Profiles of Occupational Engagement in people with Schizophrenia (POES) which has demonstrated positive data on internal consistency and content validity (Bejerholm & Eklund, 2006a; Bejerholm, Hansson, & Eklund, 2006).

POES-P generates self-reported information about an individuals' productive, work-related engagement and has been developed by the second author of the present study. The instrument is structured in two parts. Part 1 is a time-use diary with five columns (Figure 1). The first column is divided into one-hour intervals. The second column concerns what the individual does during those hours and the third column with whom the occupations are done. The fourth reports where the occupation is done and the fifth and last covers the way the occupation was perceived, i.e., reflections and thoughts around the doing. As with POES, the theoretical construct behind the POES-P time-use diary originates from the Person-Environment-Occupation (PEO) model, launched by Law et al. (1996). The contents of the four columns are intended to cover aspects of

the occupational (2nd column), environmental (3rd and 4th column) and personal domains (5th column), which together create an understanding of an individuals' occupational performance.

The POES-P also contains instructions on how to administer the instrument with the client. The relevant hours are printed in the far left column. The client is to independently complete the remaining columns. The interviewer is instructed to assist with supplementary questions as a cognitive aid for the participant to recall his or her occupations, for example the chronological order of events listed in column two. After completion of the time-use diary, the participant and the interviewer make a joint review to clarify that the data reported is correctly understood by the interviewer.

The second part of POES-P is an eight-item questionnaire for investigating occupational engagement based on the occupational performance reported in POES-P part 1. Each item is assessed by the client according to a response scale ranging from 1 (not at all) to 5 (always). The items in POES-P were generated from the original POES (Bejerholm, et al., 2006), whose items were derived from theory on occupational engagement based on qualitative studies (Bejerholm & Eklund 2004, 2006b). To ensure the face validity of the instrument, the items were discussed with a panel of people with psychiatric disabilities, some of whom were users and some potential users of day centres. Another panel with researchers with knowledge of the theory behind occupational engagement was consulted. Both panels agreed that the items seemed to measure occupational engagement and that the scale was appropriate for that purpose. The items are seen in Figure 1.

Insert Figure 1 about here

SDO.

The Swedish version of the Satisfaction with Daily Occupations (SDO) (Eklund, 2004) was used in this study to test the POES-P measures' convergent validity (2nd aim). SDO is a structured interview-based instrument measuring people's activity level and how satisfied they are with their occupations. The SDO includes nine items covering four occupational areas. The participants rate whether or not they presently perform certain occupations within the areas of work, leisure, domestic tasks and self-care and then rate their level of satisfaction on a seven point Likert scale, ranging from 1 (lowest possible satisfaction) to 7 (highest possible satisfaction). The instrument generates a satisfaction score with a minimum of 9 points and a maximum of 63. The satisfaction scale has shown to have good test-retest reliability (Eklund & Gunnarsson, 2007), good internal consistency when used with people with mental disorders and people with a rheumatologic disease (Eklund & Sandqvist, 2006) and satisfactory content validity (Eklund & Gunnarsson, 2008). The Cronbach alpha value for the sample in the present study was 0.77.

GAF.

With the Global Assessment of Functioning (GAF) scale, researchers or mental health care staff rate an individual's psychosocial functioning on a scale from 0-100. GAF was used to test the convergent validity of the POES-P (2nd aim). GAF is defined as a comprehensive scale of mental health and constitutes the fifth axis of the DSM-IV system (APA, 1994). GAF aims to measure the severity of mental illness by focusing on the patient's social, psychological and occupational functioning (Tungström, Söderberg, & Armelius, 2005). Psychometric research on GAF has repeatedly demonstrated that the instrument is reliable after very little rater training (Startup, Jackson, & Bendix, 2002). GAF has shown to give a valid assessment of psychiatric symptoms and social functioning in patients with schizophrenia and the inter-rater reliability for the

measure has been found to be good (Startup, et al., 2002). Inter-rater reliability was also calculated for the present study, resulting in an intra-class correlation of 0.86.

The researcher's rating of occupational engagement.

The researcher's rating of occupational engagement was used to test the construct validity of the POES-P with regards to the measurement process (2nd aim). The participants' occupational engagement was also assessed by a researcher, the first author of this study, using the same items and rating scale as in the POES-P. The researcher's rating was based purely on the participant's time-use diary (POES-P, part 1), and no observation of the participants' actual occupational performance was made. The Cronbach's alpha value calculated for the researcher perspective was 0.91.

CAN.

From the original twenty-two items in the Swedish version of the Camberwell Assessment of Need (CAN), four items (food, looking after the home, hygiene and regular daily activities) were selected to assess unmet *activity needs*. Each need is rated on according to three alternatives; 0 (no problems), 1 (no problem because of ongoing treatment or moderate problem) and 2 (severe problems), and the person's problem level during the past month is in focus. A sum score, based on all four activity needs, was calculated. The instrument has been shown to have good inter-rater agreement (Hansson, Björkman, & Svensson, 1995) and to be generally reliable over time (Arvidsson, 2003). A Cronbach's alpha was calculated, showing a value of 0.73 in the present sample.

Procedure

Where possible, the participants filled in the self-administered instruments independently, such as the POES-P. Some found it difficult to understand and/or wished to have help filling in the questionnaires, however, these were offered aid with the questionnaires from the interviewers if needed. The interviewers were in such cases careful to employ consistent routines in the data collection and in the aid they provided. Directly after the questionnaire session the interviewer rated the participant according to GAF. The key worker carried out the staff perceived engagement rating within a week of the day written about in the diary.

Data analysis

Internal consistency

To investigate internal consistency, Cronbachs' alpha was computed for the POES-P part 2. The corrected item-total correlations (CITC) were calculated as well, and a lower limit of > 0.20 was set as a satisfactory association between an item and the total scale, in line with Streiner and Norman (2008).

Construct validation

The data was found not to be normally distributed; therefore non-parametric statistics were used to test relationships between instruments. Convergent and discriminant validity were investigated by using the Spearman correlation test to calculate the relation between the total score of POES-P part 2 and the instruments included, namely the satisfaction scale generated from the SDO, the GAF, the researcher's diary-based rating and the CAN.

Ceiling and floor effects

Ceiling and floor effects of the POES-P part 2 were investigated by employing descriptive statistics and exploring the frequency distribution at the item level.

The data were analysed using the software SPSS Version 18.

Ethics

Ethical approval was obtained from the Regional Ethical Review Board, Lund University, Sweden (Dnr 303/2006). The ethical considerations included; informed consent and the voluntary nature of participation and the preserving of the participants' anonymity by using codes.

Findings

Internal consistency

The Cronbach's alpha value for the POES-P was 0.85, which indicates good internal consistency.

The CITC values varied between 0.55 and 0.65, thus well above the lower limit of 0.20 set as acceptable. Deletion of single items did not in any case result in a better alpha value.

Construct validation

The correlations between the POES-P and the other instruments are shown in Table 2, which also indicates the mean values on the instruments used. A moderate correlation was found in the convergent validation for the satisfaction with daily occupations scale, but the relationship to GAF had a weak correlation. When assessing convergent validity based on differences in the measurement process, a moderate correlation was found between POES- P and the interviewer rating of occupational engagement. The association between the POES-P and the CAN, indicating discriminant validity, was non-significant.

Insert Table 2 about here

Floor and ceiling effects

The frequency distribution showed a ceiling effect on all items (Table 3), with a majority of the responses allocated to the alternatives “Always” or “Usually”. These response categories represented together 62-81% of the answers. The percentages of respondents using the lowest rating were 1-3.3 %. However, the ceiling effect was not so evident on the scale level, as indicated by a mean of 32.5 on a scale where the maximum score was 40 and 13% was scoring at the maximum level.

Insert Table 3 about here

Discussion

The aims of the study were to examine the psychometric properties in terms of internal consistency, initial construct validation, and floor and ceiling effects of the POES-P. The internal consistency was considered satisfactory. Cronbach’s alpha analysis indicated that each POES-P item correlated well with the entire scale, and the alpha value was satisfactorily above 0.80 and very close to 0.90. According to Steiner and Norman (2008), alpha up to 0.90 is considered to be good. A value exceeding 0.90 may indicate that the items overlap to a considerable extent, forming a scale that is too homogeneous, but the value obtained for the POES-P must be seen as optimal. When addressing the second aim, regarding construct validity the first hypothesis was verified. The relationship between POES-P and satisfaction with daily occupations showed to be

moderate, indicating that the two constructs partly overlapped. The relationship between POES-P and psychosocial functioning (GAF) was, however, lower than hypothesized. The hypothesis of a moderate relationship was based on prior research on the instrument POES (Bejerholm & Eklund, 2006a). An explanation why the POES-P correlated only weakly with GAF may be that, whereas POES considers occupations during the entire day, the POES-P rating concerns only the productive hours. Another reason for the stronger associations between the POES and the GAF ($\alpha=0.73$) shown in the study by Bejerholm and Eklund et al. (2006a) may be that those instruments are both assessed by professionals. The findings from estimating the convergent validity of the POES-P thus suggested that self-assessed engagement in productive, work-like occupations was largely a construct in its own right but overlapped as expected with satisfaction with daily occupations.

With respect to convergent validity in terms of differences in the measurement process, the result indicated that the scale scores were not only determined by the attribute, occupational engagement, but also by the way it is measured. The moderate correlation between the POES-P and the researcher's rating indicated, as hypothesized, that occupational engagement viewed from different person perspectives represented different aspects of the phenomenon under study. This validates them as two separate instruments that contribute with specific information. As proposed by Wefald and Downey (2009), self-rated engagement includes an affective component, less reflected in the researcher's rating, which may be an explanation of the merely moderate relationship. The moderate agreement may however suggest that the time use diary enhances outsider knowledge of the clients' actual perceived occupational performance and makes some of the affective content of occupational engagement visible.

As hypothesized, a low correlation was found between unmet needs and occupational engagement, and the relationship was not statistically significant. The POES-P thus showed discriminant validity in relation to unmet activity need as measured in CAN, which says something about the uniqueness of the POES-P.

Findings related to the third aim, addressing floor and ceiling effects, showed that the POES-P had a ceiling effect on the item level that leaves little room for improvements from one occasion to another and the variation in the data becomes limited. Although the ceiling effect on the scale level was less pronounced, this reduces the utility of the instrument and further indicates a need to look into the instrument's construct and design. The clients' high ratings of engagement in productive occupations may reflect that these occupations were perceived as being meaningful and perhaps successfully matched their abilities and needs. It may also, however, indicate that the items used were too easy to endorse. Adding more difficult items may affect the ceiling effect. A recent study found that participants in different day centre orientations were capable of doing a variety and range of occupations and characterized these occupations as complex and combined (Tjörnstrand, et al., 2011). Results from another study showed that engaging occupations in day centres inferred different degrees of responsibility (Tjörnstrand, et al., in press). If adding new items to the POES-P both complexity and responsibility may be worthy of consideration. Moreover, Pierce's definition of productivity (Pierce, 2001), underscoring its goal-focused dimension, indicates that goal direction may be a further aspect to take into account.

Data collected with the POES-P could be potentially useful in research in areas such as a day centres for people with psychiatric disabilities or other programmes with a focus on productivity

or occupations analogous to work. Moreover, when collecting data for research purposes, the sum score from POES-P part 2 may, if the ceiling effect can be reduced, be useful when estimating change. The instrument's suitability for assessing change then, however, needs to be further explored by ensuring its test-retest reliability and its ability to detect change. Moreover, the POES-P part 1, in its current form, has been shown useful for use in qualitative research (Tjörnstrand, et al., 2011).

Day centres, work places and occupational therapy services with a focus on productive occupations are possible arenas where the POES-P may be useful in clinical practice to monitor individuals' occupational engagement within a programme. Instruments such as the POES-P can bring forward the client's perspective, which may then be used to visualize individually meaningful occupations and to match occupations to the individual's needs. The POES-P may thereby be used to enhance the support of the clients' engagement in productive occupations.

Moreover, as the time-use diary within the instrument is recommended to be completed in collaboration with an occupational therapist, the assessment enables joint decision-making in the rehabilitation and recovery process ahead, which is especially important since a client perspective is a highly relevant focus in the recovery process (Merryman & Riegel, 2007).

Some methodological considerations need to be made. The use of only four items in CAN may be seen as a limitation, as the psychometric qualities regarding CAN refer to all twenty-two items. All CAN items do not form a homogenous scale, however, and it has been proposed that researchers may benefit from creating subscales from items that are related to each other (Wennström, 2008). This renders support to the procedure used in the present study, where the

selected items were the ones referring to occupations, and a test of the four items' reliability showed that they possessed satisfactory internal consistency.

Another consideration worthy of mentioning is that the researcher who rated the participants' occupational engagement on the basis of the diaries had carried out one third of the interviews. Two types of analysis were therefore made to see if the ratings based on the interviews differed compared to the ratings of the diaries from the group aided by another researcher. Visual inspection of the ratings showed first that the distribution across the response categories was very similar in both groups. Secondly, a Mann-Whitney U-test indicated that the POES-P ratings did not differ between the groups ($p=0.28$). Furthermore, the researchers' prior knowledge of engagement as a phenomenon may influence the ratings. In the present study all three interviewers had similar backgrounds, which may have hidden such a potential methodological weakness. This indicates that if POES-P were to be developed into an assessment using both the clients' and staff perspective of engagement further consideration of the knowledgebase needed for POES-P assessors is required.

Another weakness of the study is that the new tool, the researcher rating of occupational engagement, had not been psychometrically tested. As shown in the description of the instrument, however, an initial test of its reliability showed that it possessed satisfactory internal consistency. This, together with the fact that the correlations that were obtained supported the hypotheses, renders trustworthiness to the findings. Moreover, it was considered to include the POES within the study design, but that was seen as too time-consuming for the present study. Considering the result from this study, and the fact that the POES-P and the POES reflect perspectives that differ regarding both time and person, the association between the two

instruments could be expected to be in line with those found for the GAF. That, however, remains a speculation.

The ceiling effect may be further discussed in the light of a possible social desirability bias that the participants answer in a manner that would be considered favourable by others. Measures such as ensuring the participants' confidentiality and using interviewers who were not connected to the day centre were employed to counteract social desirability, being as this is a common problem with self-report instruments. This study offers initial psychometric testing of the POES-P, indicating that it reflects a construct in its own right when used in day centres in Sweden.

Conclusion

To summarize the psychometric properties established in the paper, the internal consistency was satisfactory, a logical pattern of relationships between the POES-P and other instruments was found and the hypotheses were largely confirmed. More specifically, convergent validity was indicated, showing occupational engagement to be closer related to the attribute of occupational satisfaction than to psychosocial functioning. The analysis of discriminant validity showed that the construct reflected in POES-P was unrelated to unmet activity needs. Testing convergent validity with regards to the measuring process emphasized that engagement is multifaceted in the sense that it can be viewed from different perspectives and that the different estimates of a clients' engagement vary accordingly. The pattern of associations with other instruments were thus logical and indicated that self-assessed occupational engagement as measured by the POES-P was mainly a construct in its own right. Although the indicated ceiling effect suggests that additional items, more unlikely to be endorsed, may preferably be included in

future versions of the POES-P, the result indicates that it is a promising instrument for assessing occupational engagement when used in a day centre context for people with psychiatric disabilities. However, it needs to be further developed and tested in different contexts and populations in future studies, for example people engaged in supportive employment. Additional psychometric properties, such as test-retest reliability, predictive validity and further construct validation, also need to be evaluated.

Key messages

- POES-P can be a valuable measure in settings providing occupations analogous to work.
- When used clinically it could serve as a basis for discussions, planning and evaluation with clients engaged in productive occupations.
- By employing the POES-P occupational therapists can enhance their knowledge of the individuals' perspective of engagement and thereby better assist clients on their journey towards recovery.

Acknowledgements

The authors would like to kindly acknowledge the participation from day centre staff and visitors, and thank the occupational therapists collecting the data. This study was financially supported by The Swedish Board of Health and Welfare and the Swedish Research Council.

References

- Altman, D. G. (1993). *Practical statistics for medical research*. London: Chapman & Hall.
- APA. (1994). [American Psychiatric Association]. *Diagnostic and statistical manual of mental disorders, DSM*. Washington, DC: American Psychiatric Association.
- Arvidsson, H. (2003). Test - retest reliability of the Camberwell Assessment of Need (CAN). *Nordic Journal of Psychiatry, 57*, 279-283.
- Bejerholm, U., & Eklund, M. (2004). Time use and occupational performance among persons with schizophrenia. *Occupational Therapy in Mental Health, 20*(1), 27-47. doi: 10.1300/J004v20n01_02
- Bejerholm, U., & Eklund, M. (2006a). Construct validity of a newly developed instrument: Profile of occupational engagement in people with schizophrenia, POES. *Nordic Journal of Psychiatry, 60*, 200-206. doi: 10.1080/08039480600636239
- Bejerholm, U., & Eklund, M. (2006b). Engagement in occupations among men and women with schizophrenia. *Occupational Therapy International, 13*, 100-121. doi: 10.1002/oti.210
- Bejerholm, U., & Eklund, M. (2007). Occupational engagement in persons with schizophrenia: relationships to self-related variables, psychopathology, and quality of life. *American Journal of Occupational Therapy, 61*, 21-32.
- Bejerholm, U., Hansson, L., & Eklund, M. (2006). Profiles of occupational engagement in people with schizophrenia (POES): The development of a new instrument based on time-use diaries. *British Journal of Occupational Therapy, 69*, 58-68.
- Catty, J., & Burns, T. (2001). Mental Health Day Centres: Their Clients and Role. *Psychiatric Bulletin, 25*, 61-66.
- Catty, J., Goddard, K., & Burns, T. (2005). Social services and health services day care in mental health: The social networks and care needs of their users. *International Journal of Social Psychiatry, 51*, 23-34. doi: 10.1177/0020764005053267
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Duncan, C., & Howitt, D. (2004). *The SAGE dictionary of statistics: A practical resource for students in the social sciences*. doi:10.4135/9780857020123
- Edgelow, M., & Krupa, T. (2011). Randomized controlled pilot study of an occupational time-use intervention for people with serious mental illness. *American Journal of Occupational Therapy, 65*, 267-276.
- Eklund, M. (2004). Satisfaction with Daily Occupations - a tool for client evaluation in mental health care. *Scandinavian Journal of Occupational Therapy, 11*, 136-142.
- Eklund, M., & Gunnarsson, A. B. (2007). Satisfaction with Daily Occupations: Construct validity and test-retest reliability of a screening tool for people with mental disorders. *Australian Occupational Therapy Journal, 54*, 59-65. doi: 10.1111/j.1440-1630.2006.00586.x
- Eklund, M., & Gunnarsson, A. B. (2008). Content validity, clinical utility, sensitivity to change and discriminant ability of the Swedish Satisfaction with Daily Occupations (SDO) Instrument: A screening tool for people with mental disorders. *British Journal of Occupational Therapy, 71*, 487-495.
- Eklund, M., Hansson, L., & Bejerholm, U. (2001). Relationships between satisfaction with occupational factors and health-related variables in schizophrenia outpatients. *Social Psychiatry and Psychiatric Epidemiology, 36*, 79-85.

- Eklund, M., & Sandqvist, G. (2006). Psychometric properties of the Satisfaction with Daily Occupations (SDO) instrument and the Manchester Short Assessment of Quality of Life (MANSA) in women with scleroderma and without known illness. *Scandinavian Journal of Occupational Therapy, 13*, 23-30.
- Fuller, K. (2011). The effectiveness of occupational performance outcome measures within mental health practice. *British Journal of Occupational Therapy, 74*, 399-405.
- Grady, K. E., (1988). Self-Report and Other Report. Research in Health Care Settings. Newbury Park: SAGE Publications, Inc. doi:10.4135/9781412985697
- Hansson, L., Björkman, T., & Svensson, B. (1995). The assessment of needs in psychiatric patients. Interrater reliability of the Swedish version of the Camberwell Assessment of Needs instrument and results from a cross-sectional study. *Acta Psychiatrica Scandinavica, 92*, 285-293.
- Jonsson, H., Josephsson, S., & Kielhofner, G. (2001). Narratives and experience in an occupational transition: A longitudinal study of the retirement process. *American Journal of Occupational Therapy, 55*, 424-432.
- Krupa, T. (2010). Invited commentary ... The occupational performance process model in one community mental health setting. *Canadian Journal of Occupational Therapy, 77*, 80-81. doi:10.2182/cjot.2010.77.2.3
- Krupa, T., McLean, H., Eastabrook, S., Bonham, A., & Baksh, L. (2003). Daily time use as a measure of community adjustment for persons served by assertive community treatment teams. *American Journal of Occupational Therapy, 57*, 558-565.
- Merryman, B., & Riegel, S. K. (2007). The recovery process and people with serious mental illness living in the community. *Occupational Therapy in Mental Health, 23*(2), 51-73. doi: 10.1300/J004v23n02_03
- Pierce, D. (2001). Occupation by design: Dimensions, therapeutic power, and creative process. *American Journal of Occupational Therapy, 55*, 249-259.
- Startup, M., Jackson, M., & Bendix, S. (2002). The concurrent validity of the Global Assessment of Functioning (GAF). *British Journal of Clinical Psychology, 41*, 417-422.
- Streiner, D. L., & Norman, G. R. (2008). *Health measurement scales a practical guide to their development and use* (4th ed.). New York: Oxford university press.
- Terwee, C. B., Bot, S. D. M., de Boer, M. R., van der Windt, D. A. W. M., Knol, D. L., Dekker, J., . . . de Vet, H. C. W. (2007). Quality criteria were proposed for measurement properties of health status questionnaires. *Journal of Clinical Epidemiology, 60*, 34-42. doi: 10.1016/j.jclinepi.2006.03.012
- Townsend, E., & Polatajko, H. (2007). *Enabling occupation II: Advancing an occupational therapy vision for health, well-being and justice through occupation*. Ottawa, ON: CAOT Publications ACE.
- National Board of Health and Welfare. (2011). *Nationella riktlinjer för psykosociala insatser vid schizofreni eller schizofreniliknande tillstånd 2011 – stöd för styrning och ledning [National guidelines for psychosocial interventions for people with schizophrenia or related disorders, 2011 - support for control and management. Final report. In Swedish.]*. Stockholm: Socialstyrelsen.
- Tjörnstrand, C., Bejerholm, U., & Eklund, M. (2011). Participation in day centres for people with psychiatric disabilities - Characteristics of the occupations. *Scandinavian Journal of Occupational Therapy, 18*, 243-253.
- Tjörnstrand, C., Bejerholm, U., & Eklund, M. (in press). Participation in day centres for people with psychiatric disabilities - A focus on occupational engagement. *British Journal of Occupational Therapy*.
- Tungström, S., Söderberg, P., & Armelius, B.-Å. (2005). Relationship between the Global Assessment of Functioning and other DSM axes in routine clinical work. *Psychiatric Bulletin, 56*, 439-443.
- Wefald, A. J., & Downey, R. G. (2009). Construct dimensionality of engagement and its relation with satisfaction. *The Journal of Psychology, 143*, 91-111.

Wennström, E. (2008). *The Camberwell Assessment of Need as an Outcome Measure in Community Mental Health Care*. (Doctoral dissertation). Uppsala: Acta Universitatis Upsaliensis.

Figure Legend

Figure 1. Excerpt from the time-use diary representing POES-P, part 1 and part 2.

Table 1 Description of the study sample (n = 93).

Age	46 ± 10
Attendance hours/week (Mean, SD.)	13 ± 8
Gender (male/female)	55/38
Self reported diagnosis; %	
Schizophrenia and other psychosis	44
Mood disorders	22
Anxiety, phobia and stress disorders	19
Other disorders	15
Civil status; %	
Living alone	81
Cohabitant/married	19

Table 2. Correlations between the sum score of the POES-P (mean= 32.5; SD= 5.49) and the instruments used in construct validation.

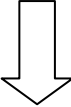

	<i>Correlation with POES-P</i>
Convergent validity: focus on the attribute	
SDO – Satisfaction with daily occupations (mean= 47.9; SD=8.75)	0.43**
GAF (mean= 57.9; SD=6.69)	0.22*
Convergent validity: focus on the measurement process	
Researcher rating of occupational engagement (mean= 28.7; SD=4.72)	0.37**
GOES (mean= 31.2; SD=7.59)	0.24*
Discriminant validity	
CAN (mean= 1.54; SD=0.89)	-0.15

Spearman's correlation test was used. ** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

Table 3. Response distribution (percentage of respondents' responses); (N=90).

Items	Scores				
	1	2	3	4	5
1	1 (1.1%)	4 (4.4%)	13 (14.4%)	28 (31.1%)	44 (48.9%)
2	1 (1.1%)	5 (5.6%)	14 (15.6%)	32 (35.6%)	38 (42.2%)
3	3 (3.3%)	5 (5.6%)	16 (17.8%)	31 (34.4%)	35 (38.9%)
4	2 (2.2%)	6 (6.7%)	14 (15.6%)	30 (33.3%)	38 (42.2%)
5	0 (0.0%)	5 (5.6%)	13 (14.6%)	34 (38.2%)	37 (41.6%)
6	1 (1.1%)	7 (7.8%)	26 (28.9%)	26 (28.9%)	30 (33.3%)
7	1 (1.1%)	9 (10.0%)	16 (17.8%)	27 (30.0%)	37 (41.1%)
8	3 (3.3%)	2 (2.2%)	12 (13.3%)	31 (34.4%)	42 (46.7%)

Figure 1.

Time: 1 hour interval (Additional one hour rows below) 	What did you do? All the activities carried out within the time frame should be registered.	Was there anyone else around at the same time? Briefly describe the social situation / environment.	Where were you at the time?	How did you experience the activity?
08.00-09.00				
The items in POES-P part 2.				
<ol style="list-style-type: none"> 1. I think I am able to manage the tasks I perform. 2. I think there is a good balance between activity and breaks. 3. I think I am independent. 4. I think I get the support I need from others. 5. I think I am able to be with others. 6. I think I take the initiative to what I do. 7. I think I have good routines. 8. I think what I do is meaningful to me. 				