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Abstract

Background: Not all people with severe mental illness who attend Individual Placement and Support (IPS) gain and keep their jobs or work full time. Research has indicated a relationship between social disabilities and work performance in this group, and that support provided is often directed towards the social work environment. However, relationships between social skills performed in an authentic work setting and vocational outcomes have not been explored.

Objectives: To explore relationships between social communication and interaction skills and vocational outcomes among IPS-service users in a Swedish context.

Material and methods: Twenty-nine participants were appraised with the Assessment of Communication and Interaction Skills (ACIS-S) instrument, and their vocational data were registered. Correlations were estimated using the Spearman's Rho test with Bonferroni corrections at item level.

Results: Better communication and interaction skills were significantly correlated with increased working hours (r_s=.64) and higher income (r_s=.45). Increased working hours were related to assuming postures, asking questions, sharing information, and sustaining conversation in an appropriate manner.

Conclusion: The results indicate that occupational therapists need to focus on social skills and accommodation of the social work environment in order to promote sustainable working careers among people with severe mental illness.

Keywords: Occupational therapy, psychiatric disability, schizophrenia, social skills, vocational rehabilitation.

Introduction

A main objective for occupational therapists, working in accordance with the Supported Employment approach Individual Placement and Support (IPS), is to support people with severe mental illness (SMI) to gain and keep preferred and chosen employment (1, 2). IPS is an evidence-based practice (EBP) that meets the needs of people with SMI who want to work (3). This approach to vocational rehabilitation has shown to be two to three times as effective as traditional pre-vocational training for gaining employment (1, 2, 4, 5) across a range of cultures and policy environments (3) including a Scandinavian mental health care context (5). IPS is guided by eight empirically derived principles that emphasize 1) the goal of gaining and keeping competitive employment, 2) service users willingness to work, 3) a rapid job search, 4) close collaboration with mental health care team, 5) service user preferences and choice, 6) an individualized time-unlimited support to minimize work disabilities, 7) benefit counselling at an early stage (6), and 8) systematic job recruitment and development of relationships with employers (3). The success of IPS has resulted in an increasing number of occupational therapists being interested in working in accordance with this approach (1). In spite of the success, however, not all people with SMI who attend IPS gain employment, work full hours, or keep their jobs (6). Previous IPS research has demonstrated that cognitive impairments may impact on both gaining competitive employment, having a sustainable career, and the amount of monthly income (7, 8). No research has, however, been performed on social communication and interaction skills in relation to work outcomes in the target group, even though social disabilities are frequently reported (9-11). It is therefore essential to also explore whether there is a relationship between the way that IPS-service users socially interact with others at work, and vocational outcomes in terms of working hours per week and monthly income.

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People with SMI have, in previous supported employment and IPS research, reported difficulties coping with social situations at work (9-11). In a quantitative study by MacDonald-Wilson et al. (9), 41% of the participants reported social disabilities related to the work situation. Furthermore, in a qualitative study by Lexén and colleagues (10) some IPS-participants spoke of initial difficulties in coping with the social interaction with colleagues, while others perceived enduring problems attempting to cope with flexible and spontaneous social interaction. Additionally, in a qualitative study on the support process in IPS (11), where disabilities in interacting with others at work were reported, the social work environment was commonly accommodated in order to facilitate the participants' work performance. Quantitative research on social disabilities among people with schizophrenia has in particular shown that they often misinterpret social cues, have difficulties communicating thoughts and feelings, as well as conveying and understanding non-verbal expressions of feelings (12). This results in difficulties in communicating effectively with others (12, 13) and assuming different roles (14).

In the "social problem–solving'' framework within the psychological field, social interaction is described as including three overlapping stages referred to as: receiving, processing, and sending skills (15). The two first stages of a social interaction - receiving and processing - are the underlying cognitive operations of a social interaction and are usually referred to as social cognition (14-16). Impairments in social cognition are well documented among persons with schizophrenia and have been found to be more strongly related to a deteriorating daily functioning such as social and work functioning, than impairments in other cognitive areas (17). The third stage, sending skills may be equally important impediments for social functioning but are less frequently documented and the options for assessing these skills have in psychological research been described as more limited (15). In the study by Dickinson and colleagues (15), it was found that limitations in sending skills, as assessed by

means of a role-play, were significantly related to impairments in role functioning in the community, being as participants with better sending skills were more likely to be engaged in competitive employment. Nevertheless, according to occupational therapy theory, sending skills referred to in the occupational therapy literature as communication and interaction skills should be considered in the social context in which they are used (14). To date, no studies have been conducted to explore communication and interaction skills as assessed in mainstream work settings and their relationships to vocational outcomes among persons with SMI. Communication and interaction skills are defined in this study in accordance with the Model of Human Occupation (MOHO), as observable goal-directed behaviours used to communicate intentions and needs and to coordinate behaviours for socially interacting with others, such as physically contacting others, gesturing, speaking, collaborating, and asserting oneself (18).

There is a need to explore communication and interaction skills as assessed in authentic work settings and their relationships to vocational outcomes among people with SMI attending IPS-services. Knowledge in this area may further help to explain which impairments need to be supported and accommodated for as people with SMI start work. Such actions could further compensate for disability, and facilitate employment success and sustainable careers that last. We hypothesized that better communication and interactions skills are associated with more working hours per week and higher monthly income. The aim was thus to explore relationships between communication and interaction skills as assessed in mainstream work settings and vocational outcomes in terms of working hours per week and income among people with SMI who attended IPS-services. The rationale for including work hours and income as vocational outcomes variables is to provide a picture of what is entailed in gaining competitive employment.

Material and methods

This explorative cross-sectional study was performed during the autumn 2010 in IPS-services integrated in four mental health care outpatient teams in southern Sweden. A cross-sectional design has been described as useful for gaining a deeper understanding of a phenomenon by identifying correlations and associations between variables at a single point in time (19). The study was approved by the Regional Ethical Board, Lund University, Sweden (Dnr 202/2008).

Eligibility

The eligibility criteria for participating in the study were: a) a SMI defined as a psychotic disorder or long-term psychiatric disability (>2 years) where the psychiatric disability was severe and impacted on the ability to manage everyday life (20), b) between 20 years of age and retirement, c) regular contact with an IPS-service, d) on-worksite support, e) disclosed the psychiatric illness at work, f) ability to communicate in the Swedish language, and g) being employed. The IPS-employment specialists introduced the study to prospective participants (*n*=33) using verbal and written information, and 29 gave their written consent to take part. The reason for not introducing the study to more participants was that many of them had not disclosed their disabilities at work and thus did not receive on-worksite support. It was thus not possible to access their work setting and observe and assess their communication and interaction skills. A psychiatrist confirmed the severity of the disability (>2 years) and the diagnoses were validated against medical records and categorized in accordance with the ICD-10 criteria (21).

Data collection

Communication and interaction skills

The participants' communication and interaction skills in their workplace settings were rated by means of the Swedish version (ACIS-S) (22) of the observer-rating scale Assessment of Communication and Interaction Skills (ACIS) (18). The instrument was developed for people with psychiatric impairments and is conceptually based on MOHO (18). It is an observer-rating instrument designed to capture, in detail, a person's strengths and weaknesses in communicating and interacting with others as exhibited during social interaction. The observation time ranges from 15 to 45 minutes and rating time from 15 to 20 minutes. The rating scale consists of 20 items which are structured in three domains: 1) physicality, 2) information exchange, 3) and relations (Table 1). Every item is scored on a four point scale (1-4); 1=*deficit* skill causing an unacceptable delay or breakdown in the social interaction (severe social disability); 2=*ineffective* skill which disrupts the on-going interaction (moderate disability); 3= *questionable* skill, however there is no interruption in the ongoing social interaction (mild disability), and; 4=*competent* skills that support the social interaction. ACIS-S has shown to have good internal, construct, person response, and rater validity and reliability (23). In order to strengthen the inter-rater validity an occupational therapist skilled in using the instrument performed the data collection hand in hand with three IPS-employment specialists who received training in the use of the instrument. Additionally, including the participants' employment specialists in the assessment/data collection was necessary for gaining access to the workplace and making the assessment there as well as making the situation as comfortable as possible for the participants. One structured observation formed the basis for the ACIS-S assessment. It was however validated against five further structured observations within the time frame of one month in order to ensure the

accuracy of the assessment in relation to various social interactions at work. Cronbach's alpha

for the ACIS-S was in the present study .94.

Table 1 about here

Demographic information and vocational data

An interview-based questionnaire was used to collect demographic information and

vocational data. It concerned age, gender, civil status, ethnicity, diagnosis, education level,

working hours per week, and monthly income. The vocational data were validated against the

vocational logbooks used in IPS.

Data analysis

The data was analysed using IBM SPSS Statistics version 20. A *p*-value of $\leq .05$ was

considered statistically significant. The Spearman's Rho test was used to investigate possible

correlations between ACIS-S total sum score and item level score, and the continuous

vocational variables. Bonferroni correction calculation was performed for multiple

comparisons at an item level. Bootstrap estimates with 10 000 resample were performed since

the vocational data were non-normally distributed using Matlab 7.11.0 (R2010b). This made it

possible to calculate 95% confidence intervals.

Results

Demographics

The participants' demographic characteristics are presented in Table 2. The sample comprised

29 participants with a mean age of 37.7 years. The most predominant subgroups of diagnoses

were schizophrenia or other psychoses. Other participants had a bipolar disorder or a mental

illness where the psychiatric disability was persistent and impacted on the ability to manage

everyday life.

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Participant score on the ACIS-S assessment

The average ACIS-S score was 67 (Mdn=69) of a total sum score of 80 points with a range of 43 points, (37-80). Considered as a group the participants' communication and interaction skill performance in different situations at work in average were rated as "*questionable*" (M=3.35), thus implying a mild to moderate social disability that may yield undesirable interpersonal and group outcomes. The most skilled participants had a "*competent*" use of communication and interaction skills that supported the social interactions at work, which implies that no evidence of a deficit was observed by the assessors. The participants who gained the lowest scores (37 points) were rated as having a severe social disability. Their communication and interaction skills performance at work was rated as "deficit" as it impeded and caused unacceptable delay or breakdown in the social interaction.

Communication and interaction skills in relation to vocational outcomes

Positive significant correlations were evident between the ACIS-S total sum score and working hours per week, r_s=.64, p=.000 (bootstrap CI (95%) = 0.35-0.87) and income, r_s=.45, p=.014 (bootstrap CI (95%) = 0.22-0.76). On the item level, as shown in Table 3, increased working hours per week were significantly positively correlated with the domain "physicality" in terms of maneuvers and the domain "information exchange" in terms of asks, shares, and sustains, after making a Bonferroni correction. No significant relationships with income were found.

Discussion

To our knowledge this is the first study to explore communication and interaction skills as assessed in an authentic work setting in relation to vocational outcomes among people with SMI attending IPS. The overall score in ACIS-S proved to be strongly positively correlated with working more hours per week. Our results suggest that social skills training may be an important intervention in addition to compensatory strategies, such as accommodating the social work environment, for increasing working hours per week among IPS-service users with social disabilities. This concurs with previous research (14, 24) and also in particular with Cheung and Tsang (25), who found that social skills were most easily taught after a person had gained employment where the context was clearly defined. Furthermore, the same authors found that social skills training at work enhanced employment outcomes among people with SMI in psychiatric rehabilitation in general, which has also been shown in systematic reviews of the research literature (1, 26). To combine IPS with work-related social skills training (so-called integrated supported employment) has also shown to enhance employment outcomes among persons with SMI (27). Furthermore, the overall score in ACIS-S proved to be moderately correlated with earning a higher income. This positive relationship may be explained by a higher income being related to more working hours per week, which may in turn be related to better communication skills in the present study.

At the item level, significant correlations were found between increased working hours per week and the participants' ability to interact with the employer, colleagues and others at the worksite by assuming appropriate postures *(maneuvers)*, exchanging information during the social interaction by appropriately asking questions *(asks)*, sharing relevant information *(shares)*, and sustaining the social interaction by keeping up the social action or speech for appropriate durations *(sustains)*. This is in line with the findings in previous

psychological research (13, 15) that indicated a positive significant relationship between sending skills or communication and interaction skills and work functioning among persons with SMI as assessed in role-plays including simulated conversations/social interactions with a vocational context (e.g. to initiate conversations to meet new people in the workplace). In summary, even if the results of our study are explorative in nature and based on a relatively small sample they suggest that a competent use of communication and interaction skills may affect the person's vocational outcomes and thus his or her ability to work more hours and, consequently, increase their income.

The study participants' scores on the ACIS-S showed that they generally had a mild to moderate social disability, which according to the instrument may yield undesirable interpersonal and group outcomes (18, 22). This result is in keeping with previous qualitative IPS-studies which show that social disabilities are commonly experienced among IPS-service users who work and are consequently accommodated for as part of the IPS-support (10, 11). One may, however, have in mind that many people with SMI start their working carrier later on in life due to the early onset of their illnesses (28) and have thus not had the opportunity to internalize appropriate worker role scripts (18). In a qualitative study on the development of a worker role (10) some participants perceived initial difficulties coping with the social interaction with colleagues, while others perceived enduring problems. Whether the IPS-participants' social disability is gradually reduced over the time they work or is long-lasting, occupational therapists can play an important role in helping facilitate the communication and interaction skills necessary for people with SMI to be fully participatory at work.

Methodological considerations

This study has limitations that should be considered. This cross-sectional study aimed at exploring correlations at a single point in time and did not allow for interpretations about

causal relationships. In this respect, further research needs to investigate whether in fact a focus on social skills training at work and social accommodations lead to an increase in working hours and income, or whether social skills automatically developed over time are part of a natural socializing process, as suggested in a previous study (10). Further research is therefore needed to evaluate communication and interaction skills among this group of people in a longitudinal perspective. Another limitation regards the lack of a control group including for example persons without SMI at the same work places. This could, however, also pose an interesting research angle for further research.

The limited sample size and the geographical limitation may have affected the external validity. The bootstrap calculations, however, made it possible to compensate for the small sample size and skewed distribution. Furthermore, although the present results are limited to the sample of IPS-participants, the findings may be generalizable to other vocational rehabilitation approaches for persons with SMI. However, because of the exploratory nature of this study and the small sample size, further research is needed to corroborate the findings in larger samples and other geographical contexts. Another issue concerns whether the small sample size and the Bonferroni correction taken together may have contributed to a false negative result and may threat the internal validity. The variation of time in employment among the study participants may also have affected the internal validity. As discussed earlier, previous studies have shown that IPS service users' social abilities may gradually increase over time in the same workplace (10). It also important to have in mind, that the present study did not grasp the qualitative aspects of the different participant's profile of social interaction as done when using ACIS-S in clinical practice. Instead we were able to relate their functioning on a group level to different aspects of vocational functioning. Since the present study was explorative it may, despite the aforementioned limitations, generate hypotheses for

further research and should be considered a part of a larger puzzle of knowledge related to the field.

Conclusions and clinical implications

The results of the present study together with previous research suggest that skills in communication and interaction may affect people with SMI vocational outcomes in terms of working hours per week and income. The recognition of these relationships can support occupational therapists in the knowledge that supporting in social interaction, by for example social skills training, may be helpful for participants in IPS and service users with SMI in vocational rehabilitation in general. Additionally, it has been suggested in previous research that social skills should be an explicit focus in vocational rehabilitation of people with SMI (14, 24, 26). The clinical implications for occupational therapists and other professionals working according to the IPS model are thus the need for a systematic evaluation of the service users' social skills and the provision of social skills training at work as a complement to compensatory opportunities. It is important, however, that the study results can be confirmed by further investigations due to the explorative nature of the present study.

Acknowledgements

Declaration of interest

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Table 1. ACIS-S[*] domains and items.

Table 2. Description of participant demographic and clinical characteristics (n=29).

Table 3. Relationships between items in ACIS-S and vocational outcomes (n=29)

Table 1. ACIS-S[*] domains and items.

ACIS-S domains	ACIS-S items
Physicality	Contacts, gazes, gestures, maneuvers, orients, and postures
Information exchange	Articulates, asserts, asks, engages, expresses, modulates, shares, speaks, and sustains
Relations	Collaborates, conforms, focuses, relates, and respects

* ACIS-S= Assessment of Communication and Interaction Skills the Swedish version (19).

Table 2. Description of participant demographic and clinical characteristics (*n*=29).

Age mean (range)	37.7 (27-54)
Gender, *n*(%)	
Male	15 (52)
Female	14 (48)
Married/cohabiting, *n*(%)	6 (21)
Ethnicity, *n*(%)	
Swedish	17 (59)
Immigrant	12 (41)
Diagnosis (ICD-10), *n*(%)	
Schizophrenia and other psychosis	18 (62)
Bipolar	3 (10)
Other disorders	8 (28)
Educational level, *n*(%)	
Comprehensive school	1 (4)
6th Form college	14 (48)
College or University	14 (48)
Months in work after 18-months of IPS, mean (range)	4.8 (1-16)

Table 3. Relationships between items in ACIS-S and vocational outcomes (*n*=29).

		Hours per week		Income	
		r_s	*p*-value	r_s	*p*-value
Physicality	Contacts	.24	.021	.36	.520
	Gazes	.41	.026	.26	.169
	Gestures	.51	.004	.37	.046
	Maneuvers	.58	**.001** *	.37	.052
	Orients	.33	.083	.30	.108
	Postures	.39	.034	.32	.094
Information exchange	Articulates	.40	.030	.42	.024
	Asserts	.37	.051	.43	.021
	Asks	.56	**.001** *	.50	.006
	Engages	.44	.018	.14	.472
	Expresses	.35	.066	.35	.062
	Modulates	.12	.521	.24	.212
	Shares	.55	**.002** *	.37	.049
	Speaks	.42	.025	.16	.405
	Sustains	.55	**.002** *	.26	.172
Relations	Collaborates	.53	.003	.12	.533
	Conforms	.09	.659	.02	.916
	Focuses	.32	.096	.27	.164
	Relates	.44	.016	.31	.098
	Respects	.35	.061	.25	.195

* Correlations significant at the .0025 level after Bonferroni correction (2-tailed).