

ORIGINAL ARTICLE

The Role of Perceived Control for the Perception of Health by Patients with Persistent Mental Illness

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Abstract

Perceived control has been found to be of significance for patients with psychiatric disorders and may be regarded as an aspect of empowerment. Moreover, a sense of control has been identified as important for occupational performance, both in empirical research and in occupational therapy theory. This study aimed at investigating factors that might be of importance for perceived control: sociodemographic, clinical, and well-being variables. Another aim was to investigate whether perceived control served as a mediator between clinical variables, in terms of psychopathology, and well-being variables, in terms of perceived health. Sociodemographic data were collected from 177 subjects, most of them with psychosis diagnoses. They were also assessed regarding perceived control (locus of control and self-mastery) and different aspects of health and well-being. The findings showed that both clinical and well-being variables were consistently related to both aspects of perceived control. Moreover, the roles of self-mastery and locus of control as mediators of perceived health were identified. The results also identified some important sociodemographic factors that might promote a sense of control and empowerment, mainly educational level and friends. This study provided detailed knowledge of the role of perceived control for well-being among people with mental disorders. Strategies for how occupational therapists may promote a sense of control in this group are discussed.

Key words: *Empowerment, locus of control, psychiatry, self-mastery, well-being*

Introduction

Perceived control has been shown to be of importance for well-being, quality of life, and functioning of people with severe mental illness (1–4). A recent study (5) also showed that perceived control was related to aspects of occupational performance in individuals with persistent mental illness, and that the pattern of relationships was fairly consistent over sub-groups based on diagnosis and employment conditions. These results also validated an assumption often made in occupational therapy practice models, such as the Model of Human Occupation, that people's occupational performance is dependent on whether they perceive themselves as being an active and influential agent in their own lives (6). Thus, both in empirical research and in occupational therapy theory perceived control has been found to be vital for occupational performance.

Perceived control is considered to be a self-related construct (6,7) and may be defined as a belief that outcomes in life are the consequences of one's own actions and control. Locus of control, as introduced by Rotter (8), is one way of addressing perceived control. A belief that outcomes in life are the consequences of one's own actions and control signifies an internal locus of control, while attributing outcomes in life to the actions of others, luck, or faith is what characterizes an external locus of control. Another operationalization of perceived control is self-mastery, defined as "the extent to which people see themselves as being in control of the forces that importantly affect their lives" [9, p. 340].

Since perceived control has been shown to be of importance for people with persistent mental illness, both in mental healthcare in general and in occupational therapy, knowledge of factors that may influence perceived control is important if we are to be

able to promote and address this phenomenon among patients seeking mental healthcare. Bengtsson-Tops (1) recently showed that the strongest contributors in explaining the variance in self-mastery were psychiatric symptoms, especially affective symptoms. Other factors contributing to lower ratings of self-mastery were greater age and a greater need for care and support. No other sociodemographic factors were found to be of importance in Bengtsson-Tops's study, neither were qualitative or quantitative aspects of the social network. Although perceived control may be regarded as an aspect of empowerment (1) and has been shown to be vital for occupational performance (5,6), studies of factors that are related to perceived control in patients with persistent mental illness are very few. More knowledge is needed in order to find strategies in occupational therapy and other mental health interventions for promoting these patients' sense of control. Therefore, the present study aimed at illuminating the following questions:

- How are sociodemographic and clinical factors related to perceived control, in terms of self-mastery and locus of control, in patients with severe mental illness?
- Is there any relationship between perceived control and different aspects of well-being?
- Does perceived control serve as a mediator between psychopathology and well-being, in terms of perceived health?

Materials and Methods

Subjects

In order to ensure the best possible statistical power, this study was based on two data sets from projects investigating health and well-being in people with mental illness (10,11). Both projects were carried out in urban areas in southern Sweden. The first data set was generated from a sample selected from an outpatient unit for patients with psychosis (10). Only patients with schizophrenia or related disorders were considered for that project. Consecutive sampling was employed, and 74 subjects agreed to participate.

The second data set (11) was collected from a sample from another outpatient unit for people with severe mental illness but not necessarily psychoses. A stratified randomized procedure was employed in order to obtain a sample with variation in the type of daily occupation: one-third with competitive work, one-third visiting community-based activity centres, and one-third with no regular daily occupation. In all, the 2004 sample comprised 103 patients.

The principle of informed consent was applied in both sampling procedures, and the local research ethics committee had approved both projects. The participation rate was 62% in the 2001 sample and 60% in the 2004 sample. This is comparable to, or better than, other studies on similar samples (12). Analyses comparing participants and non-participants indicated no differences in diagnosis, age, or gender, except in the 2004 sample where the non-participants were marginally older and the proportion of women was somewhat greater. The characteristics of the subjects from both samples are given in Table I. There were more males than females, which is representative of people with persistent mental illness. Most patients were of Swedish origin, had a diagnosis of psychosis, were without gainful employment, did not live with children of their own, were single, and lived in their own flat or house. A relatively high proportion had a college or university education.

Instruments

Perceived control. Perceived control was estimated by means of two instruments, Locus of Control (8) and Mastery (9). The Locus of Control (LOC) scale, constructed by Rotter (8), refers to whether an individual perceives reinforcements to be a function of his/her own actions (internal control) or externally determined (external control). A four-point scale is used, which means that the mean score may range between 1 and 4, and a higher value represents more external locus of control. The present study used a short form (eight items) of the Swedish version of the instrument (13). The LOC scale has fair internal consistency and test-retest reliability (8). Mastery, often named self-mastery, is defined as the extent to which people see themselves as being in control of

Table I. Characteristics of the subjects ($n=177$).

Characteristic	Number
Males/females	105 (59%)/72 (41%)
Mean age (range)	40.3 years (22–55)
Psychosis/neurosis/other diagnoses	134 (76%)/23 (13%)/20 (11%)
Swedish origin	157 (89%)
Married or cohabitants	58 (33%)
Living with own children	41 (23%)
Have a close friend	111 (63%)
Secondary school/ upper-secondary school/ college or university ^a	45 (25%)/60 (34%)/71 (40)
Number of subjects in work and/or studying	52 (29%)
Living in own flat or house	152 (86%)

^aOne value missing.

the forces that guide and affect their lives (9). The scale has seven items, and ratings are made on a four-point scale. Thus, the mean scores may range between 1 and 4, and a higher value indicates a higher level of self-mastery. The Mastery scale has been found to be empirically distinct and to have good internal consistency (14).

Sociodemographic and clinical variables. A questionnaire was used to gather information about *socio-demographic variables*, such as family, living situation, friends, education, work, ethnicity, and use of healthcare services. Diagnoses were made by the treating psychiatrists, who in the 2001 sample used the DSM-IV system (15) and in the 2004 sample used the ICF-10 system (16). These diagnostic systems are quite similar, and the reason for using different classification systems was that the clinical routines differed between the two units from which the patients were selected.

Psychiatric symptoms were assessed by means of the Brief Psychiatric Rating Scale (BPRS) (17). This scale consists of 18 items, which are rated on a seven-point scale. The mean scores may range between one and seven and a higher value indicates more severe symptoms. A test of inter-rater reliability between an experienced researcher and two interviewers trained for the study resulted in coefficients of 0.84 and 0.87. Subscales reflecting positive, negative, depressive, and general symptoms may be calculated, as well as a mean score of all 18 items.

Global Assessment of Functioning (GAF) was employed to estimate *psychosocial functioning*. This gives a single rating on a scale from 1 to 100, where 100 indicates not only absence of pathology but also positive mental health, and the scale has acceptable reliability and validity (18,19).

Self-ratings of well-being and health. As a measure of *quality of life* the Swedish version of the Manchester Short Assessment of Quality of Life (MANSA) was used (20). Both this Swedish version and the original English version (21) have exhibited good psychometric properties. MANSA is administered as a structured interview and includes satisfaction concerning various quality of life domains, nine of which were targeted in this study: work, finances, social relations, leisure, living situation, safety, physical health, psychological health, and family relations. The ratings are made on a seven-point scale. Thus, a rating may vary between 1 and 7 and a higher value means better satisfaction with the quality of life domain. The mean of the ratings from the different domains forms an overall quality of life score.

However, in the present study no overall quality of life score was used, since the interest was in the different facets of well-being formed by the ratings of the different life domains. The MANSA also has an item targeting the individual's subjective rating of *general life satisfaction*, rated according to the same seven-point scale and used in this study.

Self-esteem was assessed by means of a scale developed by Rosenberg (22). It consists of 10 statements, to which the respondent answers yes, no, or I do not know. It has been shown to have acceptable internal consistency (23). Agreement with a statement renders a score of 1 and disagreement a score of 0. Five items express positive self-esteem and five negative. The mean scores for the positive and the negative items are calculated separately, and both have a possible average score that ranges between 0 and 1. Subsequently, the negative average score is subtracted from the positive average score, resulting in an average score of self-esteem that may vary between -1 and $+1$.

The Sense of Coherence (SOC) scale (24,25) was also used as a measure of well-being. *Sense of coherence* indicates how well a person can cope with stress and remain healthy (24), and is composed of the constructs comprehensibility, manageability, and meaningfulness. In the SOC instrument the respondents rate questions reflecting these constructs on a seven-point scale with two anchoring responses (e.g. never and very often). Means scores thus range from 1 to 7, and a higher value denotes a stronger sense of coherence. The instrument has proved to be valid and reliable (24,26,27). A short version with 13 items, shown to have the same properties as the original 29-item scale (24,28), was used.

Procedures

The data collection was performed at the outpatient units over a period of six months. Two occupational therapists were trained to undertake the interviews, one at each unit. They also administered the instruments based on self-ratings, and assisted the subjects if necessary by reading the questions out loud.

Data analysis

The sociodemographic variables described in Table I were included in the analyses. Most of them formed group variables, for which the Mann-Whitney U-test or the Kruskal-Wallis h -test was used to analyse differences in perceived control. With regard to work/studies, the number of hours spent on these occupations was used in the analyses, instead of the group variable, which was analysed in a related study targeting occupational variables in relation to

perceived control (5). The numbers in the subsamples formed by these sociodemographic variables were large enough to detect a moderate effect size at $p < 0.05$ with 80% power (29). Spearman correlations were employed for testing associations between perceived control and interval data (age) or ordinal data (well-being variables). The software used for these analyses was SPSS 11.5, and the level of significance was set at $p < 0.05$. Bonferroni corrections were employed to avoid the risk of mass significance.

In order to address the third research question, whether perceived control mediated the relationship between clinical characteristics, in terms of psychopathology and perceived health, Structural Equation Modelling (SEM) with latent variables was employed. The statistical package LISREL 8.54 (30) was used, together with the program Streams (31), which aided in the definition of the models. Based on the previous research regarding a relationship between perceived control and well-being, a conceptual model was proposed where self-mastery and locus of control served as mediators between psychopathology and perceived health. We also wanted to investigate whether a direct path from psychopathology to perceived health made a difference to the model. Therefore, in an alternative hypothetical model, all variability in psychopathology was mediated through the control variables. The intention was not to find a model with a perfect fit but specifically to investigate whether the relation between psychopathology and perceived health was mediated by the two control constructs. In line with this intention, we refrained from using the often-presented fit indexes, and only standardized path coefficients and chi-squared tests were employed. Other considerations that guided the SEM analysis are presented together with the results.

Results

Sociodemographic factors in relation to perceived control

The participants' mean scores on the control variables were for locus of control 2.36 and for self-mastery 2.72. The theoretical mean is for both scales 2.5. Thus, they scored rather in the internal direction regarding locus of control and somewhat above the mean regarding self-mastery. A few group differences were seen when groups based on the sociodemographic variables given in Table I were compared. Swedish-born subjects had a statistically significantly lower locus of control than subjects of foreign origin ($p = 0.028$), indicating more internal locus of control in those of Swedish origin. Moreover, there was a difference regarding locus of

control between the groups based on educational level ($p = 0.006$ with Bonferroni correction), showing that the group which had only secondary education perceived more external locus of control than the upper-secondary education group and the college or university group. No difference was found between these latter groups. Those who had a close friend scored higher on self-mastery than those who did not ($p = 0.001$), but no other statistically significant differences in mastery were observed.

Regarding the 52 participants who were engaged in some form of regular work or studies, the time spent in these occupations varied greatly, from 3 to 90 hours a week, with a mean of 31 hours. For the whole group, the association between the number of hours spent working or studying and locus of control was statistically significant ($r_s = -0.17$, $p = 0.023$), while the association with self-mastery was on the limit of significance ($r_s = 0.15$, $p = 0.05$). Age was not related to any of the control variables.

Clinical factors and perceived control

Regarding locus of control, the non-psychosis subgroup exhibited a significantly lower value than the psychosis group ($p = 0.004$), indicating more internal locus of control, but no difference was seen in self-mastery. Correlations between the other clinical factors and perceived control are given in Table II, where the mean scores regarding the clinical factors are also indicated. All the associations were statistically significant, although moderate in size, and indicated that better functioning and fewer symptoms were related to more internal locus of control and higher ratings of self-mastery. The highest correlation was found between general psychiatric symptoms and self-mastery.

Table II. Correlations between clinical factors and perceived control

Clinical factor	Perceived control	
	Locus of control ^a	Mastery ^b
Global assessment of functioning (group mean = 60.7)	-0.36***	0.48***
Negative symptoms (group mean = 2.26)	0.28***	-0.38***
Positive symptoms (group mean = 1.87)	0.29***	-0.3***
Depressive symptoms (group mean = 2.64)	0.32***	-0.46***
General psychiatric symptoms (group mean = 2.08)	0.34***	-0.52***

*** $p < 0.001$. ^aHigher values indicate more external locus of control. ^bHigher values indicate more self-mastery.

Perceived control in relation to well-being variables

Table III shows the mean scores on the well-being variables and displays the associations between perceived control and the well-being variables. Regarding quality of life, the correlations differed substantially between the different domains. With regard to locus of control, the lowest correlation was found with social relations, while the highest was found with psychological health. Regarding self-mastery, the lowest correlation was found with financial situation and, again, the highest was found with psychological health. General life satisfaction, sense of coherence, and self-esteem exhibited moderately strong relationships to self-mastery, and somewhat lower correlations with locus of control.

Perceived control as a mediator between psychopathology and perceived health

Several significant relations were found between the psychopathology variables and perceived health, and also between the variables measuring control and perceived health. In order to estimate general psychopathology, the GAF and the BPRS subscales

Table III. Correlations between perceived control and aspects of well-being

Well-being variable	Perceived control	
	Locus of control ^a	Mastery ^b
Quality of life		
Work (group mean = 4.42)	-0.17*	0.25***
Financial situation (group mean = 2.22)	0.2**	-0.12
Social relations (group mean = 4.52)	-0.16*	0.3***
Leisure (group mean = 4.49)	-0.27***	0.46***
Living situation (group mean = 5.16)	-0.31***	0.31***
Safety (group mean = 4.98)	-0.27***	0.30***
Physical health (group mean = 4.41)	-0.31***	0.46***
Psychological health (group mean = 4.12)	-0.39***	0.6***
Family relations (group mean = 4.88)	-0.31***	0.34***
General life satisfaction (group mean = 4.29)	-0.31***	0.49***
Sense of coherence (group mean = 4.21)	-0.48***	0.64***
Self-esteem (group mean = 0.25)	-0.42***	0.63***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ^aHigher values indicate more external locus of control. ^bHigher values indicate more self-mastery.

reflecting positive, negative, and general symptoms were used as indicators. The BPRS depression subscale was included as a separate variable. This is in line with a previous model, showing that depression had a specific role in explaining self-perceived life satisfaction (2), and previous findings of a close link between depression and ratings of health and well-being (32). Locus of control was measured with six out of eight items; two were excluded due to near-zero loadings with the latent variable. Mastery was measured with its seven items as indicators, and perceived health was measured by means of two items, one measuring satisfaction with psychological health and one item measuring satisfaction with physical health, both from the MANSA. They were regarded as two distinct indicators of perceived health.

Figure 1 shows the final model, with most of the insignificant paths excluded. Two were, however, retained: those between the psychopathology variables and self-mastery. The most important aspects of the model, considering the mediation hypothesis, are the sizes of the coefficients between the variables, denoted in the figure: *General Psychopathology*, *Depression*, *Self-mastery*, *Locus of Control*, and perceived *Physical Health* and *Psychological Health*. Note the high coefficients between Psychopathology and Locus of Control, and between Self-mastery and the variables measuring Physical Health and Psychological Health. The direct path coefficient from General Psychopathology to Self-mastery was weak, and it seems that the univariate relation between them was largely mediated by Locus of Control. Similarly, the path coefficients from Locus of Control to Physical Health and Psychological Health were almost zero. Thus, these univariate relations were almost completely mediated by Self-mastery.

A crucial question is whether the direct paths from the psychopathology variables to Psychological Health contributed significantly to the model. To test this, the paths from General Psychopathology and Depression to Psychological Health were excluded ($\Delta\chi^2 = 19.57$; $\Delta df = 2$; $p < 0.01$). Since this model was significantly poorer, it was decided to restore the Depression variable, resulting in an improved model ($\Delta\chi^2 = -7.85$; $\Delta df = -1$; $p < 0.01$). Thereafter General Psychopathology was included, which further contributed to the model ($\Delta\chi^2 = -12.47$; $\Delta df = -1$; $p < 0.01$).

Excluding the paths from the psychopathology variables to the variable of Physical Health did not result in a significant change in the model, and they were therefore removed from the final model presented in Figure 1.

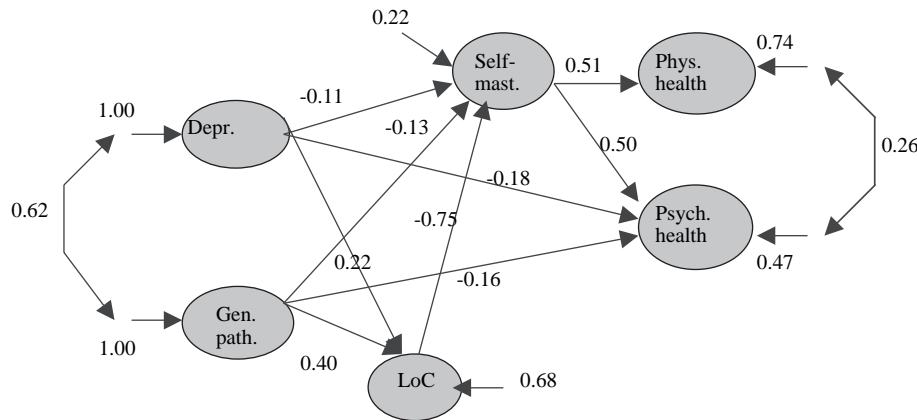


Figure 1. The final model based on structural equation modelling.

Discussion

The results showed that having a friend was the sociodemographic factor with the highest statistical significance for perceived control, in terms of higher ratings of self-mastery for those who had a friend. However, this was the only sociodemographic variable showing any association with mastery. Locus of control was more often related to a sociodemographic factor, and higher educational level, being of Swedish origin, and spending more hours at work or studying were factors associated with more internal locus of control.

All the clinical factors investigated were related to locus of control, and all but diagnosis were also related to self-mastery. Both control variables were consistently associated with the well-being variables, and self-mastery, for example, showed fairly strong relationships with satisfaction with psychological health and self-esteem. This result pattern confirms previous findings that perceived control is important for health and well-being (1–4), and indicated that further analysis of whether the control variables served as mediators of the relationship between clinical variables and well-being was warranted. The SEM analysis resulted in a model that further confirmed the close relationship between self-mastery and the well-being variables, here in terms of perceived health.

To summarize the model, the relationship between psychopathology and perceived health was partly mediated by locus of control and self-mastery, but there was also a direct link between psychopathology and perceived psychological health. Regarding perceived physical health, the relation with psychopathology was entirely mediated by self-mastery and locus of control. The SEM analysis showed that perceived health was only weakly related to psychopathology, as estimated by professionals. Instead, self-mastery was an important mediator of substantial importance for both perceived physical

and psychological health. However, in the model, the direct link between psychopathology and self-mastery was weak, and locus of control functioned as an important mediator between psychopathology and self-mastery. Thus, this study not only confirmed the importance of perceived control for well-being but distinguished the roles of self-mastery and locus of control as mediators. These results indicate that locus of control and self-mastery reflect different aspects of perceived control, in turn suggesting that both measures should be used in studies that address this phenomenon.

The findings also indicate that promoting an individual's sense of control over his or her life situation would be an important intervention goal in occupational therapy. This study identified some sociodemographic factors that should be addressed in occupational therapy and in mental healthcare in general when trying to promote a sense of control and empowerment, especially educational level and having a friend. The findings indicate that interventions which include elements of education and social integration would be important in strengthening a sense of control and empowerment. A previous study (11) showed that people visiting community-based activity centres did not differ regarding satisfaction with daily occupations and quality of life from those not engaged in structured daily occupations, in turn indicating that the activities available at the activity centres might not have been sufficiently stimulating. Adding educational elements and increasing the level of social interaction might be a way of optimizing such activities. Educational elements in day treatment have been shown to promote the subjective quality of life among people with severe mental illness, and have therefore been recommended for inclusion in interventions for this group (33). Occupational therapy may also serve as an important arena for this type of intervention. An additional way of targeting perceived control in

occupational therapy might be working with what Yalom (34) called the existential factor, namely the insight that one has the power to influence one's situation in life, and also a responsibility to do one's best to make something out of life. This existential theme has been identified among the helping factors of occupational therapy (35) and can be approached in various occupational therapy interventions, for example the Tree Theme Method (36), in which occupational storytelling and story-making is stimulated. Moreover, the findings from this study indicate that perceived control, both locus of control and mastery, should be incorporated in occupational therapists' assessment battery.

Furthermore, the results underscored the relevance of including perceived control in occupational therapy theory, also demonstrated in a related study (5). The concept of locus of control was included in the 1995 version of the Model of Human Occupation (6), but not in the most recent version (37), where self-efficacy was introduced instead. Both concepts may be of relevance for occupational therapy theory, however.

The results indicated that the participants represented a fairly well-functioning group, considering that they were selected on the basis of having a persistent mental illness. Regarding all variables except satisfaction with financial situation the mean scores were in the more healthy and well-functioning half of the score range. Moreover, the participation rate was fairly low, although comparable to similar studies (12), and the result pattern found might not be valid for other groups with mental illness. Therefore, the findings cannot be generalized to people with mental illness in general. Still, the fact that the findings confirm those of previous studies indicates that our samples were typical of people with long-term mental illness. Furthermore, one should bear in mind that the SEM analysis was not an attempt to explain perceived health but to specifically address the role of perceived control as a mediator between psychopathology and perceived health. This also means that much of the variation in perceived health remains unexplained in this study. The more unique finding of this study, showing the roles of self-mastery and locus of control as mediators of perceived health, should be regarded as hypotheses that need to be confirmed in future studies. In order to develop the model further, occupational performance could be incorporated as well. Since perceived control has been shown to be related to occupational performance (5), the next effort could be the inclusion of sociodemographic and clinical variables, occupational performance, and perceived control in one and the same model in order to

identify the relative contributions of these factors to perceived health.

In conclusion, this study confirmed previous findings on the importance of perceived control for well-being among people with mental illness. It also identified the role of perceived control, in terms of self-mastery and locus of control, as a mediator between psychopathology, as assessed by professionals, and health, as perceived by the clients. Moreover, the findings identified some important sociodemographic factors that might promote a sense of control and empowerment, mainly educational level and having friends. Educational elements and increased social integration may therefore be used to enrich existing programmes for the support and care of people with mental illness, together with interventions addressed directly to strengthening their sense of control, such as occupational story-making and storytelling.

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