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Hope as a determinant of mental health recovery: a psychometric evaluation of the Herth Hope Index-Dutch version

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Hope as a determinant of mental health recovery: a psychometric evaluation of the Herth Hope Index-Dutch version

Hope is an important aspect of mental health recovery and a major concern in patients with mental illness. Therefore, an instrument to measure hope could be useful for clinical settings and research. The aim of this study was to develop a Dutch version of the Herth Hope Index (HHI-Dutch) and to evaluate its validity and reliability in a sample of people with severe mental illness. The HHI-Dutch was used in a sample of people with severe mental illness ($n = 341$). A Principal Component Analysis with varimax rotation was performed and identified two factors. The results also showed a Cronbach's alpha of 0.84 for the HHI total score and a test-retest reliability of $r = 0.79$. As for convergent validity, highest correlations were found between hope and health-related self-efficacy beliefs ($r = 0.72$), perceived quality of life ($r = 0.56$) and mental health ($r = 0.59$) and medium correlations between hope and loneliness ($r =$

-0.47), task-oriented coping ($r = 0.45$) and the habit to seek company ($r = 0.4$). As for divergent validity, according to expectations, there was no significant correlation between hope and physical functioning, but there was a positive correlation between hope and general health perception ($r = 0.34$). In conclusion, the HHI-Dutch has shown to be an instrument with adequate psychometrical properties. It is advisable to use the scale as a whole rather than using the subscales. The HHI-Dutch is appropriate for research in the recovery process of people with severe mental illness. Moreover, the study of hope is important for understanding the concept of hope in relation to mental health recovery. The results of this study may be a step forward and a new impulse to stimulate research on the important 'hope' aspect in mental health recovery.

Keywords: Herth Hope Index, mental health, psychometric, recovery, hope.

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Introduction

The concept of 'hope' is a central aspect in the recovery process of people with severe mental illness (1–3). From the 1970s on, researchers have tried to conceptualise and measure hope, both in healthy and chronically ill adults. Several dimensions of hope were identified in these studies, especially the goal-expectation or goal-achievement

dimension, the time- or future-oriented dimension and the interpersonal dimension. In the mid-1980s, other conceptual issues were addressed in several studies (4). For example, Dufault and Martocchio (5) identified six dimensions of hope: an affective dimension, a cognitive dimension, a behavioural dimension, an affiliative dimension, a temporal dimension and a contextual dimension. In various studies and in different populations, hope has shown to correlate strongly with variables such as well-being (6), quality of life (7), subjective global life satisfaction (8), spirituality and/or religion (6, 9) and measures of resiliency, namely self-esteem, self-confidence and self-transcendence (10). In contrast, there seems to be no strong connection between hope and health status or stage of (somatic) illness (4, 8).

Hope is especially important for individuals when personal resources are exhausted or when they are in a

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*In memory of Joop van den Bogaard who passed away very unexpectedly at 6 May 2008.

threatening situation with an uncertain outcome (11). Although most research on the experience of hope has been carried out with cancer patients (7), hope is also very important in the recovery process of people with severe mental illness. Because of new insights in the recovery process, there are developments towards a more recovery-oriented mental healthcare system. In this new orientation, recovery of mental illness goes beyond relief or remission of symptoms and outcome of treatment. This orientation uses a nonmedical, process-oriented model in which recovery '... is a way of living a satisfying, hopeful and contributing life even with limitations caused by the illness' (12). Rather than meaning symptom-free and without disabilities, recovery here is more concerned with a sense of meaning in life and personal comfort (1). In recent years, some more quantitative empirical data about the dimensions and determinants of mental health recovery have become available and these data have shown that the concept of 'hope' is an important aspect of the process of recovery (1–3). Still, insufficient work has been performed on patients' perspectives about the mechanisms or factors involved in the recovery process, although these perspectives are critical to a fuller understanding of recovery (13).

In line with these developments, in the Netherlands, but also in other European countries, there is a need for a reliable, valid and feasible instrument to measure the 'hope' aspect. This would make the study of hope possible, which is important to understand the relation between the

hope aspect and mental health recovery. The Herth Hope Index (HHI) (4) seemed to be a good instrument for this purpose because it is a brief instrument with good psychometric properties and it has been developed for clinical use. It has been designed to facilitate the examination of hope at various intervals so that changes in levels of hope can be identified. The HHI incorporates the conceptual issues described by Dufault and Martocchio (5) and has been developed and validated for several languages. Published findings, as shown in Table 1, include: a Swedish (14), Japanese (15), Norwegian (7), Spanish (16) and Portuguese (17) version of the instrument. It has been used in different patient groups, for example cardiac patients and patients with cancer, multiple sclerosis, Parkinson's disease (7), ALS (18) and cystic fibrosis (19). At present, the HHI has seldom been used in research on severe mental illness.

The aim of this study is to develop a Dutch version of the HHI and to assess the reliability and validity of this Dutch version in a sample of people with severe mental health problems.

Methods

Procedure and subjects

Inclusion criteria for all subjects were that they had serious mental health problems (for instance psychosis, personality disorder, affective disorder and anxiety disorder) and

Table 1 Published articles on development and validation of the HHI in different samples and in different languages

<i>Author(s) and year</i>	<i>Sample</i>	<i>n</i>	<i>Factor-solution</i>
Herth (1992)	American adults with acute, chronic or terminal illness	70 Persons with acute illness; 71 persons with chronic illness; 31 persons with terminal illness	Three factors: 1. Temporality and future 2. Positive readiness and expectancy 3. Interconnectedness with self and others
Benzein and Berg (2003)	Patients in palliative care	40 Cancer patients in palliative care; 45 family members of the cancer patients	Two factors: 1. Reconciliation with life situation 2. Religiosity
Wahl et al. (2004)	General population	1893 Respondents	Two factors: 1. Positively worded items 2. Negatively worded items
Koizumi et al. (1999)	Elderly people	87 Elderly persons who visited a Welfare Centre for the Aged	Two factors: 1. Sense of relatedness and emotions in the hoping process 2. Self-confidence positive readiness and expectancy to hope
Sartore and Grossi (2008)	Chronic disease patients and their caretakers	131 Patients and their caretakers, divided in 3 groups: 47 oncology patients; 40 type-2 diabetes patients; 44 caretakers of those patients	Unknown from the English abstract
Pereyra (1996)	Patients and students	126 Normal old Argentinean adults; 126 normal Argentinean adults (university students); 150 Argentinean adults (surgical patients)	Unknown from the English abstract

that they had moved beyond the acute phase of their disease. They also had to have enough reading skills to complete the questionnaire. After explaining the study in detail (both verbally and in-writing), written informed consent was obtained from each subject.

For this study, the HHI-Dutch was used in three samples. First, the HHI-Dutch was used in a pilot study ($n = 25$), together with other instruments (see instruments), in order to test its content validity and comprehensibility. The subjects attended a Day Activity Centre or were on a waiting list for this centre (mean age 41.4 years, standard deviation 10.9, percentage female 56%).

Second, the HHI-Dutch was used, together with other instruments (for example those used for validating), in a sample ($n = 341$) of subjects gathered by advertisements in free local papers, by posters in hospitals, psychiatric care services and in primary care and by the psychiatric care services themselves. These subjects participated in a larger study on recovery of severe mental health problems. Demographic and psychiatric characteristics of the sample are presented in Table 2.

Table 2 Demographic and psychiatric characteristics

Demographic characteristics	Total group $n = 341$	
	n	%
Mean age (SD)	43.5 (10.4)	
Age range	17–75	
Female	223	66
Dutch Nationality		
Born in the Netherlands	312	92
Level of education		
Low	95	28.2
Average	111	32.9
High	119	35.2
Principal daily pursuit		
Unemployed	69	20.3
Study/School	11	3.2
Employed part time	28	8.2
Employed full time	13	3.8
Volunteer work	137	40.3
Living situation		
Living alone	172	50.6
Marital status		
Unmarried	191	56.2
Married/living together	49	14.4
Divorced	94	27.6
Widowed	6	1.8
Psychiatric characteristics		
Psychotic disorder	112	33.3
Affective disorder	122	36.3
Anxiety disorder	76	22.8
Personality disorder	105	31.3

Third, the instrument was used in a test–retest study with 21 people with severe mental health problems working in a sheltered workshop (mean age 39.7 years, standard deviation 9.83, percentage female 38%).

Prior to the start of the study, approval was obtained from the medical ethics committee for mental health institutions in the Netherlands.

Instruments

The Dutch version of the HHI (HHI-Dutch). In accordance with the forward–backward procedure (20), the HHI was translated into Dutch by three independent translators. Differences were discussed and one consensus-version was constructed. This version was translated back in English by a native speaker. Finally, this last version was approved of by the author of the original instrument. This strict construction process was to the benefit of the content validity of the instrument. Content validity indicates whether particular items are a representative sample of the content area one wants to measure and the extent to which the construction of an instrument is sound and well carried out (21).

The HHI-Dutch was used to assess the overall hope level of the people with severe mental health problems. The HHI-Dutch has 12 Likert scale items, with scores ranging from 1 ('strongly disagree') through 4 ('strongly agree'). The scoring consists of summing the scores for the total scale. Item 3 and item 6 need to be reversed scored. Total scores on the scale are ranging from 12 to 48 points. The higher the score, the higher the level of hope. Cronbach's alpha for the original HHI was found to be 0.97 with a 2-week test–retest reliability of 0.91. The instrument was found to have three factors, each with four items: 1. Temporality and future, 2. Positive readiness and expectancy and 3. Interconnectedness with self and others (4).

Validating instruments for construct validity. Construct validity refers to how well an instrument measures the proposed underlying factors or dimensions; in other words, if the instrument embraces a particular theoretical construct (22). Convergent validity and divergent validity were assessed. According to Cohen (23), a medium correlation ranges from 0.3 to 0.49 and a high correlation ranges from 0.5 to 1.0. Convergent validity was assumed when correlations between hope and another concept were medium to high; i.e. when both concepts were related to each other. Divergent validity was assumed when correlations between hope and the other concepts were low; i.e. when both concepts were not related to each other.

The Manchester Short Assessment of Quality of Life. The Manchester Short Assessment of Quality of Life (MANSA) is an instrument to measure quality of life in people with

mental illness. In this study, an abbreviated version of the MANSA was used, consisting of 12 subjective questions to assess satisfaction with life as a whole and with several life domains. Satisfaction is rated on 7-point Likert scales ranging from 1 ('could not be worse') through 7 ('could not be better'). Cronbach's alpha for the satisfaction ratings in the original English version of the MANSA was 0.74 (24) and for the Dutch version respectively 0.73 for students, 0.78 for older people with severe mental illness and 0.85 for people with severe mental illness currently receiving treatment (Ch. Van Nieuwenhuizen, S. Priebe and A. Nugter, 2009, in preparation).

The Mental Health Confidence Scale. The Mental Health Confidence Scale (MHCS) was designed to assess the health-related self-efficacy beliefs of persons dealing with mental disorders. It has a 16-item 6-point Likert scale with scores ranging from 1 ('totally no confidence') through 6 ('full confidence'). The instrument has three subscales: Optimism (six items, Cronbach's alpha = 0.91), Coping (seven items, Cronbach's alpha = 0.90) and Advocacy (three items, Cronbach's alpha = 0.80). The total scale has a Cronbach's alpha of 0.94 (25). In a Dutch study, Cronbach's alphas for the Dutch version were 0.88 for Optimism, 0.87 for Coping, 0.76 for Advocacy and 0.93 for the total scale (26).

The Loneliness Scale. The Loneliness Scale is an instrument to assess a subjectively experienced unpleasant or intolerable lack of social relationships (27). The scale consists of 11 items on 5-point Likert scales, ranging from 1 ('yes, for sure') through 5 ('no, certainly not'). It contains two subscales: the Emotional Loneliness Scale (six items, negatively formulated) and the Social Loneliness Scale (five items and positively formulated). Cronbach's alpha of the total scale ranged from 0.8 to 0.9 (28).

The Coping Inventory for Stressful Situations. The Coping Inventory for Stressful Situations (CISS) assesses coping-behaviour and is also for use with psychiatric patients (29). It is a 48-item 5-point Likert scale instrument with scores ranging from 1 ('not at all') through 5 ('very much so'). The instrument contains three main scales, Task-oriented coping (Cronbach's alpha = 0.87), Emotion-focused coping (Cronbach's alpha = 0.87) and Avoidance (Cronbach's alpha = 0.82). The last main scale has two subscales: Seeking company (Cronbach's alpha = 0.78) and Seeking distraction (Cronbach's alpha = 0.75) (30).

The RAND-36. The RAND-36 assesses general health situation. It contains eight sub-scales: Physical functioning, Social functioning, Role limitations (physical problem), Role limitations (emotional problem), Mental health, Vitality, Pain and General Health Perception. The scale consists of 36 items. Six subscales have items on 3- through

6-point Likert scales and the other two scales have items that can be answered with 'yes' or 'no'. The Cronbach's alpha of the subscales ranged from 0.71 to 0.92 (31).

The convergent validity of the HHI-Dutch was assessed by correlating HHI-Dutch sumscores with validating instruments:

- a. 12 subjective items of the Dutch version of the *Manchester Short Assessment of Quality of Life (MANSA)* (24, 32), because strong correlations have been found between hope and quality of life (7),
- b. the total scale and the subscale Optimism of the Dutch version of the *Mental Health Confidence Scale (MHCS)* (25, 26), because strong convergent correlations have been found between hope and measures of resiliency (10),
- c. the total scale of the Dutch version of the *Loneliness Scale* (27, 28), because a relationship is an essential component of hope (33) and more general satisfaction with networks is associated with greater hope (1),
- d. the scales Task-oriented coping and Seeking company of the Dutch version of the *Coping Inventory for Stressful Situations (CISS)* (29, 30). As hope is important in coping with, or recovering from, chronic illness (34) a correlation was expected between the former behaviours and hope, and
- e. the subscale Mental health of the Dutch version of the *RAND-36* (31), while strong relationships have been found between hope and subjective health or subjective global life satisfaction (8). Those concepts are strongly related to mental health.

Based on findings in other studies, high correlations were expected with quality of life, health-related self-efficacy beliefs and mental health (7, 8, 10); medium correlations with task-oriented coping and loneliness (1, 33, 34).

The divergent validity HHI-Dutch was assessed by correlating Dutch HHI sumscores with the subscales Physical functioning, Role limitations (physical problem) and General health perception of the Dutch version of the *RAND-36* (31) because low correlations were expected between hope and physical health. Hope has shown to have no strong connections with health-status or symptom severity (8).

Results

Examination of the factor structure of the HHI-Dutch

A Confirmatory Factor Analysis (CFA) was conducted to examine if the factor structure of the Dutch HHI fitted well to the original version (35). It is generally assumed that a Goodness-of-Fit Index between 0.90 and 0.95 indicates a very good fit, but in the literature no cut-off-points are given (36). The CFA in the sample of 341 people with severe mental health problems showed a Goodness-of-Fit Index of 0.89, indicating that the factor structure of the Dutch HHI did not fit well to the original version. Hence, a Principal Component Analysis (PCA) with varimax rota-

tion was performed. First, the suitability of data for factor analysis was assessed by computing the Kaiser–Meyer–Olkin (KMO) value. Small values of the KMO-coefficient indicate poor chances of success in factor analysis because correlations between pairs of variables cannot be explained by the other variables (37). In this study, the coefficient was 0.88, which, according to Kaiser (38), is high. In addition, factorability of the correlation matrix was considered (several coefficients were greater than 0.3) and the Bartlett’s test of sphericity was significant. Therefore, a PCA with varimax rotation was performed, in addition to exploring eigenvalues, proportions of explained variance and whether or not factor content was open to interpretation. As a result, the original three-factor solution (4) could not be confirmed in the present study. Instead, a two-factor solution was found accounting for 47% of the item variance. Eigenvalues for the two factors were 4.5 and 1.1, respectively. Factor 1 (view on life and future) consisted of the items 1, 2, 3, 6, 10 and 12; $\alpha = 0.8$. Factor 2 (self-confidence and inner strength) consisted of the items 4, 5, 7, 8, 9 and 11; $\alpha = 0.69$. In Table 3, the loadings of the HHI-Dutch items are shown.

Reliability of the adapted HHI

Results showed a Cronbach’s alpha of 0.84, indicating adequate internal consistency of the scale as a whole. In the 1-week test–retest study with 21 people with severe mental health problems, a test–retest reliability of $r = 0.79$ ($p < 0.01$, two-tailed) was found, which is high (23).

Table 3 Factor loadings of the 12 items of the HHI-Dutch after varimax rotation

Items	Factor loading F1	Factor loading F2
1. Positive outlook on life	0.61	0.48
2. Presence of goals	0.49	0.44
3. Feel all alone	0.69	0.03
4. Can see possibilities even when in difficulties ^a	0.29	0.49
5. Belief that comforts ^a	0.23	0.30
6. Scared about the future	0.76	0.05
7. Recall happy/joyful times	0.05	0.56
8. Deep inner strength	0.07	0.69
9. Give and receive caring/love	0.15	0.67
10. A sense of direction	0.70	0.28
11. Each day has potential	0.33	0.68
12. Life has value and worth	0.69	0.46

^aBecause of cultural differences items 4 and 5 were freely translated. The expression ‘I can see a light in a tunnel’ has a different connotation in the Netherlands and could be associated with death. Item 5 ‘Faith that comforts’ was freely translated because religion in the Netherlands is not an integrated, natural part of daily life as it is in the US (39). Numbers in bold represent items that load on that specific factor.

Content validity

The construction process of the HHI-Dutch, as described earlier, supports its content validity. The instrument was translated according to a strict forward–backward translation procedure. The pilot study showed no specific problems with the instrument.

Construct validity

Convergent validity. Convergent validity was assessed by correlating HHI-Dutch sumscores with our validating instruments. In Table 4, the correlations for the scales and subscales are presented. Highest correlations were found between hope (HHI-Dutch) and health-related self-efficacy beliefs (i.e. the subscale optimism of the MHCS; $r = 0.72$; $p < 0.001$) and between hope and perceived quality of life (MANSA; $r = 0.56$; $p < 0.001$) and mental health (i.e. the subscale Mental Health of the RAND-36; $r = 0.59$; $p < 0.001$). There were medium correlations between coping (CISS) and hope and between loneliness (Loneliness Scale) and hope. The correlation with loneliness was the highest ($r = -0.47$; $p < 0.001$) followed by task-oriented coping (i.e. the subscale Task-oriented coping of the CISS; $r = 0.45$; $p < 0.001$) and seeking company (i.e. the subscale Seeking company of the CISS; $r = 0.40$; $p < 0.001$).

Divergent validity. Divergent validity was assessed by correlating HHI-Dutch sumscores with the subscales Physical functioning, Role limitations (physical problem) and General health perception of the Dutch version of the RAND-36. There were no significant correlations between hope and physical functioning and between hope and role limitations (physical problem), but there was a moderately high correlation between hope and general health perception ($r = 0.34$; $p < 0.001$; see Table 4).

Discussion

In this study, the validity and reliability of the HHI-Dutch were assessed. It showed that, with respect to construct validity, the original three-factor structure could not be confirmed. Instead, a two-factor structure was found: factor 1: view on life and future and factor 2: self-confidence and inner strength. High correlations were found with health-related self-efficacy beliefs (MHCS), especially with optimism, with quality of life (MANSA) and with mental health (RAND-36). Moderately high correlations were found with loneliness (Loneliness Scale; a negative correlation) and task-oriented coping (CISS), as expected, but also with seeking company. According to expectation, no significant relationship was found with physical functioning, but a moderately high correlation was found with general health perception.

Table 4 Pearson correlations of the HHI-Dutch total scale with total scales and subscales of validating instruments; n = 326

<i>Instruments used for convergent validity</i>											
<i>Instrument/domain</i>	1	2	3	4	5	6	7	8	9	10	11
1. HHI-Dutch total score	–										
2. MANSA total score	0.56*	–									
<i>MHCS</i>											
3. Total score	0.69*	0.58*	–								
4. Optimism subscale	0.72*	0.58*	0.85*	–							
5. Loneliness Scale, total score	–0.47*	–0.63*	–0.47*	–0.5*	–						
<i>CISS</i>											
6. Task-oriented coping	0.45*	0.31*	0.48*	0.45*	–0.21*	–					
7. Seeking company	0.4*	0.39*	0.33*	0.39*	–0.42*	0.5*	–				
<i>RAND-36</i>											
8. Mental Health	0.59*	0.62*	0.61*	0.63*	–0.47*	0.37*	0.33*	–			
<i>Instruments used for divergent validity</i>											
<i>Instrument/domain</i>											
<i>RAND-36</i>											
9. Physical functioning subscale	0.06	0.14	0.17	0.14	–0.1	0.05	–0.03	0.07	–		
10. Role limitations (physical problem)	0.12	0.3*	0.2*	0.2	–0.21*	0.05	0.04	0.22*	0.47*	–	
11. General health perception	0.34*	0.46*	0.39*	0.36*	–0.3*	0.23*	0.17	0.42*	0.46*	0.46*	–

Bonferroni correction ($\alpha^* = 0.05/55$; $p^* \leq 0.0009$).

There are several explanations for the fact that, in the present study, as well as in most other studies that have adapted the HHI, different factor structures were found than in the original version. First, cultural differences might have been responsible for problems we encountered in the translation process. In the present study, a free translation was used for items 4 ('I can see a light in a tunnel') and 5 ('I have a faith that gives me comfort'). With respect to item 5, this was performed because religion in the Netherlands is not an integrated, natural part of daily life as it is, for instance, in the US (39). Item 4 was translated more freely because this item otherwise might have caused primarily associations with death for respondents. In the Swedish study (14), both items were literally translated, and therefore item 5 kept a religious meaning. Those differences in the translation procedure in both studies might have caused different factor structures. In the present study, the items 4 and 5 loaded stronger on the factor that also consists of the items concerning self-confidence and inner strength. In the Swedish study (14), the items 4 and 5 formed one, separate factor, labelled 'religiosity'. A second explanation is that, for different groups of respondents, hope can have a different meaning, resulting in different response patterns. As can be seen from Table 1, four out of the six published studies on the HHI had different samples and different factor structures. The two-factor solutions differed from the HHI-Dutch factors. Nevertheless, the scale as a whole has a good internal consistency for the different populations in all studies.

Most findings in this study are corresponding with other studies. The strong relationship between hope and

perceived quality of life and between hope and health-related self-efficacy beliefs is corresponding with the study of Phillips-Salimi et al. (10) and with the findings in the Norwegian study of the HHI (7). The relationship between higher levels of loneliness and lower levels of hope was less strong, which corresponds with findings of Byrne et al. (33) and Corrigan and Phelan (1). The relationship between hope and task-oriented coping corresponds with Miller's description that hope is important in coping with, or recovering from chronic illness (34). But the present study is also showing a moderate correlation between hope and the habit to seek company. This can be explained by the importance of social relationships for people with severe mental illness. More social support can result in higher levels of hope. Herth (4) and Landeen et al. (8) describe that there seems to be no strong connection between hope and health status or stage of (somatic) illness. Findings of this study are showing no correlation with physical functioning, but a moderate correlation with general health perception. An explanation could be that there are high correlations between hope and mental health. General health has a mental and a physical component and probably the mental component is a dominating factor for people with severe mental illness.

Limitations and strengths

In discussing the results, several limitations of the present study need to be addressed. The first limitation of this study is that it was not designed as a psychometric study

per se; for instance, three different samples were used for this study, instead of one. However, for all samples, the inclusion criteria were the same and there is no reason to believe this has affected the results. A second limitation is that the instrument was used in a sample of people with severe mental illness and there is a possibility that the use of the HHI in other groups of patients, for instance, in palliative care, could result in other conclusions. However, other studies are showing us that the instrument can be used for different groups of patients. Moreover, it can also be viewed as strength of the study that it was conducted in a population with mental health problems, because hope is an important aspect of mental health recovery. Lack of hope is a major concern in patients with mental health problems. Therefore, the HHI-Dutch could be a useful tool in clinical interventions and could also stimulate research on hope in the area of mental health. Further research of the applicability of the current form of the HHI-Dutch to various groups of people is necessary.

Conclusion

In conclusion, the HHI-Dutch has shown to be an instrument with adequate psychometrical properties. The results of different studies suggest that the interpretation of subscales is difficult and it varies across the studies, but the scale as a whole has adequate psychometrical properties. Therefore, it is advisable to use the scale as a whole instead of using the subscales. Furthermore, the HHI-Dutch is appropriate for research in the recovery process of people with severe mental health problems. Its brevity and suitability for clinical use make the instrument also an appropriate tool for research and clinical interventions regarding hope in people with severe mental illness. More research on hope in this recovery process will give a better understanding of the relationship between hope and mental health recovery. It will also offer new insights into the recovery perspectives of people with severe mental illness, which is important for the development of a recovery-oriented mental health system. The results of this study may be a step forward and a new impulse to stimulate research on the important 'hope' aspect in mental health recovery.

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Author contributions

Hanneke van Gestel-Timmermans MSc, was first author and responsible for the data collection, the statistical analyses and the first draft of the manuscript. As co-authors, Prof. Chijs van Nieuwenhuizen PhD, Evelien Brouwers PhD, Joop van den Bogaard PhD†, and Kaye Herth PhD (author of Herth Hope Index) contributed by critically reviewing the paper and the statistical analyses.

Conflict of interest inserted after online publication:

No conflict of interest has been declared.

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