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ORIGINAL REPORT

USING THE MULTIDIMENSIONAL MODEL OF ACCEPTANCE TO INVESTIGATE HOW DIFFERENT FACETS OF ACCEPTANCE ARE RELATED TO QUALITY OF LIFE FOLLOWING SPINAL CORD INJURY

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Objective: To determine how different facets of acceptance are related to quality of life (QoL) following spinal cord injury, after controlling for sociodemographic factors, injury-related variables, depression, and anxiety.

Participants: Adults with spinal cord injury.

Methods: Questionnaires were completed via research electronic data capture (REDCap). Three separate hierarchical multivariate linear regression analyses were performed, with physical QoL, psychological QoL, and global QoL as outcomes. Sex, age, time since injury, depression, anxiety, and 4 facets of acceptance (i.e. "accepting reality", "value-change", "letting go of control" and "behavioural engagement") were independent variables.

Results: Of the 686 eligible participants, 453 responded (66.0%). The sample included 303 men (66.9%), mean (standard deviation; SD) age 56.6 (15.0) years and mean (standard deviation) time since injury 14.6 (11.4) years. The final regression models ($n = 376$) explained 46% of global QoL, 47% of psychological QoL and 31% of physical QoL. The 4 facets of acceptance significantly increased the amount of variance explained by 6% for psychological QoL, 8% for physical QoL and 14% for global QoL. The facets "value-change" and "behavioural engagement" made significant contributions to all domains of QoL, while "letting go of control" only contributed to global QoL, and "accepting reality" only contributed to psychological QoL.

Conclusion: Acceptance may support higher QoL in more ways than simply reducing psychological distress, and could be an important process to facilitate in rehabilitation after spinal cord injury.

Key words: spinal cord injuries; quality of life; adaptation, psychological; emotional adjustment; regression analysis.

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LAY ABSTRACT

Acceptance of spinal cord injury refers to psychological processes involved in acknowledging reality, re-evaluating life values, and engaging in meaningful activities despite psychological distress. Acceptance is believed to play an important role in helping individuals achieve a better quality of life following spinal cord injury. However, it is unclear whether acceptance adds something more to the experience of quality of life than simply reducing psychological distress. This study explored the association between acceptance and quality of life using a multifaceted understanding of acceptance. Data were collected from 453 individuals with spinal cord injury. Statistical analysis showed that acceptance was associated with quality of life even after adjusting for the effect of psychological distress. It further showed that 2 facets of acceptance, entitled "value-change" and "behavioural engagement", were the most important facets in explaining quality of life. In sum, acceptance might be an important process to facilitate in rehabilitation following spinal cord injury. Specifically, it might be beneficial to support individuals with spinal cord injury in finding new values and interests (i.e. "value-change"), and motivating them to engage in meaningful activities even in the presence of psychological distress (i.e. "behavioural engagement").

Individuals with spinal cord injury (SCI) are faced with a myriad of physical limitations in daily life (1), which is often accompanied by negative psychological outcomes, such as depression, anxiety, and reduced quality of life (QoL) (2). Many factors influence the severity of these negative psychological outcomes, including acceptance of the injury (3). Acceptance has long been considered a core principle of rehabilitation psychology (4, 5), and lately, there has been renewed interest in exploring acceptance processes following SCI. Accordingly, a systematic review found acceptance to be consistently associated with greater QoL as well as lower depression and anxiety (6). However, it was evident that none of the identified studies controlled for the potential effects of depression and anxiety when exploring the association between acceptance and QoL.

This is an important point, because acceptance, theoretically, is believed to increase QoL without necessarily reducing distressing symptoms (7). Specifically, acceptance entails being with whatever is present in the moment, rather than trying to control or avoid painful inner experiences (7). Despite this, it is not known whether acceptance is associated with QoL only by reducing depression and anxiety, or if it is associated with QoL over and above such psychological distress.

In a recent study, we showed that acceptance of SCI was a multifaceted psychological construct, with 4 facets that represent interconnected psychological processes: (i) “accepting reality”, (ii) “value-change”, (iii) “letting go of control”, and (iv) “behavioural engagement” (8). “Accepting reality” refers to an acknowledgement of reality as it is and therefore is the opposite of denial (8, 9). “Value-change” is founded in Wright’s theory of disability acceptance (5), and thus reflects changing one’s perspective and appreciating new aspects of life (8, 10). “Letting go of control” and “behavioural engagement” reflect acceptance from the perspective of acceptance and commitment therapy (ACT) (7). “Letting go of control” means letting unwanted thoughts and feelings come and go without trying to avoid or control them, while “behavioural engagement” reflects engagement in meaningful and valued activities even if it leads to unwanted inner experiences, such as nervousness or anxiousness (8). There are important clinical implications in determining how these 4 facets of acceptance are associated with QoL after controlling for the effects of depression and anxiety. Firstly, it would illuminate whether acceptance is uniquely associated with QoL, and secondly, it would indicate which facets of acceptance are the most important to target in SCI rehabilitation.

The aim of this study was to determine how the different facets of acceptance are related to global, psychological and physical domains of QoL following SCI, when statistically controlling for depression and anxiety as well as sociodemographic and injury-related variables. Based on prior research, it was hypothesized that all 4 facets were positively correlated with all 3 domains of QoL. It was further hypothesized that acceptance would explain a significant proportion of the variance in all 3 domains of QoL after statistically controlling for sociodemographic and injury-related variables as well as depression and anxiety. Lastly, we hypothesized that all 4 facets would contribute significantly to the models.

METHODS

Participants and procedure

This is a secondary study using the same dataset as our recent study that developed and validated a

multidimensional model of acceptance (8). Participants were recruited from a database of individuals who had been admitted between January 1991 and March 2020 to the Spinal Cord Injury Centre of Western Denmark. Eligibility criteria were having an SCI and being at least 18 years of age. Eligible participants ($n=686$) were invited via a secure Danish e-mail platform, e-boks. The invitation provided information about the study, a consent form, and a link to the questionnaires. All participants provided written consent digitally before responding to the questionnaires. Data were collected via research electronic data capture (REDCap), a secure web-based platform designed for data collection (11). Two reminders were sent to participants who did not respond to the initial invitation. Data were collected from June 2019 to October 2020.

Measures

All collected data, including sociodemographic and injury-related variables, were self-reported. Acceptance items were included based on the development of the multidimensional conceptualization of acceptance (8), which included the Coping Orientations to Problems Experienced (COPE) to represent “accepting reality” (9), the Spinal Cord Lesion-related Coping Strategies Questionnaire (SCL-CSQ) to represent “value-change” (12), and a conceptually modified Acceptance and Action Questionnaire (AAQ-M) to represent the “letting go of control” and “behavioural engagement” aspects of acceptance (13). All acceptance items are shown in Table I. Depression was measured with the Patient Health Questionnaire-9 (PHQ-9) (14), anxiety with the Generalized Anxiety Disorder-7 (GAD-7) (15), and QoL with the International Spinal Cord Injury Quality of Life Basic Data Set (SCI-QOL) (16). For details, see measurement descriptions below.

Coping orientations to problems experienced inventory

The COPE is a 60-item self-reported scale that assesses coping strategies in response to stressful life events (9). Only the 4 acceptance items were included in this study. In this measure, acceptance is conceptualized as the opposite of denial (9). The COPE is scored on a 4-point scale, ranging from 1 (“I usually don’t do this at all”) to 4 (“I usually do this a lot”). Previous psychometric validation has shown acceptable internal consistency (Cronbach’s alpha 0.65) (9), which was also found in the current sample (Cronbach’s alpha 0.89).

Spinal Cord Lesion-related Coping Strategies Questionnaire

The SCL-CSQ is a 12-item self-reported scale measuring acceptance, fighting spirit, and social reliance (12).

Table I. List of all included acceptance items, their domain, and the internal consistency (Cronbach's alpha)

Item	Measurement scale (acceptance domain)	Internal consistency
I get used to the idea that it happened.	COPE (accepting reality)	
I accept that this has happened and that it can't be changed.	COPE (accepting reality)	
I accept the reality of the fact that it happened.	COPE (accepting reality)	
I learn to live with it.	COPE (accepting reality)	0.89
I have been able to see my lesion in relation to other things in life.	SCL-CSQ (value-change)	
I think I have accepted my lesion.	SCL-CSQ (value-change)	
My lesion has made me learn to appreciate new things in life that I did not think about before.	SCL-CSQ (value-change)	
What I have lost physically I have regained in so many other ways.	SCL-CSQ (value-change)	0.76
When I feel depressed, worried, or anxious, I do not try to influence or change these feelings.	AAQ-M (letting go of control)	
I let my thoughts and feelings come and go, without trying to control or avoid them.	AAQ-M (letting go of control)	
When I feel depressed, worried, or anxious, I do not try to avoid these feelings.	AAQ-M (letting go of control)	0.59
I do the things I want to do, even if it makes me feel nervous or anxious.	AAQ-M (behavioural engagement)	
When I feel anxious, worried, or depressed, I note these feelings but live my life the way I want to.	AAQ-M (behavioural engagement)	0.80

COPE: Coping Orientations to Problems Experienced; SCL-CSQ: Spinal Cord Lesion-related Coping Strategies Questionnaire; AAQ-M: a conceptually modified Acceptance and Action Questionnaire. Internal consistency was calculated in the current sample.

Only the 4 acceptance items were included in this study. Acceptance is conceptualized as changing one's perspective and values and learning to appreciate new aspects of life (12). Items are scored on a 4-point scale, ranging from 1 ("Completely disagree") to 4 ("Completely agree"). Internal consistency in the current study was acceptable (Cronbach's alpha 0.76).

Modified Acceptance and Action Questionnaire

The AAQ-M is a conceptually modified version of the widely used AAQ-II (13). The author of the AAQ-M highlights conceptual concerns with the AAQ-II, as it seems to measure psychological distress rather than acceptance processes (13). We therefore used the items from the AAQ-M that were specifically developed to measure acceptance processes rather than distress. The AAQ-M is comprised of 2 subscales reflecting "letting go of control" and "behavioural engagement". In the development of the multidimensional conceptualization of acceptance, items 1 and 7 showed considerable issues and were excluded from the model (8). These items were therefore also excluded from this study. Hence, the scale used in the current work included 5 items, which were responded to on a 7-point scale, ranging from 1 ("Always true") to 7 ("Never true"). Previous validation has shown good construct validity and acceptable internal consistency (Cronbach's alpha 0.75) (13). The current study found good internal consistency for "behavioural engagement" (Cronbach's alpha 0.80), while it was just below adequate for "letting go of control" (Cronbach's alpha 0.59).

Patient Health Questionnaire-9

The PHQ-9 is a self-reported scale with 9 items measuring depression severity within the previous 2 weeks corresponding to DSM-IV criteria (14). Items are scored on a 4-point scale from 0 ("Not at all") to 3 ("Nearly

every day"). It is a valid tool for measuring depression in both medical settings (14) and the general population (17) with good psychometric properties, including internal consistency (Cronbach's alpha between 0.86 and 0.89) and test-retest reliability (14). The PHQ-9 has been validated in Danish (18).

Generalized Anxiety Disorder-7

The GAD-7 is a 7-item self-reported scale measuring severity of anxiety symptoms within the previous 2 weeks (15). Items are scored on a 4-point scale from 0 ("Not at all") to 3 ("Nearly every day"). The GAD-7 is a valid tool for assessing severity of anxiety in both clinical and research settings with good psychometric properties, including criterion and construct validity as well as internal consistency (Cronbach's alpha 0.92) (15).

International Spinal Cord Injury Quality of Life Basic Data Set

The SCI-QOL is a self-reported 3-item questionnaire measuring satisfaction with psychological health, physical health, and life as a whole (16). Items are scored on an 11-point numerical rating scale from 0 ("Completely dissatisfied") to 10 ("Completely satisfied").

It has shown moderate to strong inter-correlations and good convergent validity (i.e. correlations between each item and a reference measure from the World Health Organization Quality of Life measure and from the Mental Health Inventory-5) (19).

Statistical analysis

All statistical analyses were performed using SPSS version 28 (20). First, Pearson's product-moment correlation was performed to determine the bivariate associations between the 4 facets of acceptance, psychological distress, and QoL. Next, hierarchical multivariate linear regression (HMLR) was per-

Table II. Demographic characteristics of the sample

Characteristics	
Sample size (n)	453
Sex, n (%)	
Male	303 (66.9)
Female	150 (33.1)
Age, years, mean (SD; range)	56.6 (15.0; 19–90)
Marital status, n (%)	
Married/partner	291 (64.2)
Single	107 (23.6)
Divorced	33 (7.3)
Widow	20 (4.4)
Missing	2 (0.4)
Job status (more than 1 mark was permitted), n (%)	
Employed	80 (17.7)
Unemployed	25 (5.5)
Subsidized job	69 (15.2)
Rehabilitation	7 (1.5)
Education	17 (3.8)
Unemployment benefits	5 (1.1)
Resource-building employability	8 (1.8)
Cash benefits	4 (0.9)
Other (e.g. retired)	276 (60.9)
Injury type, n (%)	
Paraplegia	213 (47.0)
Tetraplegia	140 (30.9)
Missing	100 (22.1)
Injury completeness, n (%)	
Complete	122 (26.9)
Incomplete	216 (47.7)
Missing	115 (25.4)
Injury aetiology, n (%)	
Traumatic	279 (61.6)
Non-traumatic	119 (26.3)
Missing	55 (12.1)
Time since injury, years (SD; range)	14.6 (11.4; 1.5–62.6)

SD: standard deviation.

formed to investigate the associations between the 4 facets of acceptance and QoL when controlling for sociodemographic and injury-related variables as well as depression and anxiety. Of note, there were considerable missing data on injury type (paraplegia/tetraplegia) and injury completeness (complete/incomplete) (Table II). Because it is generally advised to include only participants with complete data on all variables in regression models (21), preliminary analyses were conducted to determine whether these 2 variables should be included. A series of between-groups analysis of variance (ANOVA) were performed, and the only significant difference was between individuals with tetraplegia and paraplegia on the COPE scale with the former scoring higher. As this was the only difference observed, it was decided to omit injury type and completeness from the regression analyses rather than excluding a considerable portion of the participants.

Three separate regression analyses were performed with physical QoL, psychological QoL, and global QoL as outcome variables. To determine the relative contributions of: (i) sex, age, and time since injury, (ii) depression and anxiety, and (iii) the 4 facets of acceptance, these were entered in 3 separate steps as a HMLR. Significance was set at $p \leq 0.05$.

RESULTS

Sample characteristics

Of the 686 eligible participants, 453 responded to the questionnaire (66.0%). The sample included 303 men (66.9%) and 150 women (33.1%) with a mean (SD; range) age of 56.6 (15.0; 19–90) years. Most participants had paraplegia (47.0%) compared with tetraplegia (30.9%) and incomplete (47.7%) compared with complete injuries (26.9%). Most participants had had a traumatic injury (61.6%), and the mean (SD; range) time since injury was 14.6 (11.4; 1.5–62.6) years. All sample characteristics are summarized in Table II.

Correlations between acceptance, psychological distress, and quality of life

The “accepting reality”, “value-change”, and “behavioural engagement” facets of acceptance were all moderately to strongly correlated with greater QoL and lower depression and anxiety (see Table III for an overview). The “letting go of control” facet of acceptance was only weakly correlated with greater psychological QoL and reduced depression and anxiety, while it was not significantly correlated with global or physical QoL.

Predicting global, psychological, and physical quality of life

In step 1, sociodemographic and injury-related variables (i.e. sex, age, and time since injury) explained only 0–3% of the variance in QoL (see Table IV for details from all 3 HMLR). In step 2, depression and anxiety were added. All 3 models were significant and explained between 23% and 41% of the variance in QoL. In the third and final step, all 4 acceptance dimensions were added to the models. The final regression models explained 46% of global QoL, 47% of psychological QoL, and 31% of physical QoL.

For global QoL, the addition of acceptance to the model significantly increased the amount of explained variance by 14%. Here, depression and 3 of the acceptance dimensions significantly contributed to the model. Depression was the strongest predictor ($\beta = -0.40$) followed by “value-change” ($\beta = 0.29$), “behavioural engagement” ($\beta = 0.22$), and “letting go of control” ($\beta = -0.08$).

For psychological QoL, the addition of acceptance to the model significantly increased the amount of variance explained by 6%. At this step, anxiety, depression, and 3 of the acceptance dimensions contributed significantly to the model. Anxiety was the strongest predictor ($\beta = -0.27$) followed by depression ($\beta = -0.25$), “value-change” ($\beta = 0.16$), “behavioural engagement” ($\beta = 0.11$), and “accepting reality” ($\beta = 0.10$).

Table III. Pearson’s Product-Moment Correlations between the 4 facets of acceptance, anxiety, depression, global quality of life (QoL), psychological QoL, and physical QoL

	Accepting reality	Value-change	Letting go of control	Behavioural engagement	Anxiety	Depression	Global QoL	Psychological QoL	Physical QoL
Accepting reality	1	0.55**	0.13**	0.31**	-0.41**	-0.35**	0.38**	0.39**	0.32**
Value-change		1	0.17**	0.32**	-0.41**	-0.40**	0.50**	0.44**	0.42**
Letting go of control			1	0.39**	-0.12*	-0.12*	0.09	0.11*	0.08
Behavioural engagement				1	-0.30**	-0.33**	0.41**	0.34**	0.35**
Anxiety					1	0.76**	-0.46**	-0.61**	-0.43**
Depression						1	-0.56**	-0.59**	-0.46**
Global QoL							1	0.74**	0.67**
Psychological QoL								1	0.62**
Physical QoL									1

* $p < 0.05$, ** $p < 0.001$.

Lastly, for physical QoL, the addition of acceptance to the model resulted in a significant increase of 8% in explained variance. At this step, depression and 2 of the acceptance dimensions contributed significantly to the model. Depression was the strongest predictor ($\beta = -0.26$), followed by “value-change” ($\beta = 0.20$), and “behavioural engagement” ($\beta = 0.18$).

DISCUSSION

Study findings in context

This study investigated how the different facets of acceptance were associated with global, psychological,

and physical QoL following SCI, and whether they would be significantly associated with QoL even when controlling for the effects of sex, age, time since injury, depression, and anxiety. While all 4 facets of acceptance were hypothesized to be correlated with QoL, only “accepting reality”, “value-change”, and “behavioural engagement” showed moderate and strong correlations with all domains of QoL. The “letting go of control” facet was only weakly correlated with psychological QoL and not significantly correlated with global or physical QoL. The correlations regarding “accepting reality” and “value-change” are in line with previous empirical research summarized in a recent systematic review (6). However, to our knowledge, no empirical

Table IV. Hierarchical regression models with global quality of life (QoL), psychological QoL, and physical QoL as outcome measures

	R ²	R ² Change	F Change	Sig F Change	Significant contributions	β	p-value
Global QoL							
Step 1 (sex, age, time since injury)	0.02	0.02	2.54	0.06			
Step 2 (sex, age, time since injury, depression, anxiety)	0.32	0.30	81.72	< 0.001	Time since injury	0.10	0.050
Step 3 (sex, age, time since injury, depression, anxiety, accepting reality, value-change, letting go of control, behavioural engagement)	0.46	0.14	23.35	< 0.001	Depression	-0.50	< 0.001
					Depression	-0.40	< 0.001
					Value-change	0.29	< 0.001
					Letting Go of Control	-0.08	0.046
					Behavioural Engagement	0.22	< 0.001
Psychological QoL							
Step 1 (sex, age, time since injury)	0.03	0.03	3.92	0.009			
Step 2 (sex, age, time since injury, depression, anxiety)	0.41	0.38	119.18	< 0.001	Age	0.15	0.003
Step 3 (sex, age, time since injury, depression, anxiety, accepting reality, value-change, letting go of control, behavioural engagement)	0.47	0.06	9.71	< 0.001	Anxiety	-0.37	< 0.001
					Depression	-0.31	< 0.001
					Anxiety	-0.27	< 0.001
					Depression	-0.25	< 0.001
					Accepting reality	0.10	0.040
					Value-change	0.16	0.001
					Behavioural engagement	0.11	0.019
Physical QoL							
Step 1 (sex, age, time since injury)	0.00	0.00	0.24	0.869			
Step 2 (sex, age, time since injury, depression, anxiety)	0.23	0.23	54.83	< 0.001	Anxiety	-0.18	0.011
Step 3 (sex, age, time since injury, depression, anxiety, accepting reality, value-change, letting go of control, behavioural engagement)	0.31	0.08	9.99	< 0.001	Depression	-0.34	< 0.001
					Depression	-0.26	< 0.001
					Value-change	0.20	< 0.001
					Behavioural Engagement	0.18	< 0.001

studies within this research field have used questionnaires conceptualizing acceptance as reflecting “letting go of control” or “behavioural engagement”. This study thus adds to the research field by highlighting the comparatively weaker and inconsistent correlations between “letting go of control” and QoL, depression, and anxiety. There are several potential explanations for this finding. First, individuals with SCI are faced with a range of specific and physical barriers, such as functional impairments, accessibility issues in the public space, and so forth, leading to restricted participation and reduced QoL (22). Conversely, the “letting go of control” facet of acceptance mainly considers overcoming mental barriers, such as being consumed with trying to avoid or control negative thoughts and feelings. While this is still relevant in an SCI context, it could be speculated that individuals with SCI are faced with such a range of additional barriers that “letting go of control” is not in itself weighty enough to be consistently associated with QoL, depression, or anxiety. Another explanation for this negative finding may relate to difficulties regarding the comprehension of the items in the questionnaire. The items assessing “letting go of control” reflect concepts such as avoidance and control strategies in the face of depressive and anxious feelings. These are rather difficult concepts to fully grasp, and some participants might therefore have approached the questions with a different understanding than intended and skewed the results. This could also be why the internal consistency was comparatively low, with a Cronbach’s alpha of 0.59.

In terms of the regression models, entering all 4 facets of acceptance at step 3 significantly increased the amount of variance explained by 6% (psychological QoL), 8% (physical QoL), and 14% (global QoL), as hypothesized. In previous research, acceptance has been found to explain between 10% and 29.2% of the variance in QoL, together with a range of sociodemographic and injury-related variables and other coping strategies (23,24). One study isolated the effect of acceptance, which explained 6.3% of the variance in psychological QoL after statistically controlling for age, sex, level of injury, sense of coherence, and appraisals (25). No studies have controlled for the effect of depression or anxiety, making direct comparisons with previous research difficult. All 4 facets of acceptance were significantly correlated with depression and anxiety, which is in line with previous studies (6). Hence the finding that acceptance explains between 6% and 14% more than is already explained by depression and anxiety adds an important perspective to the research field. It adds empirical weight to the proposition that acceptance is not simply associated with QoL by reducing depression and anxiety, but is in fact associated with QoL without necessarily getting rid of the underlying distressing psychological symptoms.

The findings further indicate that “value-change” and “behavioural engagement” were the strongest and most consistent contributors across all domains of QoL. Whereas “accepting reality” and “letting go of control” have their main focus on inner psychological processes, “value-change” and “behavioural engagement” focus on making specific changes in life and living a valuable life despite limitations and unwanted inner experiences (8). It thus seems sensible that these facets were most strongly and consistently associated with QoL when the effect of depression and anxiety were controlled for. It was, however, still hypothesized that “accepting reality” and “letting go of control” would be significant predictors of QoL. The inconsistent contribution of “letting go of control” is probably a consequence of the weak and non-significant correlations, which were outlined and discussed above. Conversely, “accepting reality” was correlated with QoL as strongly as both “value-change” and “behavioural engagement”, and previous research has found “accepting reality” to be a significant predictor of QoL (23). The inconsistent contribution of “accepting reality” might be explained by its effect being cancelled out by the inclusion of other facets of acceptance. As is discussed in the development of the multidimensional conceptualization of acceptance, “accepting reality” is considered a foundation upon which other psychological processes occur (8). In this light, the unique effect of “accepting reality” on QoL is cancelled out by being indirectly explained by “value-change” and “behavioural engagement”.

Lastly, the findings of this study should be viewed within a wider context of psychological processes. There are many other psychological constructs of relevance for QoL following SCI (3), and there are also conceptual overlaps between the facets of acceptance and other psychological constructs. For instance, post-traumatic growth (PTG) refers to, among other things, having a greater appreciation of life, more meaningful relationships, changed priorities, and increased resilience after encountering a traumatic event (26). Here, there are clear conceptual similarities with the “value-change” aspect of acceptance. However, there are also subtle differences between them, in the sense that PTG at its core is about psychological growth post-trauma, thus it reflects positive experiences that surpass what one had prior to the traumatic event (26). While such experiences could also be in line with “value-change”, it is not necessary in an acceptance perspective to go beyond what one had prior to the SCI.

Implications

In terms of implications for research, this study highlights the importance of conceptualizing acceptance as a multidimensional construct, as the 4 facets of

acceptance were differentially associated with QoL following SCI. This has important implications for the research field, as future studies need to cautiously consider which measurement tool(s) to choose as it depends on the research question and the study context. This also applies to healthcare professionals who need to assess the level of acceptance of a person with SCI during rehabilitation, as conceptualization and measurement of acceptance have important consequences on the results. Future studies should also focus on developing and validating a measurement scale based on a multidimensional conceptualization of acceptance, which would provide researchers and healthcare professionals with a single tool for measuring all facets of acceptance. This would also help in streamlining the research findings and thus make comparisons across studies, and, potentially, meta-analyses, possible.

The findings also have other relevant implications for clinical practice in a rehabilitation setting. Specifically, the finding that acceptance is associated with QoL after controlling for distress may indicate that acceptance can increase QoL without necessarily removing distressing psychological symptoms. Acceptance seems to help individuals face reality, change life values, and engage in meaningful activities despite distress, which ultimately supports a higher QoL following SCI. The findings further suggest that “value-change” and “behavioural engagement” were the strongest and most consistent contributors to QoL; thus it might be beneficial if healthcare professionals direct their focus on supporting individuals with SCI in finding new values, interests, and activities, and then motivating them to engage in these meaningful new activities even in the presence of negative thoughts, depressive feelings, and anxiety.

Strengths and limitations

This study has several strengths. First, it was based on a validated multidimensional conceptualization of acceptance, which has previously not been done within this field of research. Secondly, this study determined the specific and unique contribution of the 4 facets of acceptance to global, psychological, and physical QoL by statistically controlling for the effect of depression and anxiety. Furthermore, it was based on a fairly large sample size of 453 individuals with SCI. However, a substantial amount of missing data for some of the independent variables included in the models resulted in the regression analyses being performed with $n=376$. While this is still a solid sample size, it was one of several limitations with this study. It was further limited by the cross-sectional design, which did not permit any analysis of the temporal order of acceptance, psychological distress, and QoL. It is therefore possible that the order should be reversed, so a better QoL has led to

higher acceptance rather than the other way around. The suggestion that acceptance seems to lead to higher QoL is based partly on previous longitudinal studies within the field (25, 27, 28), as well as theoretical definitions of acceptance processes (5, 7, 29). Lastly, only individuals who consented were invited to participate ($n=686$). While the response rate was good (66.0%), it is estimated that there are approximately 3,000 individuals in Denmark who live with an SCI (30). The study sample is thus potentially not fully representative of the whole SCI population in Denmark.

CONCLUSION

This study investigated how the different facets of acceptance were associated with global, psychological, and physical QoL following SCI. Hierarchical multivariate linear regression showed that acceptance uniquely explained between 6% and 14% of variance in QoL after sex, age, time since injury, depression, and anxiety were statistically controlled for. Furthermore, the facets “value-change” and “behavioural engagement” were the strongest and most consistent contributors across all domains of QoL. Acceptance could therefore be an important process to facilitate in SCI rehabilitation, and it might be beneficial to support individuals with SCI in finding new values, interests, and activities, and motivating them to engage in these meaningful new activities even in the presence of distressing inner experiences.

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The authors have no conflicts of interest to declare.

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