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## **Dignity and Predictors of its Change among Inpatients in Long-term Care**

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**Keywords:** dignity, long-term care, geriatric patient, education, depression, self-sufficiency

### **Abstract**

The purpose of this study was to identify any differences in the dignity evaluation of geriatric inpatients after one month of hospitalization in a long-term care wards (LTC) and predictors of this change. This follow-up study included 125 geriatric inpatients who filled the Patient Dignity Inventory (PDI-CZ), Geriatric Depression Scale, Barthel Index, and Mini-Mental State Examination. In the initial measurement, the patients rated of PDI-CZ item “Not able to perform tasks of daily living” the worst. One month after, the items “Not able to perform tasks of daily living”, “Not able to attend to bodily functions”, and “Not feeling worthwhile or valued” were improved. Patients with higher education, for whom self-sufficiency improved and depression decreased, rated their dignity more positively one month after the hospitalization in LTC. Our findings suggest that these factors are important for the maintenance of the dignity of older adults hospitalized in LTC.

### **Introduction**

Life expectancy has increased in recent decades, and the world's population is aging. People not only live longer, but also experience a relatively longer period of their lives with chronic diseases, geriatric frailty, higher incidence of injuries and limited self-sufficiency (Albers et al., 2013). Chronic diseases of older people currently represent approximately 23% of global illness burden (Rababa et al., 2020), which is related to increasing need for follow-up and long-term

care (Li & Porock, 2014). The Czech Republic, like other European countries, also faces an aging demographic, and in 2018, residents aged 65 and over made up 19.6% of the total population (EACEA, 2019). The number of frail individuals over 80 years old, who are also frequent health care users due to falls and injuries, is increasing significantly. More than 80% of patients in follow up and long-term care facilities are aged over 65, and the average number of hospitalizations in these facilities in the Czech Republic is around 60 days (Wija et al., 2019). At the long-term care wards, which are part of hospitals (university or regional), the average duration of hospitalization is shorter and it is approximately 34 days (Wija et al., 2019).

Older people are at risk of loss of dignity during hospitalisation (Kerr et al., 2020). The need for hospitalization in long-term care (LTC) is a stressor that raises concerns among chronically ill older adults with limited self-sufficiency, regarding the loss of their personal dignity (Albers et al., 2013). Dignity belongs to the most-prominent domains of person-centered care for older adults in LTC (Kogan et al., 2016). In LTC dignified and respectful care is closely related to patient satisfaction (Barclay, 2016) and may also be an indicator of LTC quality (Kogan et al., 2016).

Dignity represents a universal value stemming from the very essence of humanity and an important aspect of quality of life in old age (Kisvetrová et al., 2021). It is a multidimensional construct consisting of perceptions, knowledge, and emotions related to competence or respect (Ferretti et al., 2019). It includes notions of being able to maintain feelings of physical comfort, autonomy, meaning, interpersonal connectedness, social interactions, hopefulness, belonging, and to be more visible and acknowledged as a human being (Clancy et al., 2020). Dignity is very important to older adults. It is part of a set of values which can be significantly endangered with the ageing process and with physical and mental changes in old age (Woolhead et al., 2004; Anderberg et al., 2007). The combined effects of ageing, feeling of self-vulnerability, loss of identity, exposure to negative attitudes (North & Fiske, 2012), dependence on care of others,

limited possibility to control own life (autonomy) and lack of respect of the others (Lloyd et al., 2014; Tadd & Calnan, 2009) in old age irreversibly change the usual way of life of the older adults and question their self-esteem. Dignity is central to understanding older people's accounts of such changes in their circumstances and the effects these have on their identity (Lloyd et al., 2014). Maintaining dignity is therefore regarded as an important concept in the care of the elderly.

Loss of dignity generally raises concern among geriatric inpatients and does not necessarily limit itself to the terminally ill. Patients who are cared for in LTC may be vulnerable to loss of personal dignity, and link threats to dignity with privacy restrictions, lack of social contacts, functional deficits and dependency on caregivers (Goddard et al., 2013). This dependency affects their dignity as it can lead to a loss of choice and control, which is closely linked to the notion of dignity of identity (Kane & deVries, 2017). The lack of social networks also makes geriatric patients in LTC vulnerable to threats to their dignity (Goddard et al., 2013). Perceptions of dignity may be influenced by depression or psychological deprivation in older people during hospitalization (Rullán et al., 2015). Other factors influencing a patient's sense of dignity include gender, age, life with a partner, and faith, which has an important place in the value hierarchy of older adult life (Albers et al., 2013). In order to preserve the personal dignity of older adults hospitalized in LTC, it is important that the person feels they have control over their life and that they are considered a valuable being by themselves and others. These feelings can be supported by improving the level of self-sufficiency and supporting of social contacts. Furthermore, older adults at LTC associate the maintenance and protection of dignity (specifically related to continence care) with autonomy, respect, empathy, trust, privacy, and communication (Ostaszkiwicz et al., 2020).

All these factors are encompassed in the Model of Dignity (Chochinov et al., 2002), which covers a wide range of issues that may endanger the patient's dignity including; physical,

psychological, social, existential, and spiritual factors. Based on this Model, a Patient dignity inventory (PDI) tool was designed (Chochinov et al., 2008). Although originally intended for terminally ill oncological patients, the PDI can also be used in geriatric patients who are not in the terminal phase of a disease, but who are experiencing the end of their lives (Chochinov et al., 2016; Kisvetrová et al., 2021).

Measuring dignity, respect, privacy, and patient choice enables nurses to understand patient experience and can enhance appreciation of the importance of fundamentals of care and their impact on patient outcomes. Knowledge of factors influencing the dignity of elderly people is the basis of a person-centered approach in dignity-respecting care (Oosterveld-Vlug et al., 2016). Although some recent studies focus on the dignity of elderly patients in LTC (Kane & de Vries, 2017; Li & Porock, 2014; Ostaszkievicz et al., 2020) we could find none studying changes in dignity assessment after a certain period of hospitalization in LTC. This study therefore aimed to expand existing knowledge regarding elderly peoples' perceptions of dignity and its changes, particularly during hospitalization in LTC. The research questions were:

1. How do geriatric patients assess their dignity at the beginning of hospitalization in LTC;
2. Are there any changes in patient dignity assessments after one month;
3. Can depression rates, levels of self-sufficiency and selected sociodemographic factors (age, gender, education, social situations, beliefs) be predictors of any changes.

## **Methods**

### *Study Design, Sample, and Setting*

This study applied a quantitative design – a two-phase questionnaire survey with an interval of one month. We chose the one-month interval because in the Czech Republic at the LTC wards, which are part of hospitals (university or regional), the average duration of hospitalization is 34 days (Wija et al., 2019). The average interval length between the 1st and 2nd phases of the research survey was  $31.1 \pm 1.3$  days (median = 31 days; range of 28 - 34 days). The research was carried out as part of a longitudinal study on changes in the perception of dignity of older adults.

The study was approved by the Ethics Committee and conducted in accordance with the Helsinki Declaration of 1975 (and its revisions from 2004 and 2008). All respondents signed an informed consent to participation in the study. We carried out the study at three LTC settings in one region of the Czech Republic. Those three LTC wards were part of a regional hospital. Their total capacity was 96 beds. The inpatients at LTC wards displayed reduced functional, physical or cognitive capacity and had gone through acute illness, progression of chronic disease or injury. The inpatients at LTC wards were provided with nursing care, long-term medical treatment, physiotherapy or palliative care.

The inclusion criteria for selecting respondents were: (a) age 65 years and over, (b) the need for hospitalization in the LTC in connection with chronic illness or condition after injury, (c) ability to communicate verbally. Excluding criteria were: (a) diagnosed dementia of any type; (b) terminal stage oncological or non-oncological disease, (c) severe sensory deficit (severe visual or hearing impairment). When calculating the size of the research sample, we worked with the assumption that the minimum difference in the average values of the repeatedly measured items of the PDI-CZ questionnaire is 0.08; the standard deviation (SD) of the measurement is 0.45; the correlation coefficient for correlation of re-measured items is 0.85; type I error rate ( $\alpha$ ) = 0.05 and test force (power) = 0.90. The required sample size under these conditions is at least 102 respondents (calculated by TIBCO STATISTICA version 13.4.0.14). Because we assumed about 60% of the questionnaires would be completed at both stages of the research, 160 patients who agreed to be enrolled in the research were screened for the study.

### *Data Collection and Measures*

We used the Czech versions of standardized questionnaires evaluating dignity (Patient Dignity Inventory, PDI-CZ), level of self-sufficiency (Barthel Index, BI), depression (Geriatric Depression Scale, GDS-15), pain (Horizontal Visual Analog Scale, HVAS), and a set of basic socio-demographic data.

*The Patient Dignity Inventory (PDI)* questionnaire can be used effectively to identify a wide

range of problems that may cause concern in an individual about a threat or loss of dignity. The PDI is a 25-item questionnaire that gives patients the opportunity to indicate to what extent these items affect their sense of dignity. Each item is based on a five-point Likert scale (1 = not a problem, 5 = an overwhelming problem). The PDI scores range from 25 to 125 points. The intensity tells us how this is perceived by the respondent as a problem or cause for concern in relation to a threat to perceived dignity (higher score presents greater threat of dignity) (Chochinov et al., 2008). In our study, we used a validated Czech version (PDI-CZ; Kisvetrová et al., 2018), which was validated for the needs of Czech nursing practice. PDI-CZ has high reliability ( $\alpha = 0.92$ ) and contains four domains. “Loss of meaning of life” ( $\alpha = 0.90$ ; items focused on physical symptoms, fighting disease, acceptance of reality, self-assessment and control over life), “Loss of autonomy” ( $\alpha = 0.84$ ; problems related to self-service and environmental reactions), “Loss of certainty” ( $\alpha = 0.66$ ; items related to psychological and existential insecurity), and “Loss of social support” ( $\alpha = 0.58$ ; deficits in supporting family and friends, lack of respect and understanding from others).

*The Barthel-Index (BI)* is the most common test measuring individuals' ability to perform activities of daily living (ADL) using their own expression or on behalf of them. It contains 10 items that evaluate the area of ten ADL in terms of motor functions. Each item is rated 0, 5, or 10 points. The total score of the questionnaire is from 0 to 100 points. The limit score is 65, which indicates the need to help with the ADL, values of 40 points or less represent a high loss of self-sufficiency.

*Geriatric Depression Scale (GDS-15)* is a screening tool used to detect the presence of depressive symptoms. There are 15 self-assessment items in which the older adult assesses the state of their mood (yes-no answers). A score of 0 to 5 is normal. A score greater than 5 suggests depression. The GDS-15 may be used with healthy and medically ill older adults (Balogun et al., 2011).

*The Horizontal Visual Analog Scale (HVAS)* consists of a 10-cm line anchored by two extremes of pain: no pain and extreme pain. Patients are asked to position a sliding vertical marker to indicate the level of pain they are experiencing; pain severity is measured as the distance (in cm) between the zero position and the marked spot.

PDI-CZ older adults filled in the form of a structured interview with nurse. This form was chosen due to results of previous studies, where Czech respondents in LTC and nursing homes preferred a structured interview to individuals filling of the form. The respondents saw the research as an opportunity to talk to someone about their illness and other important aspects of life. This confirms that the PDI-CZ is not only a measurement tool, but can also be used as an intervention because it facilitates professional communication with the geriatric inpatient with in LTC (Kisvetrová et al., 2018).

#### *Data analysis*

IBM SPSS Statistics for Windows, Version 23.0 has been used for statistical processing. Armonk, NY: IBM Corp. Quantitative variables were presented using averages and standard deviations (SD). Qualitative data was represented by absolute and relative frequencies. The correlation of quantitative characteristics was determined using the Pearson correlation coefficient. The differences between the two dependent selections in quantitative quantities were verified by a paired t-test. The multi-variable linear regression performed by ENTER was used to evaluate the effect of socio-demographic characteristics, changes in the level of self-sufficiency and depression on changes in individual PDI-CZ domains. Assumptions of multi-variable linear regression were verified using the Durbin-Watson test and the VIF (variance inflation factor). The quality of the model was evaluated by the coefficient of determination  $R^2$ . All tests were performed on the statistical significance level  $p = 0.05$ .



## Results

### *Sample characteristics*

The file included 125 geriatric inpatients (78% of the 160 screened respondents) who completed the entire questionnaire set via a standardized interview at both stages of the research. The average age of respondents was  $80.2 \pm 6.1$  years, 92 (73.6%) were women, 39 (31.2%) lived with a partner, and 82 (65.6%) identified themselves as holding religious beliefs. Respondents were without diagnosed dementia (MMSE score  $28.15 \pm 1.41$ ), had limited self-sufficiency in the ADL area (BI =  $65.84 \pm 19.31$ ) and 45 (36%) required LTC in connection with post-accident conditions. An overview of the socio-demographic characteristics of the set is given in Table 1.

### *Differences in evaluation between 1st and 2nd measurements*

Paired t-tests showed differences in the evaluation of two PDI items from the “Loss of autonomy” domain (PDI 1: Not able to perform tasks of daily living [ $p = 0.04$ ]; PDI 2: Not able to attend to bodily functions [ $p = 0.01$ ]). Both items have improved. There were also differences in two items from the “Loss of purpose of life” domain (PDI 3: Physically distressing symptoms [ $p = 0.04$ ]; PDI 12: Not feeling worthwhile or valued [ $p = 0.01$ ]). PDI 3 deteriorated, while item PDI 12 was found to improve. For PDI items 13 (Not able to carry out important roles) and 21 (Not feeling supported by my community of friends and family) the test was not performed because there was no change. For PDI item 21, all patients responded in the initial and subsequent measurements in the same way that they did not perceive it as a problem. This item was the best rated, on the contrary, PDI item 1 (Not able to perform tasks of daily living) was the worst rated in the initial measurement, and PDI item 3 (Physically distressing symptoms) was the worst measured. The results of all items are shown in Table 2. Significant improvement after one month (table 3) was demonstrated for the Loss of social support domain ( $p = 0.03$ ), pain assessment and depression rates (both  $p < 0.01$ ).

### *Predictors of changes in PDI-CZ domain evaluation*

Before the analysis, we performed regression diagnostics of linearity, multicollinearity, homogeneity, as well as normality and independence of residues. Linearity was verified by visual inspection of scatter charts. Multi-linearity was checked by correlation matrix (no correlation was higher than 0.8) and variable inflation factor (VIF) values. All VIF values were less than 2, i.e. in terms of multi-linearity, the model was fine. The independence of the residues was tested by the Durbin-Watson test. The values of this test (1.9 - 2.2) do not point to a more serious violation of the model's assumptions. Normality was verified by visual inspection of the histogram and homogeneity was monitored by a scatter graph of standardized residues and predicted Y values. The model was built using the ENTER method. The influence of variables (difference in evaluation after one month for GDS-15, BI, and socio-demographic characteristics) in the difference in the assessment of dignity in individual PDI-CZ domains is expressed using regression coefficients. The statistical significance of the coefficient is given by p-value.

Multivariate linear regression confirmed education, depression (difference in GDS-15 score) and self-sufficiency (difference in BI score) as predictors of PDI-CZ domain evaluation changes after one month. It showed a statistically significant effect of education and the difference in depression on the change in domain 1 (Loss of purpose of life). In patients with secondary or higher education, domain 1 values decreased more (improvement occurred) than in patients trained or with basic education ( $\beta = -0.853, p = 0.02$ ). Patients who had more depression (greater positive changes) also showed greater deterioration (greater positive changes) in domain 1 and vice versa ( $\beta = 0.307, p = 0.02$ ).

The change in domain 2 (Loss of autonomy) had a significant effect education and difference in the BI test. In patients with secondary or higher education, domain 2 values

decreased more (improvement occurred) than in patients trained or with basic education ( $\beta = -0.823, p = 0.003$ ). Patients who had negative differences in the BI test (deterioration of self-sufficiency) had positive values (deterioration) in domain change 2 ( $\beta = -0.023, p = 0.03$ ).

Only education had a significant impact on the change in Domain 4 (Loss of social support). In patients with secondary or higher education, domain 4 values decreased more (greater improvement) than in patients trained or with basic education ( $\beta = -0.311, p = 0.001$ ), see tab. 4.

## **Discussion**

The results of the study showed that at the entry measurement the inpatients rated the item “Not able to perform tasks of daily living” the worst. One month after, the items “Not able to perform tasks of daily living”, “Not able to attend to bodily functions”, and “Not feeling worthwhile or valued” were improved. Predictors of changes in dignity assessment in individual PDI-CZ domains after one month of hospitalization were education, level of depression and degree of self-sufficiency.

Patients in our study had the worst assessment at the entrance examination for the item ‘Inability to perform the tasks of everyday life’. Our results showed that after one month of hospitalization, the evaluation of items focused on ADL, self-service and a sense of self-utility and respectability improved significantly. This confirms the connection between the level of self-sufficiency of the older adult and their perception of himself as a valuable and valued person. This finding also corresponds to our result that the difference in the level of self-sufficiency (BI score) after one month was the predictor of a change in the rating in the Loss of Autonomy domain. Similarly, Albers et al. (2013) suggests that persistent disabilities lead to a loss of autonomy and independence. The feeling that a person has a guaranteed autonomy, and a

valuable life is a key part of subjective well-being (VanderWeele, 2017), and therefore the promotion of self-sufficiency of older adults in LTC is essential.

Depression was the predictor of change only for the Loss of purpose of life domain. Patients who had less depression in a month had a greater improvement in the assessment of dignity in this domain. An Italian study has also confirmed the correlation between the construct of dignity (psychological dimension) and clinical depression (Grassi et al., 2017). With depression, the individual often does not perceive himself positively, which in turn impacts on self-esteem. Because each person's dignity includes self-esteem, that is, the dignity that an individual attribute to himself (Jacobson, 2009), it is easy to lose a sense of personal dignity when depressed. On the contrary, respect for the dignity of patients in hospitalization plays an important role in reducing stress and depression (Salehi et al., 2020).

The predictor of the change after one month of hospitalization, which influenced the evaluation of the most PDI-CZ domains, was education. Patients with secondary or university education experienced a greater improvement in dignity assessment after one month. Hospitalization often represents a stressor with a negative impact in the field of psychological, physical and social integrity for the older adult, and thus it threatens their dignity of identity (Kane & Vries, 2017). These areas are included in PDI-CZ domains Loss of purpose life, Loss of autonomy and Loss of social support, whose change in evaluation in our study education influenced significantly. By contrast, an Iranian study found no relationship between education level and dignity assessment (Zirak et al., 2017). Differences may be cultural and, or related to variations in access to education and diversity representations of educational levels. In our study, 87% had primary or secondary education, but in the Iranian study 30% were illiterate. Indeed Aristotle observed that "education is the best provision for old age"(Adler et al., 2013). The relationship between educational attainment, wellbeing and psycho-social health is complex and is not completely understood. The effect of education on the resilience of dignity, noted in this

study is most likely to depend on the latter two categories. People with higher education usually have a larger social network, a greater frequency of social activities and better computer literacy, which can help them maintain social contacts in old age and cope with both emotional and social problems related to aging, as well as various stressors, including hospitalization (Pavlova & Silbereisen, 2012). The level of education as a young adult is a significant indicator of emotional wellbeing in later life, and continuing education in later life promotes an active social life and is a source of mental stimulation and focus (Narushima et al., 2018).

Although previous studies have reported that spirituality affects well-being of older adults (Soósová et al., 2021) and religiosity affects dignity in end-of-life patients (Albers et al., 2013), our results concerning religion as a predictor of a change in the assessment of dignity have not been confirmed. The Czech Republic has a low level of 'religiosity' with only 21% of inhabitants stating that they belong to a denomination or declaring themselves as 'believers' (EACEA, 2019). This may be related to the generally high level of distrust of the Czech Republic Population towards traditional religious institutions, especially large Christian churches (Vido et al., 2016). Since the research took place in the region, which had the highest representation of religious populations compared to other regions of the Czech Republic (over 37% identified as believers) at the last census, we assumed that in our research religion would influence the assessment of dignity among the geriatric patients. Although 66% of our respondents identified as religious, religion was not confirmed as a predictor of changing the assessment of dignity. On the other hand, Albers et. al (2013) states that religion is one of the areas important for a person's life, which are associated with understanding the factors that affect dignity. In the Chinese study, where only 14% of respondents identified as religious, the influence of religion on the assessment of dignity was also not confirmed (Liu et al., 2021). Since we did not investigate whether our respondents, who identified themselves as believers,

were actively participating in church life, we can assume that the mere fact that an older adult identifies as a believer may not affect the differences in the assessment of dignity.

### *Limitations*

This study has several limitations. Firstly, it is a relatively small set of respondents from one region, so the results cannot be generalized to all hospitalized older adults in the Czech Republic. Secondly, the respondents were without diagnosed dementia and partially self-sufficient, so the results cannot be generalized to the entire population of patients in LTC. Thirdly, other variables that were not included in the study may have influenced our results. These factors could be taken into account in follow-up studies and include comorbidities, psychiatric treatment, emotional regulation, or anxiety. Fourth, the relationships that were found may also be influenced by the cultural context in which the study was conducted.

### **Conclusion**

The study showed that predictors of changes in dignity assessment in individual PDI-CZ domains after one month of hospitalization were education, level of depression and degree of self-sufficiency. Our findings suggest that education has a big impact on the perception of the dignity of older adults hospitalized in LTC. This confirms the importance of promoting education even at older adult age, as this can help older adults reduce the stress associated with longer-term hospitalization and the associated threat to dignity.

### *Nursing Implications*

This study has significant implications for nursing practice. Our findings confirm the importance evaluating aspects of dignity perceptions of older adults in LTC and nursing interventions aimed at reducing depression and improving self-sufficiency in activities of daily living. Within the

nursing procedures, interventions reducing depression-related stressors in hospitalization and promoting the improvement of self-sufficiency in patients in LTC should be sought. There are also implications for the education and continued professional development of nursing staff in LTC, so that they have an awareness of factors influencing dignity, and the skills and knowledge needed to protect the dignity of elderly people in long-term hospitalization.

For further research, we recommend focusing on older adults with different levels of self-sufficiency and cognitive impairment, hospitalized in both LTC wards and nursing homes, and monitoring their changes in dignity assessment in the longer-term perspective.

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The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Table 1** Sociodemographic and Clinical Characteristics

<b>Variables</b>	<b>N = 125 (100%)</b>
Age – mean (SD); Range	80.2(6.1); 67 - 91
<b>Gender - N(%)</b>	
Female	92(73.6)
Male	33(26.4)
<b>Education - N(%)</b>	
Elementary	31(24.8)
Vocational	78(62.4)
Secondary	14(11.2)
Tertiary	2(1.6)
<b>Social situation (with whom they live)</b>	
Partner	39(31.2)
Relatives / others	62(49.6)
Alone	24(19.2)
<b>Self-perceived religiosity</b>	
Religious	82(65.6)
Not religious	40(32.0)
Without answers	3(2.4)
<b>Disease</b>	
cardiovascular	32(25.6)
gastrointestinal	10(8.0)
pulmonary	1(0.8)
metabolic	7(5.6)
neurological	17(13.6)
oncological	3(2.4)
urological	7(5.6)
hematological	3(2.4)
after injuries	45(36)

Abbreviation: SD = standard deviation

**Table 2** Evaluation of individual PDI-CZ items

№.	PDI-CZ domains / items	Input		1 month		p
		Mean	SD	Mean	SD	
<i>Loss of purpose of life</i>						
3	Physically distressing symptoms	1.24	0.50	1.30	0.57	0.04
7	Feeling uncertain	1.05	0.21	1.09	0.31	0.17
8	Worried about the future	1.05	0.21	1.06	0.23	0.66
11	Feeling no longer who I was	1.06	0.23	1.05	0.25	0.71
12	Not feeling worthwhile or valued	1.10	0.33	1.04	0.20	0.01
13	Not able to carry out important roles	1.02	0.13	1.02	0.13	NA
14	Feeling life no longer has meaning or purpose	1.02	0.20	1.02	0.20	1.00
15	Feeling have not made meaningful contribution	1.06	0.25	1.02	0.15	0.06
16	Feeling of unfinished business	1.01	0.09	1.00	0.00	0.32
18	Feeling a burden to others	1.06	0.25	1.05	0.21	0.32
19	Not feeling in control	1.03	0.18	1.06	0.29	0.18
23	Not being able to fight the challenges of illness	1.04	0.20	1.02	0.13	0.08
24	Not being able to accept the way things are	1.02	0.13	1.02	0.15	0.32
<i>Loss of autonomy</i>						
1	Not able to perform tasks of daily living	1.26	0.46	1.18	0.45	0.04
2	Not able to attend to bodily functions	1.16	0.37	1.10	0.30	0.01
4	Feeling how you look has changed	1.06	0.25	1.09	0.28	0.37
10	Not being able to continue usual routines	1.07	0.29	1.06	0.30	0.74
20	Reduced privacy	1.06	0.23	1.02	0.15	0.10
<i>Loss of confidence</i>						
5	Feeling depressed	1.08	0.27	1.09	0.28	0.78
6	Feeling anxious	1.10	0.30	1.10	0.33	0.57
9	Not being able to think clearly	1.03	0.18	1.01	0.09	0.08
17	Concerns regarding spiritual life	1.03	0.18	1.01	0.09	0.08

*Loss of social support*

21	Not feeling supported by my community of friends and family	1.00	0.00	1.00	0.00	NA
22	Not feeling supported by my health care providers	1.08	0.30	1.04	0.20	0.06
25	Not being treated with respect	1.03	0.18	1.01	0.09	0.08

Abbreviation: SD = standard deviation

**Table 3** Changes in PDI-CZ domain ratings, pain, depression and self-sufficiency

	<b>Input</b>	<b>1 month</b>	<b>Difference</b>	<i>p</i>
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	
PDI-CZ (dignity)				
Domains score				
Loss of purpose of life	13.76 (1.90)	13.74 (1.77)	-0.02 (1.2)	0.89
Loss of autonomy	5.61(1.20)	5.46 (1.04)	-0.15 (0.94)	0.07
Loss of confidence	4.24 (0.69)	4.21 (0.59)	-0.03 (0.47)	0.45
Loss of social support	3.11 (0.43)	3.05 (0.25)	-0.06 (0.33)	0.03
BI (self-sufficiency)	65.84 (19.31)	67.12 (17.96)	1.28 (8.23)	0.08
HVAS (pain)	2.55 (1.86)	1.5 (1.81)	-1.02 (1.28)	<0.01
GDS-15 (depression)	1.26 (0.80)	0.81 (0.87)	-0.45 (0.85)	<0.01

Abbreviation: SD = standard deviation, BI= Barthel Index, GDS-15 = Geriatric Depression Scale, HVAS = Horizontal Visual Analog Scale



**Table 4** Factors influencing the difference between 1st and 2nd ratings in PDI-CZ domains

Variables	Loss of purpose of life			Loss of autonomy			Loss of confidence			Loss of social support		
	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>
Age	0.002	-0.041 to 0.044	0.94	-0.008	-0.039 to 0.023	0.60	0.005	-0.011 to 0.021	0.57	-0.004	-0.015 to 0.007	0.50
Gender	0.101	-0.450 to 0.652	0.72	0.014	-0.392 to 0.421	0.94	0.111	-0.097 to 0.319	0.29	0.008	-0.135 to 0.152	0.91
Education	-0.853	-1.570 to -0.137	0.02*	-0.823	-1.352 to -0.295	0.003**	-0.166	-0.437 to 0.104	0.23	-0.311	-0.497 to -0.124	0.001**
Social situation	-0.230	-0.805 to 0.344	0.43	0.117	-0.307 to 0.541	0.58	-0.110	-0.328 to 0.107	0.32	-0.069	-0.219 to 0.080	0.36
Religion	0.065	-0.514 to 0.644	0.82	0.214	-0.214 to 0.641	0.32	0.021	-0.198 to 0.240	0.85	0.090	-0.060 to 0.241	0.24
BI	-0.017	-0.045 to 0.011	0.23	-0.023	-0.043 to -0.002	0.03*	-0.008	-0.018 to 0.003	0.14	0.002	-0.005 to 0.009	0.57
GDS-15	0.307	0.043 to 0.572	0.02*	-0.048	-0.243 to 0.148	0.62	0.018	-0.083 to 0.118	0.73	0.010	-0.059 to 0.079	0.77
Model quality ( $R^2/R^2_{adj}$ )												
0.349/0.060			0.375/0.080			0.331/0.047			0.358/0.066			
Model Assumptions (D-W test/VIF)												
2.1/1.19			2.2/1.19			1.9/1.19			1.9/1.19			

Abbreviation:  $R^2$  coefficient of determination,  $R^2_{adj}$  adjusted coefficient of determination, D-W test Durbin-Watson test, VIF Variable Inflation Factor, \*  $p < 0.05$ ; \*\*  $p < 0.01$