

## THE DEGREE OF DIFFICULTIES DURING PERFORMANCE OF ACTIVITIES OF DAILY LIVING IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Submitted: 2014-09-24

Accepted: 2015-03-13

Published online: 2015-06-26

### Abstract

*Introduction:* The presenting paper deals with the degree of difficulties during the performance of activities of daily living (ADLs) in patients with chronic obstructive pulmonary disease (CHOPN). This serious disease is characterized by the obstruction of airways which is caused by chronic bronchitis or pulmonary emphysema.

*Aim:* The aim of this paper is to present subjectively felt quality of life in the ill with CHOPN in the area of independence where we have focused on problems of ADLs performance.

*Methodology:* The paper relates to the research grant project No. 120/2012/S, which is implemented under the financial support of the Grant Agency of the University of South Bohemia in České Budějovice and its title is “Reflection of Quality of Life in Nursing”. The research file was formed by 503 respondents with CHOPN from all over the Czech Republic from that 296 men (58.8%) and 207 women (41.2%). The standardized questionnaires WHOQOL-100 and SGRQ were used for data collection. The submitted paper presents only the results acquired through the questionnaire WHOQOL-100 in the Czech version which investigates subjectively the emotional quality of life, health and other life areas. The presented results go from the domain “independence”, where we have focused on the facet “ADLs”.

The acquired data were analysed in the SASD programme which helped define the absolute and relative frequency of the gained responds and measure of variability. In second step the data were processed in the SPSS programme in version 15.0 which helped to perform several statistical tests. *Results:* Pursuant to the acquired data, it was ascertained that almost 50% of the respondents perceive their ability to perform ADLs neutrally. Further it was ascertained that during performance of these activities approximately three quarters of respondents do not feel marked restrictions. Only less than 13% of the respondents are dissatisfied with their ability to perform ADLs. Pursuant to comparison of the central facet “ADLs” with four other selected facets an existence of interesting relations which are worthy of attention has been established.

*Discussion:* According to our opinion the chronic ill patients are often even not aware of degree of symptoms which affect them because they have adapted to their disease to a certain degree.

*Conclusion:* Although CHOPN is a treatable disease which can be preceded to the considerable degree, prognosis of this disease is not quite favourable because the disease is in progress all the time.

**Key words:** CHOPN; ADLs; difficulties; patient; WHOQOL-100; quality of life; nursing

## **INTRODUCTION**

The beginning of new millennium represented a period of significant changes which influenced people's lives. The 21st century has brought many scientific and medical discoveries therefore it is called the century of quality (Hudáková and Majerníková 2013). One of the main topics of the present society is quality of life which has become a wealthy source for many scientific disciplines, including medicine and nursing (Gillernová et al. 2011).

The perception of the concept of quality of life depends on many factors and life situations. The more demanding situation affects a person, the more quality of his life can be effected (Gurková 2011). Such a situation can be a chronic disease which brings much trouble through the whole human life (Mandincová 2011). These diseases also include a chronic obstructive pulmonary disease (CHOPN). For about 58 million inhabitants of our planet are said to suffer this disease which is the second most widespread non-infectious disease (Vondra et al. 2011). In Czech Republic, an increasing prevalence of this disease has been estimated on 8% of adult population and 2,000 persons die of this disease every year. CHOPN symptoms can be very serious even life threatening and affect both physical and mental human sides (Hasegawa et al. 2014). Pursuant to that it is very important to focus on quality of life of these individuals. This disease is very often accompanied by other diseases which make human life more difficult (O'Rourke et al. 2010). The disease causes limitation of air flow thereby it especially affects the quality of breathing which depends on ADLs performance (Šeblová et al. 2013).

In individuals with CHOPN, the difficulty rate of coping ADLs has been effected by the independence of an individual. The aim of nursing intervention regarding persons suffering from CHOPN, is to decrease difficulties and needs of care thereby to increase quality of life. This aim was also common for the collective of authors which dealt with an interesting study in the area of self-control and self-care in persons with CHOPN (Salajka 2006).

To define independence is not quite so simple because this term seems not to be

unified. The history of this term reaches deep into the English history, as the first time this term occurred especially in connection with religion, policy and economic sphere (Krivošíková 2011). In recent years however, the society has been more often aware of independence in connection with medicine and nursing. The term can be very controversial because independence perception is highly individualized and specific (Klapetek 2008). Dependence belongs to a person congenitally and it is generally defined as a condition of a person whose existence is dependent on an activity, person or material thing (Kalina 2008). All interventions executed by the nursing staff during their activities, relate to the needs of a particular individual. The natural need of every person is independence. Nursing understands the relation between independence during self-care and during ADLs performance (Trachtová et al. 2013). Deficit of self-care can bring loss of autonomy and loss of control over own life. Everyone needs sense of safety and security which the chronic ill often lose (Klevetová and Dlabalová 2008).

It is not easy to find out the degree of difficulties during ADLs performance. In nursing care tests for patients, independence test are used commonly, the most frequent one is the Barthel test which judges 4 degrees of patient's dependence according to ability to perform ADLs from high dependence to total independence (Kapounová 2007). The total independence conception is formed by a wide scale of various domains which have been evaluated and influenced by human life (Kalvach et al. 2008). The process of identification and indispensability of single components in everyday life can be regarded as a very complicated and important one. A complex view of ADLs managing is influenced by external as well as internal sides of each individual (Krivošíková 2011).

## **MATERIAL AND METHODS**

One of the research aims was to find out subjectively perceived quality of life for the CHOPN ill person in the sphere of independence focused especially on ADLs performance.

The research file was formed by 503 people afflicted with CHOPN from the whole Czech Republic, from that 296 men (58.8%) and 207 women (41.2%). The basic criteria to involve the respondents to the file were a diagnosed CHOPN disease, minimal age of 20 years and willingness to cooperate. Data collection ran from February till October 2013. On the whole 651 questionnaires were distributed, from that 503 came back. The returnability rate was 77.3%.

Two standardized questionnaires WHOQOL-100 and SGRQ were used for the data collection. The submitted paper presents only the results from the WHOQOL-100 questionnaire in the Czech version whose aim is to assess the subjectively perceived quality of life, health and other life areas. It is a 100-item, self-assessing questionnaire which includes six domains: “physical condition”, “experience”, “independence”, “social relations”, “environment” and “spirituality”. The domains are divided to 24 defined facets (sub-areas) and one nonspecific subarea joining the items assessing the whole quality of life and health at all. Each of the facets is compound of four items which are assessed at a 5-degree scale of responds (1–5) whereas the total scale extent of particular facets is 4, as it is the worst one, up until 20 as the best assessment (Dragomirecká and Bartoňová 2006). The results in the submitted paper deal only with the domain “independence”, whereas we have focused especially on the facet of “ADLs”.

### Statistics

The statistical data analysis ran in two phases. In the first phase the acquired data were analysed in the SASD programme by which the absolute and relative frequencies of the obtained responds and measure of variability have been determined. In the second phase pursuant to the analysis of the absent values of particular items of the WHOQOL-100 questionnaire the number of respondents has decreased to the final amount of 449. The SPSS programme in the version 15.0 has been used to process the acquired data and to do several statistical tests. The difference between the subjectively perceived quality of life in CHOPN patients and healthy population was tested through the non-parametric Wilcoxon pair test. The difference between genders during the assessment of the particular facets

were tested by the Mann-Whitney U test. Both the tests were set on the 5% significance level. Relations among the particular facets were analysed through the Spearman correlation coefficient (again 5% of the significance level). In addition, the determination coefficient which indicates percentage of participation of the monitored factors during the resulting effect was determined.

### RESULTS

The presented results relates to the sphere of “ADLs” which belongs to the domain “independence”. We researched the extent to which the respondents are able to perform ADLs, whether they have problems with their performance, if they are satisfied with their ability to perform these activities and, last but not least, to what extent they are bothered with possible limitations.

The first question ascertained to what extent people with CHOPN are able to perform ADLs. Almost half of all the respondents chose the answer “medium” (49.3%) and other 34.4% of the respondents the answer “mostly yes”. The possibility “more likely no” used 9.3% of the respondents and the answer “totally” 5.2% of the respondents. Only an insignificant number of the respondents (1.0%), tended to go with the possibility “not at all”. This question was not answered by 4 respondents (0.8%).

In the following question, the respondents were interviewed to what degree they had problems with ADLs performance. The most represented answers were “a little” (37.8%) and “medium” (34.4%). The other 16.7% respondents chose the answer “much”. No problem during ADLs performance have 9.1% of the respondents and 1.2% of the respondents chose the opposite response, therefore, their measure of problems during ADLs performance is maximal. Four respondents (0.8%) did not answer the question.

Further, the respondents were interviewed to their satisfaction with the ability to perform ADLs. Here the largest group of the respondents chose a neutral answer “neither satisfied/and, nor dissatisfied/and” (42.9%) and almost the same number of the respondents (42.5%) marked the possibility “satisfied/and”. On the whole 11.9% of the

respondents marked the answer “dissatisfied/and” and only 2 respondents (0.4%) are very dissatisfied with their ability to perform ADLs. On the contrary, 1.2% of the respondents are very satisfied with this ability. This question was not answered by 5 respondents (1.0%).

The last question, ascertained to what degree are the respondents uncomfortable with the possible limitations during ADLs performance. Here, the biggest number of the respondents chose the answer “a little” (38.0%). The other 33.0% of the respondents chose the answer “medium”, and 19.3% of the respondents chose the answer “much”. The extreme possibilities of answers were chosen

by only a small amount of the respondents, the answer “not at all” chose 6.6% of the respondents and the answer “maximum” 2.4%. On the whole 4 respondents (0.8%) did not answer the above mentioned question.

Table 1 shows the results of comparison of the average values of the answers in the ADLs facet. Their analysis was carried out by means of the Mann-Whitney U test at 5% of the significance level. The results did not show any statistically significant difference between men and women. Based on the above mentioned responses, the assessment of quality of life in the sphere of ADLs in CHOPN patients does not depend on gender.

**Table 1 – Comparison of the average values of facet scores in the ADLs facet in CHOPN patients considering gender (Mann-Whitney U test)**

	Average		Median		Signification ( $p < 0.05$ )
	men (N = 260)	women (N = 189)	men	women	
Facet 10 “ADLs”	13.25	13.63	13.00	14.00	0.12

Table 2 presents the results of the Spearman correlation coefficient (tested on the significance level  $p < 0,01$ ) and calculation of the appropriate coefficient of determination which states at which part of respondents it is possible to explain variability of the relation among the particular facets. Within the correlation analysis among the facet “ADLs” and the facet “pain and uncomfortable feelings”, “energy and tiredness”, “positive feelings”, “self-confidence” were assessed.

The facet 10 “ADLs” and the facet 1 “pain and unpleasant feelings” show a statistically significant relation which seems to be a middle linear dependence of both variables. It can be stated that the more intense pain and unpleasant feelings the patients suffer, the less are they able to perform ADLs. The coefficient of determination was 47%. It means that in less than a half of the respondents the connection by means of the mentioned variables can be explained. Further we have compared the relation between the facet 10 and facet 2 “energy and tiredness”. A statistically significant relation here was established. This time however, it was already concerned with a high linear dependence with the coefficient of determination 60%. It means that the connection between ADLs and energy and tiredness can be found in less

than two thirds of the cases. Pursuant to this result can be stated that the more energy the CHOPN patients have, the more they are able to perform ADLs. The following comparison of the facet with the facet 4 “positive feelings” and the facet 6 “self-confidence” seems to be a middle linear dependence, it means that a statistically significant relationship has also been established here. By comparison with the facets 10 and 4, the coefficient of determination has been 23%. The previously mentioned relationship then occurs almost in a quarter of the CHOPN patients. The relation between the facets 10 and 6 has been similar whereas the coefficient of determination has been 30%. In this case, the mentioned connection can be explained in less than a third of the respondents. In both these cases can be stated that the more the CHOPN patients are able to perform ADLs, the more positive feelings and self-confidence they have.

Table 3 brings a comparison on the average values of facet scores of the WHOQOL-100 questionnaire in the CHOPN respondents considering their actual health condition. The Mann-Whitney U test set at 5% significance level was used for assessment. The results show that better quality of life in the sphere of ADLs has been perceived more by health individuals than the ill.

**Table 2 – Relation of the facet ADLs with the other selected facets**

Spearman correlation coefficient		Facet 1 “pain and unpleasant feelings”	Facet 2 “energy and tiredness”	Facet 4 “positive feelings”	Facet 6 “self-confidence”
Facet 10 “ADLs”	correlation coefficient	-0,686	0.772	0.483	0.550
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	449	449	449	449
<b>Coefficient of determination</b>		47%	60%	23%	30%

**Table 3 – Comparison of the average values of facet scores of the WHOQOL-100 questionnaire in the CHOPN respondents considering their actual health condition (by means of the Mann-Whitney U test at  $p < 0,05$ )**

	Average		Median		STD		(Sig.)
	ill (N = 192)	healthy (N = 227)	ill	healthy	ill	healthy	
Facet 10 “ADLs”	12.26	<b>14.42</b>	12.00	<b>14.00</b>	2.79	2.48	0.000

## DISCUSSION

Chronic obstructive pulmonary disease is often referred to as a threat of the third millennium. As described by Jusková (2013), it is not only a disease connected with a certain degree of shortness of breath, but also a disease with a very frequent interaction of physical and mental difficulties. This fact has also been partially supported by the particular results of our research which are focused especially on assessment of the degree of difficulties during ADLs performance in CHOPN patients.

As previously mentioned, CHOPN influences the quality of breathing and with it the connected ability to perform ADLs. A healthy person usually exhales all the air which they have breathed in (Mourek 2012). Regarding the CHOPN ill, loss of elasticity of airways happens, therefore they are not able to exhale all the air which they have inhaled. The air which has not been breathed out accumulates in the lungs thereby the pulmonary capacity always increases (Šafránková and Nejedlá 2006). Pursuant to this statement, the results of our research are remarkable because almost 50% of the respondents perceives their ability to perform ADLs as neutral one, it means that they have not tended to respond

unambiguous. Following this, 40% of the respondents perceives their ability to perform ADLs positively, whereas approximately 10% of the respondents perceives this ability negatively. According to Jusková (2013), up to 75% of the CHOPN patients feel physical difficulties during ADLs performance.

The ability to manage daily activities closely correlates with the measure of problems which was a significant element in our research. The results are as follows, the absolute majority of the respondents, approximately 90%, experience certain difficulties during ADLs performance. These difficulties include, above all, breathlessness, coughing and wheezing in the chest (Jusková 2013). CHOPN severity evidences also our result which has confirmed that only less than 10% of the respondents felt no problems.

CHOPN manifests itself especially in the lungs, but this affects negatively all the human body systems. This disease is characterized by a so-called periodic character, it means, at the patient is accompanied by quiescent phases which are changed through acute exacerbation. Breathlessness which belongs among the main CHOPN symptoms, passes to from exertion which is typical for the beginning stage of the disease and up to



resting breathlessness which occurs in the advanced stages of the disease and brings people considerable difficulties which markedly reduces the quality of their lives (Smolíková et al. 2005). However, pursuant to the results of our research, less than 13% of the respondents are dissatisfied with their ability to perform ADLs. We believe that the severity of symptoms is wholly dependent on the CHOPN stage.

A chronic disease is characterized by its symptoms which are progressive (Harris 2013). According to our opinion, the chronically ill patients are often not even aware of the degree of symptoms which affect them. While the difficulties rising with CHOPN could mean for a healthy person unimaginable problems. A patient suffering CHOPN for several years does not feel the existent symptoms and is not often aware of any limitations. Human organisms are able to adapt on the incurred difficulties. This statement has been also supported by the results of our research which show that approximately three quarters of the respondents don't feel marked limitation during ADLs performance. These unambiguous results were shown as a comparison of patients considering their actual health condition. It was no surprise for us that patients who feel with regard to their actual health condition better, feel ADLs performance more positively than patients who feel worse regard to their actual health condition. According to this statement, it could be stated that the better the actual health condition of the ill is, the higher the quality of their life can be.

CHOPN is a serious disease which often ends with death. Thanks to advances in medicine, it is possible to diagnose this malign disease in time, however, most of the ill come in only at the moment of their very annoying symptoms which markedly decrease the possibility to improve their quality of life (Marek 2010).

On the basis of comparison of the central facet "ADLs" with four other chosen facets the existence of interesting relations which are worth attention has been established. The relation of this facet to the facets "pain and uncomfortable feelings" and "energy and tiredness" has been basically presumed because it is logical that the ill who suffer tiredness or pain feel probably bigger difficulties in the

sphere of everyday behaviour. We believe, however, that it is necessary to realize for the right interpretation of the relationship among the facets "everyday activities" and "pain and uncomfortable feelings" that, in case of the CHOPN ill, it is more uncomfortable feeling because of breathlessness as the main symptom of this disease, than the actual pain in itself. We consider the results ascertained pursuant to the comparison of the facet of "everyday activities" with the facet "positive feelings" and "self-confidence" to be very valuable. Establishing this relationship, basically opened the connection of the domain "independence" with the domain "experience", which we consider to be very valuable. These findings is an unmistakable evidence that CHOPN is not only a purely physical disease, but similarly as other chronic disease, it is a pathological condition which secondarily concerns also involve the human psyche (Cully et al. 2007). We believe that observance of the quality of life in these patients is very valuable because the tools for observing the quality of life provide really a complex view of life of the ill and discover consequences of this illness in its full width and depth. The perception of this wide impact of CHOPN on life of the ill is surely a necessary base for providing a really complex nursing care reflecting so often mentioned holistic approach.

## **CONCLUSION**

Although breathing is an essential biological need for all living organism, we are often not even aware of this need (Vytejčková et al. 2013). ADLs performance is often a stereotype and routine behaviour for the healthy population. ADLs performance, even less exacting, for the chronically ill, this is so exhausting that they become fully dependent on care of the others. Considering the fact that CHOPN influences quality breathing, it can be absolutely unimaginable for these subjects to care for themselves. Although CHOPN is a curable disease which can be to a great extent preceded (Marek 2010), but its prognosis is not quite favourable because it keeps progressing. CHOPN is a phenomenon attacking millions of sick individuals and thus employing thousands of health workers (Koblížek 2013).

## CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

*The paper relates to an experimental grant project No. 120/2012/S which is implemented under financial support of Grant agency of University of South Bohemia in České Budějovice.*

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