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ORIGINAL ARTICLE

MEASUREMENT OF SELECTED DOMAINS IN PEOPLE WITH PHYSICAL DISABILITIES

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Abstract

Introduction: Physical disabilities include a lot of impairments. In clinical practice, nurses use measurement tools only if they must. In people with physical disabilities, there are many other needs that must be monitored. The risk of pressure ulcers, the risk of falls, level of independence or self-care, and many other domains can improve the health condition and avoid the development of complications.

Methods: This study is designed as a quantitative cross-sectional study. A non-standardized questionnaire was used to collect data from healthcare facilities. All data were collected in 2019 and statistically evaluated in the SASD and SPSS programs. We collected 1,200 questionnaires from all over the Czech Republic.

Results: Nurses very often measure the risk of falls and the risk of pressure ulcers. They also measure the level of self-care, mobility, activity, motivation, and education. Nurses who assess this domain do not continue to work with the results. Nurses who do not provide the evaluation in these domains think it is unnecessary.

Discussion and conclusions: People with physical disabilities have a different hierarchy of their specific needs. Nurses should assess the actual problems and create a specific preventive plan to avoid the development of complications. Our results, show that there are two types of nurses. The first group uses the assessment scales and provide the measurement for many reasons. The second group does not use any assessment scales or provide any measurement because they think it is unnecessary.

Keywords: *Healthcare facilities; Measurement; Nursing; Physical disabilities*

INTRODUCTION

Physical disability is a new term that was separated from the word handicap and other terms in the previous century. Historically, we cannot see many differences between a disability and a handicap. In many states, there is still wrongly translated and wrongly accepted terminology. If we want to understand this issue, we must know the differences between impairment, handicap, and disability (Altman, 2014; Trewin, 2019). In this case, an impairment is any defect that can limit the patient. All projected limitations were named as disabilities, and the nurses must know where the disabilities are (Salinas-Rodríguez et al., 2020). People with bone or muscle impairments need different care than people with mental disorders or older adults. Nurses must focus on the patient's priorities, health condition and their individuality. However, nursing is general, and most domains are not

measured (Neugebauer and Tóthová, 2019; Trewin, 2019).

If we want to understand the meaning of a physical disability, we must look at a person's physical limitations in their mobility, dexterity, or stamina (Madaan and Gupta, 2021). Physical disabilities also include impairments that limit the person in daily activities, such as respiratory issues, blindness, epilepsy, or some sleep disorders (Duan et al., 2020; McCord, 2017; Trewin, 2019). The main causes can be organized into prenatal disabilities (acquired before birth), perinatal disabilities (acquired between some weeks before and up to four weeks after birth), and postnatal disabilities (acquired after birth). These groups were created to provide a better understanding of living with disabilities, creating challenges and opportunities to increase quality of life (McCord, 2017).

Mobility impairment includes amputations, poor manual dexterity, broken skeletal structure, or damage to one or more organs of the human body (Rai et al., 2019). Many studies have been published on physical disabilities and how to provide care in the right way. We can see a lot of differences in what must be measured, and the use of evaluation tools can help to show the risks and reduce them. People with physical disabilities very often suffer from the risk of falls, pressure ulcers, development of immobilization syndrome, incontinence, hyperhidrosis, pain, etc. The role of nursing is to prevent the health from developing any complications and to reduce all potential threats (Tough et al., 2017). In clinical practice we can provide it by assessing the domains: mobility, self-care, motivation, activity, risk of pressure sores, nutrition status, sexuality, and spirituality. Nurses can focus on the information given by physicians, which can support the feeling of security and safety. All of these domains have a big impact on the comfort of a patient's comfort, and when comfort increases, the time spent in the hospital is reduced (Neugebauer et al., 2021).

This is the main reason why the nurse must understand the main part of this issue and must know how to provide care in the best way. The International Classification of Functioning, Disability, and Health (ICF) can be very helpful in helping us to understand disabilities. It also provides a good opportunity to use a standard platform in the same way as it is used in foreign countries (Dietz et al., 2020; Neugebauer and Tóthová, 2019).

MATERIALS AND METHODS

Our study is designed as a quantitative cross-sectional study. We used the technique of non-standardized questionnaire testing. The study was carried out according to the Declaration of Helsinki and approved by the Institutional Review Board (Ethics Committee) of the Faculty of Health and Social Sciences, University of South Bohemia in Ceske Budejovice, Czech Republic.

Goals

This study focuses on providing care to people with physical disabilities in healthcare facilities. We tested if nurses understood physical disability and how they focused on each domain that was in relationship with the physical disability.

We tested whether nurses provide care to people with physical disabilities and other patients according to the education courses they have.

Sample

This study included clinical nurses, ward nurses, and head nurses. A representative sample of 1,200 nurses from all over the Czech Republic completed the questionnaire. All questionnaires were distributed to nurses in all regions by type of healthcare facilities. This sample was statistically based on the data from the Czech Health Statistics Yearbook.

Nurses who participated in this study had to meet the following inclusion criteria:

- Be employed by a health or social healthcare facility in one of the above-mentioned positions.
- Have more than one year of practical experience working with patients with physical disabilities.
- Working in an inpatient department.

We excluded incomplete and extra questionnaires because we needed a representative sample from all over the Czech Republic.

We focused on all types of nurses, but the largest part of the results come from shift nurses.

Questionnaire

All results come from a non-standardized questionnaire that was designed based on information about patients with physical disabilities and their needs during the healing process (Dörscheln et al., 2013; Read et al., 2018). The questionnaire contained three groups of questions:

1. Demographic data: gender, education level, working position and working area (see Table 1 below).
2. Closed questions focused on providing care (see Table 2 below).
3. Open questions focused on an explanation of the provided care.

All information on how to fill in the questionnaire was written on the first page along with other information (objective of the study, description of our work, information on anonymity, General Data Protection Regulation, and information about the investigative team).

Closed questions were designed based on the Likert scale and nurses could choose from answers: "maximum", "very much", "average", "a little" and "not at all".

The opened questions focused on the explanation, i.e., why the nurse chose the answers in the closed part of the questionnaire.

Data collection and analysis

Our non-standardized questionnaire was tested in a pre-test between February and April 2019, and the main study was conducted between April and September 2019. We distributed 1,490 questionnaires and 1,200 (80.5%) were returned.

From the collected data, the frequency tables were developed. The absolute and relative frequencies, median, modus, mean, standard deviation, and range were created as well. For all data, a significance level of 0.05, 0.01, and 0.001 was calculated. We used Chi-quadrate square – χ^2, the independence test – p, degrees of freedom – df, and significance level: n.s. – non-significant difference; * significant difference for the significance level of $\alpha = 0.05$; ** significant difference for the significance level of $\alpha = 0.01$; *** significant difference for the significance level of $\alpha = 0.001$.

RESULTS

First, we focused on the demographic data we received from our respondents. Data such as working position, working area, gender, and level of education were collected and evaluated.

Table 1 – Demographic data

Region	Absolute frequency	Relative frequency
Prague (capital)	215	17.9%
Central Bohemia	103	8.6%
South Bohemia	67	5.6%
Pilsen Region	66	5.5%
Region of Karlovy Vary	34	2.8%
Region of Ústí nad Labem	87	7.2%
Liberec Region	38	3.2%
Region of Hradec Králové	63	5.2%
Pardubice Region	50	4.2%
Vysočina Region	58	4.8%
South Moravia	148	12.3%
Olomouc Region	81	6.8%
Zlín Region	58	4.8%
Moravian-Silesien Region	132	11.0%
TOTAL	1200	100.0%

The study included women (n = 1158; 96.5%) and men (n = 42; 3.5%) with secondary education (n = 454; 37.8%), higher professional education (n = 235; 19.6%) and academic education (n = 511; 42.6%). Our sample included nurses working in shifts (n = 1144; 95.3%), ward nurses (n = 47, 3.9%), head nurses (n = 9; 0.7%) and main/chief nurses (n = 0; 0%).

Table 2 – Frequencies of all assessed domains

Assessed domains	Answers	Absolute frequency	Relative frequency
Self-care	Maximum	622	51.8%
	Very much	193	16.1%
	Average	380	31.7%
	A little	2	0.2%
	Not at all	3	0.2%
Mobility	Maximum	525	43.8%
	Very much	281	23.4%
	Average	378	32.2%
	A little	3	0.2%
	Not at all	4	0.3%
Activity	Maximum	578	48.2%
	Very much	202	16.8%
	Average	412	34.3%
	A little	5	0.4%
	Not at all	3	0.2%
Motivation	Maximum	473	39.4%
	Very much	412	34.4%
	Average	292	24.3%
	A little	20	1.7%
	Not at all	3	0.2%
Education	Maximum	615	51.2%
	Very much	193	16.1%
	Average	384	32.0%
	A little	4	0.3%
	Not at all	4	0.3%
Risk of pressure ulcers	Maximum	890	74.2%
	Very much	109	9.1%
	Average	196	16.3%
	A little	2	0.2%
	Not at all	3	0.2%
Risk of falls	Maximum	504	42.0%
	Very much	269	22.4%
	Average	406	33.8%
	A little	16	1.3%
	Not at all	5	0.4%
Nutrition status	Maximum	60	5.0%
	Very much	140	11.7%
	Average	215	17.9%
	A little	273	22.8%
	Not at all	512	42.7%
Sexuality	Maximum	30	2.5%
	Very much	3	0.2%
	Average	203	16.9%
	A little	72	6.0%
	Not at all	892	74.3%
Spirituality	Maximum	31	2.6%
	Very much	31	2.6%
	Average	184	15.3%
	A little	34	2.8%
	Not at all	920	76.7%

Nurses in clinical practice focus mainly on the needs of patients. For self-care, mobility, activity, motivation, education, risk of pressure ulcers, and risk of falls domains, the answers are positive. In these domains, all nurses measure the risk and provide the required assessment in their health care facilities (Table 3).

Table 3 – Frequencies of all open questions

Assessed domains	Answer (relative frequency)	Justification
Self-care	Yes (99.5%)	◆ It is a part of nursing (60.3%) ◆ It is for the prevention of the development of complications (20.1%) ◆ It is rehabilitation support (10.1%)
	No (0.5%)	◆ It is not necessary (0.5%)
Mobility	Yes (99.5%)	◆ It is a part of nursing (58.9%) ◆ It is for the prevention of the development of complications (41.6%)
	No (0.5%)	◆ It is not necessary (0.5%)
Activity	Yes (99.4%)	◆ It is a part of nursing (57.8%) ◆ It is for the prevention of the development of complications (41.6%)
	No (0.6%)	◆ It is not necessary (0.6%)
Motivation	Yes (98.1%)	◆ It is a part of nursing (54.5%) ◆ It is for the prevention of the development of complications (43.6%)
	No (1.9%)	◆ It is not necessary (1.9%)
Education	Yes (99.4%)	◆ It is a part of nursing (59.3%) ◆ It is the patient´s mental health support (27.1%) ◆ It provides support for safe and secure feelings (13%)
	No (0.6%)	◆ It is not necessary (0.6%)
Risk of pressure ulcers	Yes (99.6%)	◆ It is a part of nursing (60.3%) ◆ It is for the prevention of the development of complications (29.1%) ◆ It is useful for the nursing process (10.2%)
	No (0.4%)	◆ It is not necessary (0.4%)
Risk of falls	Yes (99.6%)	◆ It is a part of nursing (60.3%) ◆ It is for the prevention of the development of complications (29.1%) ◆ It is useful for the nursing process (10.2%)
	No (0.4%)	◆ It is not necessary (0.4%)
Nutrition status	Yes (99.6%)	◆ Nurses must do it (60.3%) ◆ It is for the prevention of the development of complications (29.1%) ◆ It is useful for the nursing process (10.2%)
	No (0.4%)	◆ It is not necessary (0.4%)
Sexuality	Yes (2.8%)	◆ It is a part of nursing (2.4%) ◆ It is necessary (0.4%)
	No (97.2%)	◆ It is not a part of nursing (69.5%) ◆ There is not enough time (19.3%) ◆ Patients do not talk about it (8.4%)
Spirituality	Yes (5.1%)	◆ It is a part of nursing (3.7%) ◆ It is necessary (1.4%)
	No (94.9%)	◆ Nurse does not have to do it (47.2%) ◆ Other specialists do it (21.1%) ◆ It is not necessary (26.6%)

Hypothesis testing

We tested whether there is any relationship between the care provided by nurses who had completed the education course that focused on people with physical disabilities and nurses who had not completed it (Table 4).

Table 4 – Values of the hypothesis testing

Education courses finished and assessed of the …	χ^2	df	*p*	Statistical significance
Self-care domain	57.978	8	<0.001	***
Mobility domain	181.223	8	<0.001	***
Activity domain	168.361	8	<0.001	***
Motivation domain	75.760	4	<0.001	***
Education domain	181.223	8	<0.001	***
Risk of pressure ulcers domain	122.180	8	<0.001	***
Risk of falls domain	298.104	8	<0.001	***
Nutrition status domain	379.932	8	<0.001	***
Sexuality domain	109.255	4	<0.001	***
Spirituality domain	220.368	10	<0.001	***

There is statistical significance between the assessed domains (people with physical disabilities and those without physical disabilities) and the completed courses. Nurses who do not complete the course or other education required to provide care to people with physical disabilities do not provide different kinds of care. On the other hand, nurses who complete this course more often look for the specific needs and assess rarely used domains, such as the patient's spirituality and sexuality.

Confirmation of the hypothesis

Our results show the nursing is provided in general way. In this care, nurses use the same tools to measure health conditions or potential risks in people with or without physical disabilities. The selected domains were measured equally in both groups of patients. However, nurses who have learned to provide specific care based on the individuality of the patient and autonomy most often work with the results of measured domains.

DISCUSSION

Based on our results, we believe that the quality of care provided can be improved. Gonzáles-Seguel et al. (2019) studied domains based on The International Classification of Functioning, Disability and Health (ICF) in the intensive care unit (ICU). They revealed many articles on physical disability patients with physical disabilities at the ICU ward and also detected the different specific needs and the hierarchy of different needs. In people with physical disabilities, the nurse must focus on physical comfort and, based on the level of disability and other neurological defects, must protect the patient's skin and physical body. Alcantara et al. (2020) support these results and think the ICF is a very important classification for providing very good care. It is necessary to apply these results to clinical practice and the theoretical framework of how to work with the ICF can be taught at the schools of nursing.

In their study, Mankowski et al. (2017) focused on the area of mobility. They detected a relationship between mobility limits based on physical disability and independence. They support our results and think the use of any tool for assessing mobility and disability is a necessary basic skill that nurses should know and provide in clinical practice. With this knowledge, we can provide the best nursing, and the healing management can be as short as possible.

There is a relationship between physical disability, mental health, and well-being. Tough et al. (2017) have found many articles

on this issue. They think that moving is one of the communication channels and it is normal for people to be able to go wherever they want. If there is any defect, problems accumulate and people with this defect must learn to live a new kind of life. Without this knowledge, they will be lost in their sorrow, pain, or poor mental conditions.

Faught and Glass (2019) describe the relationship between physical disability and sexuality. They confirm that this need is also very important for people with physical disability, and many people with physical disabilities have poor mental health leading to sleep deprivation or depression. All of these issues can be resolved by monitoring the sexuality domain, which is not very often assessed in clinical practice. This information confirm the results of our study.

All of our results are supported by many other studies (Koga, 2020; Madaan and Gupta, 2021; Nusantara et al., 2020; Trewin, 2019). All selected domains were very useful for understanding how people with physical disabilities live. They describe all risk factors and how nurses must change their attitude and nursing plan. Based on the measured domains, they can see the problematic part which should be treated during the hospitalization. Kritsotakis et al. (2017) describe the relationship between those interested in providing nursing care and people with physical disabilities. Nurses with a positive attitude care for people with physical disabilities more frequently assess their specific needs and both sides are more satisfied.

In 1991, Damrosch studied motivation as a part of nursing care. Based on the results, nurses need to be fully informed of the research findings relevant to effective interventions designed to motivate change in health-related behaviour. There are self-monitoring and systematic techniques that can help people to stay motivated. Dobber et al. (2019) continue the discussion about motivation in the nursing process. They think it is necessary to motivate people to a healthy lifestyle or treatment methods. This information can be very useful for the nursing process, and nurses must have the skills to succeed professionally. This also corresponds with our results. Nurses in clinical practice keep patients with physical disabilities motivated. Fasczewski et al. (2018) study the level of disability and reversibility of the illness. People with reversible impairments and with a lower level of disability can be motivated more quickly because there is also hope for a 'normal' life.

The motivation domain is very closely related to the activity and self-care domains. Riera-Sampol et al. (2017) studied the benefits of activity in nursing practice. Their results show that this multifactorial intervention has a great impact on improving the quality of patient care and their health condition. It is very important to measure the activity domain because people with physical disabilities often stay passive and do not want to improve their activity skills. As we said, the activity is also very closely bound to the self-care domain. Shpigelman and HaGani (2019) focused on the relationship between the type of disability and self-care. Their results show the many choices on how to improve self-care in clinical practice. However, nurses must differentiate the level of disability level in people with physical and other disabilities. These results support Cheng (2018) and discuss motivation, activity, and self-care as a part of the nursing process. In this case, people with physical disabilities must know they are not limited in all areas of mobility. Their skills can be improved, and if these patients agree to be partners in this care and not only passive acceptors, the healing process can be faster and more effective.

The use of a non-standardized questionnaire was the limitation of this study. The number of responses to certain questions was too small for analysis in some cases. For example, the low representation of men in Czech nursing means that we are unable to draw any conclusion or hypothesis in relation to gender.

CONCLUSIONS

Based on our study, we found some clinical mistakes in providing care to people with physical disabilities. In all healthcare facilities, nurses assess risk factors, such as a risk of falls and a risk of pressure ulcers. They also assess the domains of mobility, activity, education, motivation, and self-care. In people with physical disabilities, nutrition and mental health are very important domains. It is in relationship with the spirituality and sexuality, which is not assessed very often in

clinical practice. Based on our study, nurses think the assessment of the sexuality and spirituality domains is not necessary, but we all know that maintaining hope and spirituality is sometimes one way to stay afloat.

The level of education is also very important for nurses. Education courses can also help to improve the nurses' skills, but they should remain focused on assessing the selected domains and risk factors. This study can be used as a theoretical basis for future research, which might focus more deeply on the same domains and how nurses work with the results.

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Ethical aspects and conflict of interests
The authors have no conflict of interests to declare.

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