

# Use of standardized questionnaires to assess life quality in patients with diabetic foot ulcers

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# ÚVOD

- Diabetic Foot, DF, (Diabetic Foot Ulcers, DFU) is a severe complication of DM that impairs a patient's condition, and has a significant socioeconomic impact. It is also connected to an increased death rate.  
(Walsh et al., 2016, p. 1493) ■
- Prevalence of DFU in the diabetic population 4 - 10%.
- DF was reported in 52,172 persons with DM in the Czech Republic (5.6%), out of whom 9,980 persons (i.e. 19%) had undergone a foot amputation at least above the ankle (so-called high amputation). (ÚZIS ČR, 2018).

# DFU – Impact on life quality

- Physically limiting regimes may lead to an increased psychological pressure (Fejfarová et al., 2014, p. 1).
- In patients with 1 healed ulceration there is a tendency to reulcerate (up to 50% within one year) (Jirkovská et al., 2016, p. 13).
- DFU affect physical function, mental condition, and social situation of patients. (Meijer et al., 2002, p. 962–5; Goodridge et al., 2006, p. 274–280; Willrich et al., 2005, p. 128–134; Özlem et al., 2014, p. 176-187).



# Health – Related quality of life, HRQoL

- It expresses the scope to which the illness and its treatment influence the patient's ability and possibility to live a satisfactory life.
- The most frequently used **generic questionnaires** are:  
**SF-36, EQ-5D and WHO QOL-100 and WHO QOL-BREF-26**
- A bad HRQOL can also be attributed to the following factors:
  - pain,
  - fatigue,
  - wound infection,
  - getting dressed frequently,
  - limited movement,
  - lifestyle changes,
  - social isolation

(Alexiadou, Doupis, 2012, p. 2 aj.).



# We tested 4 standardized questionnaires:

## 2 generic:

- SF-36 (ÚZIS ČR, 2018b, online) and
- WHOQOL-BREF-26 (2 official translations in the Czech Republic). 1) V. Mravčík and E. Lajčková, 2004 and 2) E. Dragomirecká and J. Bartoňová, 2006).

## 2 specific:

- Wound-QoL (Procházková, Pokorná, 2017, p. 126–130)
- DFS (Abetz et al., 2002, p. 167-175). However, the is not very practical as it includes a lot of questions (58).

The respondent fills it out on their own, or is assisted by a health care professional.

# WHO QOL-BREF-26

## Differences in translations

Tab. 1. Ukázka porovnání dvou českých překladů nástroje WHOQOL-BREF (28, 31)

Č. otázky	Originál (29)	Mravčík a Lajčková, 2004 (31)	Dragomirecká a Bartoňová, 2006 (28)
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	Do jaké míry máte pocit, že Vám fyzická bolest brání dělat to, co potřebujete?	Do jaké míry Vám bolest brání v tom, co potřebujete dělat?
4	How much do you need any medical treatment to function in your daily life?	Jak moc potřebujete <u>nějakou léčbu</u> , abyste fungoval/a v běžném životě?	Jak moc potřebujete <u>lékařskou péči</u> , abyste mohl/a fungovat v každodenním životě?
11	Are you able to accept your bodily appearance?	Jste schopen/a přijmout svůj fyzický vzhled (to, jak vypadáte)?	Dokážete akceptovat svůj tělesný vzhled?
15	How well are you able to get around?	Jak velké potíže Vám dělá <u>pohybovat se mimo domov</u> ?	Jak se dokážete <u>pohybovat</u> ?
23	How satisfied are you with the conditions of your living place?	Jak spokojený/á jste se svým bydlením?	Jak jste spokojen/a s podmínkami v místě, kde žijete?
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	Jak často jste měl/a negativní pocity jako špatná <u>nálada</u> , <u>zoufalství</u> , úzkost, deprese?	Jak často prožíváte negativní pocity, jako je např. <u>rozmrzelost</u> , <u>beznaděj</u> , úzkost nebo deprese?



# Short Form Health Survey – 36 (SF-36)

- generic questionnaire
- designed to find quality of life in respondents from 14 years of age with various types of illness and treatment
- It takes 20 minutes to fill out.
- By Ware et al. In 1992
- Copyright to SF-36 belongs to the nonprofit organization Medical Outcomes Study Trust, and the tool is managed by the nonprofit organization RAND.
- It was translated in the Czech Republic, for example, by Z. Sobotík and P. Petr (in Gurková, 2011, p. 145; Ware et al, 1993; Sobotík, 1998).

# The SF-36 questionnaire

- It is freely available at the ÚZIS ČR (2018, online)
- It contains a total of 36 items divided into 8 dimensions:
  1. Physical functioning - 10 questions,
  2. Role physical - 4 questions,
  3. Bodily pain - 2 questions,
  4. General health - 5 questions,
  5. Vitality - 4 questions,
  6. Social functioning - 2 questions,
  7. Role emotional - 3 questions,
  8. Mental health - 3 questions
- 9. The item that does not belong in any of the above dimensions finds changes in their health in the past year.

Each item contains several proposed answers based on a three-point scale scored 1-5 points as follows:

Excellent - 1, Very good - 2, Good - 3, Adequate - 4, Inadequate - 5



# Assessment of the SF-36:

- In each dimension questions first score points, then summed, and the resulting value is transformed onto a 0–100 scale, where 100 points represent the best quality of life, and 0 the worst.
- To calculate the score from the questionnaire in the Czech Republic, there is a table created by ÚZIS ČR (ÚZIS ČR, 2018b, online).
- A score below 50 points may be interpreted as under the norm for the general population.
- The questionnaire can be further assessed as a whole, or each dimension can have its results assessed separately.

Table 1. Content of the Diabetic Foot Ulcer Scale (DFS): Domains and Items

<p><b>Domain: Leisure</b> (Five items scaled as 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, and 5 = a great deal) How much have your foot ulcer problems:</p> <p>1a) Stopped you from doing the hobbies and recreational activities that you enjoy? 1b) Changed the kinds of hobbies and recreational activities that you enjoy? 1c) Stopped you from getting away for a holiday or weekend break? 1d) Made you choose a different kind of holiday or short break than you would have preferred? 1e) Meant that you had to spend more time planning and organising for leisure activities?</p> <p><b>Domain: Physical health</b> (Six items scaled as 1 = none of the time, 2 = a little bit of the time, 3 = some of the time, 4 = most of the time, and 5 = all of the time) Because of your foot problems, how often have you felt:</p> <p>2a) Fatigued or tired? 2b) Drained? 2c) That you had difficulty sleeping? 2d) Pain while walking or standing? 2e) Pain during the night? 2f) Unwell because of taking antibiotics or other medicine for infection?</p> <p><b>Domain: Daily activities</b> (Six items scaled as 1 = none of the time, 2 = a little bit of the time, 3 = some of the time, 4 = most of the time, and 5 = all of the time) Because of your foot problems, how often have you:</p> <p>3a) Had to depend on others to help you look after yourself? 3b) Had to depend on others to do household chores such as cooking, cleaning, or laundry? 3c) Had to depend on others to get out of the house? 3d) Had to spend more time planning or organising your daily life? 3e) Felt that doing anything took longer than you would have liked? 3f) Felt restricted in your daily life?</p> <p><b>Domain: Emotions</b> (17 items scaled as 1 = not at all, 2 = slightly, 3 = moderately, 4 = quite a bit, and 5 = extremely) Because of your foot problems, have you felt:</p> <p>4a) Angry because you were not able to do what you wanted to do? 4b) Frustrated by others doing things for you when you would rather do them yourself? 4c) Frustrated because you were not able to do what you wanted to do? 4d) Helpless to cure your ulcer(s)? 4e) Worried that your ulcer(s) will never heal? 4f) Worried that you may have to have an amputation? 4g) Worried about injury to your feet? 4h) Depressed because you were not able to do what you wanted to do? 4i) Worried about getting ulcers in the future? 4j) Worried about being a burden on others? 4k) That you have no control over your life? 4l) Angry that this has happened to you? 4m) None?</p> <p>4n) Frustrated because you have difficulty in getting about? 4o) Frightened about the future? 4p) Badly about yourself because you can no longer work or be productive? 4q) Hopeless; that things will never get better?</p> <p><b>Domain: Noncompliance</b> (Two items scaled as 1 = none of the time, 2 = a little bit of the time, 3 = some of the time, 4 = most of the time, and 5 = all of the time) Because of your foot problems, how often:</p>	<p>5a) Have you done things that you knew were not good for you such as eating, drinking, or smoking too much? 5b) Did you disregard medical advice about how to care for your ulcer?</p> <p><b>Domain: Family</b> (Five items scaled as 1 = not applicable/no spouse/no family, 2 = none/not at all, 3 = a little bit, 4 = quite a bit, and 5 = a great deal) Because of your foot ulcer problems, how much:</p> <p>6a) Strain has there been on your relationship with your spouse or partner? 6b) Strain has there been on your relationship with other family members? 6c) Do you argue with your spouse or partner? 6d) Have you felt that you are a burden on your family? 6e) Have you felt that there has been a decline in your sexual relations?</p> <p><b>Domain: Friends</b> (Five items scaled as 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, and 5 = a great deal) Because of your foot ulcer problems, how much have you felt:</p> <p>7a) Guilty because your friends have to change plans to fit in with your limitations? 7b) That your circle of friends is getting smaller? 7c) That there are restrictions on the kinds of things you do with your friends? 7d) Hindered in your social life? 7e) That you are a burden on your friends?</p> <p><b>Domain: Treatment</b> (Four items scaled as 1 = not at all, 2 = a little bit, moderately, 4 = quite a bit, and 5 = extremely) Because of your foot ulcer problems, how much are you bothered by:</p> <p>8a) Having to keep the weight off your foot ulcer? 8b) The amount of time involved in caring for your foot ulcer (including dressing changes, waiting for the district nurse, and keeping the ulcer clean)? 8c) The appearance, odour, or leaking of your ulcer? 8d) Having to depend on others to help you care for your foot ulcer?</p> <p><b>Domain: Satisfaction</b> (One item scaled as 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, and 5 = extremely) 9) How satisfied have you been with your medical care for your foot ulcer problems?*</p> <p><b>Domain: Positive attitude</b> (Five items scaled as 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, and 5 = a great deal) Because of your foot ulcer problems:</p> <p>10a) Have you been taking better care of your feet?*</p> <p>10b) Have you been taking better care of yourself in general?*</p> <p>10c) Have you felt closer to a spouse or a partner?*</p> <p>10d) Have you a greater appreciation of your friends?*</p> <p>10e) Have you felt happier?*</p> <p><b>Domain: Financial</b> (Two items, each scaled differently; see below) Because of your foot ulcer problems:</p> <p>How much money have you spent out of your own pocket on other things such as shoes, taxis, higher phone bills, and home modification? (Scaled as 1 = none, 2 = a little bit, 3 = some, 4 = quite a bit, and 5 = a great deal) How bothered have you been by the money you have spent out of your own pocket on things such as shoes, taxis, higher phone bills, and home modification? (Scaled as 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, and 5 = extremely)</p>
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\*These items not reverse coded before summation of domains.

# DFS (original)

Diabetic Foot Ulcer Scale – DFS (© 1999 All rights reserved by Janssen Global Services, LLC USA), consisting of **58 items in 11 domains** (Abetz et al., 2002, p. 167-175):

Leisure time, Physical health, Daily activities, Emotions, Inadherence, Family, Friends, Treatment, Satisfaction, Positive attitude, and Finances.

Each domain contains 1 to 17 questions to be answered on a 5-point scale, or a 6-point Likert scale (1 to 5, or 0 to 5).

**The higher the score, the higher the quality of life.**

Translation to Czech: J Vymětalová, Zeleníková, 2016

# Wound-QoL

- Specific questionnaire focused on patients with nonhealing wounds and their quality of life.
- Developed and standardized by Augustin, Blome, 2014 in Germany, translated to Czech in 2016 by Procházková and Pokorná (Augustin, Blome, 2014, p. 29-38; Procházková and Pokorná, 2017, p. 127).
- It consists of **17 items** assessed **retrospectively** for the past **7 days**.
- **Items divided into three domains:**
  - **Physical** – in the questionnaire it includes items 1–5,
  - **Mental** – it includes questions 6–10,
  - **Everyday life** – items 11–16,
  - Item 17, the last one, assesses the economic burden of the patient while treating his/her nonhealing wounds.

## Wound-QoL - Example



**Obr. 1.** Wound-QoL dotazník kvality života u chronických ran

Pomocí následujících otázek bychom rádi zjistili, nakolik Vaše chronická/é rána/y ovlivňuje/i kvalitu Vašeho života.

Prosím, zaškrtněte jedno políčko v každém řádku.

Za posledních 7 dnů...		vůbec ne	trochu	středně	docela dost	hodně
1	...mne moje rána bolela	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	...moje rána zapáchala	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	...se objevil sekret z rány	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	...rána ovlivnila můj spánek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	...pro mne bylo ošetřování rány zátěží	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	...mne rána činila nešťastným/nešťastnou	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	...jsem měl/a pocit zklamání, že hojení rány trvá tak dlouho	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	...jsem měl/a obavy ohledně rány	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	...jsem měl/a obavy, že se stav rány zhorší nebo že se objeví další rány	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	...jsem se obávil/a, že se do rány uhoďím	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	...jsem měl/a kvůli ráně problémy s pohybem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	...pro mne byla chůze po schodech kvůli ráně obtížná	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	...jsem měl/a problém kvůli ráně zvládat běžné denní činnosti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	...rána omezovala moje volnočasové aktivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	...mne rána nutila omezit své činnosti s ostatními	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	...jsem se cítil/a kvůli ráně závislý/á na pomoci druhých	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	...pro mne rána představovala finanční zátěž	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

"Wound-QoL" Fragebogen zur Lebensqualität bei chronischen Wunden, Augustin et al. 2014, Biome et al.

2014, 2016 Překlad Mgr. Romana Procházková, doc. PhDr. Andrea Pokorná, Ph.D., 2016

# Wound-QoL Questionnaire Assessment:

- Answers to every item are assessed on a 0 to 4 point scale:
  - 0 points = not at all, 1 point = a bit, 2 points = moderate,
  - 3 points = quite a lot, 4 points = a lot.
- The assessment of each domain is done by a sum of all the points gained for its items.
- The total score 0 through 68 points is calculated from all the items, if the respondent answered at least 75% of the questions (13 out of 17).
- **The higher the sum of points gained by a respondent, the more impacted his/her quality of life is.** (Augustin, Blome, 2014, p. 29-38; Procházková, Pokorná, 2017, p. 127–128).

# Discussion – generic questionnaires

- The so-called short version **WHOQOL-BREF containing 26 items** is very popular in the Czech Republic and Slovakia. It was, for example, used in the cross-sectional study by Nemcová et al. (2017) on the sample of 525 respondents with DFU from the Visegrad Four countries (Nemcová et al., 2017).
- In the Czech Republic it exists in two different “official” Czech translations. These versions differ in exact verbal formulations and instructions for use. **The differences are so significant that they may lead to different interpretations of research results** (in Rogalewicz, Barták, Sihelníková, 2017, p. 91).
- **That is why we decided to use the SF-36 generic questionnaire in the main study.**



# Discussion – specific questionnaires

- Specific questionnaire DFS was not found to be very useful due to a big number of questions (58).
- In the main research we used the specific standardized questionnaire Wound-QoL.
  - It is short, simple, understandable, and
  - It contains assessment of all the important attributes of the patient's life with a nonhealing wound in the past 7 days.
  - Filling out the form is very simple. When instructed by a registered nurse or a physician, the patient is able to fill the form out on their own.



# Conclusion

The results of our two models (SF 36 and Woound-QoL show similar aspects (quality of life is influenced by the form of DM treatment, intensity of pain, and the respondent's age), but also other aspects, which is given by the fact that these are two different conceptions of measuring quality of life with a different scoring system. We recommend using the Wound-QoL in patients with DFU.



# Thanks for your attention.

