Patients' functioning discussed in nursing learning communities.

A qualitative deductive content analysis using the International Classification of Functioning, Disability and Health.

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The authors state no conflict of interest.

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Abstract

Aim: To describe whether and, if so, which aspects of patients' functioning, in terms of the International Classification of Functioning, Disability and Health (ICF), are addressed in nursing learning communities in clinical practice.
Design: A descriptive qualitative research design.
Methods: A deductive content analysis was conducted on 23 learning community discussions (Nov 2019 - Dec 2021), recorded as audio and video tapes, to identify topics related to patients' functioning.
Results: Patients' functioning is addressed in all learning community discussions except one. In total 49 unique ICF codes (at 2nd level of detail) are represented. Most encodings (22) are in the ICF body functions component in the chapter mental functions, particularly emotional functions and cognitive functions. They are directly followed by the ICF activities component (17) with self-management as a topic coded in decision making as the most addressed category. ICF codes related to participation, environmental factors and body structures are less represented.
Conclusion: The learning community discussions demonstrate that nurses address patients' functioning. However, reflecting on the biopsychosocial model, nurses focus mainly on the biopsychological part represented by the body functions and activities components and less on the social part represented by the participation component and environmental factors. To make further improvements in person-centred care, it is recommended to develop practical tools picturing person's body, mind, situation and context from the holistic biopsychosocial perspective.
Impact: This study provides insight into the content of nursing learning community discussions in clinical practice. It presents an opportunity for clinical practice and decision makers to strengthen nurses' crucial role in person-centred care by using the concept of functioning embedded in the biopsychosocial framework of the ICF to improve patients' health.
Reporting Method: Standards for Reporting Qualitative Research (SRQR).
Patient or public contribution: No patient or public contribution.

KEYWORDS

functioning, person-centred care, ICF, biopsychosocial, nursing, learning communities, qualitative research, and content analysis.

What does this paper contribute to the broader global community?

- This paper provides insight into the content of nursing learning community discussions in clinical practice from the biopsychosocial perspective.
- We understand the difficulties in delivering person-centred care in clinical practice even though nurses are educated in providing holistic care.
- The paper presents an opportunity for nurses to strengthen their crucial role in person-centred care by using the concept of functioning embedded in the biopsychosocial framework of the International Classification of Functioning, Disability and Health (ICF) to improve patients' health.

1. Introduction

Functioning is the central concept in the International Classification of Functioning, Disability and Health (ICF) (WHO, 2001). With the ICF, the World Health Organization (WHO) provides a framework and classifications for describing the health status of persons from a biopsychosocial perspective. Tools in clinical practice designed to support a biopsychosocial and person-centred approach give a more complete picture of the patient than tools based on the traditional biomedical approach (Snyman et al., 2019). The biopsychosocial and person-centred approaches are both rooted in a holistic perspective and emphasize the importance of active involvement of patients (Kramer et al., 2014). This approach aims to empower patients and is a core domain of high quality healthcare (Greene et al., 2012). Therefore a person-centred approach appears explicitly in mission statements of health care organizations. Moreover, the person-centred approach is preeminently the foundation for the nursing professional profile (Manley et al., 2011). Person-centred care means that patients' values and preferences are elicited and, once expressed, guide all aspects of health care, supporting patients' realistic health and life goals (Goodwin, 2016). However, the implementation of person-centred care in clinical practice, directed to services consistent with patients' own perspective, preferences and needs, is lagging behind (Wade & Halligan, 2017). The use of the concept of functioning is considered as a prerequisite for person-centred care (Snyman et al., 2019). Therefore the ZonMw-funded research project 'LeerSaam Noord' initiated nursing learning communities and applied the concept of functioning from a biopsychosocial perspective to guide nurses in improving person-centred care. In turn, the occurrence of patients' functioning in reports and/or discussions can be used to indicate (the extent of) person-centred care. To this end, in this study, discussions within nursing learning communities were analyzed for the prevalence and content of patients' functioning in terms of ICF to explore if and how person-centredness in care is addressed.

2. Background

2.1. Functioning and the International Classification of Functioning, Disability, and Health (ICF)

The ICF was published in 2001 by the WHO as the international standard terminology for functioning and environmental factors (WHO, 2001). The WHO published the ICF together with the conceptual model of health (Figure 1), which is based on the biopsychosocial model and uses the term 'functioning' as a basic concept operationalized in the ICF.

2.2. The conceptual model of health

The conceptual model of health represents the components of an individuals' health status, in which functioning has been conceptualized as a result of a dynamic interaction between a health condition (disease or disorder) and contextual factors (environmental and personal factors).

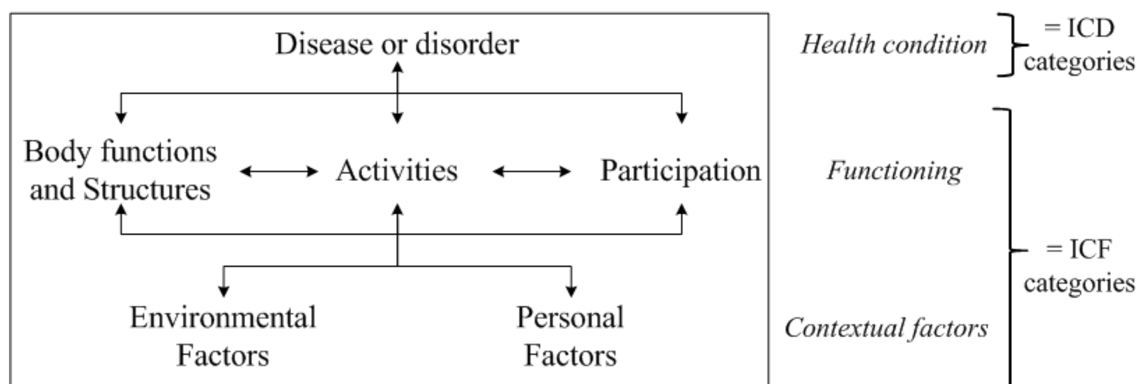

Figure 1. WHO's conceptual model of health representing the interactions between the components (disease or disorder, body functions and structures, activities, participation, environmental- and personal factors) of the health status. ICD: International Classification of Diseases and related health problems; ICF: International Classification of Functioning, Disability and Health (World Health Organization, 2001).

In the conceptual model of health, functioning is presented as a tripartite construct (Figure 1) including the components of body functions and structures (what people have: e.g., sensory functions; eyes), activities (what people do: e.g., reading), and participation (the type of relationships in which people are involved: e.g., family, work) (Bickenbach et al., 2012). The environmental factors include physical, social, and attitudinal aspects (e.g., devices, family, political opinions). Personal factors include age, gender, race, education, coping styles, and other characteristics. Personal factors are not classified in the ICF. The main reason is the ethical concern that classifying personal factors, especially if given a negative qualifier, carries the risk of stereotyping the individual and risking 'blaming the victim' (Muller & Geyh, 2015). Nevertheless, personal factors and their influence on one's health status are acknowledged within the conceptual model of health but not as a standard terminology of the ICF. Because of the latter, they were not a topic for analysis in this study. Diseases or disorders (i.e. health conditions) are included in the conceptual model of health and classified in the International Classification of Diseases and Related Health Problems (ICD) (WHO, 1992). The ICF and the ICD are complementary describing an individual's health status (WHO, 2001). This study focuses on functioning and environmental factors, so the ICD was not an topic for analysis.

2.3 Standard Terminology of the ICF

The conceptual model of health consists of six components (Figure 1), four of which are classified in the ICF. Where the conceptual model combined body functions and structures in one component, they are distinguished in the ICF into two separated classifications of b-codes (body functions) and s-

codes (structures) and where the model distinguished activities and participation in two components they are combined in the ICF in one classification; the d-codes (domains) (Figure 3). The ICF is organized as a so-called 'forest, tree, branches, foliage' classification; representing components, divided into chapters (=1st level) and categories (at different levels; 2nd- 4th). An example of these structure is as follows:

b	Body Functions	component
b1	Mental functions	chapter (1st level)
b114	Orientation functions	category (2nd level
b1142	Orientation to person	category (3rd level)
b11420	Orientation to self	category (4th level)

The deeper into the forest, the more detailed is the information regarding an aspect of functioning or environmental factors. The component body functions and structures contains in the ICF two separate classifications (b-codes and s-codes) eight chapters each, the components activities and participation, are combined in the ICF in one classification (d-codes), containing nine chapters, and the environmental factors (e-codes) contain five chapters. Almost 1500 categories are included in the ICF (Figure 3).

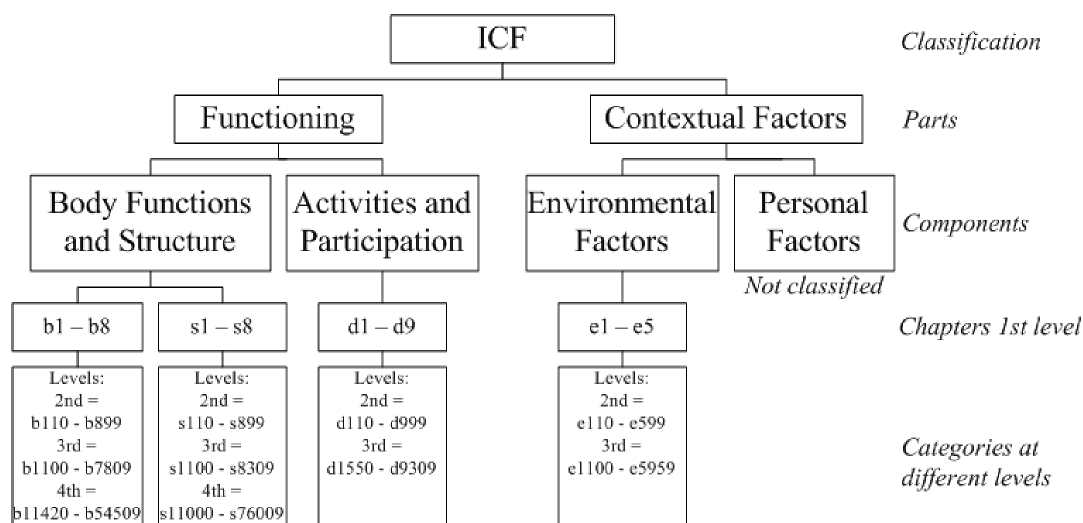

Figure 3. The hierarchical structure of the International Classification of Functioning, Disability and Health (ICF).

Except for the classification related to structures, the ICF provides all categories with definitions (including scope notes), inclusions, and exclusions. The definitions and inclusions describe the category's meaning and help users to choose the correct category. Because each category has a discrete meaning and unique code, the ICF can be used as a language-independent standard terminology and analysis instrument for functioning and environmental factors.

3. The Study

The aim of our study was to explore the use of the concept of functioning from the biopsychosocial perspective in the context of nursing learning communities as an indicator for person-centred care. To our knowledge, no studies have been done on this before. The research question is: whether and, if so, which aspects of patients' functioning, in terms (= classified and coded) of the International Classification of Functioning, Disability and Health (ICF), are addressed in nursing learning community discussions in clinical practice as part of the ZonMW funded LeerSaam Noord project in the North of the Netherlands.

4. Method

4.1. Design

This study used a descriptive qualitative design with a deductive analysis approach. The units of analysis were the transcripts of audio and or video recorded learning community discussions. This research design allows us to examine the occurrence of fragments, words and word segments that explicitly (=with the same words and meaning as the ICF) or implicitly (=not with the same words but which the same meaning as the ICF) refer to functioning and environmental factors pre-defined in the ICF: i.e. ICF components, chapters and categories. A deductive approach in using the ICF as reference is useful because functioning and environmental factors, in terms of the ICF, are demonstrated as indicators for person-centred care.

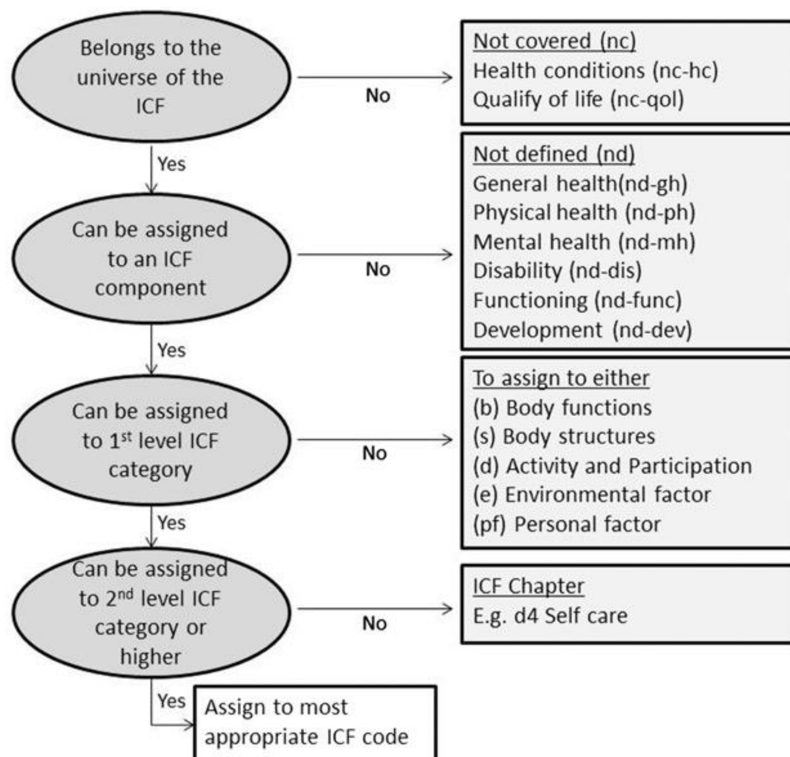

Figure 2. Linking decision tree (Cieza et al., 2019). Note: in this study the personal factors are not included.

In addition, by linking fragments, words, and word segments to standard terminology and codes, the ICF allows the analysis of the content related to functioning and environmental factors of all learning community discussions to be compared in different settings and periods (Elo & Kyngaes, 2008). The established ICF linking rules (Cieza et al., 2019) were used to code the data. These linking rules provide a decision tree (Figure 2) with which relevant information regarding health status in terms of functioning and environmental factors can be selected and identified by linking to the most appropriate ICF code.

The research design is descriptive as the focus is on whether and if so, which fragments, words and word segments are related to functioning and environmental factors and not at the number of times specific words related to functioning or environmental factors appear in the data (Hsieh & Shannon, 2005). The standards for reporting qualitative research (SRQR), were used to ensure accurate and methodologically sound reporting (O'Brien et al., 2014).

4.2. Theoretical Framework

As described in the background, the WHO's conceptual model of health, based on the biopsychosocial model, and operationalized in the ICF categories of body functions and structures, activities and participation, and environmental factors, is used as a theoretical framework for deductive analysis.

4.3. Study Setting and Recruitment

Four learning communities at four sites (one rehabilitation department of a nursing home, two inpatient departments of two rehabilitation centers and a the nephrology department of a university hospital) participated in the ZonMW funded LeerSaam Noord project (2019-2023) in the northern part of the Netherlands. Due to limited time and resources, only the audio and video recorded (n=23) learning community discussions in the first phase of the study (Nov 2019 - Dec 2021) were analyzed for functioning and environmental factors according to the ICF. The second phase will be analyzed in a later study. Each learning community consists of four to seven nurses with varied educational backgrounds. Discussions occur monthly on average and are coordinated and chaired by a facilitator. Facilitators are assigned bachelor or masters of advanced nursing practice (MANP) nurses from the departments involved. They were trained and supervised regularly (monthly) in an overall learning community of researchers, teachers in nursing, and patient-representatives of LeerSaam Noord. The learning communities are structured following the Action Learning Sets (ALS) methodology, in which reflective questioning is central (Machin & Pearson, 2014). Patients' functioning including the environmental factors was one of the substantive subjects in these training sessions.

4.4. Inclusion and Exclusion Criteria

All transcripts are included for analysis. Due to the deductive approach aimed at patients' functioning and environmental factors, content in transcripts not related to patients' functioning and environmental factors has been excluded for analysis.

4.5 Data collection

The facilitators coordinate and facilitate, once a month, a learning community discussion at their own department. In accordance with the aims of these conversations they selected with the participating nurses of the learning community a patient case. In the learning communities, structured following the ALS, a nurse introduces a patient case and the other participants have the role of questioner. The contributor indicates whether the discussion focusses on finding factors of success to learn from in the patient case or whether there is a challenge in the patient case to explore. The facilitator monitors the process in which the various questions (clarifying questions versus in-depth reflective questions) are raised and answered and monitors that the learning moment is completed and concluded. When all the learning community participants agree, the discussion is recorded (audio/video).

4.6. Data Analysis

The ICF is used as a coding scheme for descriptive qualitative deductive content analysis. See Figure 3 for the hierarchical structure of the ICF. This study uses the ICF components, chapters (1st level) and categories (2nd level).
As described earlier, the conceptual model (Figure 1) of health presents functioning as a tripartite construct combining body functions and structures in one component and distinguishing activities and participation in two components. In contrast, the classification (=standard terminology) distinguishes body functions and body structures in two separate classifications (resp. b- and s-codes) and combine activities and participation in one classification (d-codes) (Figure 3).
The four classifications of the ICF were used In the analysis of this study, with the d-codes being split into the components activities and participation. This has resulted in the coding scheme with five components and all encodings of the chapters (30 total) and categories at 2nd level (367 total) namely: 1) body functions (chapters b1-b8; categories b110-b899), 2) structures (chapter s1-s8;

categories s110-s899), 3) activities (chapters d1-d6; categories d110-d699), 4) participation (chapters d7-d9; categories d710-d999)[2], and 5) environmental factors (chapter e1-e5; categories e110-e599). The ICF includes 30 codes at 1st level (=chapters) and 367 codes at 2nd level (=categories) out of a total of 1424 codes at all levels (1st - 4th). In this analysis the codes at the 2nd level were used as it strikes a good balance between detail and abstractness. For example: the quote '*he has difficulty getting from the bedroom to the bathroom'* can be coded as follows:

d activities and participation

d4: mobility (1st level)

d460 moving around in different locations (2nd level)

d4600 moving around within the home (3rd level)

For research purposes, where analysis is aimed at comparing information within and between different resources, coding up to the 2nd level is common and sufficient. Just to clarify with the example above: moving between bedroom and bathroom can be compared to other indoor movements, such as moving between living room and kitchen, and more abstractly, it can be compared to all information about moving between different locations (2nd level). So, for research purposes, the 2nd level code (d460) will be used to code the quote of the example, as it is sufficient for research analysis. For patient care purposes, the more detailed 3rd level codes (d4600) or, if applicable the 4th level codes, are usually useful. In addition, note that due to ICF's forest-tree-branch-foliage structure, it is simple to reduce all 3rd and 4th level coding into 2nd level coding, which in turn can be reduced to 1st level coding and finally to component level coding (Figure 3).

All the transcripts were read and re-read separately by three researchers. In line with the ICF linking rules (Cieza et al., 2019), as outlined in Figure 2, fragments, word segments and/or words referring to functioning and environmental factors were reviewed and coded for correspondence with the identified ICF components, chapters and categories using ATLAS.ti software 23.0. By using the structure of the ICF, it is possible to choose either only the aspects from the data that fit the ICF components, chapters and categories.

Analysis occurred in three phases. During the first deductive phase, all occurrences of information related to ICF components, chapters and categories in the transcripts were coded by two research assistants, as such using the ICF linking rules (Cieza et al., 2019). Subsequently, in the second phase, the first author (expert in the use of the ICF) independently coded the transcripts and compared the coding to that of the research assistants. Discrepancies were discussed and resolved until consensus was reached. In the last phase, the analysis took place in which the codes were compared within and

[2] The ICF offers four options for distinguishing between activities and participation, one of which involves using a distinct set of activities and participation (WHO, 2001). We chose this option.

between the locations as well as in relation to the entire ICF. The first author discussed and refined the analysis with the other authors.

4.7. Ethical Considerations

Participants were informed about the purpose of the study and provided written consent. The study protocol was reviewed by the Medical Ethics Committee of the University Medical Centre of Groningen, and it was declared that this study did not require formal approval according to Dutch law (registration number 2020/067).

4.8. Rigor and reflexivity

The recorded (audio/video) nursing learning communities are transcribed by an independent person. Two research assistants (fourth-year bachelor nursing students, trained in using ICF and qualitative research) coded each transcript in pairs and then discussed their coding to reach consensus. Subsequently, the first author (PhD, senior researcher, expert in using ICF and ATLAS.ti) independently coded the transcripts and compared the coding to that of the research assistants. Discrepancies were discussed and resolved until consensus was reached. Fragments were also read in the context of the discussion as a whole to analyze how to interpret the used words, word segments and fragments. In order to increase validity, results and interpretations of data were discussed in the research team. Elaborated and detailed transcripts, in addition to writing field notes increased dependability, or in other words, whether or not the conclusions of the study would persist if the transcripts were analyzed by other researchers, or in a potential replication study. Reliability in data analysis was achieved through extensive training of the first author in coding and working with ATLAS.ti software and by being an ICF expert and experienced in using the linking rules (Cieza et al., 2019). When writing the results and findings, each finding was authenticated by quotes from the original transcript. This step increases confirmability, which relates to how much the study's conclusions correspond to the collected data and are less affected by the researcher's points of view. All the research team members assisted in data interpretation; they all have expertise in qualitative methods, nursing learning communities and person-centred care. The researchers are not part of the nursing learning communities during the research period. The facilitators (trained by the researchers) conducted the nursing learning communities at their own department. The relationships between researchers and facilitators of the nursing learning communities were established during their enrolment. The members of the nursing learning communities at the departments involved were given basic information about the research team and the study purpose and procedures.

5. Results

A total of 23 learning community discussion transcripts, almost evenly distributed across the four locations, were analyzed. Patients' functioning was reflected in 22 of 23 transcripts with a total number of 465 collected quotes. See Table 1 for an overview of the number of transcripts ordered by location.

Table 1. *Overview of the transcripts ordered by location*

Nr.	Location	Number of transcripts analyzed	Number of transcripts addressing patient's functioning
1	**Rehabilitation Centre A**	7	6
2	**University hospital**	6	6
3	**Nursing home**	6	6
4	**Rehabilitation Centre B**	4	4
	Total	23	22

The audio and video recorded learning community discussions lasted an average of 45 (±15) minutes with an average participation of five (+1) participants including the facilitator. The quotes represented 100% (5) of all the ICF components (5), 47% (14) of all the ICF chapters at 1st level (30), and 13% (49) of all the ICF categories at 2nd level (373). See last row of Table 2 (page 24-25).

Figure 4 shows all the chapters (1st level codes) of the ICF framework. Fourteen ICF 1st level codes (bold printed) are covered in this study; sixteen ICF 1st level codes (lightly printed) are not covered in this study. Of the covered ICF 1st level codes, seven occurred by all locations: b1 (mental functions), b6 (genitourinary and reproductive functions), d1 (learning and applying knowledge), d5 (self-care), d7 (interpersonal interactions and relationships), e1 (products for personal consumption), and e5 (services, systems and policies). Looking at more detail, these 1st level codes cover 13 2nd level codes discussed by all locations, of which five are covered by one chapter: b1 (mental functions), and three codes (underlined printed with their corresponding chapters) occur in more than half (≥12) of the learning community discussions: b152 (emotional functions), b164 (cognitive functions) and d177 (making decisions). Table 2 shows an overview of all covered ICF 1st and 2nd level codes in this study. The most ICF 2nd level codes (41) occur in less than a quarter (<6) of all learning community discussions.

In the next subchapters results will be given in detail per ICF component. For a good understanding, reference will be made to Figure 4, from the perspective of the whole ICF framework, and Table 2 for a detailed overview of all covered 14 1st level codes and all 49 2nd level codes in the respective components and over the four location and the learning community discussions. The percentages given represent the proportion of all ICF codes at the 1st or 2nd level per component, and of all learning community discussions respectively, that appear in the data. This is with the aim of getting an idea of what the focus is in the learning network discussions and how these topics relate to the entire ICF reflecting the biopsychosocial perspective as an indicator of person-centred care.

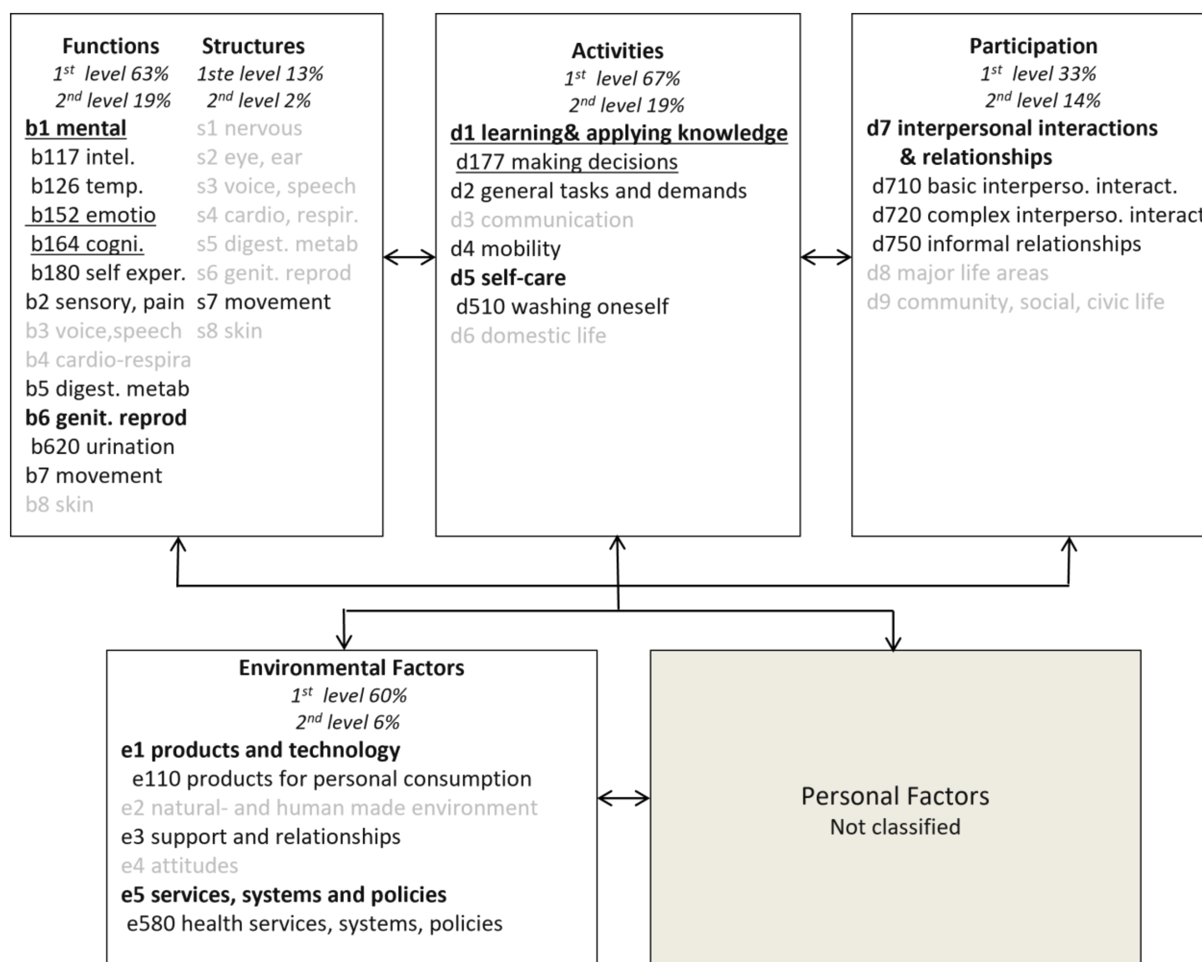

Figure 4. ICF framework with all chapters (1st level codes) and those categories (2nd level codes) that are discussed by all locations. **Bold** = chapters covered by all four locations; lightly = chapters not covered in the study; underlined = codes that are discussed in more than half (≥12) of all learning communities. The percentages per component represent the proportion of codes out of all 1st and 2nd level ICF codes of that component, respectively, that occur in the learning community discussions.

5.1. Body functions

The body functions component is represented in the data with almost half (22) of all (49) 2nd level codes found in this study and more than one third (5) of all (14) 1st level codes found in this study. These 22 2nd level codes represent 19% out of all ICF 2nd level body functions codes (115) and the five found 1st level codes represent 63% out of all (8) ICF 1st level body functions.

The 1st level codes represent data about: 'mental functions' (b1), 'sensory functions and pain' (b2), 'functions of the digestive, metabolic and endocrine systems' (b5), 'genitourinary and reproductive functions' (b6) and 'neuromusculoskeletal and movement related functions' (b7) (Figure 4). The corresponding detailed 22 2nd level codes (Table 2) show that half of them (11) are covered by one chapter: 'mental functions' (b1). The remaining 2nd level codes are evenly spread over the four other covered chapters (Table 2). Six 2nd level body functions codes are represented by all locations; five of these are in the chapter 'mental functions' (b1): 'intellectual functions' (b117), 'temperament and personality functions' (b126), 'emotional functions' (b152), 'higher-level cognitive functions' (b164),

'experience of self and time functions' (b180) and one in the chapter 'genitourinary and reproductive functions' (b7): 'urination functions' (b620).

Quotes illustrating 2nd level codes covered by all locations in the body functions component[3]:

b117 'intellectual functions'[4]:

"she was just adequately responding, she is competent, she acts knowingly and willfully" (transcript 4).

"he regularly does not know what to do. Then he doesn't respond adequately, he doesn't seem to understand a conversation or question" (transcript 11).

b126 'temperament and personality functions'[5]:

"this patient is breaking all sorts of rules" (transcript 3).

"she is a very positive woman, she won't give up" (transcript 8).

b180 'experience of self and time functions'[6]:

"he totally clings to how it was before. He still perceives himself as the same person he was before the illness. He does not look at reality. Much of what he could do in the past is no longer possible" (transcript 9).

b620 urination functions[7]:

''he was able to urinate independently, he was scanned only a few times, after which he was catheterized if necessary" (transcript 10).

"incontinence is not easy for him also" (transcript 11).

Two of the 2nd level codes represented by all locations are also covered in more than half (≥12) of all learning community discussions in the chapter 'mental functions' (b1): 'higher-level cognitive functions' (b164), and 'emotional functions' (b152).

Quotes illustrating these codes:

b164 higher-level cognitive functions[8]:

"…it is important that he gains insight into himself" (transcript 15).

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[3] = Note: we provide single coding here for illustration purposes, but be aware that quotes are sometimes coded with multiple codes at the same time.

[4] = general mental functions, required to understand and constructively integrate the various mental functions including all cognitive functions and their development over the life span.

[5] = general mental functions of constitutional disposition of the individual to react in a particular way to situations, including the set of mental characteristics that makes the individual distinct from others.

[6] = specific mental functions related to the awareness of one's identity, one's body, one's position in the reality of one's environment and of time

[7] = Functions of discharge of urine from the urinary bladder.

[8] = specific mental functions especially dependent on the frontal lobes of the brain, including complex goal-directed behaviors such as decision-making, abstract thinking, planning and carrying out plans, mental flexibility, and deciding which behaviors are appropriate under what circumstances; often called executive functions.

b152 emotional function[9]:

"one moment, like last night, she was playing billiards and cooking a meal together with others and being positive about it, and the next moment she is irritated" (transcript 12).

"she has to learn to walk again, but she fears everything. Everything has to be done step by step otherwise she will get furious" (transcript 16.)

"how happy she is when you compliment her; with a smile from ear to ear" (transcript 19).

Several quotes represent codes that are much less common in the learning community discussions. Quotes illustrating these codes:

b280 sensation of pain[10]:

"but that didn't work out in the end, because she was in a lot of pain anyway" (transcript 14)

"Yes, he was in pain. Pain in his stomach…" (transcript 21).

b540 general metabolic functions[11]:

"he is often high in his blood sugars, but on the whole it is under control now" (transcript 3).

Figure 4 shows that the chapters (1st level codes) 'voice and speech functions' (b3), 'functions of the cardiovascular, hematological, immunological and respiratory systems' (b4), and 'functions of the skin and related structures' (b8) with their corresponding 2nd level codes and are not represented in the data.

5.2. Structures

Structures are represented with a very small proportion with one out of all (49) 2nd level codes found in this study and with one chapter of all (14) 1st level codes. This one 2nd level codes represent 2% out of all (56) 2nd level ICF codes in total and these one 1st level code represent 13% out of all (8) 1st level ICF codes in total. This covered 1st level code in the chapter: 'structures related to movement' (s7) with the corresponding detailed 2nd level code 'structure of trunk' (s760) is represented by one location in two learning community discussions (Table 2).

Quote illustrating these code:

s760 structure of trunk:

"because of that scoliosis she can't lie well in bed because she is so crooked; she can only lie in fetal position on the left or right side" (transcript 4).

[9] = specific mental functions related to the feeling and affective components of the processes of the mind. Included are functions of appropriateness of emotion, regulation and range of emotion; affect, sadness, happiness, love, fear, anger, hate, tension, anxiety, joy, sorrow; lability of emotion; flattening of affect.

[10] = sensation of unpleasant feeling indicating potential or actual damage to some body structure.

[11] = functions of regulation of essential components of the body such as carbohydrates, proteins and fats, the conversion of one to another, and their breakdown into energy.

Figure 4 shows that the chapters (1st level codes) 'structures of the nervous system (s1), 'the eye, ear and related structures' (s2), 'structures involved in voice and speech'(s3), 'structures of the cardiovascular, immunological and respiratory systems' (s4), 'structures related to the digestive, metabolic and endocrine systems' (s5), 'structures related to the genitourinary and reproductive system' (s6) and 'skin and related structures' (s8) with their corresponding 2nd level codes and are not represented in the data.

5.3. Activities

The activities component is represented in the data with over one third (17) of all (49) 2nd level codes found in this study and almost one third (4) of all (14) 1st level codes found in this study. These 17 2nd level codes represent 19% out of all 2nd level ICF activity codes (92) in total and these four 1st level codes represent 67% out of all (6) 1st level ICF activity codes in total.

The covered 1st level codes represent data with the chapters: 'learning and applying knowledge' (d1), 'general tasks and demands' (d2), 'mobility' (d4) and 'selfcare' (d5) (Figure 4). The corresponding detailed 17 2nd level codes (Table 2) show that they are evenly spread over the four chapters with the most 2nd level codes in the 'mobility' chapter (d4). Two 2nd level codes are represented by all locations: one of these is in the chapter 'learning and applying knowledge (d1): 'making decisions' (d177) and one in the chapter 'self-care' (d5): 'washing oneself' (d510). The code 'making decisions' (d177) is also represented in more than half (≥12) of all learning community discussions.

Quotes illustrating these codes:

d177 making decisions[12]:

"self-management is indeed much expressed in use of medication. Self-medication actually …." (transcript 3).

" at home Mr. X relies largely on his wife. His wife arranges the medication, arranges everything. So now he leans on us how to handle it, but still he leans on her" (transcript 10).

"what does he need? So I consciously asked him "do you enjoy doing the first few times with me or do you also want to involve others and continue learning." And he was very clear in his decision" (transcript 22).

"because you know that he wants self-management, you have taken advantage of this by setting things up in such a way that he can decide for himself what he wants in the next step'' (transcript 23).

Note that, due to its definition, data related to self-management is coded into this ICF category.

[12] = making a choice among options, implementing the choice, and evaluating the effects of the choice, such as selecting and purchasing a specific item, or deciding to undertake and undertaking one task from among several tasks that need to be done.

d510 washing oneself[13]:

"If you look at how much you have to do for him: washing, shaving, you have to do everything for him" (transcript 9).

"uhm, and so, he started washing on his own. And I kept my hands behind my back" (transcript 14).

A number of quotes represent codes that are much less common in the learning community discussions. Quotes illustrating these codes:

d230 carrying out daily routine[14]:

"she indicated that she thought it was important that she could go back to doing her daily things after the transplant" (transcript 14)

d450 walking[15]:

"she also had to learn to walk again and that really had to be done step by step. She finally walked back into the hallway" (transcript 16).

"he had to walk alone, so he had to circle around the department two or three times a day, he then had the assignment to walk a block" (transcript 24).

Figure 4 shows that the chapters (1st level codes) 'communication' (d3), and 'domestic life' (d6) with their corresponding 2nd level codes are not represented in the data.

5.4. Participation

The participation component is represented in the data with a minority (5) out of all (49) 2nd level codes found in this study and with one chapter of all (14) 1st level codes. The five 2nd level codes represent 14% out of all (36) 2nd level ICF codes in total and the one 1st level codes represent 33% out of all (3) 1st level ICF codes in total of the participation component.

The covered 1st level codes represent data in the chapter: 'interpersonal interactions and relations' (d7). Tree of the five corresponding detailed 2nd level codes (Table 2) in this chapter are represented by all locations: ''basic interpersonal interactions' (d710); 'complex interpersonal interactions' (d720), and 'informal social relationships' (d750). They cover a small proportion of all the topics covered within all learning community discussions.

Quotes illustrating these codes:

[13] = washing and drying one's whole body, or body parts, using water and appropriate cleaning and drying materials or methods, such as bathing, showering, washing hands and feet, face and hair, and drying with a towel.

[14] = carrying out simple or complex and coordinated actions in order to plan, manage and complete the requirements of day-to-day procedures or duties, such as budgeting time and making plans for separate activities throughout the day.

[15] = Moving along a surface on foot, step by step, so that one foot is always on the ground, such as when strolling, sauntering, walking forwards, backwards, or sideways.

d710 basic interpersonal interactions[16]:

"they can't really be together anymore. I mean, it's always a kind of catfight" (transcript 3).

"…but the way he asks for help or the obviousness that he assumes he will be helped first, that is so inappropriate" (transcript 9).

d720 complex interpersonal interactions[17]:

"*…..also clearly indicated that there are limits. We are not friends, you should know how you talk to and interact with me"* (transcript 15).

"that he had very aggressive behavior in the department" (transcript 23).

d750 informal social relationships[18]:

"….you are in a group here and I don't think he is someone who can really engage in social relationships in a group…" (transcript 3).

"she's out of place here, she falls short in making buddies" (transcript 5).

A number of quotes represent codes that are much less common in the learning community discussions. Quotes illustrating these codes:

d760 family relationships[19]:

"it is difficult for him to agree with his visiting family that he is in control of the time of going to bed and not them" (transcript 11).

d770 intimate relationship[20]:

"*he misses his wife so much in the evening. What's if they drink another glass in the evening and then he puts her to bed, that would be perfect for now"* (transcript 5).

Figure 4 shows that the chapters (1st level codes) 'major life areas' (d8), and 'community, social, civic life' (d9) with their corresponding 2nd level codes are not represented in the data.

5.5. Environmental factors

The environmental factors are represented in the data with a minority (4) out of all (49) 2nd level codes found in this study and also almost a minority (3) of all (14) 1st level codes. These four 2nd level

[16] = Interacting with people in a contextually and socially appropriate manner, such as by showing consideration and esteem when appropriate, or responding to the feelings of others.

[17] = maintaining and managing interactions with other people, in a contextually and socially appropriate manner, such as by regulating emotions and impulses, controlling verbal and physical aggression, acting independently in social interactions, and acting in accordance with social rules and conventions, when for example playing, studying or working with others.

[18] = entering into relationships with others, such as casual relationships with people living in the same community or residence, or with co-workers, students, playmates, people with similar backgrounds or professions.

[19] = creating and maintaining kinship relationships, such as those with members of the nuclear family, extended family, foster and adopted family and step-relationships, more distant relationships such as second cousins, or legal guardians.

[20] = creating and maintaining close or romantic relationships between individuals, such as husband and wife, lovers or sexual partners.

codes represent 6% out of all (74) 2nd level ICF codes in total and the three 1st level codes represent 60% out of all (5) 1st level ICF codes in total of the environmental factors.

The covered 1st level codes represent data in the chapters: ‘products and technology’(e1), ‘support and relationships’ (e3), and ‘services, systems and policy’ (e5) (Figure 4). The corresponding detailed four 2nd level codes (Table 2) show that they are evenly spread over the three chapters. Two 2nd level codes are represented by all locations: one in the chapter ‘products and technology’(e1): ‘products or substances for personal consumption’ (e110) and one in the chapter ‘services, systems and policies’ (e5): ‘health services, systems and policies’ (e580).

They cover a small proportion of all the topics covered within all learning community discussions.

Quotes illustrating these codes:

e110 products or substances for personal consumption[21]:

“the insulin has been adjusted to the home injection schedule” (transcript 2).

“microlax was prescribed to him, precisely because it was self-administered” (transcript 22).

e580 health services, systems and policies[22]:

“…what a rehabilitation as a healthcare facility can do for him” (transcript 7).

“ the physio will certainly help him to recover” (transcript 22).

Figure 4 shows that the chapters (1st level codes) ‘natural- and human made environment’ (e2) and ‘attitudes’ (e3) with their corresponding 2nd level codes are not represented in the data.

6. Discussion

This study aimed to describe whether and, if so, which aspects of patient’s functioning, in terms (= classified and coded) of the International Classification of Functioning, Disability and Health (ICF), are addressed in nursing learning community discussions.

In the context of improving person-centred care, nursing learning communities in clinical practice were initiated. The concept of functioning, including environmental factors, is based on the holistic biopsychosocial model, and considered a prerequisite for person-centred care (Snyman et al., 2019). Therefore it was one of the substantive topics in the training sessions of the facilitators and used as a vehicle to guide nurses to improve person-centred care. In turn, the occurrence of (aspects of) patients’ functioning in these discussions are used as an indicator for (the extent of) person-centred care. The results will be discussed in terms of aspects of functioning (=the ICF components and categories) and in the perspective of the concept of functioning as a whole (the ICF framework).

[21] = any natural or human-made object or substance gathered, processed or manufactured for ingestion. Including food and drug.

[22] = services, systems and policies for preventing and treating health problems, providing medical rehabilitation and promoting a healthy lifestyle.

This study demonstrates that patients' functioning is addressed in almost all learning community discussions and that all the components of the ICF are covered in the data. At the same time it shows that the occurrence of topics related to ICF categories are not distributed evenly among the ICF components. The emphasis is on mental functions, ICF chapter b1 within the body functions component, with emotional functions and higher cognitive functions as the most addressed ICF categories. These categories are directly followed by the topic self-management coded in the ICF category decision making covered by the ICF chapter learning and applying knowledge within the activities component.

To our knowledge, this is the first study to analyze the content of nursing learning network discussions focused on (aspects of) patients' functioning. Most of the studies related to learning communities are focused on the value of learning communities itself and contributing conditions for successful learning in networks (Heemskerk et al., 2021).
So, how to declare the main finding that nurses are most focused on patients' mental functions directly followed by patients' self-management coded in the ICF category decision making? An explanation may be found in the fact that a learning community is focused on learning through reflection on experiences and issues of the team members in daily practice (Heemskerk et al., 2021). The nurses in the learning community are encouraged to discuss issues that concern them and/or in which they feel less competent. It is acknowledged that dealing with patients' mental functions like sadness, aggression or anger greatly challenges the response of nurses because it appeals to the nurse as a person more than dealing with for example mobility problems (Huff et al., 2023). The healthcare institutions involved are all most geared towards conditions related to physical body functions. There are a lot of general guidelines and protocols from the biomedical perspective, but only a few from the biopsychosocial perspective, including how to deal with patients' mental functions (van Dulmen et al., 2015). An additional explanation for the emphasis on mental functions might be the lack of clarity about how to interpret patients' mental reactions related to diseases. Dekker & de Groot (2018) stated that diseases induce a wide range of psychological responses, including uncertainty about the future, anxiety and depressive disorders. They make a plea to enrich the ICF and the concept of functioning by incorporation psychological adjustment to (chronic) diseases. This might be helpful for nurses to respond to patients' response in the presence of disease and to indicate the capacity of the person to cope with the changes associated with the disease.

An explanation for the focus on self-management with decision making in its wake, might be found in the interconnectedness with mental functions, as outlined in recent literature (Fox & Kilvert, 2022; Kelly et al., 2022; Lee et al., 2021). Moreover, the emphasis could also be explained by the paradigm

shift in healthcare towards a more holistic and person-centred care (Bickenbach et al., 2023; Stallinga et al., 2021; van der Veen et al., 2023). The Dutch national nursing educational profile recommends that nursing professionals should follow the principles of person-centred care, with self-management and shared decision-making as key elements (Lambregts et al., 2016). It is acknowledged that nurses do play an important role in supporting patients' self-management (Coster et al., 2020). However, recent research shows that it is not clear what this means for nursing care, nor is it an integral part of nurses' daily practice (Otter et al., 2023). Nurses may also feel less competent in supporting patients' self-management and are still learning in how to give this support, which may explain why they would like to discuss it in nursing learning communities. The last explanation is consistent with the conclusion of the previous study in these learning communities, which demonstrated that many of the discussions are focused on conflicting issues relating to decision making between the patient and the professional (van der Cingel et al., 2023).
The finding that less attention is paid in the learning network discussions to patients' participation and external factors can be explained in two ways: the first one is that these subjects are not overlooked, but apparently there is no or less reason to discuss them, the second one is that they are overlooked due to the fact that the nurses involved cared for inpatients, with the consequence that patients' participation and external factors are more out of the picture for them. In any case, this finding confirmed that for person-centred care a biopsychosocial perspective should be adopted because the social aspects, classified in participation and external factors, certainly matters for patients themselves (Fox & Kilvert, 2022; Stallinga et al., 2014).

6.1 Strengths and Limitations of the Study

A strength of our study is the use of the ICF. This provided the researchers with a clear conceptual framework including codes and definitions related to functioning and environmental factors from the start of the research. The procedure as described was careful, however, the findings of the present study should be interpreted within certain limitations. The first limitation is that it was not possible to have member checks with the participants of the learning communities. This means that the researchers could have made misinterpretations with the mappings with consequences for the results. Another limitation might be the sample size which comprised four learning communities in the Northern part of the Netherlands. Therefore, the transferability to findings in other contexts may be limited. However, analytical generalization to other contexts may be useful in guiding future studies such as the ICF codebook used in AtlasTi.

6.2 Recommendations for Further Research

Research is needed into the effect of the use of the concept of functioning as focus in healthcare on the health of the person and on the healthcare system as a whole. Bickenbach et al. (2023) stated that functioning should be the third health indicator (near to mortality and morbidity). Because not the disease or disorder itself, but the impact it has on one's daily functioning matters and that's the reason for seeking out healthcare. This principle indicates the need of person-centred care due to addressing the value of one's health as starting point. The ICF helps to operationalize this value in meaningful aspects of functioning in the various but interconnected components. Nurses are preeminent involved in patients' functioning (Stallinga, 2019). Research is needed to evaluate the effects of using functioning and ICF that will result from nursing learning communities. But most importantly, Independent prospective studies will offer the greatest payoff to establish whether there is evidence that the focus on human functioning, specifically by nursing, results in better patient outcomes.

6.3 Implications for policy and practice

Given the current developments in healthcare, for example the Institute for Positive Health in the Netherlands (https://www.iph.nl), or the Heartland Whole Health Institute (https://www.wholehealth.org) developed in the United States, stimulating the dialogue between patients and health professionals should avoid focusing solely on biological aspects, but also focus on psychological and social aspects, including the environmental factors that may affect their patients' health (Frank et al., 2014). Nurses are preeminently focused on patients' functioning, as demonstrated in this study. More detailed, it was found that identified codes were mostly related to the body functions and activities components. This is explained by the nursing care environment in these studies; a clinical environment is inclined to focus on these components. These findings are comparable with the results of the review of Piexak et al. (2015) on how nurses use the ICF. They suggest that nurses' visualization of all ICF components is required for expanded recognition of the patient's needs. Using the concept of functioning in terms of ICF might also be helpful for nurses and nursing learning communities to enable communication about health as it include all relevant health information in a holistic way from both the patients' and the healthcare professionals' perspective. User friendly tools, (e-health) applications and methods are needed to work in a person-centred way (Snyman et al., 2019; van Der Veen et al., 2022). This allows patients and healthcare professionals to communicate about functioning and to give feedback on the accuracy of what is meant by such information, promoting greater patient participation, leading to an increase in self-management and better decision making.

It is argued that learning communities give nurses the opportunity to learn in a supervised network from and with colleagues in their own practice. To support person-centred care it seems promising to

implement such learning communities with the concept of functioning and the ICF as its operationalization.

7. Conclusion

It can be concluded that the learning community discussions demonstrate that nurses do address patients' functioning. However, reflecting in the biopsychosocial model, it appears that nurses are mainly focused on the biopsychological part represented in the body functions, including mental functions, and the activities component with self-management as most addressed category and less on the social part represented by the participation component and environmental factors. To make further improvements in person-centred care, it is recommended to develop practical tools picturing person's body, mind, situation and context in the holistic, biopsychosocial perspective. The ICF has the best credentials for this, because the ICF translates the concept of functioning, reflecting health in a biopsychosocial perspective, into entities that can be communicated and registered in a standardized manner. In this way, the concept of functioning can play an important role in healthcare, both for patients themselves as well as for the focus of nursing.

Table 2. *Overview of the covered ICF chapters (1st level) and categories (2nd level) represented in the number of learning community discussions (n (%)) and by the locations (x) ordered in the ICF components*

COMPONENTS ICF ICF chapter	ICF code 1st level (*)	ICF code 2nd level (*)	ICF category n (%)#	Locations 1	2	3	4
BODY FUNCTIONS							
Mental functions	**b1**	b114	Orientation functions 2 (9)	x			x
		b117	**Intellectual functions 8 (35)**	x	x	x	x
		b122	Global psychosocial functions 1 (4)	x			
		b126	**Temperament and personality functions** 10 (44)	x	x	x	x
		b130	Energy and drive functions 4 (17)	x	x	x	
		b134	Sleep functions 4 (17)		x	x	x
		b144	Memory functions 4 (17)	x		x	
		b147	Psychomotor functions 2 (9)			x	x
		b152	**Emotional functions** 17 (74)	x	x	x	x
		b164	**Higher-level cognitive functions** 12 (52)	x	x	x	x
		b180	**Experience of self and time functions** 9 (39)	x	x	x	x
Subtotal		*11*					
Sensory functions and pain	b2	b235	Vestibular functions 1 (4)			x	
		b240	Sensations with hearing and vestibular function 2 (9)	x	x		
		b280	Sensation of pain 3 (13)		x		
Subtotal		*3*					
Functions of the digestive, metabolic and endocrine systems	b5	b510	Ingestion functions 2 (9)			x	
		b525	Defecation functions 4 (17)	x	x	x	
		b530	Weight maintenance functions 2 (9)		x		
		b540	General metabolic functions 3 (13)		x	x	
Subtotal		*4*					
Genitourinary and reproductive functions	**b6**	b610	Urinary excretory functions 2 (9)		x		
		b620	**Urination functions** 4 (17)	x	x	x	x
Subtotal		*2*					
Neuromusculoskeletal and movement related functions	b7	b760	Control of voluntary movement functions 2 (9)		x	x	
		b780	Sensations related to muscles and movement functions 1 (4)	x			
Subtotal		*2*					
Total	*5 (out of 8) (63%)*	*22 (out of 115) (19%)*					
STRUCTURES							
Structures related to movement	s7	s760	Structure of trunk 2 (9)		x		
Subtotal		*1*					
Total	*1* (out of 8) *(13%)*	*1 (out of 56) (2%)*					
ACTIVITIES							
Learning and applying knowledge	**d1**	d155	Acquiring skills 1 (4)				x
		d175	Solving problems 1 (4)	x			
		d177	**Making decisions** 12 (52)	x	x	x	x
Subtotal		*3*					
General tasks and demands	d2	d210	Undertaking a single task 1 (4)	x			
		d230	Carrying out daily routine 2 (9)		x	x	

COMPONENTS ICF ICF chapter	ICF code 1st level (*)	ICF code 2nd level (*)	ICF category n (%)#	Locations 1	2	3	4
		d240	Handling stress and other psychological demands 1 (4)			x	
Subtotal		*3*					
Mobility	d4	d410	Changing basic body position 1 (4)	x			
		d415	Maintaining a body position 1 (4)			x	
		d420	transferring oneself 1 (4)	x			
		d450	Walking 4 (17)		x	x	
		d465	Moving around using equipment 6 (26)	x	x	x	
		d470	Using transportation 1 (4)	x			
		d475	Driving 1 (4)		x		
Subtotal		*7*					
Self-care	**d5**	**d510**	**Washing oneself** 5 (22)	**x**	**x**	**x**	**x**
		d540	Dressing 2 (9)	x			x
		d550	Eating 3 (13)			x	x
		d560	Drinking 3 (13)			x	x
Subtotal		*4*					
Total	*4 (out of 6) (67%)*	*17 (out of 92) (19%)*					
PARTICIPATION							
Interpersonal interactions and relationships	**d7**	**d710**	**Basic interpersonal interactions** 4 (17)	x	x	x	x
		d720	**Complex interpersonal interactions** 8 (35)	x	x	x	x
		d750	**Informal social relationships** 5 (22)	x	x	x	x
		d760	Family relationships 2 (9)	x		x	
		d770	Intimate relationships 4 (17)	x	x	x	
Subtotal		*5*					
Total	*1 (out of 3) (33%)*	*5 (out of 36) (14%)*					
ENVIRONMENTAL FACTORS							
Products and Technology	**e1**	**e110**	**Products or substances for personal consumption** 9 (39)	x	x	x	x
Subtotal		*1*					
Support and relationships	e3	e310	Immediate family 4 (17)	x	x	x	
		e350	Domesticated animals 1 (4)		x		
Subtotal		*2*					
Services, systems and policies	**e5**	**e580**	**Health services, systems and policies** 5 (22)	x	x	x	x
Subtotal		*1*					
Total	*3 (out of 5) (60%)*	*4 (out of 74) (6%)*					
Total ICF Chapters resp. Total ICF Categories	*14* (out of 30) *(47%)*	*49* (out of 373) *(13%)*					

(*): total number of chapters and categories included in the ICF, and the proportion out of them discussed in the learning community discussions at the locations. ***Bold*** *= discussed by all four locations; underlined = present in ≥12 (≥50%) of all learning community discussions (23). #: number of learning community discussions in which topics occur related to that code including the percentage out of the total number of learning community discussions analyzed.*
Note: Body functions and structures are separate classifications, but together they form one component in the conceptual model.

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