Development of a subset of the international classification of functioning, disability and health as a basis for a questionnaire for community-dwelling older adults aged 75 and above in primary care: a consensus study

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ABSTRACT

Objectives Functioning of older adults needs to be adequately described before it can become the focus of care. The International Classification of Functioning, Disability and Health (ICF) provides a basis for describing functioning. As the ICF is too extensive for daily practice in primary care, there is a need for a reduced number of categories. The aim is to develop an ICF-subset for community-dwelling older adults aged 75 and above in primary care.

Design The scientific basis for decision-making in our consensus study was laid by four preparatory studies, identifying potentially relevant ICF categories from four perspectives (research, patients', experts' and clinical perspective). The results of the preparatory phase were discussed by an international expert panel in a consensus study following the Nominal Group Technique (NGT).

Setting An international 1-day online consensus conference.

Participants International experts (n=7) participated in the consensus conference, meeting the following criteria: extensive expertise in the field of the ICF and/or caring for older adults, and being fluent in English.

Results Each preparatory study yielded a different number of categories with some overlaps but also differences. The expert panel decided to: (1) restrict the subset to second-level categories and reduce the number of categories from the preparatory phase, (2) limit the subset to the component activities and participation and (3) weight the patients’ perspective as the most relevant one.

Conclusions By using consensus techniques and the NGT, the process led to 51 second-level ICF categories and reduce the number of categories from the preparatory phase, (2) limit the subset to the component activities and participation and (3) weight the patients’ perspective as the most relevant one. These decisions made in the consensus conference emphasised the importance of considering the individual life situation from a more holistic perspective and addressing functioning as a focus of care. Next, the 51 categories will contribute to the development of an ICF-based questionnaire.

BACKGROUND

A major task of primary healthcare is taking care of older patients in the community. With ageing the prevalence of multimorbidity and chronic conditions in terms of diagnoses increases. With an increase in chronic conditions, isolated treatment of each disease based on disease-specific guidelines almost inevitably leads to polypharmacy in multimorbid patients. With the number of drugs taken, especially in older adults, the risk of
drug–drug interactions and adverse drug reactions (eg, risk of falls) increases, which can lead to hospitalisations and even death.6 7 Instead of focusing on single disease entities in parallel, a more holistic approach focusing on functioning might be more appropriate when caring for multimorbid older patients.8–10 Before the functional health of older adults can become the focus of care, it must be assessed appropriately.

The International Classification of Functioning, Disability and Health (ICF) was published by the WHO in 2001 to provide a consistent and standardised language for describing functioning.11 It comprises the different components of body functions and structures, activities and participation, as well as personal and environmental factors that interact with one another. The ICF provides a comprehensive view of functioning. Apart from personal factors, which have not been further classified, the individual components of the ICF are divided into different levels in increasing detail (chapter, second, third and fourth-level categories).11

With more than 1400 categories in total, the ICF is far too extensive to be used in practice.12 To become usable, subsets of the ICF that only contain those categories that are relevant for a specific target group have been developed mainly in rehabilitation medicine following a development process recommended by the ICF Research Branch.13 Two ICF subsets for primary care and older patients have already been developed.14 15 However, the development did not follow the recommended methodology of the ICF Research Branch. Therefore, we set out to develop a subset of categories describing functioning of adults aged 75 and above in primary care. To limit further increase of workload for primary care providers, coding should ideally be facilitated by a questionnaire based on the categories and be filled out by patients.

**METHODS**

The ICF Research Branch proposes a process to standardise the reduction of the ICF into meaningful subsets for given purposes.13 The principle is to develop in a preparatory phase subsets of the ICF (so-called preliminary Core Sets) from the four different perspectives of (1) research (systematic review), (2) patients’ (qualitative study), (3) experts’ (survey) and (4) clinical perspective (assessment instruments). Out of the categories selected in the preparatory phase, a final subset should be formed in a consensus process before going into field-testing and validation (figure 1).13

All preparatory studies were performed to preselect from four different perspectives the relevant ICF categories for community-dwelling adults aged 75 and above. The preparatory phase was conducted as part of the project ‘Preventing Overdiagnosis in Primary Care’ (PRIPRICE, German Federal Ministry of Education and Research, grant number: 01GY1605). A detailed report on the methods and analysis from each of the four preparatory studies can be found in the corresponding scientific publications.16–19

The results of the preparatory studies were then compared in preparation for the consensus conference to show overlaps but also differences between the perspectives. Taking this comparison, the consensus process was designed as a standardised iterative decision-making and consensus process based on the Nominal Group Technique (NGT) method.20 Following the NGT, sessions with predefined discussion topics were set by the moderators based on the results of the preparatory phase.

**Recruitment of conference participants**

The strategy for selecting experts for the consensus process had to consider a balance between the need for expertise, multidisciplinarity and internationality on the one hand, and the feasibility of the decision-making process on the other hand. To be eligible for participation in the consensus process, experts had to meet the following criteria: (1) extensive expertise in the field of the ICF and/or caring for older adults and (2) they had to be fluent in English. Expertise in the field of primary care was welcome but not mandatory.
To achieve a broad representation of professional backgrounds and internationality, TK (male, head of the Institute of General Practice), who is very well connected in these areas, was asked to nominate experts who met the inclusion criteria. All of them were invited by TK via mail informing them of the intent to hold an online 1-day multidisciplinary international consensus conference to develop an ICF-subset for community-dwelling older adults. A total of eleven invitations were sent to the nominated international experts.

**Consensus process**

The 1-day online consensus conference was conducted on 2 July 2021. The conference was led by TK, LR and MS (both female, research assistants) were co-moderators. All three have profound knowledge of leading group discussions. JT and SW attended the conference to answer questions on the analysis of the preparatory studies.

The conference started with a condensed ICF workshop to give a general introduction to the structure of the ICF, its principles and its nomenclature, followed by a presentation of the results of the four preparatory studies. This was followed by a suggestion for the working procedure for the consensus process based on the NGT. The proposed procedure was accepted by all experts. The group size of seven participants was an optimal working size and was therefore not divided into further subgroups in the individual decision-making processes.

Based on the preparatory phase and following the NGT, the sessions with predefined discussion topics by the moderators were presented to the experts. Besides those, there was also room for further themes by the experts to be discussed. Each predefined topic was discussed in the plenary. All experts were allowed to argue and state their points, refer to each other’s answers and elaborate on the strongest arguments together. The moderators (TK, LR, MS), JT and SW did not participate in the discussions substantively. During this process, the key findings of each discussion were written down by the moderators and voted on in the next step. For the voting procedures, the moderators formulated a question summarising the results of the discussion, reflecting the most weighted statements in the sessions. In an open vote, the experts needed to agree or disagree. All experts had to agree to close a session and proceed with the next one. If not, the discussion had to be continued and a new voting question needed to be formulated until 100% agreement by the experts was reached. The moderators (TK, LR, MS), JT and SW were not allowed to vote.

LR and MS both took minutes of the conference independently of each other. After the conference, the minutes were compared, and supplemented to develop the final ICF-subset for community-dwelling older adults aged 75 and above in primary care as a basis for a questionnaire.

**Patient and public involvement**

In the preparatory studies, patients and physicians each had their say within the framework of one of the perspectives (patients’ perspective and experts’ perspective). The consensus study benefits from the participation of experts at the conference who discussed and gave feedback on the results of the preparatory studies.

**RESULTS**

The preparatory studies from the four perspectives each yielded different numbers and kinds of candidate categories of the ICF with some overlap but also differences. The systematic review identified 87,17819 the patients’ perspective 189,18 the clinical perspective 8716 and the experts’ perspective 6717 second-level categories. Table 1 shows the number of categories in each ICF component that were identified in the individual preparatory studies.16–19

Taking all four preparatory studies together, a total of 209 individual second-level categories were identified. Most categories were from the activities and participation component (n=76), followed by body functions (n=61), environmental factors (n=50) and body structures (n=22). Online supplemental table A summarises all individual second-level ICF categories identified in the preparatory phase as the basis for creating the ICF-subset.

Based on the comparison of the results from the preparatory phase, three sessions were predefined by the moderators to be discussed in the plenary: (1) size and level of detail, (2) restriction to components activities and participation, and (3) most relevant perspective(s) of the preparatory phase.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Identified second level categories from the preparatory studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component (n, %)</td>
<td>Systematic review (n=87)</td>
</tr>
<tr>
<td>Activities and participation</td>
<td>41 (47%)</td>
</tr>
<tr>
<td>Body function</td>
<td>24 (28%)</td>
</tr>
<tr>
<td>Body structure</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Contextual factors</td>
<td>20 (23%)</td>
</tr>
</tbody>
</table>

*Second level International Classification of Functioning, Disability and Health categories in total.*
Table 2  Participants’ characteristics by profession, country and expertise

<table>
<thead>
<tr>
<th>Background</th>
<th>Participants*, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional background, multiple answers possible</td>
<td></td>
</tr>
<tr>
<td>General practice</td>
<td>2</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>2</td>
</tr>
<tr>
<td>Gerontology</td>
<td>1</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>1</td>
</tr>
<tr>
<td>Rehabilitation medicine</td>
<td>2</td>
</tr>
<tr>
<td>Nursing sciences</td>
<td>1</td>
</tr>
<tr>
<td>Public health</td>
<td>1</td>
</tr>
<tr>
<td>Country, listed by WHO region</td>
<td></td>
</tr>
<tr>
<td>European region</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
</tr>
<tr>
<td>Belgium</td>
<td>1</td>
</tr>
<tr>
<td>Region Americas</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>1</td>
</tr>
<tr>
<td>Brazil</td>
<td>1</td>
</tr>
<tr>
<td>Expertise, multiple answers possible</td>
<td></td>
</tr>
<tr>
<td>Expertise in primary care</td>
<td>3</td>
</tr>
<tr>
<td>Expertise in care for older adults</td>
<td>6</td>
</tr>
<tr>
<td>Expertise in ICF</td>
<td>5</td>
</tr>
<tr>
<td>Fluency in English</td>
<td>7</td>
</tr>
</tbody>
</table>

*Answers based on n=7 participants in the International Classification of Functioning, Disability and Health (ICF) consensus conference.

Conference experts

Out of the eleven experts who were invited to participate in the consensus process, four declined because of other professional commitments or private reasons. The seven experts participating in the 1-day online consensus conference came from four different countries (out of WHO regions Europe and the Americas) and covered a variety of professional backgrounds (table 2). All experts had extensive knowledge either about primary care, caring for older adults and/or the ICF itself (working with the ICF and/or developing Core Sets).

Session 1: size and level of detail

In the first session, all experts agreed to work on the categories of the second level of the ICF. Here, the categories are specific enough, but not yet too fanned out. Furthermore, there was a quick agreement that the subset and the resulting questionnaire should be as short as possible for reasons of practicability for use in primary care (figure 2). Therefore, the number of categories should be reduced in the next steps. The starting point was the 209 individual second-level categories from the preparatory phase (online supplemental table A).

Session 2: restriction to components activities and participation

The component activities and participation has shown to be the most relevant in three of the four preparatory studies (table 1). Compared with the other components, most individual second-level categories had been identified in the field of activities and participation (n=76) (online supplemental table A). The expert panel supported the point that body functions and body structures traditionally already play a key role in medical consultations. Also, many physical limitations directly affect activities and participation and are therefore represented indirectly by the categories of the activities and participation component, for example, visual impairments (one corresponding ICF category being b210 Seeing functions, belonging to the component body functions) are associated with limitations in different activities (eg, the ICF categories d110 watching, d166 reading, d170 writing, belonging to the component activities and participation).

According to the expert panel, also contextual factors (personal and environmental factors) play an important role and can be both a facilitator and a barrier. However, with the intention of developing a questionnaire based on the ICF-subset for use in primary care in the following, the experts feared that a questionnaire cannot feasibly cover the variety of factors that might play a role. The panel suggested leaving out contextual factors in the ICF-subset and the resulting questionnaire. They recommended developing an additional interview guide for general practitioners (GPs) based on contextual factors. This guide might support GPs on how to explore contextual factors and help them to include these factors in the goal and decision-making process.

All experts agreed on focusing on the component activities and participation in the subset. The ICF-subset was reduced to 76 individual second-level ICF categories from the component activities and participation in the preparatory phase (figure 2).

Moreover, with the focus on the component activities and participation, the experts stated that the two qualifiers capacity (what the patients could do) and performance (what the patients do) should also be considered. Patients should be asked about their capacity rather than their actual performance. Accordingly, the items in the questionnaire, which will be developed in the next step based on the subset, should focus on the capacity.

Session 3: patients’ perspectives should be the most relevant

To further reduce the ICF subset, more restrictions had to be made. To achieve a leaner reduction process within the ICF consensus conference, it was suggested to initially focus only on the patients’ and experts’ perspectives. That proposal was adopted, and it was planned to align the categories with the other two perspectives later on.

The experts of the consensus conference voted that all codes that were mentioned by both, patients and experts, should be included in the questionnaire (n=26, online...
supplemental table B). Some codes such as d360 Using communication devices and techniques and d475 Driving were mentioned by a large part of patients (85% and 78%, online supplemental table B), however, not by experts. The experts of the consensus conference emphasised that the patients’ perspective should be the most important one and thus should carry more weight. The experts’ perspective contained far fewer categories than the patients’ perspective. All categories from the experts’ perspective were also represented from the patients’ perspective. All experts finally voted that all categories overlapping between patients’ and experts’ perspectives should be included. Additionally, all categories that were identified in more than four interviews were considered important and thus included in the subset. As a result, 23 categories exclusively identified from the patients’ perspective were added to the categories showing up in both lists. Categories 50–73 (online supplemental table

Figure 2 Results of the decision-making process during the consensus conference. ICF, International Classification of Functioning, Disability and Health.
This process arguably led to the identification of the most relevant categories for community-dwelling older adults aged 75 and above to capture functioning in primary care. Nevertheless, in developing the ICF-subset, there were also some challenges and limitations that should be considered. The limitations based on the results of the preparatory studies have already been discussed in the corresponding publications.16–19

The methodology of the consensus process as proposed by the ICF Research Branch demands the inclusion of experts from all WHO world regions and an equal distribution across professional disciplines in a multi-day meeting, 21–24 participants are suggested as the ideal number of participants.13 The PRO PRICARE project ended after the preparatory phase, making it impossible to arrange a full consensus conference according to the proposed methodology. However, we already had a first use case for the development of an ICF-based questionnaire in the project ‘Health Coordination Office’ (Bavarian State Ministry of Health and Care, grant number: KI-2496-IMV-21-V2-D28259/2021). We, therefore, decided to hold a smaller consensus conference based on the evidence collected in the preparatory phase to distill a unified ICF-subset as a basis for the questionnaire. Of the seven experts recruited, four were from Germany and only three were from different countries, which gives an over-representation of German experts and a lack of experts from some world regions. Nevertheless, with the aim of developing an assessment tool for the primary care setting in Germany, we see the surplus of German experts as positive in the sense that they have extensive knowledge of the German healthcare system and practices, to discuss those in the development process with the experts from the different countries. Furthermore, we considered diversity in terms of the professional backgrounds of the experts. With this in mind, we decided that the seven experts we were able to recruit, including four experts from Germany and three from other countries, were well suited to discuss the findings of the four preparatory studies and reach a consensus on various issues. We believe that the combination of their knowledge of the German health system, their perspectives from different countries and their different professional backgrounds provided a valuable and comprehensive view of the topic at hand. However, we have to stress that a higher number of participating experts, including further cultural and social backgrounds, might have voted differently and would have increased the external validity for a worldwide subset which is globally applicable. In our case, the developed ICF-subset in this study can be seen as applicable and specifically tailored to the German context, based on the number and backgrounds of the experts involved in the consensus process.

In the consensus process, we have opted for a collective decision-making process based on plenary sessions. While we acknowledge that this approach methodologically leads to a higher degree of homogeneity, we believe that it allowed us to take a more comprehensive view of the

### Table 3: Number of second level International Classification of Functioning, Disability and Health (ICF) categories in the final ICF-subset sorted by chapters

<table>
<thead>
<tr>
<th>ICF chapter of component activities and participation</th>
<th>Number of second level ICF categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and applying knowledge</td>
<td>8</td>
</tr>
<tr>
<td>General tasks and demands</td>
<td>2</td>
</tr>
<tr>
<td>Communication</td>
<td>5</td>
</tr>
<tr>
<td>Mobility</td>
<td>13</td>
</tr>
<tr>
<td>Self-care</td>
<td>7</td>
</tr>
<tr>
<td>Domestic life</td>
<td>6</td>
</tr>
<tr>
<td>Interpersonal interactions and relationships</td>
<td>5</td>
</tr>
<tr>
<td>Major life areas</td>
<td>2</td>
</tr>
<tr>
<td>Community, social and civic life</td>
<td>3</td>
</tr>
</tbody>
</table>
decisions that were made, as all experts were able to share their views and contribute to the discussion. The moderators always waited until a consensus seemed to emerge in the discussion and all experts had the opportunity to present their arguments. Nevertheless, the open voting process may have led to influencing some participants.

Moreover, due to the COVID-19 pandemic situation in the summer of 2021 and due to the restrictions of meetings in our university hospital setting at this point of the pandemic, we opted for an online conference instead of a multi-day meeting. With all participants already having experience in the online format we expected no relevantly different outcome due to the limited format of our consensus conference in contrast to a conference as proposed by the ICF Research Branch.

Instead of a multi-day consensus conference, we opted for a 1-day meeting. At the end of the conference, we discussed with the experts whether an evaluation or a second meeting would be necessary. According to the experts, there was no need for further evaluation or another meeting as they have extensively discussed all aspects, and a consensus has been reached on all points. They also stressed that the upcoming steps should prioritise engaging patients and physicians in further discussions since the identified subset will form the basis of a questionnaire to be used in primary care consultations.

The first decision in the consensus process was to limit the subset to second-level ICF categories to reduce the number of categories as much as feasible. This voting followed the challenge of ICF-subset development in integrating as many categories as necessary to cover relevant aspects of functioning, but as few categories as possible to be manageable in practice. Other studies that developed subsets of the ICF also faced this challenge. Moreover, the consensus conference panel voted on focusing on the categories of the activities and participation component in the development of the subset. This decision highlighted the importance of including the individual life situation of older adults in a more holistic perspective in primary care. Due et al showed that, for example, lonely patients only rarely shared their problems with their GPs and that there is a need for approaches to include those aspects in the consultation.

In the component activities and participation, there was a greater difference between the selected categories from the preparatory studies in comparison of the patients’ and experts’ perspectives. Patients identified considerably more relevant categories related to activities and participation are not already available for the physicians. On the other hand, categories related to activities and participation are not as obvious in the consultation and are therefore of particular importance when caring for older people.

**CONCLUSION**

The consensus process identified 51 second-level ICF categories relevant to describe the functioning of community-dwelling older adults. The experts prioritised the patients’ perspective as the most important and voted to focus on the ICF component of activities and participation to provide a more holistic perspective in primary care. These categories will be used to develop an ICF-based questionnaire for community-dwelling older adults.

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degree ‘Dr rer. biol. hum.’ for LR at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU).

Contributors TK designed the study. All authors (LR, JT, SW, TK, MS) prepared the consensus conference. The conference was led by TK. LR and MS were co-mod erators. JT and SW attended the conference to answer questions on the analysis of the preparatory studies. LR and MS both took minutes of the conference independently of each other, summarised the data and drafted the manuscript. All authors reviewed the manuscript and approved it for submission. LR is the author acting as guarantor.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and the study protocol for the preparatory phase was reviewed and approved from the ethics committee of the Friedrich-Alexander-Universität Erlangen-Nürnberg (file number 90_17 B). Since no patients were involved in the consensus conference, no further ethical review for the consensus conference was required. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Author note The present work was performed in (partial) fulfilment of the requirements for obtaining the degree ‘Dr rer. biol. hum.’ for LR at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU).

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