

The International Classification of Functioning, Disabilities, and Health Categories Necessary for Care Planning for Older Patients with Heart Failure: A Survey of Care Managers in Japan

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Abstract

Background: Establishing an information-sharing system between medical professionals and welfare/care professionals may help prevent heart failure (HF) in community-dwelling older adults. Therefore, we aimed to identify the ICF categories necessary for care managers to develop care plans for older patients with HF.

Methods: A questionnaire was administered to 695 care managers in Hiroshima, Japan, on ICF items necessary for care planning. We compared the care managers according to their specialties (medical and welfare). Furthermore, we created a co-occurrence network using text mining, regarding the elements necessary for collaboration between medical and care professionals.

Results: There were 520 valid responses (74.8%). Forty-nine ICF items, including 18 for body functions, one for body structure, 21 for activities and participation, and nine for environmental factors, were classified as "necessary" for making care plans for older people with HF. Medical professionals more frequently answered "necessary" than care professionals regarding the 11 items for body functions and structure and three items for activities and participation ($p < 0.05$). Medical–welfare/care collaboration requires (1) information sharing with related organisations; (2) emergency response; (3) a system of cooperation between medical care and non-medical care; (4) consultation and support for individuals and families with life concerns, (5) management of nutrition, exercise, blood pressure and other factors, (6) guidelines for consultation and hospitalisation when physical conditions worsen.

Conclusions: Our findings showed that 49 ICF categories were required by care managers for care planning, and there was a significant difference in perception between medical and welfare/care professionals.

Background

Heart failure (HF) is a rapidly increasing global epidemic associated with high morbidity. In Japan, the number of patients with HF continues to increase as the population ages, and it is estimated that the number of cases will exceed 1.3 million by 2030 [1,2]. In addition, there is an increasing number of older people with HF facing various problems such as frailty, dementia, and living alone. A recent HF registry study in Japan showed that 39.2% of patients with HF were aged ≥ 85 years, and 21.7% lived alone [3,4]. Social support and information sharing may prevent rehospitalisation for HF [5,6], and establishing an information-sharing system between medical and welfare/care professionals in the community is an urgent issue.

The Japanese Heart Failure Society recommends using the International Classification of Functioning, Disabilities, and Health (ICF) for a comprehensive assessment of health conditions and functioning [7]. The ICF is a health and health-related framework published by the World Health Organization in 2001, which classifies the human life into approximately 1600 codes. The ICF consists of five domains: health status, physical and mental functioning and structure, activity and participation, environmental factors,

and individual factors. In Japan, the ICF is expected to be used as a common language between medical and welfare/care professionals.

In Japan, under the long-term care insurance system, care managers prepare a home care plan [8-10]. Therefore, for older patients with HF to live in their community, an information-sharing system on HF is important for care managers, based on the ICF.

This study aimed to identify the ICF categories necessary for care managers to develop a care plan for older patients with HF.

Methods

Participants

We recruited 695 care managers from the Hiroshima Care Manager Association in Japan. Among the study participants, we excluded those who did not consent to the research and did not respond to the questionnaire survey. Hiroshima Prefecture has one of the most standardised population distributions in Japan and is an indicator region for policies regarding older people.

Data collection and measures

The study design employed a questionnaire survey. The survey period was from August to December 2020. We explained the purpose and content of the study to participants at a training session for care managers; the questionnaire was then distributed and the completed questionnaires collected. The questionnaire was based on the ICF checklist and developed according to the methodology of the ICF core set [11-14]. An expert panel consisting of multidisciplinary team members (two cardiologists, two nurses, two physical therapists, one occupational therapist and one care manager) discussed HF-specific ICF categories to be added to the ICF checklist. The members of the expert panel had extensive experience in medical care and rehabilitation of older patients with HF. In total, 143 categories were included in the questionnaire: 39 body function, 18 body structure, 54 activity and participation, and 32 environmental factor categories. In addition, we received open-ended responses to the question regarding the elements necessary for medical care coordination.

Statistical analysis

We calculated percentage scores after a simple tabulation of the data. The cut-off value for each ICF category was set at 50%, based on previous studies [11,13,14,16-21]. Next, we compared the ICF categories of care managers with medical qualifications and those with care or welfare qualifications. Data analysis was performed using the Japanese version of SPSS for Windows (version 23.0; IBM Corporation, Armonk, NY, USA), and statistical significance was set at $P < 0.05$. Demographics and percentage scores of ICF categories were evaluated between the groups using χ^2 analysis. For the free text, we analysed the data using a text-mining method and KH Corder (Version 3. Aloha 1.7k), a software

program used for quantitative content analysis which supports Japanese text [22-23]. The text-mining data were used to calculate frequently-used words and create a co-occurrence network.

Ethical considerations

We obtained approval from the Hiroshima University of Epidemiological Research Ethics Review Board (approval number: E-2217). The survey participants were informed in the survey request letter that personal information would be handled and that there would be no disadvantage if they refused to participate in the survey. They were also informed that their consent to the survey would be granted by completing and returning the survey. This study was supported by MHLW Comprehensive Research on Statistical Information Program Grant Number JPMH20AB1002.

Results

We received 520 responses from the participants (response rate: 74.8%). Table 1 shows the basic qualifications of the care managers. The majority were care workers (348; 63.0%), followed by social workers (96; 17.4%), and nurses (38; 6.9%). None of the participants were doctors or dentists. The average duration of work experience was 9.6 ± 5.0 years.

Forty-nine ICF categories were identified as "necessary" for care planning in older patients with HF by at least 50% of the participants: 18 body function categories, one body structure category, 21 activity and participation categories, and nine environmental factor categories (Tables 2,3,4). The proportion of participants who answered "necessary" was significantly higher in the medical qualification group for 10 body function categories, one body structure category, and three activity and participation categories, than in the welfare/care group. There was no significant difference in the environmental factors between the two groups.

Regarding the co-occurrence network, the necessary elements for medical care coordination were classified into nine subgraphs (Figure 1). The most frequently used words were "Information", "Share", "Collaboration", "Life" and "Think". We classified these nine subgraphs into six subgroups: (1) information sharing with related organisations; (2) emergency response; (3) a system of cooperation between medical facilities and care facilities; (4) consultation and support for the thoughts and concerns of the patient and family about life, (5) management of nutrition, exercise, blood pressure, and other factors, (6) guidelines for consultation and hospitalisation when physical conditions worsen.

Discussion

Clarification of ICF categories for Care Management

In this survey, we found that 49 ICF categories were necessary for care managers to develop a care plan for older patients with HF. The ICF categories in this study matched the 19 categories of the ICF core set for chronic ischaemic heart disease in a previous study [14]. Furthermore, 43 ICF categories in this study

were consistent with those in our previous study of cardiac rehabilitation instructors [24]. One explanation for the difference between the ICF core set for chronic ischaemic heart disease and the results of the present study is that the ICF categories specific to older people may have been selected because the present study included older patients with HF. In contrast, approximately 90% of the ICF categories in this study matched those selected by the cardiac rehabilitation instructors in our previous study. Therefore, we suggest that the 43 matching ICF categories are necessary for information sharing for medical and care coordination.

Differences in body functions assessment between medical and welfare professionals

There was a significant difference in the ICF categories considered necessary between medical and welfare or care professionals. Since about 80% of the care support professionals in Japan are care workers, and the participants of this study had similar proportions, it is reasonable to assume that the results of this study reflect the nationwide trend in Japan. In the ICF categories of body function and health care, those in the medical qualifications group were found to have a higher awareness of assessment than those in the welfare or care qualifications group. Lack of medical knowledge among care managers is seen as a problem when sharing information with visiting nurses and home physicians [25]. It was suggested that medical terminologies should be explained in an easy-to-understand manner when proposing a care plan to a care manager with a welfare/care licence. In addition, education on the management of diseases, such as HF, for care managers with welfare care qualifications is an issue [26].

Necessary elements for collaboration between medical and welfare/care professionals

The results of the co-occurrence network show that care managers need medical and care systems, heart failure management, elderly care, community networks, and advanced care planning. The European Society of Cardiology guidelines also recommend disease management, including multidisciplinary intervention, exercise therapy, and self-monitoring [27]. It is beneficial to share information on these elements in addition to ICF categories. Future studies should incorporate the findings of this study into the construction of a network to enable the creation of a more effective and efficient information sharing and communication technology for the prevention of HF [28].

Limitations

This study has several limitations. First, because our study was conducted with care managers in Hiroshima Prefecture, it is difficult to generalise the results to HF care facilities throughout Japan or overseas. Second, in this survey, more than 80% of the respondents were in the welfare/care workers, and it is undeniable that there is occupational bias in the responses. Third, since a questionnaire survey for professionals was used, the appropriateness of the selected ICF categories should be verified using actual measured data. In future, it will be necessary to establish an ICF evaluation method that can be commonly used by medical and care providers, and to build an effective information-sharing system in regional networks.

Conclusions

The findings of our study showed that 49 ICF categories were required by care managers for care planning, and there was a significant difference in perception between care managers in medical professions and those in welfare professions.

List Of Abbreviations

ICF: International Classification of Functioning, Disabilities, and Health; HF: heart failure;

Declarations

Ethics approval and consent to participants

We obtained approval from the Hiroshima University of Epidemiological Research Ethics Review Board (approval number: E-2217). As the data we obtained were anonymised, no consent was required.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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Authors' contributions

SS initiated the research design, data collection, analysis, interpretation and writing. TK and TH assisted with the research design, selection of research questions and interpretation of results. NG assisted with data analysis. NM, KK, MN and HT assisted with the selection of research questions. MM and HO were responsible for recruitment of research participants and collection of data. YN, YK and HK contributed to the interpretation of the results. All authors approved the final version of the manuscript and are responsible for all aspects of the work.

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Tables

Table 1: Basic qualifications of the participants (n=520)

Basic qualifications of care managers	n	%
Medical qualifications		
Pharmacists	1	0.2
Public health nurses	11	2.0
Nurses	38	6.9
Practical nurses	12	2.2
Physiotherapists	5	0.9
Occupational therapists	2	0.4
Dietitians	6	1.1
Dental hygienist	11	2.0
Care or welfare qualifications		
Social workers	96	17.4
Psychiatric social workers	4	0.7
Care workers	348	63.0
Others	2	0.4
Unfilled	16	2.9
Total	552	100.0

Note: There is overlap because some participants have double or triple licences.

Table 2: ICF categories of body function and body structure that were considered relevant by $\geq 50\%$ of participants

ICF categories		Total	Medical qualifications	Welfare or care qualifications	p
b110	Consciousness function	55.2%	69.0%	52.8%	0.025
b114	Orientation function	55.4%	66.7%	53.5%	0.078
b130	Energy and drive function	56.2%	65.5%	54.2%	0.070
b134	Sleep function	51.7%	67.8%	47.7%	0.01
b164	Higher-level cognitive functions	50.2%	67.8%	47.2%	0.007
b280	Pain function	73.1%	78.2%	72.4%	0.498
b410	Heart function	78.1%	90.8%	75.1%	0.001
b415	Blood vessel function	56.5%	74.7%	52.8%	0.01
b420	Blood pressure function	73.8%	89.7%	70.3%	0.01
b440	Respiration function	68.3%	81.6%	66.2%	0.028
b455	Exercise tolerance function	73.1%	86.2%	71.0%	0.030
b460	Sensations associated with cardiovascular and respiratory functions	76.2%	86.2%	74.6%	0.090
b525	Defaecation function	66.9%	80.5%	65.0%	0.059
b530	Weight maintenance functions	63.1%	79.3%	60.2%	0.006
b545	Water, mineral and electrolyte balance functions	56.3%	77.0%	52.0%	0.01
b620	Urination function	81.5%	87.4%	80.8%	0.392
b710	Mobility of joint function	56.5%	58.6%	56.4%	0.865
b730	Muscle power function	56.7%	65.5%	54.9%	0.093
s410	Structure of the cardiovascular system	54.2%	67.8%	51.3%	0.007

The bold items indicate significant differences between participants with medical qualifications and welfare or care qualifications.

Table 3: ICF categories of activity and participation that were considered relevant by $\geq 50\%$ of participants

ICF categories		Total	Medical qualifications	Welfare or care qualifications	p
d177	Making decisions	70.0%	80.5%	68.8%	0.239
d230	Carrying out daily routine	60.4%	73.6%	57.8%	0.015
d240	Handling stress and other psychological demands	55.2%	70.1%	51.8%	0.002
d310	Communicating with-receiving-spoken messages	60.6%	72.4%	58.8%	0.087
d330	Speaking	54.2%	63.2%	52.8%	0.075
d350	Conversation	63.8%	71.3%	62.8%	0.332
d420	Transferring oneself	58.3%	65.5%	57.1%	0.266
d450	Walking	86.3%	86.2%	86.3%	0.725
d510	Washing oneself	64.4%	70.1%	63.3%	0.286
d520	Caring for body parts	51.3%	54.0%	50.6%	0.493
d530	Toileting	77.9%	82.8%	77.2%	0.461
d540	Dressing	62.9%	66.7%	61.9%	0.335
d550	Eating	81.9%	86.2%	80.8%	0.187
d560	Drinking	77.5%	78.2%	77.0%	0.567
d570	Looking after one's health	76.5%	85.1%	74.6%	0.034
d620	Acquisition of goods and services	53.5%	62.1%	52.3%	0.276
d630	Preparing meals	63.8%	70.1%	62.8%	0.332
d640	Doing housework	62.3%	64.4%	62.1%	0.852
d710	Basic interpersonal interactions	62.7%	73.6%	61.2%	0.113
d760	Family relationships	74.8%	81.6%	73.6%	0.210
d920	Recreation and leisure	50.4%	52.9%	50.1%	0.808

The bold items indicate significant differences between participants with medical qualifications and those with welfare or care qualifications.

Table 4: ICF categories of environmental factors that were considered relevant by $\geq 50\%$ of participants

ICF categories		Total	Medical qualifications	Welfare or care qualifications	p
e310	Immediate family	89.8%	89.7%	90.2%	0.585
e315	Extended family	66.7%	66.7%	67.1%	0.686
e320	Friends	66.5%	66.7%	66.7%	0.901
e325	Acquaintances, peers, colleagues, neighbours, and community members	61.3%	66.7%	61.2%	0.854
e340	Personal care providers and personal assistants	53.3%	51.7%	53.7%	0.680
e355	Health professionals	58.7%	64.4%	57.1%	0.141
e410	Individual attitudes of immediate family members	73.7%	74.7%	73.9%	0.829
e575	General social support services, systems, and policies	59.8%	63.2%	60.0%	0.893
e580	Health services, systems, and policies	58.5%	58.6%	59.2%	0.473

Figures

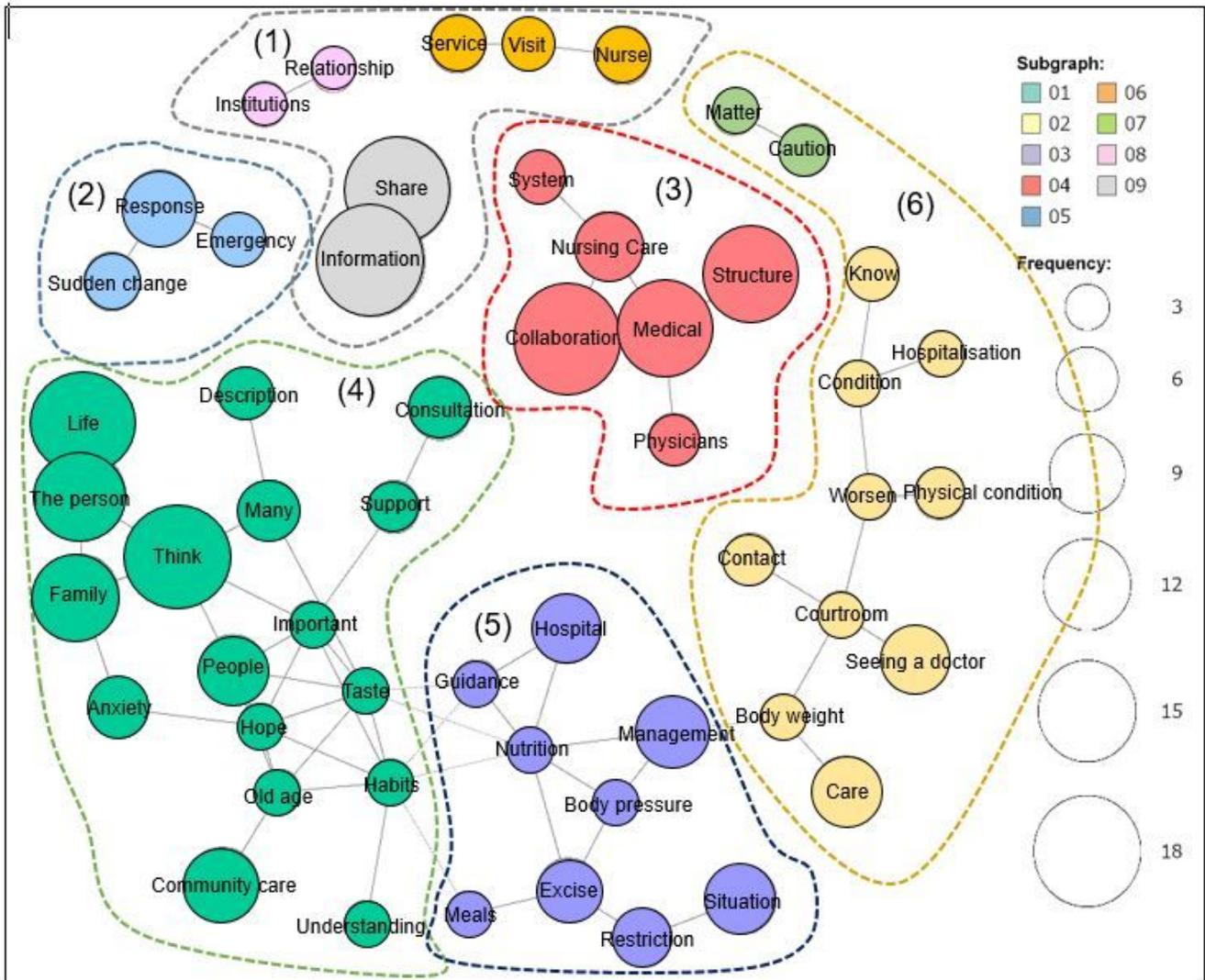


Figure 1

Co-occurrence network of words: necessary elements for medical care coordination. The size of the circle indicates the number of times the word appears. Word-to-word connections indicate the strength of the connections before and after the free text.