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Original Article

Work ability literacy among occupational health nurses. A qualitative study

Soile Seppänen[1,2], Timo Leino[3], Elina Weiste[3], Jaana Laitinen[3]

[1] Finnish Institute of Occupational Health, Helsinki, Finland and
[2] University of Oulu, Center for Life Course Health Research, Oulu, Finland
[3] Finnish Institute of Occupational Health, Helsinki, Finland

ABSTRACT

Objectives: The study aimed to develop and test the work ability literacy concept, and to evaluate the effect of a counselling training intervention on occupational health nurses' work ability literacy. We investigated how the occupational health nurses defined the concept of work ability literacy on both a personal level and when working with clients in occupational health check-ups at baseline, and whether their concept definition changed after the counselling training intervention.
Methods: Qualitative content analysis of occupational health nurses' answers to open-ended questions on work ability literacy.
Results: The occupational health nurses' concept of work ability literacy was broader and more defined after the intervention. The number of responses to work-related issues increased. The nurses began to find more means to support their own work ability. In client work, the counselling training promoted development from being a passive listener to an active supporter of the client's actions to meet their own goals.
Conclusions: The work ability literacy concept shifted the focus of occupational health check-ups towards empowering the client to maintain and improve their own work ability and health. We propose the use of the work ability literacy concept for improving the effectiveness of counselling in occupational health services.

Keywords: occupational health practice; work ability literacy; health plan; occupational nurses; work ability promotion; counselling; occupational health check-up

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Corresponding author

Soile Seppänen
soile.seppanen@ttl.fi

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Introduction

Finland has well-developed occupational health services [OHS], which cover 85% of the 2.3 million workforce. Annually, OHS perform over one million health check-ups in Finland [1], the objective of which is to promote health and work ability [2]. These are mostly conducted by occupational health nurses [OHNs].

Work ability is a comprehensive, resource-driven concept. One way of conceptualizing and visualizing it is the 'Work Ability House' [3], a model in which the resources are a person's health, motivation, competence, professional skills, and acting according to one's own values. The effects of different work and occupations place demands on work ability and health, and environmental factors also affect work ability [4,5]. Different work tasks and occupations have different effects and demands on health and work ability, and thus the promotion of work ability means that solutions should be tailored according to the occupation and work. For example, health promotion intervention studies of workers in physically strenuous work have shown to be effective if the physical activity training is tailored according to the demands of the work tasks [6].

Maintenance of good work ability throughout the working career is a key goal of Finnish OHS. Counselling during occupational health [OH] check-ups mostly focuses on lifestyle, work ability and functional capacity, and less on work and working conditions [7], although these are equally important. In addition to the contents, the counselling skills, methods and interaction, and the ability of the OHN to tailor the counselling according to the client's stage of change process are of great importance for enhancing the effectiveness of counselling [8]. Many types of interventions have been tested in primary care to improve health literacy for chronic disease behavioural risk factors, but not directly for work ability [9].

The idea of studying work ability literacy came up in our study team when we were discussing how to improve OHNs motivational counselling skills. The roots of the work ability literacy concept lie in health promotion and the concept is closely related to that of health literacy. Health literacy can be used to measure the impact of a health promotion intervention [10]. Its measures include health-related knowledge, attitudes, motivation, behavioural intentions, personal skills, and self-efficacy. Improving health literacy through counselling can empower individuals to take better care of their health. We suggest broadening the health literacy concept to include the promotion of work ability in the work

of OHS in order to improve the effectiveness of their measures. Thus, as a starting point, we present a new concept called *work ability literacy.* This causes a change in the paradigm of the counselling in health check-ups from the evaluation of health status and the effects of work-related factors on health to work ability literacy. Work ability literacy can be used as a concept or framework in the promotion of work ability. When it is used, it improves the tailoring of counselling to the effects and demands of work on health and work ability. To our knowledge, this is the first time this concept has been used in research.

In order to develop this concept, we were interested in how the OHNs define it, because they as professionals conduct most of the health check-ups in Finland. This knowledge is also needed in order to further develop effective interventions to improve OHNs' counselling and interaction skills with their clients. We considered a qualitative research approach, framed by a naturalistic paradigm, which is appropriate for this study, as we wanted to identify the variety of ways in which the participants in our data construct the meaning of the concept [11]. This was important as we found no previous studies on this topic that could have guided our inquiry. This was also the reason why we wanted to study text data in the form of open-ended questions, as they do not have as much influence on the answers as structured questions might have.

Therefore, the objective of this study was to develop and test the work ability literacy concept, and to evaluate the effect of a motivational counselling training intervention on OHNs' work ability literacy. In this study, work ability literacy refers to: 1] How well an OHN understands the requirements and effects of their work on their own health, health behaviour and ability to function at work, and 2] How well an OHN is empowered to take these requirements into account and act upon them both personally and in their own profession when counselling a client during a health check-up. We were interested in how OHNs defined the concept of work ability literacy both on a personal level and when counselling clients during OH check-ups, and how this changed after the intervention.

Methods

Study protocol

This study was a sub-study of a larger intervention study [http://urn.fi/URN:ISBN:9789522619174] [12] in which we used a stepped-wedged design to study whether the motivational counselling and use of a written health plan in OH check-ups influenced employees' work ability, perceived health, and resources for continuing to work.

The study was conducted during 1 April 2016–31 May 2018. The trial was registered before the start of the study at the Nederland's Trial Register [https://www.trialregister.nl/trial/5620] under the number 5620, on 28 April 2016. The study was approved by the Hospital District of Helsinki and Uusimaa Coordinating Ethics Committee in February 2016.

Participants

Our focus in this sub-study was the OHNs from the OH units in the larger study. They participated voluntarily, were female, Finnish-speaking, experienced, and used to expressing themselves in writing. We did not limit ourselves to female nurses, but Finnish OHS has very few male OHNs, and none of whom participated. The mean age of the OHNs was 46 and mean perceived work ability 8.5, measured by a question about their current perceived work ability on a scale of 0–10, 10 indicating lifetime best work ability. [13,14] Table 1 presents the characteristics of OHNs.

Table 1. Characteristics of occupational health nurses

OHN	Age	Gender	Worked in OH service in years	OH service type	Location of the clinic by province
1	41	Female	5-10	Private	Uusimaa
2	60	Female	more than 10	Private	Uusimaa
3	44	Female	more than 10	Private	Uusimaa
4	32	Female	5-10	Private	Northern Savonia
5	45	Female	5-10	Private	Northern Savonia
6	46	Female	more than 10	Private	Southern Savonia
7	57	Female	more than 10	Private	Southern Savonia
8	33	Female	over 2 but less than 5	Private	Uusimaa
9	56	Female	5-10	Private	Uusimaa
10	35	Female	over 2 but less than 5	Private	North Ostrobothnia
11	55	Female	more than 10	Private	North Ostrobothnia
12	31	Female	over 2 but less than 5	Private	North Ostrobothnia
13	55	Female	more than 10	Private	Southern Savonia
14	41	Female	more than 10	Private	Southwest Finland
15	52	Female	more than 10	Public	Uusimaa
16	43	Female	over 2 but less than 5	Public	Uusimaa
17	54	Female	5-10	Public	Uusimaa
18	52	Female	over 2 but less than 5	Public	Uusimaa
19	41	Female	more than 10	Public	Uusimaa
20	52	Female	more than 10	Private	Uusimaa
21	54	Female	more than 10	Private	Central Finland
22	42	Female	5-10	Private	Central Finland

Counselling training

Altogether 37 OHNs from 22 OH clinics participated in the counselling training intervention. The training consisted of two half-day theoretical and practical periods and online assignments on motivational counselling, work ability literacy and making a written health plan together with the client. The Work ability house was used as a framework for the work ability concept [4].

Because all the participating OHNs were experienced in counselling, the training focused on strengthening their counselling skills and improving their interaction with their clients in addition to the use of a written health plan. The framework for their training was the experiential learning cycle [15], the constructivist concept of learning [16] and the transtheoretical change process model [17].

The questions

As part of the study protocol, the OHNs responded to the questionnaire before and after (6 and 12 months) the training intervention. The material used in this sub-study consisted of responses to the questions (Q1) 'Write down your own understanding of work ability literacy' and (Q2) 'Write down your own understanding of work ability literacy in client work' (OH check-ups). We only included responses by the same person to both Q1 and Q2 before and after the intervention (6- or 12-month follow-ups). Of the 37 OHNs, 22 answered the first and 21 the second question. The questions were open-ended. The researchers did not influence the responses through time pressure or in any other way.

Data processing and analysis

We used qualitative, conventional content analysis [18, 19]. First, the researchers read the responses. The responses were pseudonymized and brought to qualitative data analyses using Atlas. fi software. We used the qualitative data analyses software coding function to simplify the responses and capture their key points. The unit of analysis was the whole answer to the question. However, in cases in which an OHN had responded at both 6-month and 12-month follow-ups, the responses were treated as one.

Each response was assigned one or more codes describing its content. Second, the coded expressions were grouped into categories. As the existing theory on the phenomenon was limited, we avoided preconceived categories, and derived our categories directly from the data [11]. At this phase of the analysis, we created two main categories:

expressions related to the 1) content of work ability literacy and 2) measures promoting work ability. This classification was developed by SS during discussions with TL, JL and EW. Divergent views were discussed, the final coding was formulated, and the responses were placed into different categories. Finally, for Q1 and Q2, the ranking of the responses before and after the counselling training intervention was examined on the basis of what content was given to the work ability literacy concept (Table 2) and the level of measures to promote work ability (Table 3).

Table 2. Occupational health nurses' understanding of the content of work ability literacy before and after intervention training

Subcategory		**Q1 Work ability literacy in own work**		**Q2 Work ability literacy in client work**	
No	Name	Before IT	After IT	Before IT	After IT
1	Health, lifestyle and functional ability	6	4	7	6
2	Personal attributes such as motivation, values, skills and resources	4	3	2	1
3	Life situation	2	2	2	2
4	Work-related issues	10	15	9	11
5	Multifactorial work ability	3	10	5	14
	- affecting factors mentioned	1	7	3	7
	- affecting factors not mentioned	2	3	2	7
6	Personal feelings during the working day	3	0	0	0
7	Content lacking from response	3	1	6	1

Table 3. Work ability literacy in occupational health nurses' own health behaviour/actions and when counselling clients in health check-ups before and after intervention training (IT)

Subcategory number	Q1 Work ability literacy in own work	Before IT	After IT
1	Recognition factors that influence work ability, but no actions mentioned	14	12
2	Restricting workload	5	1
3	Searching extensively for ways to maintain and improve work ability	3	9
	Q2 Work ability literature in client work		
1	Understanding client's work ability	12	3
2	Increasing client's awareness of work ability	2	7
3	Helping client make a change	7	11

Results

We present the results regarding work ability literacy and its changes from baseline to 6 or 12 months expressed in the nurses' responses as those related to 1) the content (Category 1) and 2) the activity level of work ability promotion (Category 2).

Category 1. Content of work ability literacy

The work ability literacy contents were classified into seven different subcategories (Table 1): 1) health, lifestyle and functional ability; 2) personal attributes such as motivation, values, skills and resources; 3) impact of life situation on work ability; 4) impact of work-related issues on work ability; 5) work ability as an entity including both work demands and two to three aspects from subcategories 1–3; 6) personal feelings during the working day; and 7) content missing from response.

Most commonly, work ability literacy was related to health, personal attributes and life situation) subcategories 1–3). The OHNs described work literacy as follows: 'Awareness of you own resources, ability to face situations and cope with them. Knowing and accepting your limitations.' and 'Acknowledging the client's life situation, health and lifestyle issues and motivation/attitude in a comprehensive way.' (Q2).

The number of responses that included work-related issues (subcategory 4) increased from 10 to 15 after the training, particularly with regards to how work ability was

seen in terms of one's own work. 'Work ability literacy means recognizing the dangers/threats of work and the opportunities for one's own health and well-being.' (Q1). (OHN 8, aged 33). There was also a small shift towards taking work-related issues into account in client work responses. One respondent (OHN 2, aged 60), for instance, stated: 'I can relate my client's coping and health challenges to their work and work tasks. I can get the client to tell me things so that I can make judgments about their ability to do their specific job.' (Q2).

The training clearly broadened the OHNs' definition of their own work ability literacy (subcategory 5). Responses describing not only work demands but other aspects (health, personal attributes or impact of life situation) also increased from one answer to seven answers in this subcategory. As an example of a broad definition, one respondent concluded 'For me, it means managing my own work, considering my own resources; health and a healthy lifestyle; leisure time that helps recovery and hopefully brings a sense of empowerment to work.' (Q1) (OHN 7, aged 57). The same change was also observed in the responses to client work. 'Work ability extends beyond health and functional capacity to a broader range of issues, such as work and working conditions, motivation to work, and skills, which should be addressed in addition to health/illnesses in interactions with the client during health check-ups.' (Q2) (OHN 17, aged 54).

Answers that could be interpreted as containing a comprehensive work ability concept but that mentioned no specific dimensions diminished during the intervention in both the nurses' own work and the client's work: 'For me, work ability literacy means comprehensive consideration of matters.' (Q1) (OHN 5, aged 45). 'Understanding and interpreting all matters related to the ability to work.' (Q2) (OHN 7, aged 57).

Before the training intervention, three responses regarding the nurses' own work ability literacy were classified into subcategory 6, meaning that they only contained expressions of personal feelings during the working day. One respondent (OHN 11, aged 55) wrote: 'It is what I feel at work.' (Q1). After the training, this subcategory had no responses.

Six responses before the training did not address the content of the term work ability literacy at all (subcategory 7). One respondent (OHN 18, aged 52), for instance, defined work ability literacy simply as 'Understanding the matters related to the ability to work.' (Q1). Only one response remained in this subcategory after the training in relation to client work, but also when the OHNs defined it in relation to themselves.

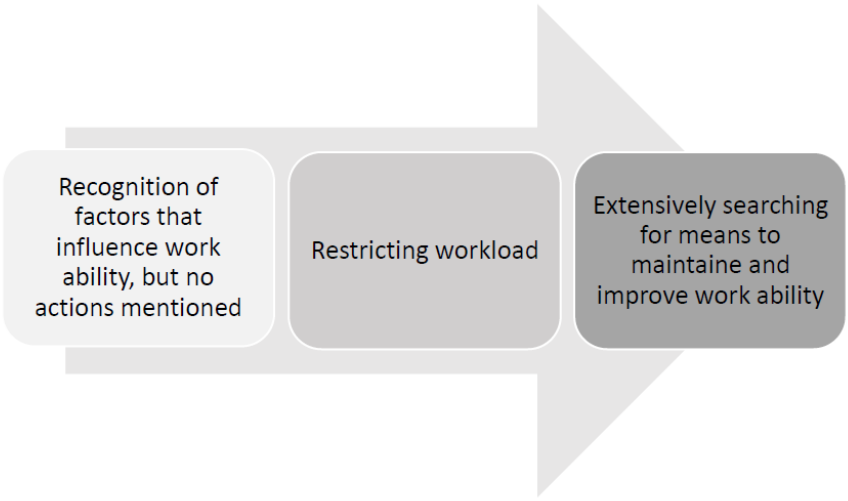
We also examined the before training responses of those who did not answer after the training (n = 27). These seemed to remain almost the same. Thus, we assumed no significant differences between the groups that also answered after training and those who did not.

Category 2: Measures to promote work ability

The responses also included expressions describing measures to promote work ability (Table 2). Three subcategories were created for the nurses' actions in relation to their own work ability (Q1): 1) recognition of factors influencing work ability, but no actions mentioned, 2) restricting workload, and 3) searching extensively for means to maintain and improve work ability. The corresponding subcategories for work ability literacy in client work (Q2) were: 1) recognition of factors that influence work ability 2) increasing clients' awareness of work ability and 3) helping clients make changes.

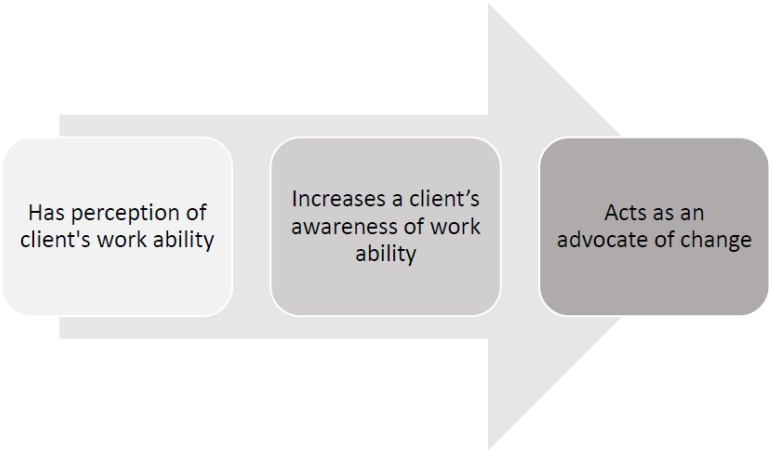
Before the training, over half the responses to the question on the nurses' own work ability literacy (Q2) recognized factors that influenced work ability. These responses did not include any statements on measures that would actively promote work ability. One respondent (OHN 10, aged 35), for instance, defined work ability literacy simply as 'Understanding my own health and well-being and related matters, and their impact on my ability to work.' After the training, these responses decreased slightly. The responses that involved measures restricting workload, decreased during the training; for example, '… I must have the ability to recognize sufficient job performance in relation to my own resources and, if necessary, be able to ask for help and limit my work to within my resources.' (Q1) (OHN 21, aged 54). At the same time, responses that indicated searching for various ways to improve work ability increased from three to nine responses, for example, 'With this I can evaluate my own ability to cope with work. Is the job too demanding? I can assess how my own work and lifestyle contribute to maintaining work ability and even improving it.' (Q1) (OHN 13, aged 55). The trend in the development of nurses' own work ability literacy is presented in Figure 1.

Figure 1. Development of work ability literacy in occupational health nurses' own health actions during intervention



In client work (Q2), there was a shift from merely having an insight into the client's work ability towards becoming an active advocate of change (Figure 2). Prior to the training, more than half of the OHNs (n = 12) understood work ability literacy as only the nurse's perception of the client's work ability. One respondent (OHN 9, aged 56), for instance, defined work ability literacy as 'Comprehensive understanding of a client'. (Q2). After the training, only three nurses used this subcategory when describing work ability literacy. The training increased the perception that work ability literacy in client work refers to how well an OHN can help increase a client's awareness of work ability: 'It means that in different ways I help the client recognize matters related to their ability to work. The things that make up one's work ability.' (Q2) (OHN 11, aged 55). Supporting clients' change processes also improved with training. 'I think that my job is to help the employee understand/read their own health situation, and on that basis make possible changes to achieve their work ability and health goals.'

Figure 2. Development of occupational nurses' work ability literacy in health check-ups during intervention



Discussion

One way in which to enhance the effectiveness of health check-ups is to develop interaction and counselling skills. In this study, we examined whether a short intervention could improve counselling and interaction. The results show that the training intervention made the nurses increasingly see themselves as an agent of change. The work ability literacy concept supported the effectiveness of counselling by helping to tailor and personalize counselling content based on the requirements and effects of work. The importance of this tailoring is supported by the finding that in effective interventions among workers in physically strenuous work, physical activity has been tailored according to their occupation [6]. In addition, our published and forthcoming results from the video recordings of the health check-up interactions [20, 21] highlight the importance of tailoring counselling to the client's needs. We found that training in counselling skills was beneficial in targeting advice to better meet the clients' concerns and needs. Furthermore, the promotion of health in OHS and at the workplace has traditionally focused on healthy habits and the prevention of diseases [7]. The work ability literacy concept represents a new way of thinking, and further studies on its effectiveness are needed.

When work ability literacy is used as a framework for counselling, the counsellor's main task is to help their client become aware of the demands and effects of their occupation on their health and behaviour, and to reflect on whether they behave accordingly. After this, the next question is how the counsellor can promote the required

behaviour change, or the development of work or work processes to better suit the worker [5]. Intervention studies on enhancing behaviour change using a theoretical framework have gained better and more effective results [22, 23]. Examples of such frameworks are the behaviour change wheel [24] and behaviour change techniques [25], the transtheoretical change model [26], and motivational interviews [27]. Using counselling materials such as the Work ability house [3], or a written health plan on a structured document [10, 28, 29], which were introduced in the training intervention, might also help counsellors better succeed and tailor their counselling to work-related issues. Further, digitalized systems, such as digitalized medical records, can guide attention systematically towards work issues in health check-ups. In order to improve the support of individuals' work ability, OHS should also promote measures to improve work processes and conditions at the workplace.

Limitations

Researchers' characteristics and reflexivity may influence results. In our research team, two of the researchers had an OH background, one in health promotion and one in healthcare communication. All of us had extensive experience in research or development in OH settings. None of us directly worked or had other relations with the participants of this study. None of us had any conflicting interests.

The data in the current study were collected using open-ended questions in surveys, which might have limited the answers. Thus, the results might have been somewhat different if we had used, for instance, individual or group interviews in the data collection. However, despite the features of the data collection method, the OHNs' perception of work ability literacy had clearly changed after the intervention. To increase the reliability of the analysis, all the research team members discussed the categories, codes and segments of the data several times, and shared opinions and disagreements to reach a consensus regarding the meaning of the data. The validity of the analysis was controlled, ultimately, by presenting the analytical process, how the categories covered the data and representative quotations from the transcribed text in this research report. The results are promising: even a short counselling training intervention can have a positive effect on nurse–client interaction and the empowerment of a client to take care of their own work ability. Our study was the first to

use the work ability literacy concept. We hope that more research will be conducted using this concept.

Concluding Remarks

The concept of work ability literacy gave the OHNs a better understanding of both their own and their clients' health and work ability and better equipped them to support corrective measures. These measures may vary from merely recognizing factors that influence work ability to searching for extensive ways to maintain and improve work ability. In client work, these may involve increasing the client's awareness of work ability and helping them make a change.

We also studied whether the counselling training intervention changed the OHNs' perception of work ability literacy. Work-related issues were given more attention, and more agency and support for behaviour change to promote work ability, respectively, were included in the responses after the intervention. The results show that with relatively short training on motivational counselling and work ability literacy, the OHNs' perception of work ability literacy expanded from a human-specific concept to a broader, multi-faceted and work-focused approach, and included an operational perspective to the promotion of work ability.

We tested whether the work ability literacy concept was useful for the framework of counselling in OHS. We found seven subcategories related to the content of work ability literacy in the nurses' responses, using conventional content analyses. These subcategories at least partially covered the floors of the Work ability house [3], which is a widely used model for conceptualizing the work ability concept. After the intervention, more work-related factors were observed and used as promoters for change in counselling.

Practical Implications

To improve the effectiveness of counselling, we propose the work ability literacy concept for the promotion of health and work ability among working-age people. Work ability literacy may help counsellors tailor their counselling content according to the demands and effects of work tasks and occupations. Further, counsellors orientated towards enhancing the work ability literacy of their clients empower them to take measures to promote their own work ability. Thus, better work ability literacy of counsellors could improve the effectiveness

of the counselling and work of the OHS. The concept of work ability literacy opens up a new theoretical framework for improving counselling during OH check-ups.

Conflict of interest. The authors declare no conflict of interest.

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