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Association between work empowerment and interprofessional collaboration among health care professionals working in cancer care settings

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ABSTRACT

This study aimed to analyze work-related empowerment and interprofessional collaboration and to identify possible associations among healthcare professionals working in cancer care settings. A cross-sectional survey design was employed in this study. Healthcare professionals ($n = 175$) in one Finnish Cancer Center participating in the care of patients with cancer at least on a monthly basis took part in the study. The data were collected with three instruments: Interprofessional Collaboration and Leadership, Performance of an Empowered Personnel (PEN), and Work-related Empowerment Promoting Factors (WEP). The data were analyzed with descriptive statistics, Pearson and Spearman's correlation coefficients and multivariate analysis using generalized liner models. Healthcare professionals rated their work empowerment as rather high. Performance of an Empowered Personnel (PEN) was perceived as high (mean 4.08, SD 0.47). Promoting factors for Work Empowerment (WEP) were also assessed as high (mean 3.98, SD 0.61). Interprofessional collaboration in the cancer care setting was perceived as moderate (mean 2.94, SD 0.36). Managerial position explained work empowerment based on multivariate analysis. Work empowerment and interprofessional collaboration had a strong correlation. The results can be used in the leadership and management of interprofessional collaboration and in developing new structures to support health professionals' work empowerment. In the future, work empowerment needs to be promoted by constructing solutions and practices that support interprofessional collaboration and thus improve the quality of cancer care.

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Cancer care; interprofessional collaboration; questionnaire; work empowerment

Introduction

The work-related empowerment of health care professionals is essential for delivering high-quality patient care. Perception of high work empowerment has a positive effect on care quality outcomes in terms of effectiveness, safety and patient-centeredness (Goedhart et al., 2017). In the cancer care setting where care is provided through interprofessional collaboration, work empowerment and interconnection have seldom been studied.

Work empowerment has been described as an umbrella concept reflecting elements of professional growth and development (Goedhart et al., 2017). In this study, work empowerment is defined as health care professionals' perception of their ability to conduct work-related tasks. According to Kuokkanen's (Golom & Schreck, 2018) definition, empowered health care professionals possess inner strength and mastery of their skills, they are courageous and future-oriented (Kuokkanen, 2003). Work empowerment is strongly connected both to the individual and the organization. Therefore, the way in which people work together in a multiprofessional work environment can strengthen the work empowerment of individual employees. As empowerment is multilevel by nature, both individuals' and organizations' ability to act could be

strengthened. Collaboration between different professions plays a significant role in cancer patient care. In this study, interprofessional care of patients with cancer means care that is often organized in units where professionals with different educational backgrounds work together to achieve the best possible care outcomes (Golom & Schreck, 2018). Janssen et al. (2015) emphasize the need to study both individual and organizational aspects. Taking both into account helps to promote the atmosphere as well as organizational structures. Organizations have an opportunity to provide education for their employees and to enhance communality. Interaction is complex due to the variety of organizational characteristics, work empowerment level of individuals, and community features. However, taking them all into account is crucial in order for the organization to achieve its goals (Janssen et al., 2015).

Background

Research on health professionals' work empowerment is limited and fragmented, focusing largely on nursing professionals. Nurses seem to evaluate their empowerment positively. For example, nurses and nurse managers working in hospitals evaluate their work empowerment as high (Istomina et al.,

2012; Trus et al., 2012, 2011). Similarly, newly graduated nurses perceive their level of empowerment to be fairly high (Kuokkanen et al., 2016). The level of empowerment among other health professionals, such as physicians, has seldom been studied. Similarly to nurses, physicians seem to evaluate their empowerment as high (Kebriaei et al., 2014).

Health care professionals' work empowerment has some associations with individual and organizational factors. On individual level, for example, nurses' higher empowerment associates with improved job satisfaction (Li et al., 2018). Among physicians, there is also a positive association between physicians' work empowerment and commitment to organization (Kebriaei et al., 2014). From an organizational perspective, organizational justice (how employees perceive being treated with justice in the workplace (Greenberg, 1987) intercorrelates with work empowerment. The higher health care professionals' perception of organizational justice, the more empowered they feel in their work (Kuokkanen et al., 2014). Moreover, perception of high empowerment has a positive effect on care quality outcomes in terms of effectiveness, safety and patient-centeredness (Goedhart et al., 2017). For example, if nurses have access to empowering structures in their work (such as access to information, support, resources and opportunities to learn and grow) it has a positive effect on the quality outcomes, i.e. quality, effectiveness, safety, efficiency and patient-centeredness of patient care in hospitals. (Goedhart et al., 2017). Nurses' higher perceptions of empowerment in their work result in improved patient satisfaction (Donahue et al., 2008). Related to work empowerment, the possibility to use one's skills to a large extent at work and opportunities to develop own work predicts empowerment. In addition, longer work experience is related to higher evaluations of work empowerment than among colleagues with shorter experience (Kuokkanen et al., 2014). Within organizations, unit leadership, particularly leadership that creates an environment and work conditions that enable professionals' optimal role performance, promote organizational commitment and work empowerment (Laschinger et al., 2009). With empowering work environments, professionals' commitment and motivation to work is high, which decreases intentions of leaving the workplace or profession. Understanding the relationship between empowerment and quality outcomes would help managers to make informed decisions to improve the quality of care (Goedhart et al., 2017).

Cancer care requires fluent interprofessional collaboration (Chiew et al., 2018; Denton & Conron, 2016). It has been theorized that interprofessional collaboration improves patient outcomes and promotes understanding of and compliance with treatment (Prades & Borrás, 2014). The advantages of an interprofessional working group are the knowledge base, expertise and skills of the interdisciplinary groups (Moilanen et al., 2020). Particularly in cancer care, the most important advantage of interprofessional team meetings is consistent, continued, coordinated and cost-effective care for the cancer patient (Saini et al., 2011). In this study, interprofessional collaboration is defined as collaborative interaction between experts from different professional backgrounds involved in cancer patient care who share the same goals in working together (Leathard, 2003; Petri, 2010; WHO, 2010).

Work empowerment within the interprofessional context in health care has seldom been studied. There are some single studies demonstrating high work empowerment among professionals working in interprofessional teams, e.g., in the care of patients with rheumatic diseases (Kuokkanen et al., 2007). In a study by Laschinger and Smith (Laschinger & Smith, 2013), structural work empowerment (organization structure, staff policy) was identified to be associated with interprofessional collaboration. In addition, interprofessional collaboration could be enhanced with empowerment, authentic leadership and professional practice environment (Regan et al., 2016). However, research on the association between work empowerment and interprofessional collaboration, particularly in the cancer care setting, is lacking. It is important to know what factors affect the professional sense of work empowerment and to analyze the connection between interprofessional collaboration and work empowerment. By identifying the association between work empowerment and interprofessional collaboration, work empowerment could be promoted by developing structures that support interprofessional collaboration. However, research is needed to elucidate the links with professionals' work empowerment. This has special importance in the growing field of cancer care (OECD, 2019).

The aim of this study was to analyze work empowerment and interprofessional collaboration and to identify possible associations among healthcare professionals working in cancer care settings.

Research questions:

- (1) What is the level of work empowerment among healthcare professionals working in cancer care settings?
- (2) What is the association between the level of work empowerment and interprofessional collaboration in health care settings?
- (3) What background factors, if any, are associated with healthcare professionals' work empowerment?

Methods

Design

A cross-sectional survey design was employed in this study.

Setting

The data were collected from one regional Finnish Cancer Center. The Cancer Center consists of one university hospital and two central hospitals located in one hospital district. The Cancer Center forms a network of hospitals where patients with cancer are cared for in different departments with individual care paths. The setting consists of both in- and outpatient units in three hospitals. The three hospitals are connected by the Cancer Center with the aim of fostering collaboration between the hospitals and the multiprofessional staff. The level and nature of interprofessional collaboration may vary between units. Some of the staff may have worked in more than one of these hospitals. Some of the professionals, such as physicians and physiotherapists, work in both in- and outpatient units with cancer patients.

Participants and study procedures

The data were collected electronically using the Webropol survey tool between November 2019 and January 2020. For the data collection, each hospital had a named contact person who coordinated the data collection. The coordinators distributed an e-mail containing an information letter about the study and a link to the online questionnaire. The e-mail was sent to all health care professionals (e.g., physicians, nurses, physiotherapists, etc.) working in the Cancer Center ($n = 1,050$). These health care professionals were invited to respond to the questionnaire if they participated in the care of patients with cancer at least on a monthly basis.

Reminders to respond were sent three times. To increase the response rate, the possibility to respond using a paper questionnaire was approved in the university hospital where the number of potential respondents was considered the highest. A total of 185 questionnaires were returned; however, ten questionnaires were excluded because nine respondents had not participated in cancer care at all and one respondent had responded two times. The final number of respondents was 175 (response rate 17%).

Instruments

Interprofessional collaboration was measured with the Interprofessional Collaboration and Leadership (ICL) instrument, as described in the study by Moilanen et al. (2020), and work empowerment with the Performance of an Empowered Personnel (PEN) and Work-related Empowerment Promoting Factors (WEP) questionnaire (Kuokkanen, 2003; Kuokkanen & Katajisto, 2003; Kuokkanen & Leino-Kilpi, 2001). The ICL is a newly developed instrument measuring healthcare professionals' perceptions of interprofessional collaboration in a cancer care organization (Moilanen et al., 2020). The ICL consists of a total of 64 items divided into six dimensional categories: pre-requisites of appreciation, such as respect, benefits and well-being (13 items), perceived IPC competence (4 items) and realization of IPC (25 items), and three categories focusing on leadership and management (22 items). These categories include a total of 12 sub-categories. The response scale is a 4-point Likert-type scale ranging from 1 = strongly disagree to 4 = strongly agree (Moilanen et al., 2020). The ICL has demonstrated satisfactory internal consistency (0.76–0.93 within categorical dimensions).

The Performance of an Empowered Personnel (PEN) and Work-related Empowerment Promoting Factors (WEP) questionnaire measures perceived work empowerment (Kuokkanen et al., 2003). PEN focuses on measuring the performance of an empowered person with 19 items while WEP measures factors promoting work empowerment (18 items). Both parts have corresponding categories where the measurement focus is on moral principles, personal integrity, expertise, future-orientedness and sociability (Kuokkanen & Leino-Kilpi, 2001). Moral principles focus on human values in caring for patients. Personal integrity measures mastery of own life and resources. Expertise relates to professional competence and knowledge. Future-orientedness focuses on a person's creativity and innovation. Sociability refers to personal characteristics

in interaction with others (Kuokkanen & Leino-Kilpi, 2001). In all items, the response scale is a 5-point Likert scale ranging from 1 (does not apply to me at all) to 5 (completely applies to me), with higher values indicating higher work empowerment.

The requested background factors were gender, age, occupational title, working experience in health care and in cancer care, working in managerial position, belonging to an interprofessional team, and participation in additional training promoting interprofessional collaboration.

Data analysis

The data were analyzed with IBM SPSS Statistics versions 24 and 25 (IBM Corp.). Descriptive statistics, such as frequencies, percentages, means and standard deviations, were used to describe the study variables. Sum variables were formed by calculating the item scores and then dividing the total score by the number of items in the scales. Pearson correlation coefficients were calculated for the instruments' total level and sub-scales to demonstrate possible associations between work empowerment and interprofessional collaboration. Associations between work empowerment and respondents' background factors were analyzed with Spearman's correlation coefficients. Multivariate analysis using generalized linear models (GLM) was performed to evaluate the factors explaining work empowerment. The level of statistical significance was set at $P = .05$. The reliability of the Interprofessional Collaboration and Leadership, Performance of an Empowered Personnel (PEN) and Work-related Empowerment Promoting Factors (WEP) instruments was measured by calculating Cronbach's alpha coefficients.

Ethical considerations

Ethical approval was obtained from the ethical committee of the University of Turku (statement 48/2017). Each participating hospital gave permission for the data collection. Before the data collection, information about the study was distributed to each hospital in written, oral and digital (short video clip) format. The information consisted of a description of the study and its purposes, data collection, voluntary participation, confidentiality of participation, right to withdraw at any stage, and anonymity of responses. Responding to the questionnaire was considered as informed consent. Good scientific practice and research ethics principles (Allea, 2017; World Medical Association, 2018) were followed in every phase of the study.

Results

Participants

Most of the participants were female (79%, $n = 138$) with a mean age of 43.5 years (SD 11.3, range 23.0–65.0 years). They had on average 17.6 years of experience in health care (SD 11.0, range 0.5–42.9) and 13.9 years (SD 10.0, range 0.0–39.2) of experience in cancer care. The most common occupational titles were registered nurse (46%, $n = 81$), medical specialist (9%, $n = 16$) and radiographer (9%, $n = 16$). As for professional education, the majority were registered nurses

(52%, $n = 91$), physicians (19%, $n = 34$), radiographers (9%, $n = 16$) or licensed practical nurses (9%, $n = 15$). Fifteen percent of the respondents ($n = 25$) worked in a managerial position. Of the respondents, 59% ($n = 83$) had participated in additional education promoting interprofessional collaboration during the last year. One third (30%, $n = 50$) were members of a named interprofessional team. (Table 1).

Level of work empowerment

Work empowerment was rated at high level. Performance of an empowered personnel (PEN) was perceived as high (mean 4.08, SD 0.47). The highest mean score on category level was

Table 1. Participants' ($n = 175$) background factors.

Variable	n	%
Gender (n = 174)		
Male	36	21
Female	138	79
Professional title (n = 175)		
Registered nurse	81	46
Medical specialist	16	9
Radiographer	16	9
Licensed practical nurse	13	7
Senior (assistant) physician	12	7
Head nurse	5	3
Staff nurse	5	3
Midwife	5	3
Other [#]	22	13
Professional education (n = 175)		
Registered nurse/Public health nurse	91	52
Physician	34	19
Radiographer	16	9
Licensed practical/assistant nurse	15	9
Midwife	5	3
Physiotherapist	4	2
Other [‡]	10	6
Participation in additional education promoting interprofessional collaboration (n = 142)		
During last year	83	59
During last 2–3 years	28	20
During last 5 years	11	8
Over 5 years ago	20	14
Managerial position (n = 172)		
Yes	25	15
No	147	86
Position in named interprofessional team (n = 166)		
Yes	50	30
No	116	70

[#]Midwife ($n = 5$), physician ($n = 3$), physiotherapist ($n = 3$), rehabilitation instructor ($n = 3$), specializing physician ($n = 3$), speech therapist ($n = 3$), research nurse ($n = 2$), social worker ($n = 2$), physicist ($n = 1$), specialist dentist ($n = 1$), ward physician ($n = 1$), ward secretary ($n = 1$).

[‡]Dentist ($n = 2$), speech therapist ($n = 2$), social worker ($n = 2$), hospital chaplain ($n = 1$), physicist ($n = 1$), rehabilitation instructor ($n = 1$), vocational qualification in business and administration ($n = 1$).

seen in moral principles (4.40, SD 0.46) whereas sociability was assessed the lowest (3.56, SD 0.92). Promoting factors for work empowerment (WEP) were also assessed high (mean 3.98, SD 0.61) (Table 2). The highest score on category level was seen in personal integrity (4.13, SD 0.74) and the lowest in future-orientedness (3.67, SD 0.86).

Association between the level of work empowerment and interprofessional collaboration in health care settings

In total, the level of interprofessional collaboration in cancer care setting was perceived as moderate (mean 2.94, SD 0.36) (Table 3). On sum-variable level, the mean ranged from 2.60 (SD 0.58) to 3.48 (SD 0.33). The highest mean score was seen in the sum variables appreciation of interprofessional collaboration (mean 3.48, SD 0.33) and competence for interprofessional collaboration (mean 3.47, SD 0.66). The lowest mean scores were found in leadership in the work unit (mean 2.60, SD 0.58) and organizational management as support for IC (mean 2.72, SD 0.60).

The level of work empowerment was statistically significantly positively associated with interprofessional collaboration (Table 4). For the five PEN sum variables, the associations were almost invariably statistically significant. There was more dispersion in the sum variables of the WEB. In particular, the correlations between work empowerment and interprofessional collaboration and leadership ($r_s = 0.457$ – 0.654) and leadership in total ($r_s = 0.399$ – 0.635) were statistically significant.

Associations between work empowerment and participants' background variables

Some background factors were associated with work empowerment (Table 5). Regarding Performance of an Empowered Personnel (PEN) categories, both work experience in health care and cancer care associated with expertise ($r_s = 0.197$, $P = .01$; $r_s = 0.197$, $P = .01$, respectively) and future-orientedness ($r_s = 0.154$, $P = .045$; $r_s = 0.152$, $P = .050$, respectively). Participants' age ($r_s = 0.200$, $P = .01$) and work experience in health care ($r_s = 0.293$, $P < .001$) and cancer care ($r_s = 0.321$, $P < .001$) correlated with sociability. Gender associated with PEN expertise (mean 4.37 for males and 4.20 for females, $P = .041$). Participants with medical education (physicians) had higher mean scores in the total score of PEN (4.25 vs. 4.04, $P = .03$) and sociability category (3.98 vs. 3.50, $P = .007$) than those with nursing education. Participants

Table 2. Description of Performance of an Empowered Nurse (PEN) and WorkEmpowerment Promoting Factors Questionnaire (WEP) categories.

Variable	n	PEN					α^a	WEP					α^a
		Mean	SD	Range	Md	n		Mean	SD	Range	Md		
Total	174	4.08	0.47	2.95–5.00	4.11	0.879	174	3.98	0.61	2.06–5.00	4.06	0.915	
Moral principles	174	4.40	0.46	2.67–5.00	4.67	0.606	174	4.00	0.70	1.00–5.00	4.00	0.770	
Personal integrity	173	4.16	0.50	2.75–5.00	4.25	0.534	174	4.13	0.74	1.67–5.00	4.33	0.655	
Expertise	173	4.23	0.49	2.67–5.00	4.17	0.694	174	4.09	0.64	2.40–5.00	4.20	0.760	
Future-orientedness	174	3.88	0.73	1.67–5.00	4.00	0.767	174	3.67	0.86	1.25–5.00	3.75	0.831	
Sociability	174	3.56	0.92	1.67–5.00	3.50	0.622	174	4.05	0.72	1.67–5.00	4.00	0.703	

SD = Standard Deviation; Md = Median.

^aCronbach's alpha coefficient.

Table 3. Descriptives of the sum-variables in the Interprofessional Collaboration and Leadership (ICL) instrument.

Variable	n	Mean	SD	Range	Md	α ^a	
Appreciation	175	3.48	0.33	2.50	4.00	3.50	0.587
IPC Competence	175	3.47	0.66	1.00	4.00	3.67	0.895
Realization	175	3.00	0.40	2.08	4.00	3.00	0.917
Organizational strategies as support for IC	172	2.81	0.57	1.00	4.00	3.00	0.796
Leadership in the work unit	175	2.60	0.58	1.42	4.00	2.58	0.924
Organizational management as support for IC	170	2.72	0.60	1.25	4.00	2.75	0.819
Leadership total	175	2.66	0.53	1.50	3.95	2.58	0.938
Total for interprofessional collaboration and leadership	175	2.94	0.36	2.12	3.83	2.94	0.951

SD = Standard Deviation; Md = Median.
^aCronbach's alpha coefficient.

who had a managerial position had significantly higher average scores in the following categories: PEN total score (4.39 vs. 4.02, $P < .001$), PEN expertise (4.44 vs 4.19, $P = .02$), PEN future-orientedness (4.21 vs 3.80, $P = .009$), and PEN sociability (4.55 vs. 3.38, $P < .001$) compared to those without managerial position. In addition, belonging to an interprofessional team was associated with a significantly higher mean

score in PEN sociability (3.93 vs. 3.43, $P = .001$). Multivariate analysis revealed that higher PEN scores were explained by being in a managerial position ($P = .01$).

In relation to factors promoting work empowerment (WEP), participants' age ($r_s = 0.180$, $P = .02$), work experience in both health care ($r_s = 0.243$, $P = .001$) and cancer care ($r_s = 0.183$, $P = .02$) and participation in additional education about IC ($r_s = 0.177$, $P = .04$) correlated with the personal integrity sum variable. The mean score was significantly higher for males in four categories: WEP total score (4.26 vs. 3.91, $P = .002$), personal integrity (4.42 vs. 4.06, $P = .01$), expertise (4.36 vs. 4.02, $P = .007$), and future-orientedness (4.06 vs. 3.58, $P = .002$). Participants with medical education had significantly higher scores in WEB total score (4.22 vs. 3.91, $P = .003$), expertise (4.36 vs. 4.00, $P = .001$) and future-orientedness categories (4.06 vs. 3.54, $P = .002$) than participants with nursing education. Those in managerial positions had statistically significantly higher mean scores in all WEB categories (P -values ranging from $<.001$ to $.026$). Being part of an interprofessional team was also related to a higher mean score in personal integrity (4.31

Table 4. Associations between healthcare professionals' work empowerment and interprofessional collaboration.

	ICL total		ICL leadership (total)		IPC Competence		Organizational strategies as support for IC		Appreciation		Realization		Leadership in the work unit		Organizational management as support for IC	
	n	r _s	n	r _s	n	r _s	n	r _s	n	r _s	n	r _s	n	r _s	n	r _s
PEN total	174	0.450***	174	0.362***	174	0.317***	171	0.339***	174	0.397***	174	0.434***	174	0.354***	170	0.295***
Moral principles	174	0.384***	174	0.318***	174	0.280***	171	0.421***	174	0.322***	174	0.408***	174	0.265***	170	0.266***
Personal integrity	174	0.369***	173	0.292***	173	0.248***	170	0.278***	173	0.268***	173	0.379***	173	0.276***	169	0.265***
Expertise	173	0.373***	173	0.237**	173	0.325***	170	0.275***	173	0.423***	173	0.392***	173	0.241***	169	0.144
Future-orientedness	174	0.396***	174	0.326***	174	0.283***	171	0.243***	174	0.313***	174	0.361***	174	0.336***	170	0.305***
Sociability	174	0.280***	174	0.282***	174	0.042***	171	0.208**	174	0.249***	174	0.213**	174	0.281***	170	0.218**
WEP total	174	0.654***	174	0.635***	174	0.193**	171	0.512***	174	0.305***	175	0.595***	174	0.628***	170	0.502***
Moral principles	174	0.566**	174	0.529***	174	0.100	171	0.428***	174	0.220**	174	0.521***	174	0.491***	170	0.518***
Personal integrity	174	0.457***	174	0.453***	174	0.065	171	0.367***	174	0.299***	174	0.404***	174	0.457***	170	0.332***
Expertise	174	0.596***	174	0.572***	174	0.249***	171	0.443***	174	0.287***	174	0.568***	174	0.578***	170	0.433***
Future-orientedness	174	0.579***	174	0.611***	174	0.126	171	0.487***	174	0.248***	174	0.473***	174	0.605***	170	0.49***
Sociability	174	0.472***	174	0.399***	174	0.235**	171	0.354***	174	0.198**	174	0.483***	174	0.395***	170	0.297***

* $P < .05$.

** $P < .01$.

*** $P < .001$.

r_s = Pearson correlation coefficient; ICL = the Interprofessional Collaboration and Leadership instrument; IC = Interprofessional collaboration; PEN = Performance of an Empowered Nurse Questionnaire; WEP = WorkEmpowerment Promoting Factors Questionnaire.

Table 5. Associations of the background variables with the Performance of an Empowered Nurse (PEN) and the Work-related Empowerment Promoting Questionnaire (WEP) categories.

Variables	Age			Work experience in health care			Work experience in cancer care			Frequency of participation in cancer patients' care			Participation in additional training promoting interprofessional collaboration		
	n	r _s	P	n	r _s	P	n	r _s	P	n	r _s	P	n	r _s	P
PEN total	161	0.093	.24	170	0.227	.003	166	0.225	.004	174	0.062	.42	141	0.031	.72
Expertise	160	0.053	.51	169	0.197	.01	165	0.197	.01	173	0.021	.78	140	0.014	.87
Future-orientedness	161	0.026	.75	170	0.154	.045	166	0.152	.050	174	-0.002	.98	141	0.031	.71
Sociability	161	0.200	.01	170	0.293	<.001	166	0.321	<.001	174	0.094	.22	141	-0.099	.24
WEP total	161	0.093	.24	170	0.124	.11	166	0.111	.16	174	0.133	.08	141	0.110	.20
Moral principles	161	0.088	.27	170	0.082	.29	166	0.100	.20	174	0.008	.91	141	0.211	.01
Personal integrity	161	0.180	.02	170	0.243	.001	166	0.183	.02	174	0.172	.02	141	0.177	.04
Future-orientedness	161	0.106	.18	170	0.112	.15	166	0.082	.29	174	0.185	.01	141	0.094	.27

r_s = Spearman correlation coefficient.

vs. 4.03, $P = .02$). Based on multivariate analysis, higher WEP scores were explained by being in a managerial position ($P < .001$).

Discussion

Healthcare professionals' work empowerment was high and their perception of interprofessional collaboration moderate. Moreover, healthcare professionals' work empowerment associated with interprofessional collaboration in cancer care settings. This finding indicates that in the future, work empowerment needs to be underlined and potentially promoted by constructing solutions and practices that support interprofessional collaboration and thus improve the quality of cancer care.

A positive association between work empowerment and interprofessional collaboration in cancer care was identified in this study. Cancer care requires fluent interprofessional collaboration. Collectively agreed goals for interprofessional collaboration, named responsibilities in the care of patients with cancer and expertise in cancer care could explain the perception of work empowerment, and thus the positive association between work empowerment and interprofessional collaboration. Previously, the level of work empowerment has been reported to be high among professional who work in interprofessional teams (Kuokkanen et al., 2007). However, in this study, interprofessional collaboration was approached from a more comprehensive perspective including aspects of leadership, organizational strategies, management and leadership, and an association with work empowerment was detected.

The level of work empowerment was higher among health care professional with longer work experience in either health care or cancer care. The underlying reason for higher work empowerment could relate to a feeling of mastery of own work and being familiar with the organizational structure. In the future, it is important to give health care professionals with limited work experience a sense of empowerment during their first years of practice. This could be done, for example, by giving them possibilities to take part in further education to promote their clinical or interprofessional competence. Moreover, providing chances to develop and personalize their work environment or interprofessional collaboration habits could also increase health care professionals' work empowerment. Possibilities of this kind could promote their perceived interprofessional collaboration and their work in interprofessional settings. Moreover, managers in health care are in an important position to support health care professionals' work empowerment and thus, job satisfaction (Wong & Laschinger, 2013). The support could consist, for example, of providing possibilities to influence decision-making related to interprofessional collaboration or naming employees to specific interprofessional teams. In this study, only a third of the participants reported being members of a named interprofessional team.

Being in a managerial position also explained higher evaluations of work empowerment. The finding corresponds to a previous study reporting that managers' high

level of empowerment is required in order to empower their employees to provide best possible care and collaboration (Regan & Rodriguez, 2011). However, in the future, effective interprofessional strategies should be developed to promote work empowerment also among those health care professionals who are not in a managerial position.

Based on the evidence from this study, work empowerment needs to be seen as an important part of interprofessional collaboration. The results provide new insights into work empowerment from the perspective of health care professionals engaged in interprofessional collaboration in cancer care settings on a monthly basis. The evaluation of work empowerment has previously focused predominantly on nursing professionals (e.g., Istomina et al., 2012; Trus et al., 2011, 2012). The level of work empowerment has earlier been evaluated to be rather high, and the findings of this study support the existing evidence (Kuokkanen et al., 2014, 2016).

In the future, increased efforts need to be invested in promoting health care professionals' work empowerment by creating and developing structures of interprofessional collaboration. These structures include open communication, leadership and organizational management which allow health care professionals to develop their own work empowerment. Work empowerment could also be a useful way to measure the effects of organizational changes. In the future, intervention studies that focus on developing interprofessional collaboration and work empowerment are needed to evaluate the outcomes in quality of care. Assessing health care professionals' evaluations of interprofessional collaboration with different instruments (Peltonen et al., 2020) and work empowerment with organizational quality indicators (such as patient satisfaction, length of stay, complications) could also provide a wide range of evidence about the quality of care. Finally, developing interprofessional collaboration should be a constant priority in healthcare organizations, and research should focus particularly on investigating effective methods to promote interprofessional collaboration and the quality of care.

Limitations

The study has some limitations related to data collection and sample size. The data were collected with three instruments, two focusing on work empowerment and one measuring interprofessional collaboration. The PEN and WEP instruments have demonstrated satisfactory validity and reliability in previous studies (Kuokkanen et al., 2014, 2016). In this study, the internal consistency of both instruments was acceptable (PEN sum-variables, Cronbach's alpha ranging from 0.534 to 0.879, the WEP sum variables ranging from 0.655 to 0.915). The internal consistency of the Interprofessional Collaboration and Leadership instrument was 0.951 for total scale and ranged from 0.796 to 0.924 for the subscales. To minimize discrepancies between different health care professionals in the interpretation of work empowerment and interprofessional collaboration, definitions of these concepts were provided to the respondents in the questionnaire together with response options.

The response rate of the study was low. The data collection produced a total of 185 responses of which 175 were accepted for the analysis. The data collection was promoted in the participating hospitals orally, in writing and with short audio-recorded videos. In addition, reminders to respond were sent and the time to respond to the questionnaire was extended. However, these procedures resulted in only slight improvement in the response rate. The data set was large enough for statistical analysis, but the study was conducted using a cross-sectional study design in one national cancer center, which limits the generalizability of the results. The majority of the respondents represented nursing and medicine and the results provide only limited insights from other health care professionals.

Despite the limitations, the data provide evidence of the association between work empowerment and interprofessional collaboration. In the future, cross-cultural studies could be conducted to evaluate the level of work empowerment and interprofessional collaboration in different countries and settings. Moreover, future research is needed to analyze the potential differences in work empowerment and interprofessional collaboration among different health care professionals.

Conclusions

Work empowerment and interprofessional collaboration had a strong correlation. Being in a managerial position explained higher evaluations of work empowerment. The results can be used in leadership and management of interprofessional collaboration and in developing new structures to support health professionals' work empowerment. Work empowerment and interprofessional collaboration is an important combination promoting the quality of care. Therefore, developing and fostering a culture of empowering interprofessional collaboration in providing high-quality care is a major challenge for future policy and research.

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