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# The mediating effect of psychosocial factors in the relationship between self-organizing teams and employee wellbeing: A cross-sectional observational study



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# ABSTRACT

*Background:* Several benefits of working in a self-organizing team, such as higher job satisfaction and better engagement to work have been demonstrated in previous studies.

Objective: To examine whether those employees working in a self-organizing team have higher job satisfaction and lower turnover intentions compared to those in non-self-organized teams. Further, to test whether psychosocial factors defined by the Job Demand-Control model would function as mediators.

Design: A cross-sectional survey study.

Setting(s): Home care and assisted living facilities (with 24-h assistance).

Participants: Licensed practical nurses (N = 377), registered nurses, therapists and managers (N = 183), and other employees (N = 31) in services for older people.

*Methods*: A survey for employees working in services for older people and who were either in the self-organized teams or in the non-self-organized teams. Data was analyzed using linear regression and mediation analyses. *Results*: Those employees who worked in a self-organizing team were more satisfied with their job and had lower turnover intentions compared to those in a non-self-organizing team (mean [SD] 3.9 [1.0] vs. 3.7 [1.0], p = 0.006 and 2.2 [1.2] vs. 2.5 [1.3], p = 0.006, respectively). Moreover, job demands and job strain partially mediated the effect of self-organizing teamwork on job satisfaction (Average causal mediation effect [95%CI] 0.09 [0.02-0.15] and 0.10 [0.03-0.18], respectively), as well as on turnover intentions (Average causal mediation effect [95%CI] -0.08 [-0.15 to -0.01 and -0.20 [-0.18 to -0.03, respectively).

Conclusions: In the context of older people care services, working in self-organizing teams may enhance employee wellbeing by lowering job demands and job strain, but not by improving job control. Based on the findings of this study, self-organization seems beneficial, however, it requires real autonomy for the teams and team building.

Tweetable abstract: Self-organizing teamwork increases job satisfaction and decreases turnover intentions via

lower job demands and strain in older people care.

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## What is already known

- Self-organizing teamwork is shown to have many benefits for employee wellbeing, and it has been proven to be associated with higher engagement to work and higher attractiveness of care work.
- Previous studies have hinted that the benefits of self-organizing teamwork are mainly based on the increased autonomy it entails, however, the mechanism behind this association remains unclear.

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## What this paper adds

 This study demonstrated that those employees who worked in self-organizing teams had lower job demands and job strain, which seemed to lead to higher job satisfaction and lower turnover intentions

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Working in a self-organized team was found to be beneficial for employees in assisted living too, not solely for employees in home care.

# 1. Background

The shortage and high turnover rate of health and social care workers specifically in the services for older people are prominent

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problems in many Western countries (Global Health Workforce Alliance and World Health Organization, 2014), and thus, new and innovative ways for organizing care are needed. Arranging work as self-organizing teamwork is one such way. The concept started from manufacturing and spread to other work sectors, such as the service sector, and it has been shown to enhance satisfaction with teamwork and better quality of public services (Yang and Guy, 2004). Further, a study from Cohen and Ledford (1994) showed that team performance (or quality) and job satisfaction were higher in self-organizing teams compared to regular teams, which has been replicated in several other studies (Magpili and Pazos, 2018).

In health care, different teamwork models among nurses have long been a common practice and they have been studied for several decades in hospitals and nursing homes (Rosen et al., 2018). There are numerous studies showing that teamwork is beneficial for job satisfaction and worker well-being as well as quality of care (Prentice et al., 2021; Rosen et al., 2018), but there are also several studies which show that the benefits do not come automatically (Havig et al., 2013; Piers et al., 2019). However, there has not been a consensus on which teamwork models have shown the greatest benefits.

Teamwork has been studied mainly in a fixed, ward-based environment. In home care, perhaps the most known example is the Buurtzorg model from the Netherlands which has gathered international attention worldwide (Monsen and de Blok, 2013). Buurtzorg has team autonomy as one of its core values, wherein the teams do not have managers, but rather coaches that provide support for the teams. Teams are able to make their decisions autonomously on, for example, how they organize patient care. Teams consist of a maximum of 12 nurses, who have generally each earned a bachelor's degree. Care continuity is one of the core values, as well. Other characteristics of the Buurtzorg model include, for instance, a simple information system that is designed to support the work, a small back office to keep the organizational structure as simple as possible and engage all actors in the community into the care of their clients. (Monsen and de Blok, 2013) Despite the positive results of the Buurtzorg model in the Netherlands, there is only limited evidence of the positive results of self-organized teamwork in other countries.

The characteristics present in the Buurtzorg model, such as autonomy and team-level decision making have also been shown to have positive effects in a health and social care context. Self-organizing teamwork has been shown to be related to higher job satisfaction and, in general, to a more positive attitude towards care work (Drennan et al., 2018; Maurits et al., 2017). A study conducted among Dutch home care workers showed that if nurses had more autonomy, they were more engaged in their work organizations and were therefore less likely to consider leaving the health care sector (Maurits et al., 2015). Working in a self-organizing team was also one of the aspects that made home care work attractive (de Groot et al., 2018). In addition, Yang and Guy (2011) found that a higher level of self-organization had an indirect relationship with job satisfaction through resource attainment. Being able to attract good employees can be an important factor when considering the use of self-organizing team practices in sectors with a shortage of employees.

It is reasonable to assume that the potential effects of the Buurtzorg model on employee satisfaction and lower turnover rate are mediated through enhanced perceived psychosocial factors, such as sense of autonomy and a more optimal workload (Lu et al., 2012; Tummers et al., 2013). The most widely tested psychosocial model combining these factors is the Demand-Control model by Karasek and Theorell (1990). According to the model, lower job control and higher job demands result in job strain. On the contrary, jobs that are highly demanding but are also high in control are considered to be 'active jobs' and motivating for the workers (Karasek and Theorell, 1990). The association between lower job control, higher demands and job satisfaction has been determined in previous studies (Drennan et al., 2018). For example, a study of Laschinger et al. (2001) found that those nurses who belonged to a high strain group had lower job satisfaction compared to those in an active job group. A Finnish study showed that higher job strain and lower

control over one's job predicted sickness absence (Virtanen et al., 2007), whereas another Finnish study from older people care facilities presented the association between use of restraint practices and low control and high demands (Pekkarinen et al., 2006). When considering staff turnover and the Demand-Control model, previous studies have also found an association between the two factors. However, according to the study by Gao et al. (2014) control factors (decision authority, skill discretion and support from co-workers and supervisors) were seen to be more important since they had a direct relationship with turnover when the demands did not. Further, another study showed that those nurses with low control over their job had the highest intent to turn over (Chiu et al., 2009).

Finland has publicly funded home care, where a private sector in home care is nearly non-existent. Assisted living facilities, however, have more private sector organizers. Home care is a combination of home help and home nursing (Social welfare act 1301/2014, 2014), even though it is nowadays mainly focused on the care and medical issues of the clients. Therefore, if a client has, for example, problems with housekeeping tasks, they have the possibility to obtain the services via public home care provider, however, the services may need to be paid out-of-pocket. In assisted living facilities, the client lives in their own apartment and receives the care and services they need. Licensed practical nurses, who have three years of vocational training, are usually the largest occupational group in both service types, in addition, between 10 and 15% of employees are registered nurses.

Previous studies that investigated the outcomes of self-organizing team practices have hinted that implementing self-organizing teams increases the autonomy of employees and therefore leads to higher job satisfaction (Maurits et al., 2017). In addition, an association between lower turnover and working in a self-organizing team has been found in the literature (Maurits et al., 2015). In the present study, we therefore wanted to examine the association between self-organizing teamwork practices and job satisfaction and turnover intentions. Furthermore, we examined whether psychosocial factors acted as potential mediators.

## 2. Methods

#### 2.1. Study design

We conducted a cross-sectional survey in three municipalities to compare teams which had been coached towards self-organizing work practices to teams that had not been coached. Altogether, there were three teams participating from municipality one (one team received coaching), nine teams from municipality two (four coached) and 52 from the third municipality (22 coached). The principles that guided the coaching in the project were similar to those applied in the Buurtzorg model (Monsen and de Blok, 2013). However, the three areas differed slightly in terms of coaching since two municipalities had coaching that was conducted by two researchers from our project, whereas the third municipality had conducted the coaching with a consultant and later with a peer-mentoring method.

Based on earlier research, we first hypothesized that:

- self-organizing teamwork would be associated with job satisfaction positively and with turnover intentions negatively
- 2. based on studies regarding the Buurtzorg model, we assumed that these associations would be more significant in home care compared to assisted living.
- 3. the dimensions of the Karasek and Theorell model (Karasek and Theorell, 1990) would act as the mechanism linking self-organized teams to job satisfaction and turnover of the employees. In the Karasek model, the interaction between control and demand, strain, is supposed to be crucial and we suppose that strain is the major mediator between self-organized teamwork and job satisfaction and turnover intentions. However, we also tested the mediating effect of job control and job demands (Fig. 1).

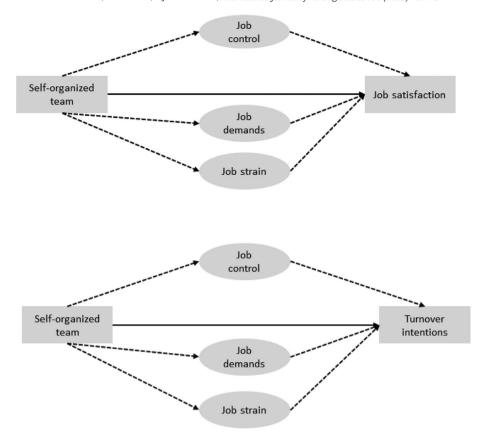


Fig. 1. Hypothesized associations between team organization type and job satisfaction / turnover intentions, showing the possible mediators (in circles).

## 2.2. Measures

Job satisfaction was measured using a one-question measure ("Generally speaking, I am very satisfied with my job") (Hackman and Oldham, 1975), which was rated on a five-point Likert scale from "Fully agree" to "Fully disagree". A single-item measure for job satisfaction has been shown to have good concurrent validity (Dolbier et al., 2005).

As in several previous studies (Han et al., 2015; Piers et al., 2019), turnover intentions were measured with a single question, "I frequently consider leaving my job", the rating was a five-point Likert scale ("Fully agree" to "Fully disagree") (Hackman and Oldham, 1975).

Job control was measured using a shortened version of the widely used (Häusser et al., 2010) Karasek's Job Content Questionnaire (Karasek and Theorell, 1990; Karasek, 1979) and it included two statements related to job autonomy and skill discretion ("I can make a lot of independent decisions at my job" and "My job requires that I learn new things"). Both were rated on a five-point Likert scale from "Fully agree" to "Fully disagree". The inter-item correlation for the two variables was 0.30, p < 0.01.

Job demands were measured with statements adapted from Harris' Nurse Stress Index (Harris, 1989) that described experienced time pressure at work ("I have too little time for my patients/clients", "I do not have time to perform my work properly" and "I only have time to do the essentials"). A Cronbach's alpha for the demand scale was 0.90. These items have been used in similar research contexts in previous studies (Pekkarinen et al., 2013; Virtanen et al., 2007). To assess job strain, a 'job strain' variable was conducted by dividing job demands by job control (Landsbergis et al., 1994).

The models were adjusted for age, sex, occupational status, and workplace (home care or assisted living).

# 2.3. Setting

This study was conducted in public home care and assisted living facilities with 24-h assistance. Municipality number one is a smaller, more rural municipality and municipality two is a larger city, where teams from four different districts participated in our study. The third municipality was a larger city and the teams from assisted living facilities were only from this municipality. All municipalities produce health and social care services themselves, including services for older people.

# 2.4. Sample

In total, 1324 surveys were sent on the first round to all nurses working 64 teams in home care and assisted living facilities with 24-h assistance. The total number of respondents was 600, adding up to a response rate of 45%. Of the respondents, 301 belonged to the self-organized teams group and 299 to non-self-organized teams group (here onward referred to as NSO).

The majority of the respondents were female (89%), and their mean age was 44 years. Forty-three percent of the respondents (N = 255) worked in home care and 57% (N = 345) in assisted living (with 24-h assistance). The self-organized and NSO groups were not equal in terms of workplace, since the number of people working in home care was bigger in the NSO group compared to the self-organized group (47% vs. 38%, p = 0.021) (Table 1). Licensed practical nurses (or similar) were the largest occupational group (62%) and the second largest was registered nurses (13%). Results in Table 1 show that the self-organized and NSO groups did not differ in terms of age, sex or occupational group. There were differences between the self-organized and the NSO group regarding the outcome and mediating variables. In the self-organized group, job control was reported as higher, job demands as

**Table 1**Characteristics of participants according to team organization type.

Team organization type		Non-self-organized	Self-organized	p -value
Age at baseline	Mean (SD)	43.4 (12.2)	44.2 (12.5)	0.412
Sex	Female	271 (91.9)	261 (89.1)	0.250
	Male	24 (8.1)	32 (10.9)	
Occupational	Registered nurses,	81 (27.4)	102 (34.6)	0.076
group	therapists1			
	Practical nurses	202 (68.2)	175 (59.3)	
	Others	13 (4.4)	18 (6.1)	
Home care	Yes	141 (47.2)	114 (37.9)	0.021
	No	158 (52.8)	187 (62.1)	
Job control	Mean (SD)	4.1 (0.7)	4.2 (0.6)	0.047
Job demands	Mean (SD)	3.5 (1.0)	3.3 (1.0)	0.012
Job strain	Mean (SD)	0.9 (0.4)	0.8 (0.3)	0.001
Job satisfaction	Mean (SD)	3.7 (1.0)	3.9 (1.0)	0.006
Turnover intentions	Mean (SD)	2.5 (1.3)	2.2 (1.2)	0.006

<sup>&</sup>lt;sup>1</sup> Includes registered nurses, therapists, and those in a managerial position.

lower and job strain as lower compared to the NSO group. In addition, the participants in the self-organized group had higher job satisfaction and lower turnover intentions.

#### 2.5. Data collection

Data for the study was collected with paper surveys that were posted in February 2020 by regular post and directed to employees working in services for older people (home care and assisted living with 24-h assistance) in the participating municipalities in Finland. The surveys were sent and distributed at the work unit via supervisors (head nurse or equivalent). Reminders were initially aimed to be sent twice. However, due to the COVID-19 pandemic that caused the reorganizing of teams, we chose to send only one reminder and terminate the survey earlier than originally planned. The respondents had time to respond to the survey between February and April 2020. The reminder was sent three weeks after posting the first survey. The respondents received a survey that was either in Finnish or Swedish, depending on whether the supervisor of the unit reported any Swedish-speaking employees in their work unit.

The information indicating whether the work unit was applying self-organizing teamwork practices was derived from the managers of participating organizations and was coded as self-organized and non-self-organized. The criteria for a team to be classified as self-organizing, was that the work unit had participated in a coaching on self-organized teamwork practices.

# 2.6. Data analyses

The associations between team organization type (self-organizing vs. non-self-organized) and both outcomes (job satisfaction, turnover intentions) were tested using linear regression analyses. The models were adjusted for age, sex, occupational status, and workplace. Further, interaction effects between team organization type (self-organizing vs. non-self-organized) and workplace (home care vs. other) on job satisfaction and turnover intentions were tested. The number of observations in the linear regression models was 563 for the job satisfaction model and 564 for the turnover model. The potential mediation effects of the dimensions of the job Demand-Control model were tested using the simulation-based Monte-Carlo approach with the sequential ignorability assumption (Imai et al., 2010). The effects were separated into average causal mediation effects, average direct effects, and total effects. Analyses were conducted separately with all the mediators, for example, team organization type as an independent variable, job satisfaction as an outcome and job control as a mediator. The model was adjusted for age, sex, occupational status and workplace. Then the same was conducted with job demands and job strain as mediators. The analyses were performed for both outcome variables (job satisfaction and turnover intentions) similarly. The number of observations in all mediation models was 541. In order to obtain the confidence intervals, bootstrapping was performed for each of the models with 1000 replications. Statistical analyses were conducted using SPSS version 26 and R version 3.6.1 and R-package 'mediation' (Tingley et al., 2014). The alpha level was set to 0.05.

# 2.7. Ethical approval

The ethical approval for the study was obtained from The Human Sciences Ethics Committee of the Helsinki Region Universities of Applied Sciences (application number 1/2018). The participants had to fill out a consent form in order to be included in the study. This form was sent out to the participants with the survey. If a participant failed to fill or return the consent form, they were excluded from the study. It was stated in the survey script that participants were under no obligation to participate in or to submit the survey.

## 3. Results

The results from the linear regression analyses showed that team organization type was associated with higher job satisfaction and lower turnover intentions after adjusting for age, sex, occupational status and workplace (Table 2). No interaction effect was found between team organization type and home care on job satisfaction or turnover intentions (p = 0.154, and p = 0.425, respectively).

# 3.1. Mediation analyses

The mediation analyses indicated that job demands and job strain partially mediated the effect of self-organizing teamwork on job satisfaction (Table 3). In the turnover intention models, the effects were similar. Job demands and job strain partially mediated the effect of self-organizing teamwork on turnover intentions. No mediation effect was detected in the job satisfaction or in the turnover intentions model where job control was used as a mediator.

# 4. Discussion

The results from our study indicate that those employees who worked in self-organized teams had higher job satisfaction and lower turnover intentions compared to their controls. Job demands and job

**Table 2**Multivariable associations between team organization type and job satisfaction / turnover intentions. Linear regression analyses (regression coefficients, 95% confidence intervals).

	Job satisfaction		Turnover intentions	
Predictor	Estimates	P-Value	Estimates	P-Value
Intercept	3.21	< 0.001	3.18	< 0.001
	(2.63-3.80)		(2.46-3.90)	
Self-organized	0.18	0.030	-0.22	0.031
	(0.02-0.35)		(-0.42  to)	
			-0.02)	
Age (years)	0.01	0.132	-0.01	0.001
	(-0.00-0.01)		(-0.02  to	
			-0.01)	
Sex (male)	0.15	0.307	0.17	0.336
	(-0.14-0.43)		(-0.18-0.52)	
Registered nurses,	0.03	0.759	0.04	0.729
therapists <sup>1</sup>	(-0.16-0.21)		(-0.19-0.27)	
Practical nurses	0.38	0.052	-0.42	0.079
	(-0.00-0.75)		(-0.89-0.05)	
Home care (yes)	0.03	0.709	-0.19	0.073
	(-0.14-0.20)		(-0.41-0.02)	
Observations	563		564	
R <sup>2</sup> / R <sup>2</sup> adjusted	0.023/0.012		0.050/0.040	

<sup>&</sup>lt;sup>1</sup> Includes registered nurses, therapists, and those in a managerial position.

**Table 3**Mediating effects of job demands, job control and job strain in the associations between team organizing type and job satisfaction and between team organizing type and turnover intentions (causal mediation analyses).

	Job satisfaction		Turnover intentions		
	Estimates (95% CI)	P-value	Estimates (95% CI)	P-value	
ACME <sup>2</sup>	0.09 (0.02–0.15)	0.010	-0.08 (-0.15 to -0.01)	0.020	
ADE <sup>3</sup>	0.11 (-0.04-0.26)	0.138	-0.19 (-0.39-0.00)	0.046	
Total effect	0.20 (0.04–0.36)	0.014	-0.27 (-0.47 to -0.07)	0.002	

Job strain as a mediator	(estimates and 95% CI)
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	Job satisfaction		Turnover intentions	
	Estimates (95% CI)	P-value	Estimates (95% CI)	P-value
ACME	0.10 (0.03–0.18)	0.004	-0.20 (-0.18 to -0.03)	0.006
ADE	0.09 (-0.06-0.25)	0.234	-0.18 (-0.36 to -0.01)	0.048
Total effect	0.20 (0.04–0.37)	0.020	-0.28 (-0.46 to -0.09)	0.004

Job control as a mediator (estimates and 95% CI)

	Job satisfaction		Turnover intentions	
	Estimates (95% CI)	P-value	Estimates (95% CI)	P-value
ACME	0.04 -0.02 - 0.09	0.166	-0.04 -0.09 to 0.01	0.162
ADE	0.15769 (-0.01-0.31)	0.052	-0.24 (-0.45 to -0.02)	0.032
Total effect	0.19 (0.03-0.35)	0.024	-0.27 (-0.48 to -0.05)	0.020

- 95% Confidence interval.
- Average causal mediation effect.
- <sup>3</sup> Average direct effect.

strain seemed to function as mediators for both outcome variables. These results could be interpreted in a way that those employees who worked in a self-organized team had lower demands and a better ratio between job demands and job control, in other words lower strain, which led to higher job satisfaction and lower turnover intentions. Previous studies have confirmed the association which we found in this study as well. For instance, a review from Nei et al. (2015) (Nei et al., 2015) indicated that job strain was one of the factors that was associated with nurses' turnover intentions. In addition, a similar effect was present in the study from Chiu et al. (2009), which found that nurses with high job strain were more likely to turn over, compared to the lower strain group.

The findings from our study further supported the findings from other studies regarding the self-organized teams and job satisfaction. This study demonstrated that teams which were self-organized had higher job satisfaction compared to other teams. Furthermore, turnover intentions of those teams were lower. When examining the care teams that have adopted 'the Buurtzorg way of working', similar findings have been detected. A Dutch study demonstrated that nurses who worked in a self-organizing team were more satisfied with their job (Maurits et al., 2017) and a similar finding was discovered in a study by Drennan et al. (2018).

In this study, job control did not mediate the effect between team organization type and job satisfaction or turnover intentions. Other studies, however, have found that job control has been an important factor associated with turnover (Chiu et al., 2009; Gao et al., 2014). The findings from our study could be interpreted in a way that higher job control and lower job demands combined resulted in a lower turnover and higher job satisfaction and that these two were more important than just control itself. This is in line with the original Job Demand-Control

model where strain is seen as crucial when considering the worker's psychological wellbeing (Karasek, 1979). Teams that were self-organized likely had an increased level of autonomy and as a result they were able to plan their workday in a way which evened out their demands and time pressure. Still, team autonomy and autonomy of a single employee must be distinguished. There is a discussion of whether team autonomy increases or decreases the autonomy of employees and whether individual autonomy decreases team autonomy (Magpili and Pazos, 2018). If team autonomy and autonomy of a single employee are contradictory, our results are understandable.

Our results indicate that self-organizing teamwork could possibly be beneficial when considering an employee's job satisfaction and turn-over intentions, however it is not a model that will solve everything. Even though other studies have acknowledged the benefits related to self-organizing teams as well there have also been problems among them, especially in the implementation phase (Drennan et al., 2018; Lalani et al., 2019). It is possible that in our study, coached teams did not have enough time to become self-organizing since a change towards self-organizing team practices may be slow in the beginning. Therefore, the level of team autonomy may not have increased so significantly.

Another factor that should be taken into account in the implementation of self-organizing teams is the use of the Enterprise Resource Planning system (ERP) that is used to schedule home care visits. If the ERP system is operated on a district level and does not enable scheduling in teams, it is possible that the ERP system decreases the autonomy of teams. A previous study conducted among home care staff in Finland suggested that ERP may be one reason behind poor job satisfaction (Ruotsalainen et al., 2020).

Teamwork and ERP systems are closely related to two important phenomena: care continuity and stability of teams. Continuity of care has widely been seen as increasing quality of care, especially for chronically ill patients (Cabana and Jee, 2004). Further, care continuity was said to be related to positive carer-patient experience among the community nursing team (Lalani et al., 2019). The Buurtzorg model emphasizes this continuity and the care teams in the model are rather small (Monsen and de Blok, 2013). On the other hand, the stability of teams, meaning that team members remain the same, has been found to relate to quality of care (Havig et al., 2013). In assisted living (with 24-h assistance), the teams may be rather stable and clients are taken care of by the same nurses. Yet in home care, the ERP systems use algorithms to count the most effective job division, and in some cases, do not take into account care continuity and the composition of teams. Future research should therefore investigate the use of ERP systems, their effect on care continuity and their association with different wellbeing measures, like job satisfaction.

Our study did not reveal differences in the studied outcome variables between assisted living and home care. Due to the success of Buurtzorg, it may seem that self-organizing teams are advantageous, especially in home care (Drennan et al., 2018; Hegedüs et al., 2022); however, in nursing homes, hospitals and primary care, teamwork has been developed earlier. In assisted living, employees work in more fixed, 'ward-based', units and are possibly already used to a more intense cooperation between team members compared to those working in a more individual home care environment. Still, there have been contradictory findings regarding the outcomes of different models of teamwork among fixed ward-based units as well (Prentice et al., 2021). Since self-organizing teamwork is still a fairly new concept in an older people care context, future studies should focus on finding out if it is suited to older peoples' services in other countries and for other types of care facilities. The findings of our study showed that implementing self-organizing teams may be beneficial in assisted living facilities. The generalizability of our findings to other contexts and other countries, however, could be limited due to the differences in older people care systems and the different composition of care staff. Our study population mainly consisted of practical nurses, whereas, in the Buurtzorg model, the care staff are generally registered

nurses. Despite some experiences from other countries, there are a lack of studies with a comparative setting. Most of the studies are qualitative and drew their conclusions from a rather small amount of data (De Bruin et al., 2022).

## 4.1. Limitations

There were some limitations in this study. Firstly, the study was cross-sectional and therefore we cannot rule out the possible selection bias. The work units, which volunteered to take part in the selforganization coaching, may have been more "better off" from the start. The same may have been true the other way around as well: if the persons in the non-self-organized group knew that they would be in the 'control group', they felt that they were worse off. Thus, we cannot determine any causal relationship between the variables studied. Secondly, because of the convenience sample, we are not able to claim that the participants represent Finnish employees in older people care services, especially those who worked in assisted living facilities, since these teams were only from one large municipality and only from the public sector. Thirdly, the differences in team coaching may have had an impact on the results of this study as well. Since teams from the two municipalities received coaching within the project and the teams from a larger city had other consultants providing the coaching, the content and the methods of implementing self-organizing teams may have differed.

# 5. Conclusions

This study demonstrated that those employees who worked in a selforganizing team had higher job satisfaction and lower turnover intentions. Furthermore, job demands and job strain were seen to partially mediate the effect between team coaching and job satisfaction and turnover intentions. The results from our study indicate that selforganized teams may reduce job demands as well as job strain, both of which increase job satisfaction and decrease turnover intentions. Despite the increasing number of studies showing the benefits of self-organized teamwork in home care, our findings show that self-organization also benefits employees in assisted living with 24- h assistance. This may relate to better co-operation or prioritization of work tasks, which was easier to implement in fixed units, where work is done in daily cooperation, unlike in home care where the work is mainly done alone. In care services for older people, the stress levels are high, and work may be very demanding. The self-organizing teamwork seems to be related to better balance between job demands and job control and thus increased job satisfaction and lower turnover intentions.

Furthermore, this study demonstrated that self-organizing teams may be beneficial for employees in different service types for older people, not solely in home care. In assisted living, where teams may be more stable, self-organizing teams could provide a way to increase job satisfaction and lower turnover intentions. As the shortage of personnel is a major problem within the European health and social care context, self-organized teamwork may have the potential to alleviate this burden. In light of several studies, self-organization, however, requires team building and real changes in management. Managers in health care organizations should allow teams to have real autonomy over their work to enable a team to act fully self-organizing and to achieve the possible benefits related to the model.

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# **CRediT authorship contribution statement**

**Salla Ruotsalainen:** Conceptualization, Formal analysis, Writing original draft.

**Marko Elovainio:** Methodology, Formal analysis, Writing - Review & Editing.

Sami Jantunen: Investigation, Writing - Review & Editing.

**Timo Sinervo:** Conceptualization, Investigation, Writing - Review & Editing.

# Data availability

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

# **Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### References

- Cabana, M.D., Jee, S.H., 2004. Does continuity of care improve patient outcomes? J. Fam. Pract. 53 (12), 974–980 Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/15581440
- Chiu, Y., Chung, R., Wu, C., Ho, C., 2009. The effects of job demands, control, and social support on hospital clinical nurses' intention to turn over. Appl. Nurs. Res. 22 (4), 258–263. https://doi.org/10.1016/j.appr.2008.02.006.
- Cohen, S.G., Ledford, G.E., 1994. The effectiveness of self-managing teams: a quasi-experiment. Hum. Relat. (N. Y.) 47 (1), 13–43. https://doi.org/10.1177/001872679404700102.
- De Bruin, J.H., Doodkorte, R.J.P., Sinervo, T., Clemens, T., 2022. The implementation and outcomes of self-managing teams in elderly care: a scoping review. J. Nurs. Manag. https://doi.org/10.1111/jonm.13836 n/a.
- Dolbier, C.L., Webster, J.A., McCalister, K.T., Mallon, M.W., Steinhardt, M.A., 2005. Reliability and validity of a single-item measure of job satisfaction. Am. J. Health Promot. 19 (3), 194–198. https://doi.org/10.4278/0890-1171-19.3.194.
- Drennan, V.M., Calestani, M., Ross, F., Saunders, M., West, P., 2018. Tackling the workforce crisis in district nursing: can the dutch buurtzorg model offer a solution and a better patient experience? A mixed methods case study. BMJ Open 8 (6), e021931. https://doi.org/10.1136/bmjopen-2018-021931.
- Gao, F., Newcombe, P., Tilse, C., Wilson, J., Tuckett, A., 2014. Models for predicting turnover of residential aged care nurses: a structural equation modelling analysis of secondary data. Int. J. Nurs. Stud. 51 (9), 1258–1270. https://doi.org/10.1016/j.ijnurstu.2014.01.011.
- Global Health Workforce Alliance, & World Health Organization, 2014. A Universal Truth: No Health without a Workforce. France: Retrieved from https://www.who.int/workforcealliance/knowledge/resources/GHWA-a\_universal\_truth\_report.pdf?ua=1.
- de Groot, K., Maurits, E.E.M., Francke, A.L., 2018. Attractiveness of working in home care: an online focus group study among nurses. Health Soc. Care Community 26 (1), e94–e101. https://doi.org/10.1111/hsc.12481.
- Hackman, J.R., Oldham, G.R., 1975. Development of the job diagnostic survey. J. Appl. Psychol. 60 (2), 159–170. https://doi.org/10.1037/h0076546.
- Han, K., Trinkoff, A.M., Gurses, A.P., 2015. Work-related factors, job satisfaction and intent to leave the current job among United States nurses. J. Clin. Nurs. 24 (21–22), 3224–3232. https://doi.org/10.1111/jocn.12987.
- Harris, P.E., 1989. The nurse stress index. Work. Stress. 3 (4), 335–346. https://doi.org/10. 1080/02678378908256952.
- Häusser, J.A., Mojzisch, A., Niesel, M., Schulz-Hardt, S., 2010. Ten years on: a review of recent research on the job demand-control (—support) model and psychological wellbeing. Work. Stress. 24 (1), 1–35. https://doi.org/10.1080/02678371003683747.
- Havig, A.K., Skogstad, A., Veenstra, M., Romøren, T.I., 2013. Real teams and their effect on the quality of care in nursing homes. BMC Health Serv. Res. 13 (1), 499. https://doi. org/10.1186/1472-6963-13-499.
- Hegedüs, A., Schürch, A., Bischofberger, I., 2022. Implementing buurtzorg-derived models in the home care setting: a scoping review. Int. J. Nurs. Stud. Adv. 100061. https://doi.org/10.1016/j.ijnsa.2022.100061.
- Imai, K., Keele, L., Tingley, D., 2010. A general approach to causal mediation analysis. Psychol. Methods 15 (4), 309–334. https://doi.org/10.1037/a0020761.

- Karasek, Robert A., 1979. Job demands, job decision latitude, and mental strain: implications for job redesign. Adm. Sci. O. 24 (2), 285–308. https://doi.org/10.2307/2392498.
- tions for Job redesign. Adm. Sci. Q. 24 (2), 285–308. https://doi.org/10.2307/2392498.

  Karasek, R., Theorell, T., 1990. Healthy Work. Stress, Productivity, and Reconstruction of Working Life Basic books. New York
- Lalani, M., Fernandes, J., Fradgley, R., Ogunsola, C., Marshall, M., 2019. Transforming community nursing services in the UK; lessons from a participatory evaluation of the implementation of a new community nursing model in East London based on the principles of the dutch buurtzorg model. BMC Health Serv. Res. 19 (1), 945. https://doi.org/10.1186/s12913-019-4804-8.
- Landsbergis, P.A., Schnall, P.L., Warren, K., Pickering, T.G., Schwartz, J.E., 1994. Association between ambulatory blood pressure and alternative formulations of job strain. Scand. J. Work Environ. Health 20 (5), 349–363. https://doi.org/10.5271/sjweb.1386.
- Laschinger, H.K., Finegan, J., Shamian, J., Almost, J., 2001. Testing karasek's demands-control model in restructured healthcare settings: effects of job strain on staff nurses' quality of work life. J. Nurs. Admin. 31 (5), 233 Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11388159.
- Lu, H., Barriball, K.L., Zhang, X., While, A.E., 2012. Job satisfaction among hospital nurses revisited: a systematic review. Int. J. Nurs. Stud. 49 (8), 1017–1038. https://doi.org/ 10.1016/j.ijnurstu.2011.11.009.
- Magpili, N.C., Pazos, P., 2018. Self-managing team performance: a systematic review of multilevel input factors. Small Group Res. 49 (1), 3–33. https://doi.org/10.1177/ 1046496417710500
- Maurits, E.E.M., de Veer, A.J.E., van der Hoek, Lucas S., Francke, A.L., 2015. Autonomous home-care nursing staff are more engaged in their work and less likely to consider leaving the healthcare sector: a questionnaire survey. Int. J. Nurs. Stud. 52 (12), 1816–1823. https://doi.org/10.1016/j.ijnurstu.2015.07.006.
- Maurits, E.E.M., de Veer, Anke J.E., Groenewegen, P.P., Francke, A.L., 2017. Home-care nursing staff in self-directed teams are more satisfied with their job and feel they have more autonomy over patient care: a nationwide survey. J. Adv. Nurs. 73 (10), 2430–2440. https://doi.org/10.1111/jan.13298.
- Monsen, K.A., de Blok, J., 2013. Buurtzorg: nurse-led community care. Creative Nurs. 19 (3), 122–127. https://doi.org/10.1891/1078-4535.19.3.122.
- Nei, D., Snyder, L.A., Litwiller, B.J., 2015. Promoting retention of nurses: a meta-analytic examination of causes of nurse turnover. Health Care Manag. Rev. 40 (3), 237–253. https://doi.org/10.1097/HMR.000000000000025.
- Pekkarinen, L., Elovainio, M., Sinervo, T., Finne-Soveri, Harriet, Noro, A., 2006. Nursing working conditions in relation to restraint practices in long-term care units. Med. Care 12, 1114. https://doi.org/10.1097/01.mlr.0000237198.90970.64.

- Pekkarinen, L., Elovainio, M., Sinervo, T., Heponiemi, T., Aalto, A.M., Noro, A., Finne-Soveri, H., 2013. Job demands and musculoskeletal symptoms among female geriatric nurses: the moderating role of psychosocial resources. J. Occup. Health Psychol. 18 (2), 211–219. https://doi.org/10.1037/a0031801 [doi].
- Piers, R.D., Versluys, K., Devoghel, J., Vyt, A., Van Den Noortgate, N., 2019. Interprofessional teamwork, quality of care and turnover intention in geriatric care: a cross-sectional study in 55 acute geriatric units. Int. J. Nurs. Stud. 91, 94–100. https://doi.org/10. 1016/j.iinurstu.2018.11.011.
- Prentice, D., Moore, J., Desai, Y., 2021. Nursing care delivery models and outcomes: a literature review. Nurs. Forum (Hillsdale) 56 (4), 971–979. https://doi.org/10.1111/
- Rosen, M.A., DiazGranados, D., Dietz, A.S., Benishek, L.E., Thompson, D., Pronovost, P.J., Weaver, S.J., 2018. Teamwork in healthcare: key discoveries enabling safer, highquality care. Am. Psychol. 73 (4), 433–450. https://doi.org/10.1037/amp0000298.
- Ruotsalainen, S., Jantunen, S., Sinervo, T., 2020. Which factors are related to finnish home care workers' job satisfaction, stress, psychological distress and perceived quality of care? - a mixed method study. BMC Health Serv. Res. 20 (1), 896. https://doi.org/ 10.1186/s12913-020-05733-1.
- Social welfare act 1301/2014, 2014. Retrieved from http://finlex.fi/en/laki/kaannokset/1982/en19820710\_20140491.pdf.
- Tingley, Dustin, Yamamoto, Teppei, Hirose, Kentaro, Keele, Luke, Imai, Kosuke, 2014. Mediation: R package for causal mediation analysis. J. Stat. Softw. 59 (1), 1–38. https://doi.org/10.18637/jss.v059.i05.
- Tummers, L.G., Groeneveld, S.M., Lankhaar, M., 2013. Why do nurses intend to leave their organization? A large-scale analysis in long-term care. J. Adv. Nurs. 69 (12), 2826–2838. https://doi.org/10.1111/jan.12249.
- Virtanen, M., Vahtera, J., Pentti, J., Honkonen, T., Elovainio, M., Kivimäki, M., 2007. Job strain and psychologic distress influence on sickness absence among finnish employees. Am. J. Prev. Med. 33 (3), 182. https://doi.org/10.1016/j.amepre.2007.05.003.
- Yang, S., Guy, M.E., 2004. Self-managed work teams: who uses them? What makes them successful? Public Perform. Manag. Rev. 27 (3), 60–79. https://doi.org/10.1080/ 15309576.2004.11051799.
- Yang, S., Guy, M.E., 2011. The effectiveness of self-managed work teams in government organizations. J. Bus. Psychol. 26 (4), 531–541. https://doi.org/10.1007/s10869-010-9205-2