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Autonomous home-care nursing staff are more engaged in their work and less likely to consider leaving the healthcare sector. A questionnaire survey.

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ABSTRACT

Background: The need for home care is rising in many Western European countries, due to the aging population and governmental policies to substitute institutional care with home care. At the same time, a general shortage of qualified home-care staff exists or is expected in many countries. It is important to retain existing nursing staff in the healthcare sector to ensure a stable home-care workforce for the future. However, to date there has been little research about the job factors in home care that affect whether staff are considering leaving the healthcare sector.

Objective: The main purpose of the study was to examine how home-care nursing staff's self-perceived autonomy relates to whether they have considered leaving the healthcare sector and to assess the possible mediating effect of work engagement.

Design, setting and participants: The questionnaire-based, cross-sectional study involved 262 registered nurses and certified nursing assistants employed in Dutch home-care organisations (mean age of 51; 97% female). The respondents were members of the Dutch Nursing Staff Panel, a nationwide group of nursing staff members in various healthcare settings (67% response rate).

Methods: The questionnaire included validated scales concerning self-perceived autonomy and work engagement and a measure for considering pursuing an occupation outside the healthcare sector. Logistic regression and mediation analyses were conducted to test associations between self-perceived autonomy, work engagement and considering leaving the healthcare sector.

Results: Nursing staff members in home care who perceive more autonomy are more engaged in their work and less likely to have considered leaving the healthcare sector. The positive association between self-perceived autonomy and considering leaving, found among nursing staff members regardless of their level of education, is mediated by work engagement.

Conclusion: In developing strategies for retaining nursing staff in home care, employers and policy makers should target their efforts at enhancing nursing staff's autonomy, thereby improving their work engagement.

What is already known about the topic?

- Most studies of job factors that are associated with turnover in nursing have been limited to hospital nurses.
- Nurses in home care attach great importance to autonomy.
- Previous studies described autonomy as an antecedent of nurses' work engagement.
- As yet, research on the consequences of nursing staff's work engagement has been scarce and has disregarded job outcomes, such as considering leaving the healthcare sector.

What this paper adds

- Self-perceived autonomy of home-care nursing staff is related to whether they have considered leaving the healthcare sector.
- This association applies to home-care nursing staff regardless of their level of education.
- Work engagement has a mediating role in the relationship between self-perceived autonomy and considering leaving the healthcare sector.

1. INTRODUCTION

Ensuring a sustainable workforce in home care is a challenge for many Western European countries. A general shortage of home-care nursing staff exists in several countries, while other countries expect a scarcity of qualified home-care staff in the future (Genet et al., 2013).

The need for home care is rising due to the growing number of elderly people, both in absolute terms and as a proportion of the population, and because informal care is becoming scarcer (Colombo et al., 2011, European Commission, 2013, Genet et al., 2013, OECD, 2013). In addition, many OECD countries have developed policies to substitute institutional care with home care in response to people's preference for receiving care at home, as a measure for curbing the rapid growth in healthcare expenditure and helped by technological developments that further enable home-based care (Ellenbecker et al., 2008, Genet et al., 2013, OECD, 2013).

Various measures can be taken to ensure a workforce that is sufficient to meet the rising demand for home care. Besides recruiting new home-care personnel and increasing productivity, it is important to retain current nursing staff and prevent them from leaving the healthcare sector. It would thus be useful to have a better understanding of the job factors in home care that affect home-care nursing staff's

views on leaving the healthcare sector. This knowledge can help home-care employers and policy-makers take action to ensure a stable home-care workforce for the future.

Nurse turnover intention has frequently been the topic of research. Chan et al. (2013) conducted a systematic review on the intention to leave the current employment or the profession among registered nurses in hospitals. Hayes et al. (2012) reviewed recent literature on the intention to leave and actually leaving the organisation, unit/ward or the profession among registered nurses, practical/enrolled nurses and assistant nurses working in hospitals, long-term care or community care. However, current knowledge of job factors that impact on intentions to leave home care is limited (Ellenbecker et al., 2008). Research on turnover in nursing has tended to focus on leaving the organisation rather than the sector (Chan et al., 2013) and on hospital nurses (Hayes et al., 2012). For example, the recent systematic literature review by Chan et al. (2013) showed that lack of autonomy is associated with hospital nurses' intention to leave. However, these results cannot automatically be extrapolated to nursing staff in the home-care sector (Neal-Boylan, 2006). For instance, home-care nursing staff may take more autonomous decisions in caring for their clients than nursing staff in hospital do.

This paper therefore focuses on the role of home-care nursing staff's self-perceived autonomy in considering leaving the healthcare sector. There is still no commonly accepted definition of autonomy in the nursing context (Varjus et al., 2011).

Ellenbecker (2004), who has described a theoretical model of job retention for home-care nurses, has defined autonomy as independence and freedom of initiative in a job. We use this definition of autonomy in this paper.

A large-scale survey of the impact of job characteristics on intent to leave the organisation among nurses in nursing homes, care homes and home care established that autonomy is particularly important for nurses in home care (Tummers et al., 2013). When autonomy was reduced, home-care nurses were more likely to leave the organisation. However, it remains unclear whether low self-perceived autonomy is also an important reason for home-care nursing staff to consider leaving the healthcare sector. A more thorough understanding of this would help in particular in developing policies to guarantee a nursing workforce that can meet the demand for home care in the longer term. Therefore, the first objective of this paper is to provide insight into the association between the self-perceived autonomy of nursing staff in home care and whether they are considering leaving the healthcare sector.

In this regard, the paper also addresses whether there is a possible moderating effect of educational level on the association between self-perceived autonomy and considering leaving. A meta-analytic study of factors related to hospital nurses' intention to stay at or leave their jobs, performed by Yin and Yang (2002), showed a positive relationship between hospital nurses' educational level and autonomy.

Alexander et al. (1982) suggest that nurses with a bachelor's degree are socialised to expect autonomy in their work environment. It can therefore be assumed that nursing staff with a higher level of education would be more dissatisfied than other nursing staff if they perceive a lack of autonomy, and would therefore be more likely to leave the healthcare sector.

Furthermore, this paper examines whether work engagement has a mediating effect on the relationship between self-perceived autonomy and considering leaving the healthcare sector. A frequently cited definition of work engagement is "a positive,

fulfilling, and work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002a, p.465, Schaufeli et al., 2002b, p.74). Work engagement is distinct from concepts such as organisational commitment, embeddedness and job satisfaction as it entails a complex and comprehensive view of an employee’s relationship with their work (Leiter and Maslach, 2003). While organisational commitment concerns allegiance to the organisation and embeddedness refers to the attachment to a specific job and work setting, work engagement is directly linked to the work itself, which could be done in multiple settings (Bargagliotti, 2012, Leiter and Maslach, 2003). Besides, job satisfaction refers to the extent to which work is a source of need fulfilment and contentment and does not include an employee’s relationship with the work itself (Leiter and Maslach, 2003).

Previous studies among healthcare personnel (Mauno et al., 2007) and telecom managers (Schaufeli et al., 2009) have shown that autonomy is positively related to (aspects of) work engagement. According to Bakker and Demerouti (2007), autonomy can be labelled as a job resource: a feature of the job that is functional in achieving work goals, reducing job demands and the associated physical and psychological costs, and supporting personal growth, learning and development. In their survey study among employees in a home-care organisation, Schaufeli and Bakker (2004) found support for their hypothesis that work engagement mediates the relationship between job resources and turnover. However, the authors did not include autonomy in the job resources they examined. They also highlighted the need for replication using different types of indicators for job resources (Schaufeli and Bakker, 2004).

Hence, the second objective of this paper is to examine whether the hypothesised relationship between home-care nursing staff’s self-perceived autonomy and considering leaving health care is mediated by work engagement.

This study sought to test the following three hypotheses:

1. The self-perceived autonomy of nursing staff in home care is negatively related to considering leaving the healthcare sector.
2. The association between self-perceived autonomy and considering leaving health care is stronger for nursing staff with a higher level of education.
3. The association between self-perceived autonomy and considering leaving health care is mediated by work engagement.

2. METHODS

2.1 Design and setting

The hypotheses were tested in a cross-sectional design, using data from a questionnaire survey among nursing staff working in home care. Data collection took place in the Netherlands in May and June 2013.

Dutch formal home care covers care that supports daily living activities (i.e. personal care), technical nursing care and psychosocial care - all of which are delivered mainly by registered nurses and certified nursing assistants. Formal home care can be episodic after a hospital stay but is more often longer lasting (De Veer et al., 2009). The education of Dutch certified nursing assistants consists of 3 years of vocational training after secondary education. This is different from the situation in

most other countries where nursing assistants often have vocational training of less than 1 year. Dutch registered nurses are educated to two different levels. Nurses educated to associate degree level have had 3–3.5 years of professional training (equivalent to a UK foundation qualification) and nurses educated to bachelor's degree level have had at least 4 years of professional training (De Veer and Francke, 2010, De Veer et al., 2009).

2.2. Sample

A total of 116 Dutch registered nurses and 146 certified nursing assistants working in home care completed the questionnaire (a response rate of 69% among registered nurses and 65% among nursing assistants). Respondents were members of a pre-existent survey panel, the Nursing Staff Panel, consisting of a nationwide group of nursing staff members in various healthcare settings. Members of the Nursing Staff Panel are recruited via a random sample of the population of Dutch healthcare employees provided by the Dutch Employee Insurance Agency. This agency is responsible for social security payments and registers all employees in the Dutch healthcare sector. Healthcare employees in this random sample were asked to participate in healthcare research for various purposes. Nursing staff delivering direct patient care in the largest healthcare sectors in the Netherlands (i.e. hospitals, mental health care, care for disabled people, home care, nursing homes and homes for the elderly) who agreed to this request were then invited to become members of the Nursing Staff Panel. This procedure promotes a diverse composition of the Panel in terms of age, gender, region and employer. Participation in the Nursing Staff Panel is voluntary and anonymous.

2.3 Data collection

The questionnaire was self-administered. The questionnaire was sent by post to panel members working in home care. The questionnaire was accompanied by a covering letter and a prepaid reply envelope. To increase the response rate, up to two postal reminders were sent at fortnightly intervals to panel members who had not yet responded.

2.4 Instruments

Considering leaving the healthcare sector

Considering leaving the healthcare sector was measured using one item: 'During the past year, did you consider pursuing an occupation outside the healthcare sector?' Responses were coded as 'no'=0 and 'yes'= 1.

Autonomy

Self-perceived autonomy was measured using the 'autonomy' subscale from the Dutch 'Questionnaire on the Experience and Evaluation of Work' (QEEW) by Van Veldhoven and Meijman (1994). The QEEW, which is modelled on internationally renowned instruments such as the Job Content Questionnaire (Karasek et al., 1998), is widely used in the Netherlands to measure psychosocial job characteristics among employees in various sectors, including health care (Van Veldhoven et al., 2002).

The 'autonomy' subscale has shown to be valid and reliable (Van Veldhoven et al., 2002). Some examples of the 11 items are 'Do you have freedom in carrying out your daily activities?', 'Are you able to influence the scheduling of your work activities?' and 'Can you decide on the content of your work activities yourself?' The responses were on a four-point Likert scale ranging from 1 = 'never' to 4 = 'always'.

Work engagement

Work engagement was assessed using the Dutch nine-item version of the Utrecht Work Engagement Scale (UWES-9), developed by Schaufeli and Bakker (2003). The UWES-9 covers three dimensions of work engagement, which are measured by three items each: vigour (e.g., 'In my job, I feel strong and vigorous'), dedication (e.g., 'I am proud of the work that I do') and absorption (e.g., 'I feel happy when I am working intensely'). Items were scored on a six-point Likert scale ranging from 0 'never' to 6 'always'. Overall work engagement was calculated as the mean score of all nine items. Previous research in 10 different countries has demonstrated that the UWES-9 is a valid and reliable questionnaire (Schaufeli and Bakker, 2003, Schaufeli et al., 2006). The UWES is the instrument most commonly used to measure engagement (Bakker et al., 2008).

Respondent characteristics

The respondent characteristics addressed in the survey questionnaire are age, gender, educational level, performing managerial tasks, work experience in health care and number of working hours per week. Educational level was specified as the highest level of nursing education completed (certified nursing assistant, registered nurse associate level degree or registered nurse bachelor's degree). Work experience in health care was defined as the number of years practicing as a registered nurse or certified nursing assistant.

2.5 Ethical considerations

This study was questionnaire-based and had no patient involvement. No ethical approval was needed according to the Dutch law on medical research (the 'WMO') because the research subjects were not subjected to any interventions or actions (www.ccmo.nl). Study participation was voluntary and anonymous. Members of the Nursing Staff Panel were free to decide whether they filled in the questionnaire. Questionnaire data were stored separately from personal information on the panel members and researchers did not have access to personal information. Therefore responses were non-traceable to individual panel members and confidentiality and anonymity were guaranteed.

2.6 Data analysis

Univariate logistic regression analyses were conducted to assess the associations between autonomy, work engagement and the respondent characteristics on the one hand (the independent variables) and considering leaving the healthcare sector on the other hand (the dependent variable). To test Hypothesis 1, a multiple logistic regression analysis was performed with autonomy and the respondent characteristics as the independent variables and considering leaving as the dependent variable. Interaction terms of educational level with autonomy were included to investigate the

potential moderating effect of educational level (Hypothesis 2). The mediated effect of work engagement (Hypothesis 3) was examined using multiple logistic regression and mediation analysis. First, a multiple logistic regression analysis was performed with autonomy, work engagement and the respondent characteristics as the independent variables and considering leaving as the dependent variable. Then tests for mediation were conducted with autonomy as the independent variable, work engagement as the mediator and considering leaving as the dependent variable. The three regression equations described by Baron and Kenny (1986) were used for the tests: 1) regressing the mediator on the independent variable; 2) regressing the dependent variable on the independent variable; 3) regressing the dependent variable on both the independent variable and the mediator. The binomial nature of the dependent variable was accommodated by performing logistic regression analyses with standardised coefficients (Kenny, 2012, Preacher and Hayes, 2008). Standard errors for the direct and indirect effect along with 95% confidence intervals were obtained by bootstrapping (500 replications).

Data were analysed using STATA 13.1 (2013). The level of statistical significance was fixed at 0.05. Respondents with missing values for one or more variables were excluded from the analyses that included those variables. Table 1 shows the proportion of missing data for each variable. Model assumptions for logistic regression were verified (i.e. absence of multicollinearity, overdispersion and non-linear relationships between predictor variables and the log of the outcome). No violations of assumptions were found.

3. RESULTS

Descriptive statistics

The demographic characteristics of the respondents are shown in Table 1. Almost all respondents were female (97%). The respondents' mean age of 51 (standard deviation, or *S.D.* = 9.1) was higher than the mean age of employees working in the home-care sector in the Netherlands, which was 43 in 2011 (AZW, 2014). The majority of the respondents (56%) were certified nursing assistants, while 24% had an associate level degree in nursing and 20% a bachelor's degree. Most respondents (87%) delivered only direct patient care, while 13% also had managerial tasks. The average weekly working time was 22 hours (*S.D.* = 7.9). Respondents had 22 years of experience in nursing on average (*S.D.* = 10.3).

As can be seen from Table 1, 21% of the respondents said that they had considered pursuing an occupation outside the healthcare sector during the past year. The mean score for self-perceived autonomy was 2.70 (*SD* = 0.59; range 1-4) and the mean score for work engagement was 4.72 (*SD* = 1.02, range 0-6). The internal consistency of the two scales was good because Cronbach's alpha met the criterion of 0.80 (Table 1). The mean score for autonomy was higher among registered nurses with a bachelor's degree (3.04) than among registered nurses with an associate degree (2.69, $p < 0.01$) and certified nursing assistants (2.58, $p < 0.01$). No statistically significant differences were found between the three nursing staff groups in self-perceived work engagement and whether they had considered leaving the healthcare sector.

Hypothesis 1: Association between autonomy and considering leaving the healthcare sector

Hypothesis 1 is supported. As shown in Table 2 (column 1), the univariate logistic regression indicated that autonomy is negatively related to considering leaving (odds ratio (OR) = 0.47, 95% confidence interval (CI) = [0.27, 0.82], $p < 0.01$). As can be seen from Table 2 (column 2), this relationship remained significant after adding the respondent characteristics as independent variables in a multiple logistic regression analysis (OR = 0.52, 95% CI = [0.29, 0.95], $p < 0.05$). Nursing staff who perceived more autonomy were less likely to have considered leaving. None of the respondent characteristics (age, gender, educational level, performing managerial tasks, work experience and working hours per week) was associated with considering leaving the sector.

Hypothesis 2: Moderating effect of educational level

Hypothesis 2 stated that the effect of autonomy on considering leaving would be stronger for nursing staff members with a higher level of education. Since no interaction effect was found between autonomy and educational level (not in table), this hypothesis is rejected.

Hypothesis 3: Mediation by work engagement

As shown in Table 2 (column 1), univariate logistic regression analysis revealed that work engagement was negatively associated with considering leaving the healthcare sector (OR = 0.57, CI = [0.43, 0.77], $p < 0.01$). Those nursing staff members who showed greater engagement with their work were less likely to consider leaving. Autonomy turned out not to be related to considering leaving when both autonomy and work engagement (in addition to respondent characteristics) were included in the multiple regression analysis with considering leaving as the dependent variable (Table 2, column 3). Mediation analysis confirmed that work engagement mediates the relationship between autonomy and considering leaving (Table 3). The direct effect of autonomy was not significant, while the indirect effect was significant ($\beta = -0.083$, $p < 0.05$). Thus, Hypothesis 3 is supported: self-perceived autonomy is related to considering leaving the healthcare sector due to its association with work engagement.

4. DISCUSSION

4.1 Main findings

There was a significant negative relationship between nursing staff's self-perceived autonomy and whether they had considered leaving health care during the past year. No moderating effect of educational level was found. Yet work engagement had a mediating effect on the association between self-perceived autonomy and considering leaving health care. Thus, nursing staff's self-perceived autonomy affects considering leaving health care as a consequence of its relationship with work engagement. Enhancing nursing staff's autonomy will increase their work engagement and thereby make them less likely to consider a profession outside the healthcare sector.

Previous research in the field of turnover among nursing staff has predominantly concentrated on leaving, or intent to leave, the current employment (Chan et al.,

2013) and on hospital nurses (Hayes et al., 2012). Although autonomy has been found to be an important factor in the retention of hospital nurses (Chan et al., 2013), it is likely that lack of autonomy has even more detrimental effects on nursing staff in *home care*. According to Tummers et al. (2013), nurses in home care often choose to work in this extramural setting because they expect to be able to work relatively independently, since home-care nurses regularly work alone when providing their services. A survey study among home-care nurses revealed that practice flexibility and independence are driving forces in attracting nurses to home care (Anthony and Milone-Nuzzo, 2005). Ellenbecker et al. (2006) also stress the importance of autonomy to home-care nurses. Qualitative data from their survey among nurses from home-care agencies in the USA showed that autonomy is the most frequently reported positive aspect of home-care nurses' job. The current study confirms the importance of autonomy to home-care nursing staff.

Previous studies depicted autonomy as an antecedent of nurses' work engagement (Bargagliotti, 2012, Freeney and Tiernan, 2009). Bargagliotti (2012) described work engagement as the dedicated, absorbing, vigorous nursing practice that arises from settings of autonomy and trust. Our findings support the role of autonomy in creating favourable conditions for work engagement in home care. Home-care nursing staff members who perceive more autonomy are more engaged in their work.

In addition, this paper provides further insight into the implications of work engagement among home-care nursing staff. To date, research on the consequences of nursing staff's work engagement has been scarce and has tended to focus on patient outcomes (e.g. patient mortality and complication rates in hospitals), organisational outcomes (profitability) and employees' health outcomes (nurses' physical and mental health) rather than job outcomes such as considering leaving the healthcare sector (Bargagliotti, 2012, Laschinger and Finegan, 2005, Simpson, 2009). Nevertheless, in their small-scale survey study including teams of nurses and non-registered caregivers in two psychiatric hospitals, Van Bogaert et al. (2013) found that team work engagement is positively associated with intention to stay in the profession. Furthermore, Schaufeli and Bakker (2004) found a negative association between employees' work engagement and turnover intention among employees in a home-care organisation. In their literature review about engagement at work, Simpson (2009) recommends further research on the antecedents and consequences of nurses' work engagement, including different work settings and types of nursing staff. Our analyses showed that the work engagement of home-care nursing staff is related to whether they have considered leaving the healthcare sector. Nursing staff members in home care who are less engaged in their work are more likely to consider leaving the healthcare sector.

With regard to the job resource 'autonomy', the present paper provides additional evidence on the mediating role of work engagement in the job resources-turnover intention relationship. Schaufeli and Bakker (2004) demonstrated that a model with only an indirect path between job resources and turnover intention, via work engagement, is superior to a model that also assumes direct paths from job resources to turnover intention. Likewise, we found that work engagement emerged as a mediator of the relationship between autonomy and considering leaving the healthcare sector. No direct path between autonomy and considering leaving was found in addition to this indirect path through work engagement.

This paper also indicates that age, educational level, performing managerial tasks, work experience in health care and working hours per week are not associated with considering leaving the healthcare sector. However, in our multiple regression analyses the variance in the dependent variable (considering leaving) explained by the included independent variables was somewhat low. Therefore, other individual or work-related factors could play a role as well, as could economic factors.

4.2 Practical implications

Interventions that enhance home-care nursing staff's autonomy may improve their work engagement and thus make them less likely to consider leaving the healthcare sector. In the Netherlands, home-care nurses' autonomy is increasing due to policy changes and organisational transformations. While the task of assessing patients' home-care needs used to be delegated to an independent assessment agency, the Dutch government recently decided to reassign this task to home-care nurses with a bachelor's degree in nursing. Furthermore, the number of Dutch home-care organisations that have introduced self-managing district teams of nurses is growing. These independent teams organise nursing tasks themselves without close supervision. These developments are expected to be important in enhancing home-care nurses' autonomy and work engagement, and may also lead to a reduction in the number of home-care nursing staff members who are considering leaving the healthcare sector.

4.3 Limitations and strengths

The current study is limited by the failure to address causality in the relationships found between self-perceived autonomy, work engagement and considering leaving health care. Since the data were cross-sectional, causal inferences cannot be made. Furthermore, the mean age of nursing staff members in this study (51) was somewhat higher than the national average age of those working in long-term care (43) in the Netherlands (AZW, 2014). For this reason, the generalisability of our research could be questioned. Nevertheless, age effects are not expected since our results showed no difference between older and younger nursing staff in the likelihood of considering leaving health care. Another relevant issue is that the term 'home care' is understood differently across countries (Genet et al., 2013). Therefore, the generalisability of the study results is limited to countries like the Netherlands where home care denotes formal nursing services and personal care provided by nursing staff within clients' own homes. Furthermore, by using a dichotomous question to measure whether staff have considered leaving the healthcare sector, we could not differentiate between nursing staff for whom this is a strong possibility and those who have only occasionally considered the option. Finally, this study did not examine the possibility of nursing staff considering switching to a different healthcare subsector such as hospital care. These home-care nursing staff may be retained for the healthcare sector as a whole but are lost to home care.

Notwithstanding these limitations, the findings from this study make several noteworthy additions to previous research. First, while many published studies on the turnover of nurses are limited to the intention to leave the current job or organisation (Flinkman et al., 2010), this paper focused on considering leaving the healthcare sector in its entirety. It can be assumed that unlike changing jobs or organisations within the healthcare sector, nursing staff who leave the healthcare sector could pose a threat to the ability to ensure a sustainable workforce in this sector. Second, since

the number of studies on nurse retention in home care is limited (Ellenbecker et al., 2008), this research enhances our understanding of important work characteristics that help keep nursing staff in their profession. Finally, the current findings provide further insight into the consequences of nursing staff's work engagement and thereby support the idea that work engagement is an important concept in nursing.

4.4 Suggestions for future studies

Future longitudinal research could be helpful in establishing cause-and-effect relationships between self-perceived autonomy, work engagement and considering leaving the healthcare sector. Also, a cross-country study could assess possible differences between different countries in the associations found. Furthermore, objective data on nursing staff actually leaving the healthcare sector would improve the validity of the findings presented in this paper.

4.5 Conclusions

It is important to prevent nursing staff from leaving the healthcare sector in order to tackle current and future shortages of home-care nursing staff. This paper shows that in home care, nursing staff members who perceive more autonomy are more engaged in their work and less likely to consider leaving the healthcare sector. In developing strategies for retaining nursing staff, employers and policy-makers should therefore target their efforts at enhancing nursing staff's autonomy, thereby improving their work engagement.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

EM conceptualized and designed the study along with AdV and AF. They also drafted the manuscript in association with LvdH. EM and LvdH analysed and interpreted the data. All authors read and approved the final manuscript.

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TABLES

Table 1 Descriptive statistics for variables in analyses: means and missing data (N=262)

	% or mean (S.D.)	missing data (%)	Cronbach's α ^a
Dependent variable			
Considered leaving the healthcare sector		1.9%	N/A
No	79.0%		
Yes	21.0%		
Work characteristics			
Autonomy (range 1-4)	2.70 (0.59)	0.4%	0.93
Work engagement (range 0-6)	4.72 (1.02)	3.4%	0.94
Respondent characteristics			
Age (years)	51.03 (9.09)	0.0%	N/A
Gender		0.0%	N/A
Male	3.4%		
Female	96.6%		
Educational level		0.4%	N/A
certified nurse assistant	55.9%		
registered nurse, associate level degree	24.1%		
registered nurse, bachelor's degree	19.9%		
Managerial tasks		0.8%	N/A
No	87.3%		
Yes	12.7%		
Work experience (years)	22./12 (10.31)	1.9%	N/A
Working hours per week	22.44 (7.92)	2.7%	N/A

^a N/A: not applicable

Table 2 Univariate and multiple logistic regression analyses

Considering leaving the healthcare sector			
Odds ratio (95% CI)			
	Univariate logistic regression <i>N</i> =248-257	Multiple logistic regression <i>N</i> =248	Multiple logistic regression <i>N</i> =247
Work characteristics			
Autonomy (range 1-4)	0.47 (0.27 – 0.82)**	0.52 (0.29 – 0.95)*	0.74 (0.39 – 1.42)
Work engagement (range 0-6)	0.57 (0.43 – 0.77)**	-	0.60 (0.43 – 0.83)**
Respondent characteristics			
Age (years)	0.97 (0.94 – 1.00)	0.98 (0.94 – 1.01)	0.97 (0.94 – 1.01)
Educational level			
certified nursing assistant			
(ref.)	0.58 (0.27 – 1.25)	0.62 (0.27 - 1.38)	0.51 (0.22 – 1.17)
registered nurse,	0.66 (0.29 – 1.48)	0.82 (0.32 - 2.06)	0.60 (0.23 – 1.57)
associate level degree			
registered nurse,			
bachelor's degree			
Managerial tasks			
No (ref.)			
Yes	0.84 (0.33 – 2.16)	1.22 (0.43 – 3.47)	1.25 (0.43 – 3.63)
Work experience (years)	1.00 (0.97 – 1.03)	- ^a	- ^a
Working hours per week	0.98 (0.94 – 1.02)	0.99 (0.95 – 1.03)	1.00 (0.95 – 1.05)
Test of model		<i>R</i> ² =0.07 (Nagelkerke), Model <i>X</i> ² (6)=10.75	<i>R</i> ² =0.12 (Nagelkerke), Model <i>X</i> ² (7)=20.25**

- Variable is not included in the analysis

^a Variable is not included in the analysis since this variable is highly correlated with age (*r*=0.46)

* Statistically significant with *p* < 0.05

**Statistically significant with *p* < 0.01

Table 3 Mediation analyses with ‘autonomy’ as the independent variable, ‘work engagement’ as the mediating variable and ‘considering leaving health care’ as the dependent variable ^{1 2} (*N*=247)

Total effect	Total indirect effect	Direct effect
Coefficient (95% CI)	Coefficient (95% CI)	Coefficient (95% CI)
-0.218 (-0.402 – -0.049) *	-0.083 (-0.154 – -0.026) *	-0.135 (-0.328 – 0.049)

¹ Mediation effects estimated by bootstrapping (500 replications)

² Percentile confidence intervals (no bias correction)

* Statistically significant with *p* < 0.05