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**Job Satisfaction, Job Stress and Nurses' Turnover Intentions: The Moderating Roles of
On-the-job and Off-the-job Embeddedness**

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ABSTRACT

Aim. Using an interactionist perspective to test on-the-job embeddedness and off-the-job embeddedness as possible moderators for the predictive effects of job satisfaction and job stress on nurses' turnover intentions.

Background. As turnover worsens nurse shortages across the globe, research needs to find ways to work out and reduce nurses' turnover intentions. By exploring contributory factors, namely on-the-job and off-the-job embeddedness as two distinctive forms that both act as moderators, we add to the literature on effective nurse retention and highlight that incorporating off-the-job factors can provide a more realistic understanding of why people consider leaving their organisation.

Design. Survey of 361 nurses of the UK's National Health Service (NHS), in 2016.

Method. We conducted hierarchical multiple regression and simple slope analyses.

Results. Job satisfaction was negatively associated with turnover intentions, and this negative relationship was stronger when off-the-job embeddedness was high (vs. low). Job stress was positively related to turnover intentions, yet high (vs. low) off-the-job embeddedness buffered this relationship. In contrast, when on-the-job embeddedness was high (vs. low), the relationship between job stress and turnover intentions was even stronger.

Conclusion. Results showed that using an interactionist perspective is useful in predicting nurse turnover. Nursing management should be made aware of the importance of being embedded off-the-job in order to prevent nurse turnover. This paper provides guidelines to form a more comprehensive staff retention program for the healthcare sector.

Keywords: job satisfaction; job stress; off-the-job embeddedness; on-the-job embeddedness; nurse turnover; turnover intentions

SUMMARY STATEMENT

Why is this research or review needed?

- Nurse turnover can cause inadequate nursing levels that have been linked to decreased continuity of care and nursing errors, and it is therefore important to prevent nurses from leaving their organisation.
- By exploring contributory factors, namely on-the-job and off-the-job embeddedness, as two distinctive forms that both act as moderators, we add to the literature on effective nurse retention.
- Specifically, we highlight that incorporating off-the-job factors can provide a more realistic understanding of why nurses consider leaving their organisation.

What are the key findings?

- Nurses being highly embedded to their job draw more positive energy from being satisfied with it, which keeps them away from leaving their organization.
- When nurses are not only focused on their work role, but also on their roles outside work, such as spending time with family, friends, and other communities, the impact of job satisfaction can be strengthened even further.
- Moreover, for nurses being highly embedded to communities outside the work sphere, the harmful impact of experiencing job stress on their turnover intentions can be buffered.

How should the findings be used to influence policy/practice/research/education?

- Education for healthcare management should be made aware of the importance of being embedded off-the-job in order to prevent nurse turnover. Universities may implement comprehensive practical knowledge about the possible impact of on-the-job and off-the-job embeddedness into their modules.

- Nursing management should facilitate nurses to maintain a sound work-life balance enabling them to follow their passions by actively participating in roles both inside and outside the work place.
- Managers may encourage their nursing staff to establish and maintain a social network, such as becoming member of a sports club, a voluntary organisation, or to engage in re-creative meet ups.

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Job Satisfaction, Job Stress and Nurses' Turnover Intentions:
The Moderating Roles of On-the-job and Off-the-job Embeddedness

INTRODUCTION

Across the globe, industrialized countries have a shortage of active nurses (Boamah & Laschinger, 2016; Duffield, Roche, Homer, Buchan, & Dimitrelis, 2014; Wan, Li, Zhou, & Shang, 2018). Also, within the UK's National Health Service (NHS), nurse shortage is increasingly becoming a problem. Next to the aging of the working population and the 'baby boomer' generation approaching retirement, turnover rates are particularly high among UK-based nurses and thus, worsening the problem of nurse shortage (Heinen et al., 2013). Whilst nurse turnover has been well-researched, it continues to present itself as a complex issue. Specifically, because the cost of nurse turnover goes beyond financials, with increased pressure on staff to work above and beyond their contracted hours, and the increasing use of agency staff potentially leading to service performance being affected (Aluwihare-Samaranayake, Gellatly, Cummings, & Ogilvie, 2018; Duffield et al., 2014; Jones, 2008; Newman, Maylor, & Chansarkar, 2002). In the UK, 42% of nurses report stress symptoms, which is above the European average of 28% (Heinen et al., 2013). This is significant as it could be indicative of particular issues within the NHS setting. Most concern, however, stems from research showing that excessive turnover can cause inadequate nursing levels that have been linked to decreased continuity of care and nursing errors (Dabney & Kalisch, 2015; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007). It is therefore important to proactively manage and if possible, reduce nurse turnover to an acceptable minimum. In this regard, identifying nurses' turnover intentions is relevant, as whilst it can be indicative of an individual's job satisfaction, intentions are also the most immediate determinant of actual behaviour (Mobley, Griffeth, Hand, & Meglino, 1979). Turnover intentions are conceptualized as "the last in a sequence of withdrawal cognitions, a set to which thinking of

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3 quitting and intent to search for alternative employment also belong” (Tett & Meyer, 1993, p.
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5 262). A better insight into turnover intentions can help organisations to implement proactive
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7 measures to prevent undesired turnover from occurring.

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9 In this paper, we aim at exploring nurses' job satisfaction and job stress as possible
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11 predictors of their turnover intentions and examine whether nurses' on-the-job embeddedness
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13 as well as their off-the-job embeddedness moderate these relationships. While previous
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15 research has predominantly focused on characteristics and perceptions of the individual, not
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17 enough is known about other contributory factors such as job embeddedness, being an
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19 important non-attitudinal determinant that interacts with individuals' perception of their job
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21 satisfaction and job stress (Harman et al., 2007). Specifically, we distinguish between on-the-
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23 job embeddedness and off-the-job embeddedness as two distinctive forms that may both act
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25 as moderators. By disentangling on-the-job from off-the-job embeddedness, we highlight that
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27 incorporating off-the-job factors can provide a more realistic understanding of why people
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29 consider leaving their organisation. This contribution may help nursing management and HR
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31 specialists to form the basis for a more comprehensive staff retention program for the
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33 healthcare sector.
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37 **BACKGROUND**

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39 Although earlier work in this scholarly field has investigated the association between
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41 job characteristics, on the one hand, and attitudinal and behavioural outcomes, such as
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43 turnover intentions, on the other hand (e.g., Hackman & Oldham, 1976), the employee's
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45 work context has largely been ignored (Humphrey, Nahrgang, & Morgeson, 2007). In
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47 addition, previous research that tried to incorporate work context predominantly built upon
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49 Karasek's Job-Demand-Control-Support model (Karasek, 1979), which uses a rather
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51 restricted definition of job demands. This contribution expands this view by using the
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53 'broader' Job Demands-Resources (JD-R) framework (see also Van der Heijden, Peeters, Le
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3 Blanc, & Van Breukelen, 2018). The JD-R model (Bakker & Demerouti, 2007; Demerouti,
4 Bakker, Nachreiner, & Schaufeli, 2001) states that every occupation has its own specific risk
5 factors associated with job stress, and that these factors can be classified in two general
6 categories (i.e., job demands and job resources). It is built upon two underlying psychological
7 processes (i.e., a so-called health impairment process and a so-called motivational process)
8 that play a role in the development of job strain and motivation (Bakker & Demerouti, 2007;
9 Bakker, Demerouti, de Boer, & Schaufeli, 2003). Concrete, this study responds to the call for
10 more work building upon the JD-R model by incorporating moderators (Bakker &
11 Demerouti, 2017), in our case on-the-job and off-the-job embeddedness, and adds to our
12 insights into how employees' links, fit, and sacrifices in relation to their work, on the one
13 hand, and to their lives outside work (Harman et al., 2007, p. 53), on the other hand, influence
14 the predictive validity of a model intended to explain why they leave their working
15 organization.

30 **Job Satisfaction and Turnover Intentions**

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33 Job satisfaction is typically defined as "a pleasurable or positive emotional state
34 resulting from the appraisal of one's job" (Locke, 1976, p. 1300). Research has shown that
35 job satisfaction is negatively associated with turnover intentions (Bordia, Restubog,
36 Jimmieson, & Irmer, 2011; Holtom, Mitchell, Lee, & Eberly, 2008; Tummers, Groeneveld, &
37 Lankhaar, 2013). Much of the theoretical background so far has been shaped by conceptual
38 process models such as that by March and Simon (1958), who suggested that job satisfaction
39 would reduce the desirability to leave and thus reduce turnover. Porter and Steers (1973)
40 contributed to this idea further, explaining that employees have expectations and when these
41 are not met, they become dissatisfied, and then want to leave. In line with previous research,
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54 *H1: Nurses' job satisfaction is negatively related to their turnover intentions.*

Job Stress and Turnover Intentions

Job stress often conceptualized as “awareness or feeling of dysfunction as a result of perceived conditions or happenings in the work setting” (Parker & DeCotiis, 1983, p. 161). Earlier research has indicated that high levels of work stress is linked to undesirable behaviours such as reduced productivity, absenteeism and increased turnover intentions (Crawford, LePine, & Rich, 2010). Furthermore, job stress can even be the main cause of nurses' job resignation (Ito, Eisen, Sederer, Yamada, & Tachimori, 2001). It is important to recognise that quitting may be considered to be a way to escape stress, whether it can be attributed to work-based factors alone or not. This can create a catch-22 scenario for managers within a healthcare setting, as research suggests that staff working in areas of higher turnover report higher levels of stress (Erenstein & McCaffrey, 2007). Based on previous research, we hypothesize:

H2: Nurses' job stress is positively related to their turnover intentions.

On-the-job and Off-the-job Embeddedness as Moderators

More recent research has highlighted the complex nature of turnover decisions and suggests including an interactional perspective (Hom, Lee, Shaw, & Hausknecht, 2017). We therefore discuss the role of on-the-job as well as off-the-job embeddedness as possible moderators on the relationships between job satisfaction, job stress, and turnover intentions. Job embeddedness comprises different forces which gives employees the feeling that they cannot leave their current job, especially it captures three dimensions, namely links, fit, and sacrifice (Mitchell, Holtom, Lee, Sablinski, & Erez, 2001). In other words, job embeddedness describes “the extent to which people are linked with others or to activities, the extent to which their jobs and communities fit with other aspects of their lives, and the

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3 ease with which their respective links can be broken— that is, what they would sacrifice if
4 they left” (Harman et al., 2007, p. 53).

7 Previous research has already provided empirical evidence for the predictive value of
8 job embeddedness in the light of turnover, over and above other important factors, such as
9 job alternatives, job search activities, or a lack of organisational commitment (Mitchell et al.,
10 2001). In particular, earlier research found that on-the-job embeddedness is linked to lower
11 turnover intentions (Jiang, Liu, McKay, Lee, & Mitchell, 2012). Also, off-the-job
12 embeddedness was found to lower turnover intentions, especially among women (Jiang et al.,
13 2012). However, despite the large amount of work about the outcomes of job embeddedness,
14 empirical evidence regarding the possible roles of on-the-job and off-the-job embeddedness
15 as moderators is scarce (Burton, Holtom, Sablinski, Mitchell, & Lee, 2010; Swider, Boswell,
16 & Zimmerman, 2011). Therefore, with this contribution we aim at expanding our
17 understanding of how job embeddedness can moderate the relationships between nurses' job
18 satisfaction and job stress, on the one hand, and their turnover intentions, on the other hand.
19 Specifically, we argue that a higher embeddedness may not only bind nurses more strongly
20 (e.g., a main effect), but it may also intensify their intention to leave in case of low job
21 satisfaction and ample job stress (e.g., an interactive effect).

22 With regard to job satisfaction, both on-the-job embeddedness and off-the-job
23 embeddedness are expected to reinforce the relationship with nurses' turnover intentions.
24 When on-the-job embeddedness is high, satisfied nurses would be less likely to turn away
25 from their organisation as compared to when on-the-job embeddedness is low, because nurses
26 being highly embedded to their job draw more positive energy from being satisfied with it,
27 which keeps them away from leaving their organization. Similarly, when off-the-job
28 embeddedness is high, satisfied nurses would be less likely to turn away from their
29 organization as compared to when off-the-job embeddedness is low, simply because they
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3 have no reason to do so. Being satisfied with one's job and being strongly tied to
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5 communities outside the work sphere, lead to the wish of maintaining the current situation
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7 and thus to lower turnover intentions. Accordingly, high levels of nurses' on-the-job and off-
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9 the-job embeddedness are both expected to strengthen the negative relationship between
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11 nurses' job satisfaction and their turnover intentions. Thus, we hypothesize:

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13 *H3a: The relationship between nurses' job satisfaction and their turnover intentions*
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15 *is moderated by nurses' on-the-job embeddedness in such a way that the negative*
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17 *relationship is stronger when their on-the-job embeddedness is high (vs. low).*
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22 *H3b: The relationship between nurses' job satisfaction and their turnover intentions*
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24 *is moderated by nurses' off-the-job embeddedness in such a way that the negative*
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26 *relationship is stronger when their off-the-job embeddedness is high (vs. low).*
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31 The moderating roles of on-the-job embeddedness and off-the-job embeddedness on
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33 the relationship between nurses' job stress and their turnover intentions are, however, more
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35 complex. On the one side, we argue that when employees are more strongly tied to their job,
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37 the negative association between job stress and turnover intentions is likely to increase, given
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39 the employee's perceptions of being stuck (Lee et al., 2014). On the other side, however,
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41 when employees are more strongly tied to communities outside work, the harmful effect of
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43 job stress will have less impact on their turnover intentions. More specifically, when nurses
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45 are strongly tied to non-work friends, spousal employment, groups, churches or community
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47 organisations, job stress would not have the same impact on leaving their organization, as
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49 their work plays a relatively less central role in their life (Harman et al., 2007). As a result,
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51 we expect nurses' on-the-job embeddedness to strengthen, but nurses' off-the-job
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3 embeddedness to buffer the association between nurses' job stress and their turnover
4 intentions. Therefore, we hypothesize:

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7 *H4a: The relationship between nurses' job stress and their turnover intentions is*
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9 *moderated by nurses' on-the-job embeddedness in such a way that the positive*
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11 *relationship is stronger when their on-the-job embeddedness is high (vs. low).*

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16 *H4b: The relationship between nurses' job stress and their turnover intentions is*
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18 *moderated by nurses' off-the-job embeddedness in such a way that the positive*
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20 *relationship is weaker when their off-the-job embeddedness is high (vs. low).*

21 22 23 24 **THE STUDY**

25 26 **Aim**

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28 The aim of this study was to test nurses' job satisfaction and job stress as possible
29 predictors of their turnover intentions and to examine whether nurses' on-the-job
30 embeddedness as well as their off-the-job embeddedness moderate these relationships.

31 32 **Design**

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34 To test the hypotheses, we surveyed nurses of the UK's National Health Service
35 (NHS), in 2016. Potential participants were recruited from Oxford Health NHS Foundation
36 Trust (OHFT) across Oxfordshire and its neighbouring counties in England. Invitations to
37 take part in the study were sent out to all 1,256 nurses within OHFT via email. As common-
38 method bias could be a concern when using self-report data (Podsakoff, MacKenzie, &
39 Podsakoff, 2012), we implemented the following procedural steps that are thought to
40 encourage participants to answer open and above board: Participants' anonymity was ensured
41 with regard to their organization; they were recommended to answer questions honestly; and
42 they were advised that there were no right or wrong answers (Wöhrmann, Fasbender, &
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Deller, 2017; Zaniboni, 2015). In addition, we incorporated on-the-job and off-the-job embeddedness as moderator variables to increase the complexity of our research design (i.e., to reduce the bias of participants' presumptions about the research), and therewith prevent common-method bias (Evans, 1985; Podsakoff et al., 2012; Siemsen, Roth, & Oliveira, 2010).

Participants

In total, 361 nurses participated in the study (response rate of 28.7%). About half of the participating nurses (47.9%) were working in mental health. On average, nurses were working 33.61 hours per week ($SD = 6.87$ hours), with nurses in mental health working slightly more hours per week than nurses in physical care ($t(359) = -4.00, p < .01$). The majority of nurses were female (86.7%). Of the participating nurses, 39 (10.8%) were 21-30 years old, 71 (19.7%) were 31-40 years old, 121 (33.5%) were 41-50 years old, 113 (31.3%) were 51-60 years old, and 17 (4.7%) were aged above 60 years, which roughly represents the age distribution of nurses in England (Health and Social Care Information Centre, 2015).

Ethical Considerations

Research Ethics Committee review and approval for employee surveys, which do not contain possibly personal or sensitive information, was not required according to the local and national regulations and guidelines. The participants were informed that involvement was completely voluntary and anonymous.

Data Collection

We used structured online questionnaires to collect the data. The corresponding scales have been derived from previous research.

Job satisfaction. Job satisfaction was assessed with one item derived from the Psychiatric Nurse Job Stressor Scale (PNJSS; Yada et al., 2011), phrased as follows: "Are you happy in your job?". The responses to this question were dichotomous (i.e., 1 = *satisfied*

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3 *with the job, 0 = not satisfied with the job*). Single-item measures are commonly used and
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5 considered valid for assessing job satisfaction in organizational research (Fisher, Matthews,
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7 & Gibbons, 2016).

9 **Job stress.** Job stress was assessed with eleven items derived from the PNJSS (Yada
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11 et al., 2011). Participants rated the degree to which they were stressed in their job on a five-
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13 point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Six items captured
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15 their attitude of dealing with patients; an example item was: "I feel that I am pressured by
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17 patients' demands". Five items captured their attitude toward nursing; an example item was:
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19 "I feel that there is the gap between my ideal and actual nursing".
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22 **Job embeddedness.** Job embeddedness was assessed with the Job Embeddedness
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24 Scale developed and validated by Lee et al. (2004). The scale was divided into two subscales,
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26 that is, on-the-job embeddedness and off-the-job embeddedness, either reflecting the links,
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28 fit, and sacrifice with the organization (on-the-job embeddedness) or the links, fit, and
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30 sacrifice with the community (off-the-job embeddedness). As the response format differed
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32 across the sub dimensions, all items were standardized before being analysed or included in
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34 any composites. On-the-job embeddedness was measured by means of 21 items; an example
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36 item was: "I feel like I am a good match for this organization." Off-the-job embeddedness
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38 was measured by means of 12 items; an example item was: "I think of the community where
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40 I live as home."
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43 **Turnover intentions.** Turnover intentions were assessed with three items derived
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45 from Cammann, Fichman, Jenkins and Klesh (1979). Participants rated the degree to which
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47 they were intending to leave their organization (in the near future) using a five-point Likert
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49 scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item was: "It is
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51 very possible that I will look for a new job next year".
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3 **Control variables.** To provide a more rigorous analysis of the hypothesized effects,
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5 we controlled for age, gender, specialism (i.e., working in mental health or physical care) and
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7 working hours per week of participating nurses.
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9 **Validity and Reliability**

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11 The corresponding scales have been validated in previous research. Table 1 shows the
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13 descriptive statistics, bi-variate correlations, and internal consistencies. Cronbach's alphas of
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15 the scales were all above the threshold of .70 indicative of satisfactory reliability that is
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17 necessary for the validity of the conducted research.
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20 **Data Analysis**

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22 The software package SPSS 24.0 was used for the data analysis. Specifically, we
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24 conducted hierarchical multiple regression and simple slope analyses. To investigate the
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26 hypothesized relationships between job satisfaction, job stress, on-the-job and off-the-job
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28 embeddedness, and nurses' turnover intentions we conducted a hierarchical multiple
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30 regression analysis. First, we estimated the effects of control variables on turnover intentions.
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32 Second, main effects of moderator and predictor variables were added to the regression
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34 model. Third, the four interaction terms between nurses' on-the-job and off-the-job
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36 embeddedness, on the one hand, and their job stress and job satisfaction, on the other hand,
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38 were added. Additionally, simple slope analyses were used to investigate the interaction
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40 effects in more detail. To test whether the relationships are robust, we estimated the final
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42 model with and without control variables included. Results revealed that the estimated effects
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44 remained stable and significant in the hypothesized direction even if we did not include the
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46 control variables.
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RESULTS

Table 2 shows the results of the regression analysis. On-the-job embeddedness was negatively associated with nurses' turnover intentions, whereas no main effect was found for off-the-job embeddedness. Furthermore, the regression coefficients suggested that job satisfaction was negatively associated with nurses' turnover intentions, herewith supporting Hypothesis 1. Also, the regression coefficients suggested that job stress was positively associated with nurses' turnover intentions. This result supports Hypothesis 2.

Hypotheses 3a and 3b addressed the moderating roles of on-the-job embeddedness and off-the-job embeddedness on the relationship between nurses' job satisfaction and their turnover intentions. The estimated coefficients showed that off-the-job embeddedness moderated the negative association between job satisfaction and turnover intentions. Results of a simple slope test revealed that the effect of job satisfaction was only significant for nurses with a higher level of off-the-job embeddedness (*simple slope* = $-.99$, $p < .01$), but not significant for nurses with a lower level of off-the-job embeddedness (*simple slope* = $-.32$, $p > .05$). Figure 2 shows that a high (vs. low) level of off-the-job embeddedness strengthens the negative association between nurses' job satisfaction and their turnover intentions, herewith supporting Hypothesis 3b. However, we found that on-the-job embeddedness did not significantly moderate the association between nurses' job satisfaction and their turnover intentions, herewith rejecting Hypothesis 3a.

Hypotheses 4a and 4b addressed the moderating roles of on-the-job embeddedness and off-the-job embeddedness on the relationship between nurses' job stress and their turnover intentions. The estimated coefficients showed that both on-the-job embeddedness and off-the-job embeddedness moderated the positive association between job stress and turnover intentions. More specifically, results of a simple slope test revealed that the effect of job stress was only significant for nurses with a higher level of on-the-job embeddedness

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3 (simple slope = .57, $p < .01$), but not significant for nurses with a lower level of on-the-job
4 embeddedness (simple slope = -.06, $p > .05$). Figure 3 shows that a high (vs. low) level of on-
5 the-job embeddedness strengthens the detrimental effect of nurses' job stress on their
6 turnover intentions, herewith supporting Hypothesis 4a. According to the results of a second
7 simple slope test, the predictive effect of job stress was only significant for nurses with a
8 lower level of off-the-job embeddedness (simple slope = .47, $p < .01$), but not significant for
9 nurses with a higher level of off-the-job embeddedness (simple slope = .04, $p > .05$). Figure 4
10 shows that a high (vs. low) level of off-the-job embeddedness indeed buffers the detrimental
11 effect of nurses' job stress on their turnover intentions, supporting Hypothesis 4b.

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22 To ensure that the results are representative for the larger nursing population, we ran
23 two extra regression analyses in which we tested our hypotheses for nurses in mental health
24 and for nurses in physical care separately. Results showed a highly similar pattern of results
25 and for nurses in physical care separately. Results showed a highly similar pattern of results
26 with slightly more pronounced effects for nurses working in physical care as compared to
27 nurses working in mental health. Thus, the findings can be seen as fairly robust and
28 representative for the larger nursing population.

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37 This study was meant to shed light on possible ways to reduce nurses' turnover
38 intentions using an interactionist perspective (Hom et al., 2017). We responded to the call for
39 more research building upon the JD-R model by incorporating moderators (Bakker &
40 Demerouti, 2017), in our case on-the-job and off-the-job embeddedness. In particular, we
41 tested on-the-job embeddedness and off-the-job embeddedness as possible moderators for the
42 predictive effects of job satisfaction and job stress on nurses' turnover intentions. As earlier
43 research has predominantly focused on the role of characteristics and perceptions of the
44 individual employee in predicting turnover intentions, we explicitly focused on the
45 importance of job embeddedness being a non-attitudinal determinant. By carefully taking into

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3 account the web of forces that nurses are embroiled in (i.e., their jobs or organizations and
4 other communities that fit with other aspects of their life), a more realistic approach was
5 taken here as compared to research solely based on either individual factors or job-related
6 factors.
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11 It appears that the JD-R framework (Bakker & Demerouti, 2007; Demerouti et al.,
12 2001) is a fruitful perspective to gain more insight into the possible role of job embeddedness
13 in a research model that is intended to predict nurses' turnover intentions. In line with our
14 expectations, our findings indeed indicated that job embeddedness is an important factor
15 explaining additional variance in predicting nurses' turnover intentions. Specifically, we
16 revealed that nurses' job satisfaction was negatively associated with their turnover intentions,
17 and that this negative association was stronger when nurses' off-the-job embeddedness was
18 high (vs. low). Besides, and contrary to our expectations, we found that the relationship
19 between job satisfaction and turnover intentions was not significantly moderated by on-the-
20 job embeddedness. A possible explanation might be that nurses with a high amount of on-the-
21 job embeddedness may have more resources at their current healthcare institution (see also
22 Sender, Rutishauser, & Staffelbach, 2018). In particular, in line with conservation of
23 resources theory (Hobfoll, 1989), even in case nurses would not perceive high levels of job
24 satisfaction, they may choose a so-called resource acquisition response (i.e., an attempt to
25 improve the situation in one's current healthcare institution) rather than a resource
26 conservation response (i.e., withdrawal; Kiazad, Seibert, & Kraimer, 2014) by using their
27 resources (e.g., links and fit dimensions of job embeddedness) instrumentally in goal
28 attainment within the organization they work for to obtain better resources (e.g., career
29 progression or income growth; see also Halbesleben, Neveu, Paustian-Underdahl, &
30 Westman, 2014; Kiazad, Holtom, Hom, & Newman, 2015). In addition, and in line with our
31 expectations, we found that nurses' job stress was positively associated with their turnover
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3 intentions, yet high (vs. low) off-the-job embeddedness buffered this association. Moreover,
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5 when on-the-job embeddedness was high (vs. low), the association between nurses' job stress
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7 and their turnover intentions was even stronger.

8
9 Although our hypothesized model included antecedents of turnover intentions that are
10
11 undisputed, there might be other personal and job characteristics, as well as possible
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13 moderators, that contribute to the prediction of nurses' turnover intentions, such as high
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15 physical demands, feedback or support from colleagues and supervisors. Future research
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17 could test the predictive value of models including these factors in addition to those that were
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19 already studied in our current model (Bakker & Demerouti, 2017; Van der Heijden et al.,
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21 2018).
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24 **LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH**

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26 Like all empirical work, this research has some limitations to be mentioned here. The
27
28 cross-sectional character of our data limits the possibility to draw causal conclusions. Future
29
30 work based on longitudinal designs is needed to find out more about the causal pattern of
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32 relationships, and the mechanisms behind the variables. In addition, we call for more work
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34 using multi-wave designs that capture the variations in nurses' intentions to leave over time,
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36 leading to actual turnover.
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40 Further, our research was set within the UK NHS environment. It would be intriguing
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42 to ascertain whether these findings are restricted to nurses alone, or indeed restricted to the
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44 UK's NHS setting. Additional research should cross-validate our findings using samples from
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46 different occupational fields both within (such as medical doctors) and outside the health care
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48 sector. Also, research may use data from other countries to ensure cross-cultural
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50 generalizability (see also Lee et al., 2014).
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53 Finally, our findings are based on single source (i.e., employees) self-reported (i.e.,
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55 survey-based) data, which could raise concerns about common-method bias that potentially
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3 leads to an over- or underestimation of effect sizes (Podsakoff et al., 2012). However,
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5 dismissing these concerns, researchers have affirmed that common-method bias does not
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7 affect interaction effects because they are attenuated in regression analyses, making such
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9 effects only harder to obtain (Evans, 1985; Podsakoff et al., 2012; Siemsen et al., 2010).
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11 Nevertheless, future studies may be able to eliminate such bias by using method
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13 triangulation, for instance complementing the survey with qualitative data (e.g., observations
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15 and interviews).
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20 CONCLUSION

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22 From this study, we conclude that taking a more integral approach – combining
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24 individual and job-related factors – adds to our understanding of the complex issue of nurse
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26 turnover. Our findings inform nursing management and HR specialists on the content of more
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28 comprehensive staff retention programmes for the healthcare sector. In particular, we
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30 advocate that nursing management should be aware of the importance of seriously paying
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32 attention to both nurses' on-the-job and their off-the-job embeddedness in order to prevent
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34 turnover. After all, while *off-the-job embeddedness* can enhance the beneficial effect of job
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36 satisfaction and buffer the harmful impact of job stress on nurses' turnover intentions, *on-the-*
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38 *job embeddedness*, however, can even strengthen the impact of job stress on nurses' turnover
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40 intentions. As such, we believe that the two constructs ought to be seen as 'communicating
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42 barrels' and are to be carefully aligned in order to strive for optimal situations. Management
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44 in healthcare can benefit from nurses that are highly tied to their job. However, our findings
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46 indicate that it is wise to carefully pay attention to both on-the-job and off-the-job
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48 embeddedness, in parallel. Therefore, we advocate that management in healthcare should
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50 facilitate nurses to maintain a sound work-life balance enabling them to follow their passions
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52 by actively participating in roles both inside and outside the work place.
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Table 1

Means, standard deviations, internal consistencies (Cronbach's alphas on diagonal in brackets) and correlations of the study variables

Table 2

Results of hierarchal multiple regression analysis for nurses' turnover intentions

Figure 1

Conceptual model

Figure 2

Off-the-job embeddedness strengthens the negative association between nurses' job satisfaction and their turnover intentions

Figure 3

On-the-job embeddedness strengthens the positive association between nurses' job stress and their turnover intentions

Figure 4

Off-the-job embeddedness weakens the positive association between nurses' job stress and their turnover intentions

JOB EMBEDDEDNESS AND NURSES' TURNOVER INTENTIONS

Table 1

Means, standard deviations, internal consistencies (Cronbach's alphas on diagonal in brackets) and correlations of the study variables

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age ^a	0.36	0.48	-								
2. Gender ^b	0.13	0.34	-.02	-							
3. Specialism ^c	0.48	0.50	-.06	.26**	-						
4. Working hours per week	33.61	6.87	-.04	.12*	.21**	-					
5. On-the-job embeddedness	2.05	0.42	.18**	-.07	-.18**	.06	(.78)				
6. Off-the-job embeddedness	2.69	0.41	.12*	-.03	-.26**	-.12*	.38**	(.70)			
7. Job stress	2.74	0.51	-.13*	-.00	.13*	.01	-.38**	-.14**	(.76)		
8. Job satisfaction ^d	0.70	0.46	.01	-.08	-.10	-.01	.50**	.06	.32**	-	
9. Turnover intentions	3.12	0.99	-.03	.03	.09	-.02	-.63**	-.15**	.40**	-.56**	(.78)

Note. ^a 1 = over 50 years old, 0 = 50 years or younger; ^b 1 = male, 0 = female; ^c 1 = working in mental health, 0 = not working in mental health; ^d 1 = satisfied with the job, 0 = not satisfied the job; *N* = 361.

p* < .05, *p* < .01.

JOB EMBEDDEDNESS AND NURSES' TURNOVER INTENTIONS

Table 2

Results of hierarchal multiple regression analysis for nurses' turnover intentions

Variable	Model 1		Model 2		Model 3	
	B	S.E.	B	S.E.	B	S.E.
Intercept	3.12**	0.05	3.12**	0.04	3.19**	0.04
<i>Control variables</i>						
1. Age ^a	-0.06	0.11	0.13	0.08	0.12	0.08
2. Gender ^b	0.02	0.16	-0.05	0.11	0.02	0.11
3. Specialism ^c	0.18	0.11	-0.03	0.08	-0.03	0.08
4. Working hours per week	-0.01	0.01	-0.00	0.01	-0.01	0.01
<i>Main effects of moderator and predictor variables</i>						
5. On-the-job embeddedness			-1.07**	0.11	-1.12**	0.11
6. Off-the-job embeddedness			0.14	0.11	0.09	0.11
7. Job satisfaction ^d			-0.62**	0.10	-0.66**	0.10
8. Job stress			0.30**	0.08	0.25**	0.08
<i>Interaction effects</i>						
9. On-the-job embeddedness x job satisfaction					-0.18	0.24
10. Off-the-job embeddedness x job satisfaction					-0.69**	0.24
11. On-the-job embeddedness x job stress					0.73**	0.19
12. Off-the-job embeddedness x job stress					-0.44*	0.22
<i>Model fit</i>						
R ²	0.01		0.50		0.55	
Δ R ²			0.49		0.05	
F Change (<i>df</i> ₁ , <i>df</i> ₂)	0.84 (4, 356)		87.67**(4, 352)		8.58** (4, 348)	

Note. ^a 1 = over 50 years old, 0 = 50 years or younger; ^b 1 = male, 0 = female; ^c 1 = working in mental health, 0 = not working in mental health; ^d 1 = satisfied with the job, 0 = not satisfied the job; *N* = 361.

p* < .05, *p* < .01.

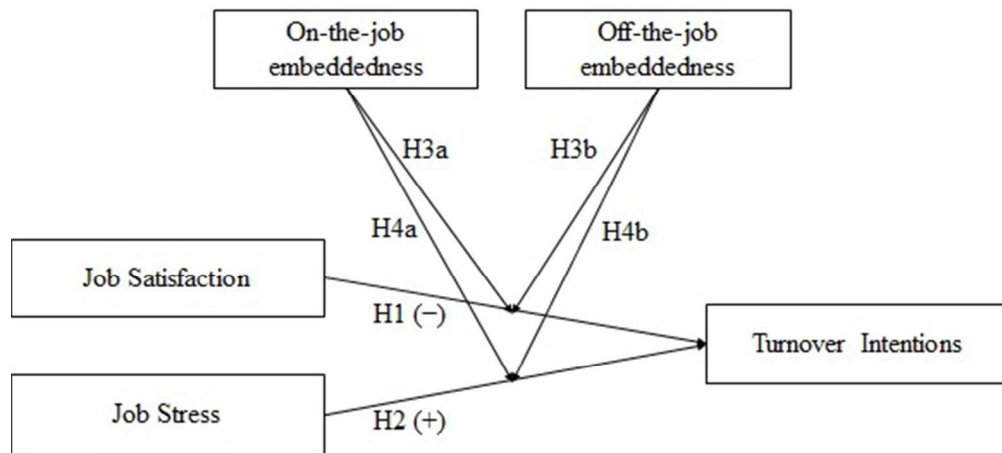


Figure 1. Conceptual model

153x69mm (96 x 96 DPI)

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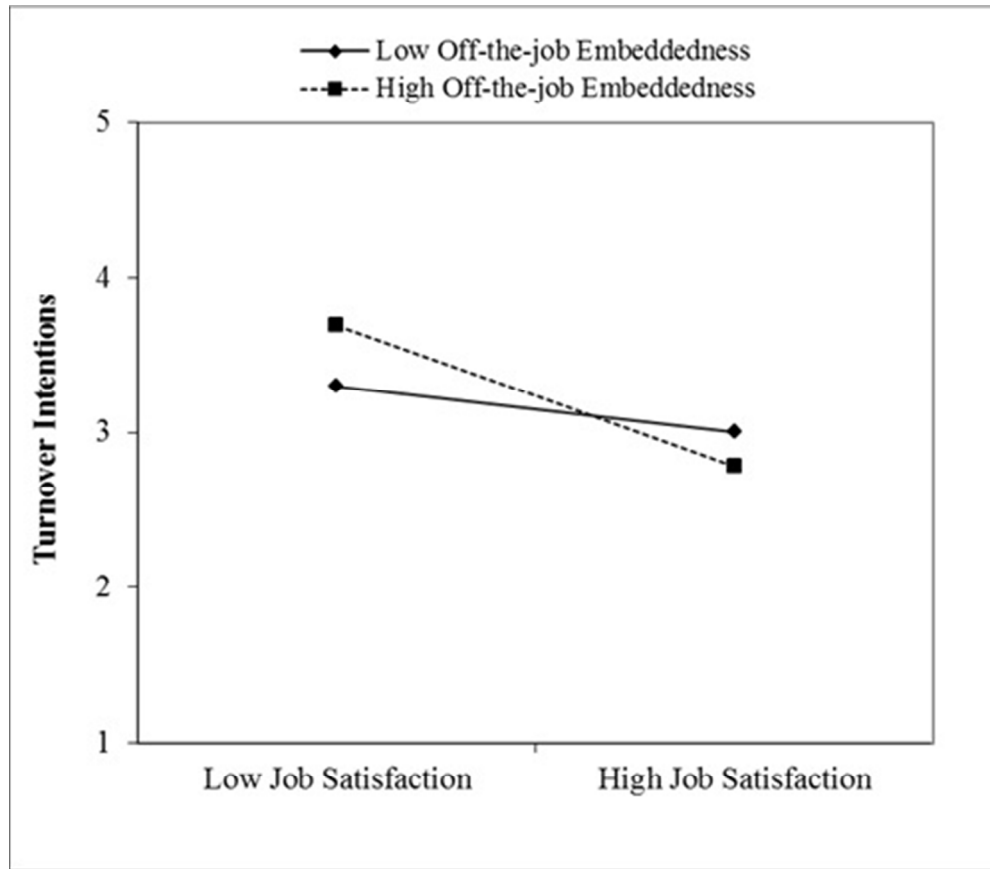


Figure 2. Off-the-job embeddedness strengthens the negative association between nurses' job satisfaction and their turnover intentions

133x115mm (96 x 96 DPI)

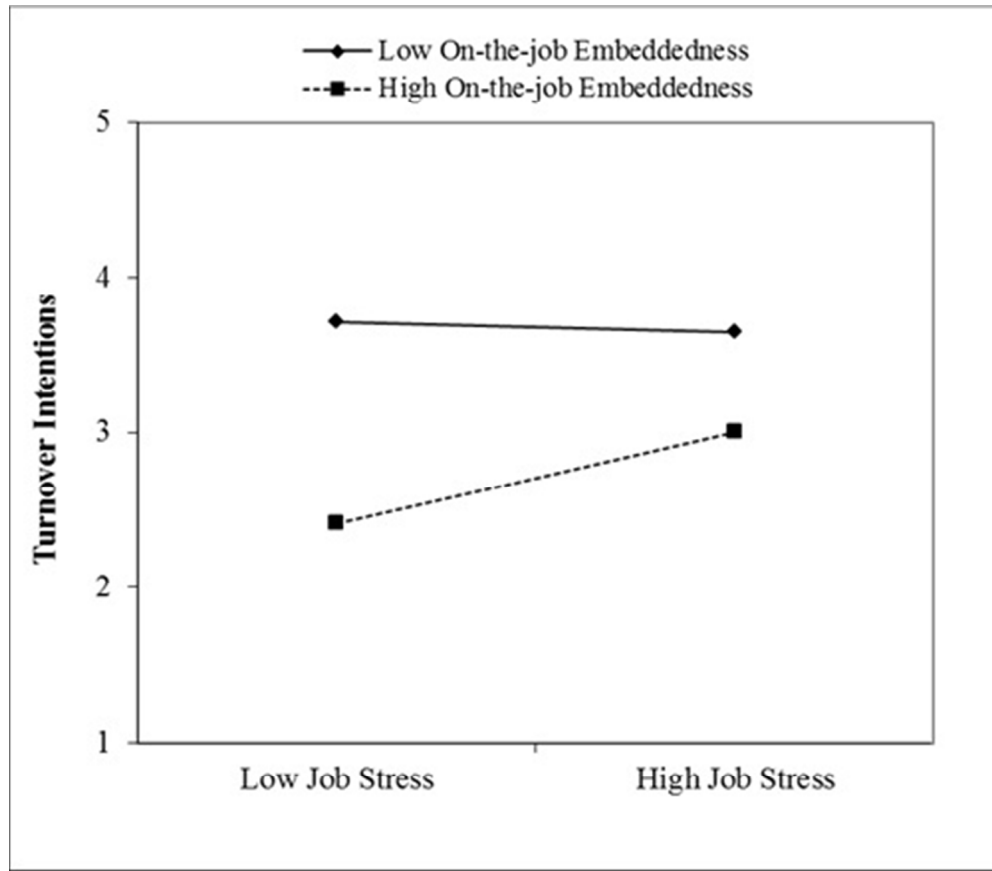


Figure 3. On-the-job embeddedness strengthens the positive association between nurses' job stress and their turnover intentions

133x115mm (96 x 96 DPI)

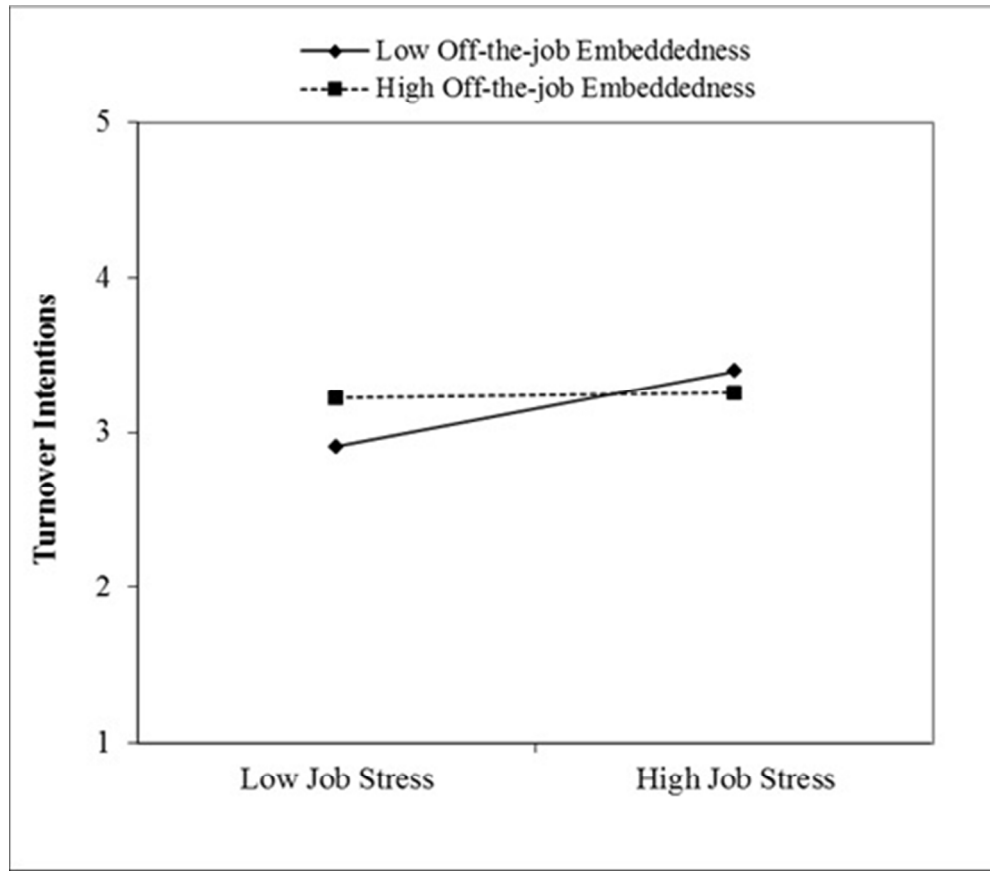


Figure 4. Off-the-job embeddedness weakens the positive association between nurses' job stress and their turnover intentions

133x115mm (96 x 96 DPI)