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Title: A new approach to stress of conscience's dimensionality : Hindrance and violation stressors and their role in experiencing burnout and turnover intentions in healthcare

Year: 2023

Version: Published version

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Please cite the original version:

Herttalampi, M., & Feldt, T. (2023). A new approach to stress of conscience's dimensionality : Hindrance and violation stressors and their role in experiencing burnout and turnover intentions in healthcare. *Journal of Clinical Nursing*, 32(19-20), 7284-7297.
<https://doi.org/10.1111/jocn.16797>

A new approach to stress of conscience's dimensionality: Hindrance and violation stressors and their role in experiencing burnout and turnover intentions in healthcare

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Funding information

Academy of Finland

Abstract

Aims: To identify a valid, longitudinally invariant factor model for stress of conscience and to investigate how stress of conscience dimensions associate with burnout and turnover intentions.

Background: There has been a lack of consensus about the number and content of stress of conscience dimensions, and a lack of longitudinal studies on its development and outcomes.

Design: A longitudinal, person-centred survey study using the STROBE checklist.

Methods: Healthcare personnel ($n=306$) rated their stress of conscience in 2019 and 2021. Longitudinal latent profile analysis was used to identify different subgroups based on the employees' experiences. These subgroups were then compared in terms of burnout and organisational/professional turnover.

Results: Five subgroups were identified, where participants experienced: (1) hindrance-related stress (14%), (2) violation-related stress (2%), (3) both stress dimensions increasing over time (13%), (4) both high yet decreasing over time (7%), and (5) stable levels of low stress (64%). When both hindrance- and violated-related stress were high, it was a significant risk for burnout and turnover. Shortened, 6-item, two-dimensional scale for stress of conscience was found to be reliable, valid, and longitudinally invariant.

Conclusion: On its own, hindrance-related stress (e.g. lowering one's aspirations for high-quality work) is less detrimental to well-being than when it is combined with violation-related stress (e.g. being forced to do something that feels wrong).

Implications for the Profession Patient Care: To prevent burnout and staff turnover in healthcare, different risk factors for stress of conscience need to be identified and addressed.

Public Contribution: Data were collected among public sector healthcare workers.

Relevance to Clinical Practice: If healthcare workers are forced to ignore their personal values at work, it poses a significant risk for their well-being and retention.

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KEYWORDS

burnout, factor analysis, latent profile analysis, organizational turnover, professional turnover, stress of conscience (SC), turnover intentions

1 | INTRODUCTION

Stress of conscience (SC) occurs when an employee is unable to provide the level of care they would otherwise want to give, creating a discrepancy between personal moral values and actions taken (Åhlin et al., 2012; Glasberg et al., 2006). It depends on both 'the frequency of the stressful situation and the perceived degree of troubled conscience as rated by healthcare personnel themselves' (Glasberg et al., 2006, p. 636). SC has been associated with several negative outcomes, such as feelings of guilt and shame, burnout and higher turnover rates (Jokwiro et al., 2022). However, research into the risk and protective factors for SC, especially based on longitudinal evidence, is still very limited (Jokwiro et al., 2022).

This study contributes to addressing and mitigating SC in healthcare in three ways. First, it included a critical examination of the dimensional structure of the stress of conscience questionnaire (SCQ; Glasberg et al., 2006) to identify a valid, time-invariant factorial model. There is still some debate about the number and nature of SC dimensions (Jokwiro et al., 2022) and more research is needed to validate the longitudinal structure of the SCQ. Time invariance is crucial in making sure that the scale measures the same latent constructs in a similar manner at different points in time. Second, a 2-year longitudinal study was used to investigate how the different SC dimensions develop over time. This was done with a person-centred approach (Laursen & Hoff, 2006; Spurk et al., 2020; Wang et al., 2013), which identifies subgroups (including atypical groups) of healthcare employees based on similarities in their SC experiences over time. Third, the study examined how healthcare employees in each SC subgroup differed in their experiences of burnout and job turnover—both of which pose a significant risk to the well-being and retention of healthcare workers (Dall'Ora et al., 2020).

1.1 | Background

The stress of conscience questionnaire (SCQ; Glasberg et al., 2006) includes nine items that each consist of two parts: A questions (stressor frequency) ask how often a particular stressful situation occurred, while B questions (stress magnitude) ask the degree to which they trouble the conscience. Most studies that have tested the reliability and validity of the SCQ across a range of occupational and national contexts favour a two-factor structure for the SCQ (Åhlin et al., 2012; Glasberg et al., 2006; Saarnio et al., 2012). These have been identified as internal (e.g. forced to provide care that feels wrong) and external demands (e.g. having to deal with incompatible demands). However, these studies have showed some problems with the scale's psychometric properties, such as cross-loadings between the factors and intentionally using the first item as an indicator of

What does this paper contribute to the wider global clinical community?

- Two dimensions were found to underlie the concept of stress of conscience that represent two types of moral constraint: being unable to do the right thing (hindrance stressors) and being forced to do the morally wrong thing (violation stressors).
- When healthcare employees experience both hindrance and violation stressors simultaneously, it is a risk for burnout and turnover.

both factors. This raises questions about the clarity and uniqueness of the factor structure. A further limitation has been that all factor analyses have been performed using index scores of the SCQ, which confounds the stressors themselves with the troubled conscience they cause (A-items multiplied by B-items). All these previous studies have been described in more detail in a recent review by Jokwiro et al. (2022). To overcome these limitations, this study included a longitudinal factor analysis and used the A-items and B-items separately so as not to confound the frequency of these situations with the magnitude of stress they cause.

To date, only two studies have investigated how stress of conscience might change over time. In a 1-year follow-up, Åhlin et al. (2013) did not observe any significant changes in SC assessments. Ericson-Lidman and Åhlin (2017) also did not find any significant changes in SC levels, when SC was measured before and after an action research intervention aimed at helping healthcare staff deal constructively with SC. In this study the aim was to understand more clearly how SC evolves over time, which could help to find effective ways to prevent harmful SC developments. Instead of using more traditional, variable-centred approach, such as regression or structural equation modelling (e.g. cross-lagged analysis), this study used a person-centred approach (Spurk et al., 2020). It enables identifying and comparing different subgroups (individuals who share similar SC patterns over time), whereas variable-centred strategies only give information about average estimates of variables across the whole population.

Two key indicators were used as outcomes of stress of conscience: burnout and turnover intentions. Burnout is a dysfunctional state characterised by feelings of emotional exhaustion and a cynical and distant attitude towards one's work (Bakker et al., 2014). There is some evidence that high SC correlates with high burnout (Åhlin et al., 2013; Glasberg et al., 2007; Juthberg et al., 2008, 2010), but only limited empirical evidence about how SC and burnout develop and associate with each other over time.

Turnover intentions can manifest as a desire to change one's organisation or profession that correlate with the final decision to leave (for reviews, see Flinkman et al., 2010; Halter et al., 2017), leading to detrimental effects on adequate staffing and the quality, costs and effectiveness of healthcare. Stress and job dissatisfaction have been recognised as major determinants of both organisational and professional turnover (Flinkman et al., 2010; Halter et al., 2017), but no studies have investigated whether or how stress of conscience might be a risk factor in wanting to leave (Jokwiro et al., 2022). Identifying how SC associates with burnout and staff turnover could help plan interventions that would improve well-being and retention among healthcare employees.

1.2 | Aims

The first aim was to identify the best fitting factor structure for the SCQ (Glasberg et al., 2006) by testing its invariance over a 2-year period among a sample of healthcare employees. Next, those SC dimensions that were identified at the factor analysis stage were used to detect different subgroups of healthcare personnel based on their individual ratings of SC across 2 years. Finally, employees from each of the resulting subgroups were compared in terms of their experiences of burnout and turnover intentions (professional and organisational). These follow-up analyses were aimed to test the distinctiveness of the identified SCQ dimensions by determining whether different dimensions or their combinations associate with different outcomes.

2 | METHODS

2.1 | Design

A longitudinal, person-centred study design was used to investigate the stress of conscience experiences of healthcare personnel and the outcomes of these experiences. The study was conducted and reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (File S1).

2.2 | Participants and data collection

All employees ($N=3748$) working in one hospital district in Finland were invited to participate in the study. We targeted the invitation to all potential healthcare employees instead of limiting it to nurses only. This way we hoped to capture the heterogeneity of the full sample when identifying different SC subgroups. We also wanted to have as large a sample size as possible to be able to accurately identify a suitable number of latent profiles (see Spurk et al., 2020 for recommendations concerning sample size and power in latent profile analysis).

The first data collection took place between September and October 2019 (T1). The email included a link to the electronic survey with a short description of the project, its aims and how it respected confidentiality and voluntary participation, including the right to withdraw personal consent and discontinue participation at any time with no consequences. A total of 1024 employees participated in the survey at T1—a response rate of 27.3%.

The second data collection took place between October and November 2021 (T2). An email invitation with a letter containing information about the study and a link to the electronic survey was sent to those employees who had given their consent at T1 to be contacted again for a follow-up study ($N=571$). A total of 318 responded at the T2 stage—a response rate of 55.7%. Of the 318 participants who responded at both stages, 12 employees indicated in the beginning of the survey that they had changed their place of work between T1 and T2. However, the study was limited to employees who worked in the same hospital district at both time points (so that potential changes in levels of SQ were not affected by the different work environment), answering to the survey ended for these 12 employees.

Our final sample included 306 employees. They represented several different occupational groups, where nurses were the largest one, comprising 44% of the whole sample. Of the study participants, 88% were women and the largest age group was 51–55 years (age groups ranged from “25 or under” to “over 60”). In terms of work factors, 74% did patient work, 7% had leadership tasks, 89% had a full-time job and 86% had a permanent work contract. In addition, 60% did regular day shifts, 15% did regular two- or three-shift work, while 25% did irregular shift work. In educational terms, 23% had a vocational degree, 39% had a Bachelor's, 18% had a Master's and 12% had either licentiate or doctorate degrees.

The representativeness of the final sample was checked against information that was available for the whole organisation at T1. Demographic figures for the whole of the organisation's workforce ($N=3748$) were as follows: 82.5% of the whole population were women, 52.3% of the whole population were aged over 45 years and the largest single-age group was 55–59 years old. Meanwhile 87.5% of our 306 respondents at T2 were women, 51.4% were aged over 45 years and the largest single-age group was 51–55 years old. This means our study sample was adequately representative of the whole organisation.

Finally, a dropout analysis was used to see if there were differences between employees who participated at both time points and those who had dropped out after T1. The only significant differences were that T2 participants were overrepresented in the 41–45 and 51–55 age groups and underrepresented in the over 60s (probably due to many employees in this age group retiring by T2). T2 participants also worked for slightly more hours per week (mean = 38.48; $t = -2125$, $p < .05$) than the T1 only group (mean = 37.62), and they reported (at T1) lower exhaustion and cynicism ($t = 2.525$, $p < .05$) than those who dropped out ($t = 3.126$, $p < .01$).

2.3 | Instruments

2.3.1 | Stress of conscience

The SCQ (Glasberg et al., 2006) was used at both time points. The original questionnaire includes nine items with A questions that evaluate how often a selected stressful situation occurred, evaluated on a 6-point Likert scale ranging from 1 (*never*) to 6 (*every day*). The B questions evaluate the perceived degree of troubled conscience caused by the situation, ranging from 1 (*not at all*) to 6 (*very much*).

The original Swedish version of the scale was translated into Finnish using professional language services. A modified version of the 9-item scale was used, which left out Items 6 ('Is your private life ever so demanding that you do not have the energy to devote yourself to your work as you would like?') and 7 ('Is your work in healthcare ever so demanding that you do not have the energy to devote yourself to your family as you would like?'). These items were excluded because they measured issues related to work-life balance rather than stress of conscience caused by difficult situations at work. Item 6, in particular, has been noted previously for its poor fit with other scale items (Jokwiro et al., 2022). Finally, Item 5 was dropped because of its low variation, as only a few of the participants (71 of the 306) had ever experienced situations where they found themselves '[...] avoiding patients or family members who need help or support.' This is also in line with the factor analysis done by Saarnio et al. (2012).

Thus, in the final analyses, six of the original SCQ items were used. The wording of these items was modified by neutralising words that were directly referring to "patients" or "care." This enabled those healthcare employees who did not work directly with patients (e.g. technicians, ward clerks, service managers and training coordinators) to participate. For example, the item 'Do you ever lower your aspirations to provide good care?' was replaced with 'Do you ever lower your aspirations to do a good job?' (see also Backteman-Erlanson et al., 2013). In the factor analyses, A- and B-items were used separately to avoid confounding the frequency of certain stressful situations with the amount of stress of conscience stemming from them. In the final step, a total SC index was calculated multiplying the A scores by the B scores. The index ranges from 1 to 36, with higher scores indicating higher levels of stress of conscience. The Cronbach's alphas for the A-items were 0.80 (T1) and 0.81 (T2) and for the B-items 0.88 (T1) and 0.89 (T2). There were missing information for these variables from 13 to 22 participants.

2.3.2 | Burnout

Burnout was measured at T1 and T2 with the 9-item Bergen Burnout Inventory (BBI-9; Feldt et al., 2014; Näätänen et al., 2003; Salmela-Aro et al., 2011). The dimensions used were exhaustion and cynicism, as they have been considered as the core dimensions of

burnout (Green et al., 1991; Schaufeli & Bakker, 2004). The dimension of reduced professional efficacy was excluded, as it has been criticised for reflecting more of a personality characteristic rather than a focal component of burnout (Cordes & Dougherty, 1993), and it is relatively modestly related with both other burnout dimensions (Lee & Ashforth, 1996). The BBI-9 includes three items for each dimension, for example, "I am snowed under with work" (exhaustion), and "I feel dispirited at work and I think of leaving my job" (cynicism). The items were rated on a 6-point Likert scale ranging from 1 (*completely disagree*) to 6 (*completely agree*), higher mean scores indicating a higher level of burnout. The scores for emotional exhaustion and cynicism have shown a strong positive correlation with the respective dimensions of the widely used Maslach Burnout Inventory (Maslach et al., 1997; Näätänen et al., 2003). The Cronbach's alphas for exhaustion were 0.65 (T1) and 0.72 (T2) and for cynicism 0.84 (T1) and 0.86 (T2). There was missing information for these variables from two participants at T1, and no missing values at T2.

2.3.3 | Turnover intentions

Turnover intentions were measured with two separate items at T2. The respondents were asked to evaluate the probability of (1) leaving their organisation and (2) changing their profession in the near future. Both items were rated on a 6-point Likert scale ranging from 1 (*completely disagree*) to 6 (*completely agree*), higher scores indicating a greater intention to leave. There was no missing information for these variables at T2.

2.3.4 | Background characteristics

Personal and work-related background factors relevant to burnout and turnover were also included as potential covariates (see, e.g. Bria et al., 2012; Dall'Ora et al., 2020; Flinkman et al., 2010; Halter et al., 2017). These were *gender* (0=female, 1=male), *age* (an ordinal variable consisting of 9 age groups that was treated as a continuous variable), *occupational group* (nominal variable with 12 separate groups, e.g. nurses, physicians, social workers), *weekly working hours* (mean), *supervisor tasks* (0=no, 1=yes), *patient work* (0=no, 1=yes) and *shift work* (1=regular day shifts, 2=regular shift work, 3=irregular shift work).

Finally, because the COVID-19 pandemic happened between the two data collection points, two items were used at T2 to measure work-related changes and stress due to COVID-19 (for a review, see Shreffler et al., 2020). The first asked respondents to evaluate how much the pandemic had affected their work. The second asked them to rate the amount of work-related stress caused by the pandemic. Both items were rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). These two scores were then multiplied to gain a total score, with higher values indicating higher COVID-related job strain.

2.4 | Ethical considerations

Only those employees who had given their consent at T1 to be contacted again for the follow-up were invited to participate at T2. They were contacted directly at the email address they had voluntarily provided in the T1 questionnaire. In both data collections, the first page of the survey clearly indicated that any personal data (e.g. email addresses) would be collected and used in the research in line with the EU's GDPR guidelines. All potential participants were required to indicate their informed consent on this page before they could continue any further in the survey. The Finnish National Board on Research Integrity was consulted, and it was confirmed that no approval would be required by an ethical or institutional review board to conduct the present research.

2.5 | Data analysis

2.5.1 | Factor analyses

First, an exploratory factor analysis (EFA) was used to identify the different dimensions of the SCQ with Mplus (version 8.0; Muthén & Muthén, 1998–2017). This was done with a robust maximum likelihood (MLR) estimator to take care of both non-normality and missing data, and an oblique geomin rotation to allow for correlations between the constructs. Next, a confirmatory factor analysis (CFA) was executed to test how one-factor and two-factor models suggested by previous research fit with the data. Finally, both the EFA and CFA findings were compared to establish the best fitting factor model. In all analyses, missing values were handled by using the full information maximum likelihood (FIML).

At this point, each factor model was calculated individually with T1 and T2 data, without any constraints for time invariance. After finding the best fitting factor model, the invariance of the factor loadings over time (i.e. metric invariance) was tested. Here, the chi-square values were compared between the restricted model (equal factor loadings across time) and the free model (no equality constraints). If the constrained model produced a non-significant increase in the chi-square value (relative to the degrees of freedom) compared to the unconstrained model, this would indicate that the constrained (i.e. time invariant) model was acceptable and could be used in further analyses.

In the factor analyses multiple indices were examined to determine the model fit: (a) the chi-square statistic (χ^2), (b) the comparative fit index (CFI), (c) the Tucker-Lewis index (TLI), (d) the root mean square error of approximation (RMSEA) and (e) the standardised root mean square residual (SRMR). Also the following critical values were used to identify the model with the best fit: CFI values >0.90 ; TLI values >0.95 (Marsh et al., 2004); RMSEA values of <0.08 ; and SRMR values of <0.06 (Hu & Bentler, 1998, 1999).

2.5.2 | Latent profile analysis

The SC dimensions identified in the factor analyses were used in the latent profile analysis (LPA; Spurk et al., 2020), also conducted

in Mplus. This meant calculating the SC indexes for each dimension (multiplying the *A-items* with *B-items*) at both T1 and T2, then using these variables to identify longitudinal SC patterns. Unlike the traditional, more commonly used cluster analysis, LPA is a model-based approach that generates estimates for the probability of each individual's group membership, conferring several advantages. Because the number and characteristics of potential patterns are not predetermined, the LPA allows the best fitting model to be identified, based on how the variables appear in the data. It also allows for these models to be statistically tested and analysed for goodness of fit. In this way, LPA can be used to identify the smallest number of distinct groups of similar individuals that best represent the patterns in the data. LPA does not require the same kinds of assumption to be made as many other forms of analysis do (such as normal distribution of the data), and this makes it less prone to statistical bias.

The appropriate number of latent groups was determined based on several statistical criteria (see Nylund et al., 2007; Spurk et al., 2020): log likelihood, Akaike information criteria (AIC), consistent AIC (CAIC), Bayesian Information Criteria (BIC), the adjusted Bayesian information criterion (aBIC), aLMR: adjusted Lo-Mendel-Rubin likelihood ratio test, and the bootstrap likelihood ratio test (BLRT). The smallest log likelihood, and low AIC, CAIC, BIC and aBIC values indicate the best fitting model, whereas the aLMR and BLR tests compare solutions with different numbers of latent groups. They provide a *p*-value that can then be used to determine if there is a statistically significant improvement in fit after adding one more class. The degree of classification uncertainty was then evaluated using the entropy statistic to determine the most likely latent group membership. Entropy values range from 0 to 1, where high values indicate that the latent groups are highly discriminative and a value between .70 and .80 is considered to indicate reliable solution (Celeux & Soromenho, 1996). In addition to statistical fit, theoretical and content-related issues were considered as criterion for selecting the best model (Spurk et al., 2020). After identifying most appropriate LPA model with the best fit, the latent group probabilities (indicating the most likely profile membership for each individual) were saved. This grouping was then used in SPSS for further statistical analyses.

2.5.3 | Outcomes of stress of conscience profiles

To test how the SC profiles related to burnout (measured at both T1 and T2), multivariate analysis of covariance (MANCOVA) was used. This allowed to perform a group \times time analysis, with the SC patterns providing the grouping variable, and repeated measurements the time variable. This enabled the investigation of (a) the change in mean levels of burnout from T1 to T2 (time effect), (b) the differences between the mean levels of burnout for each SC pattern at each time point (group effect) and (c) the interaction of these effects (i.e. how belonging to a particular SC pattern might moderate changes in burnout over time). In these analyses background characteristics that were found to correlate with exhaustion, cynicism, organisational and/or professional turnover intentions were controlled for.

3 | RESULTS

3.1 | Factor structure of the SCQ: Dimensions of hindrance and violation

In the exploratory factor analysis, only one- and two-factor solutions were compared, as the six items did not converge into a three-factor model (the model was unidentifiable). Based on the model fit indices, the one-factor model had a poor fit with the data [$\chi^2(9)=41.040$, $p<.001$, CFI=.913, TLI=.856, RMSEA=.108, SRMR=.049] compared to the two-factor model [$\chi^2(4)=9.187$, $p=.056$, CFI=.986, TLI=.947, RMSEA=.065, SRMR=.017]. The two-factor model also showed a clear factor structure, where five of the six items had standardised factor loadings above the criterion value of .40 (see Table 1). Only Item 1 did not reach this threshold, but its standardised loading of .34 came close.

The two factors also provided a clear theoretical interpretation of how the items loaded onto them (see Table 1). Based on a newly developed scale (Baele & Fontaine, 2021), constraints to moral action at work can be divided into hindrance and coercion constraints. The first category refers to reasons preventing one from working in an ethically sound manner, and the second to being compelled to do things that one believes to be morally wrong. Based on this classification, the items which loaded on Factor 1 clearly represented job situations that were felt by staff to hinder the quality of their work: having no time to treat people properly, feeling unable to live up to others' expectations of them, and feeling less inspired to do a good job. This factor was therefore identified as *hindrance stressors*. The second factor had items which suggested that employees' values were being violated: having to do something that felt wrong, having to deal with incompatible demands (answering one demand meant ignoring another and posed a personal conflict), or seeing people being insulted or injured (a violation of basic human values). Consequently, this factor described *violation stressors*. It should be noted at this point; however, that compared to Baele and Fontaine's

scale (2021) none of the items from Factor 2 involved direct coercion of the employee.

Next, the fit of this new two-factor model was tested with CFA for both stressor frequency (*A-items*) and stress magnitude (*B-items*). This was then compared with the original one- and two-factor structures suggested for the SCQ (Åhlin et al., 2012; Glasberg et al., 2006). Finally, the new model was also tested for its time invariance. Based on the fit indices of the alternative models (see Table 2), it was concluded that the new two-factor model provided the best fit with the data and proved itself to be invariant over time (i.e. the factor loadings did not fluctuate across the two measurement points and metric invariance was supported). These factor loadings are presented in Figure 1 and the two dimensions of hindrance and violation stress were used in the subsequent analyses.

3.2 | Longitudinal profiles of hindrance- and violation-related stress of conscience

To select the best fitting profile solution for longitudinal SC experiences, the analyses began by investigating the theoretical plausibility of the different estimations (Ram & Grimm, 2009; Spurk et al., 2020). One minority profile (with six participants) emerged in three-, four- and five-profile solutions that had a distinctive combination of very high violation stress and low hindrance stress scores. Thus, it became apparent that it had a combination of SC dimensions that was qualitatively different to other profiles. Thus, despite the possibility of this profile having less parsimony, lower statistical power and precision than larger profiles this small, yet theoretically meaningful profile was retained in the analysis. In the four- and five-profile solutions, other theoretically meaningful profiles also appeared, where the hindrance and violation stress scores either increased or decreased over time. Finally, a six-profile solution produced a new minority group (only three participants) that was atypical, but it did not add any theoretical rigour to the content of the previous profile combinations.

SCQ item (original numbering)	One-factor model	Two-factor model	
1. How often do you lack the time to treat people in your work as they should be treated?	.589	.339	.319
2. Are you ever forced to do something in your work that feels wrong?	.681	-.006	.840
3. Do you ever have to deal with incompatible demands in your work?	.804	.360	.535
4. Do you ever see people being insulted and/or injured in your work?	.471	.095	.441
8. Do you ever feel that you cannot live up to others' expectations of your work?	.645	.815	-.009
9. Do you ever lower your aspirations to do a good job?	.612	.638	.091

TABLE 1 Standardised factor loadings from the exploratory factor analysis (with oblique rotation) using the A-items of the SCQ (Glasberg et al., 2006).

Bold values refer to item loadings onto a particular factor.

TABLE 2 Fit indices of alternative factor models based on confirmatory factor analyses.

	Model comparisons							
	df	χ^2	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$	p-value
1. One-factor model, A-items, T1	76	287.812	.816	.780	.095	.067	Model 1 vs. Model 3	30 205.358 <.001
2. Two-factor model (internal and external demands), A-items, T1	71	257.188	.838	.793	.093	.062	Model 2 vs. Model 3	25 177.907 <.001
3. New two-factor model (hindrance and violation stressors), A-items, T1	46	84.136	.964	.948	.052	.045		
4. New two-factor model (hindrance and violation stressors), B-items, T1	48	95.893	.961	.951	.055	.042		
5. New two-factor model, metric invariance, A-items, T1 and T2	50	86.847	.965	.953	.049	.045	Model 3 vs. Model 5	4 1.010 .908
6. New two-factor model, metric invariance, B-items, T1 and T2	52	100.104	.961	.951	.055	.042	Model 4 vs. Model 6	4 1.954 .744

Note: A statistically significant $\Delta\chi^2$ value means that the less restricted model with less degrees of freedom should be selected; a non-significant value indicates that the more restricted model with more degrees of freedom should be selected. T1 = 2019; T2 = 2021.

Whereas the adjusted LMR-test showed a nonsignificant result for the three-profile solution, the BLRT-value did not show it for any of the profiles. The lowest BIC-value went to the five-profile solution; and the AIC-, CAIC- and ABIC-values kept descending with every additional profile added—being lowest for the last, six-profile solution. Finally, the entropy value was highest (0.89) for the three-profile solution. These results are presented in Table 3.

As none of the solutions got full support from the different fit criteria, the five-profile model was chosen on the basis that the content of each profile was qualitatively different. Named according to their qualitative and quantitative differences, the final profiles were: (1) hindrance-related stress, (2) violation-related stress, (3) both stress dimensions increasing over time, (4) both high yet decreasing over time and (5) stable levels of low stress. These profiles are shown in Figure 2.

3.3 | Burnout and turnover intentions in different stress of conscience profiles

To control for relevant background characteristics in our final models, correlations were tested between background variables and exhaustion, cynicism and turnover intentions (Table 4). Based on their significant correlations, occupational group and shift work were controlled for burnout and turnover intentions.

The findings of the multivariate analysis of covariance for burnout and the analysis of covariance for turnover intentions are presented in Table 5. An interaction was found between the SC profiles and changes in exhaustion over time. As shown in Figure 3, there was a clear increase in exhaustion from T1 to T2 among those employees who belonged to profile 3 (“both stress dimensions increasing over time”). Also a group effect was found, where employees experienced a higher mean level of exhaustion in Profiles 1 (“hindrance-related stress”), 3 (“both increasing over time”) and 4 (“high yet decreasing”) than in 5 (“stable low stress”). In other words, higher exhaustion scores tended to go hand in hand with higher scores of either hindrance- or violation-related stress of conscience. Meanwhile, cynicism (see Figure 4) had higher mean levels in profiles 3 (“both increasing”) and 4 (“both high yet decreasing”) than in 2 (“hindrance-related stress”) and 5 (“stable low stress”). Hindrance-related stress of conscience was therefore, on its own, more likely to cause exhaustion than cynicism; but when combined with violation-related stress, the cynicism scores also increased. No overall mean level changes were found for either exhaustion or cynicism over time, as both time effects were statistically nonsignificant.

Finally, no differences in organisational turnover intentions were found between the different profiles, but intentions to leave the profession were found to correlate with hindrance and violation stressors combined. That is, professional turnover intentions were highest in Profile 4—even when high SC decreased over the 2 years, turnover intentions remained the strongest in this profile at T2.

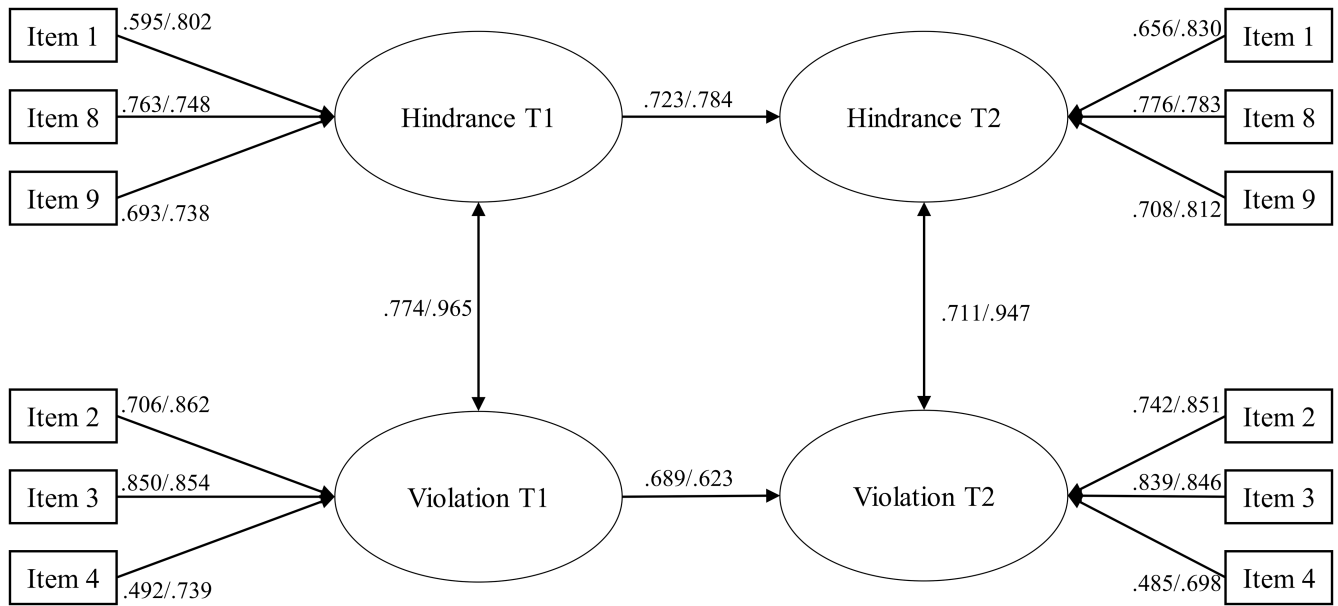


FIGURE 1 Standardised factor loadings and factor correlations based on the time-invariant two-factor model of the Stress of Conscience Questionnaire items. Items are numbered based on the original scale (Glasberg et al., 2006). Values before the slash indicate the A-item loadings (stressor frequency) and values after the slash refer to B-item loadings (stress magnitude).

TABLE 3 Fit indices of latent profile analyses.

Number of profiles	LL	#fp	Scaling	AIC	CAIC	BIC	ABIC	Entropy	aLMR	BLRT
1	-5110.555	10	1.3022	10241.111	10251.111	10278.347	10246.631	Na	Na	Na
2	-5026.764	15	1.4429	10083.528	10098.528	10139.382	10091.809	.838	.0004	.0000
3	-4996.050	20	1.4090	10032.101	10052.101	10106.573	10043.142	.893	.0544	.0000
4	-4969.349	25	1.3944	9988.698	10013.698	10081.788	10002.500	.880	.1492	.0000
5	-4949.920	30	1.5434	9959.840	9989.840	10071.547	9976.401	.858	.5258	.0000
6	-4937.940	35	1.2469	9945.880	9980.880	10076.206	9965.202	.880	.1079	.0000

Note: #fp, number of free parameters; scaling: scaling factor associated with MLR log likelihood estimates; ABIC, sample-size adjusted BIC; AIC, Akaike information criteria; aLMR, Adjusted Lo-Mendel-Rubin likelihood ratio test; BIC, Bayesian information criteria; BLRT, Bootstrap likelihood ratio test; CAIC, Constant AIC (BIC + #fp); LL, model log likelihood. Bold values indicate the model that the fit criteria endorse.

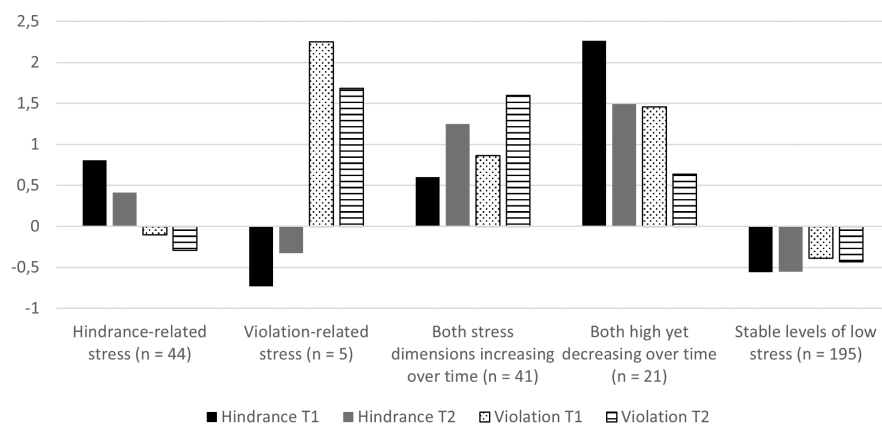


FIGURE 2 Five latent profiles based on two dimensions of stress of conscience at T1 (2019) and T2 (2021). Standardised scores are reported to help interpretation.

TABLE 4 Correlations between background variables and well-being outcomes.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Gender											
2. Age	-.05										
3. Occupation	.14*	.13*									
4. Working hours	.03	.11	.13*								
5. Supervisor tasks	.18**	.15**	.22***	.25***							
6. Patient work	-.02	-.18**	-.57***	-.03	-.17**						
7. Shift work	-.04	-.17**	-.45***	-.16**	-.21***	.29***					
8. COVID	-.10	-.03	.01	-.03	-.01	.01	.03				
9. Exhaustion	-.01	-.02	-.08	.11	.03	.06	.14*	.25***			
10. Cynicism	.03	-.07	-.14*	.03	-.05	.06	.13*	.19**	.49***		
11. Intention to leave the organisation	.05	-.28***	-.18**	-.06	-.11	.14*	.15**	.15**	.32***	.62***	
12. Intention to leave the profession	-.09	-.31***	-.19**	.01	-.16**	.13*	.25***	.15**	.27***	.52***	.60***

Note: Gender (0 = female, 1 = male), occupational group (nominal variable with 12 separate groups, e.g. nurses, physicians, social workers), weekly working hours (mean), supervisor tasks (0 = no, 1 = yes), patient work (0 = no, 1 = yes), and shift work (1 = regular day shifts, 2 = regular shift work, 3 = irregular shift work). Background variables from T1, outcome variables from T2. Correlations including a nominal variable were estimated with the Spearman correlation coefficient, correlations between two continuous variables were estimated with the Pearson correlation coefficient.

* $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 5 Differences in burnout dimensions between the five profiles of stress of conscience over time (MANCOVA) and differences in turnover intentions between the profiles (ANCOVA).

	(1) Hindrance-related stress n = 44		(2) Violation-related stress n = 5		(3) Both stress dimensions increasing over time n = 41		(4) Both high yet decreasing over time n = 21		(5) Stable levels of low stress n = 195		Group differences (pairwise comparisons ^a)		Time effect	Group × time effect
	M (SE)	T1	T2	M (SE)	T1	T2	M (SE)	T1	T2	M (SE)	T1	T2	F value	F value
Exhaustion	3.37 (.14)	3.32 (.16)	3.49 (.54)	3.03 (.60)	3.33 (.15)	4.07 (.17)	4.16 (.22)	3.82 (.24)	2.57 (.07)	2.75 (.08)	20.76*** (5 < 1, 3, 4)	20.76*** (5 < 1, 3, 4)	0.01 ns	5.06**
Cynicism	2.41 (.16)	2.78 (.19)	3.71 (.62)	3.33 (.72)	2.84 (.18)	3.38 (.20)	3.35 (.25)	3.40 (.29)	2.14 (.08)	2.58 (.09)	7.63*** (5 < 3, 4)	7.63*** (5 < 3, 4)	0.19 ns	1.04 ns
Intention to leave the organisation	—	2.72 (.22)	—	3.83 (.85)	—	3.33 (.23)	—	3.90 (.35)	—	2.81 (.11)	2.70* (ns)	2.70* (ns)	—	—
Intention to leave the profession	—	2.05 (.20)	—	3.06 (.77)	—	2.60 (.21)	—	3.69 (.31)	—	2.26 (.10)	5.09*** (4 > 1, 5)	5.09*** (4 > 1, 5)	—	—

Note: Occupational group and shift work were controlled for in the analyses.

^aBonferroni comparisons.

***p < .01; **p < .001.

4 | DISCUSSION

There has been some debate about the number and content of stress of conscience dimensions, and a lack of longitudinal studies on its development and outcomes (Jokwiro et al., 2022). Thus, the aim of this study was to critically examine the dimensionality of the SCQ (Glasberg et al., 2006) and to investigate different longitudinal profiles based on these dimensions. Finally, employees with different experiences of stress of conscience over time were compared in their experiences of burnout and turnover intentions.

The main theoretical contribution of the study was that two dimensions were found to underlie the SCQ measure: stress of conscience caused by *hindrance stressors* and *violation stressors*. In line with the argumentation by Baele and Fontaine (2021), these stressors represent two types of moral constraint: being unable to do the right thing (omission) or being forced to do the morally wrong thing (commission). However, even though Baele and Fontaine (2021) came up with these two dimensions for measuring moral distress, they did not analyse them separately; they only compared frequency and intensity of moral distress in relation to well-being outcomes. In contrast to this, this study identified five qualitatively different profiles based on the experiences of health-care employees.

The subgroup that had lowest burnout and least number of turnover intentions were employees who experienced *stable low stress* (a low level for both stressors over time). This was the largest group with 63% of the employees. This is a positive finding, as it means they were able to do their daily work in healthcare without facing pressures and demands to bypass or violate their own personal moral values. However, it also highlights the importance of the person-centred study design: the more atypical profiles would not have been detected with a variable-centred analysis that focuses on means and variances across the whole study population. This large group would have probably masked any significant findings related to the minority groups.

Next, a small group with 14% of the studied employees was identified, who experienced *high hindrance-related stress* but low violation-related stress. They had the lowest turnover intentions of all groups and the second lowest scores on burnout, suggesting that even when employees felt unable to do their job to a standard that matched their own personal values, such hindrance-related stress on its own did not necessarily have a negative effect on their well-being. Instead, the profile with *high violation-related stress*, despite its rarity (with only five employees), was a group in which well-being was clearly at risk, because it had the second highest mean scores for burnout and turnover intentions. However, these mean differences did not reach statistical significance, probably due to the small group size.

Finally, two profiles were identified that had high levels of both hindrance- and violation-related SC. They differed from each other in terms of their development over time. In the first (13% of participants), *both kinds of SC increased over time*, whereas in the second (7%), *both decreased over time*. The increases in stress of

FIGURE 3 Development of exhaustion over time between the five stress of conscience profiles.

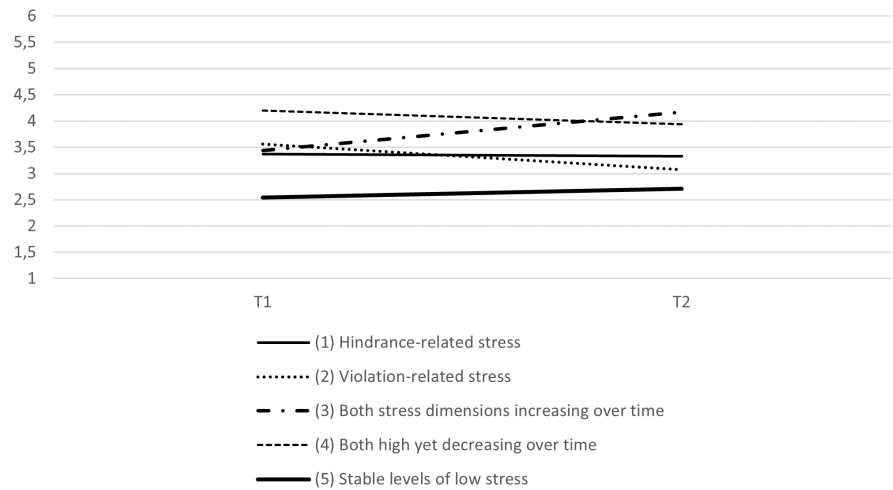
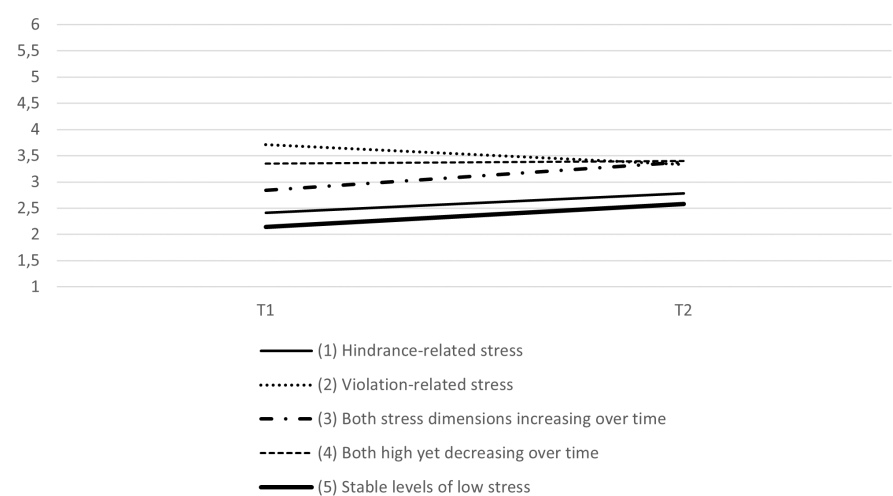


FIGURE 4 Development of cynicism over time between the five stress of conscience profiles.



conscience correlated with increased levels of burnout. However, it was somewhat surprising that in the decreasing SC profile employees had the highest levels of exhaustion and turnover intentions. This might be explained by the allostatic load theory (see Guidi et al., 2021): when there is chronic stress (such as constantly high levels of SC), it can become a cumulative burden with negative effects on well-being. Although the mean levels of hindrance- and violation-related SC decreased during the 2-year follow-up, they nevertheless remained above the average level, also in 2021. Thus, it could be that more time with even lower levels of stress is needed to “repair” the cumulative stress reactions that negatively impact well-being. This and other cumulative effects could be tested in future by using even longer follow-up periods and multiple measurement points.

Finally, this study contributed to the way stress of conscience is measured and conceptualised by testing a modified, shorter version of the SCQ (Glasberg et al., 2006). The scale with six items and two dimensions (hindrance and violation stressors) was found to be reliable, valid and longitudinally invariant. This is an important prerequisite for further studies, as it helps to distinguish whether changes in stress levels over time reflect true changes in employees'

experiences or rather changes in the assessment or structure of the scale itself (see Vandenberg & Lance, 2000).

4.1 | Limitations and future directions

By choosing the person-centred study design we had to forgo any causality testing. This means that in the future the temporal order between stress of conscience and well-being indicators should still be tested by, for example, using a cross-lagged panel design. However, the findings from the latent profile analysis indicated that most of the participants (63%) fell into profile with stable low SC levels. In other words, the overall variance in mean ratings for stress of conscience would have been very low among our whole sample. Consequently, variable-centred longitudinal analysis would have probably led to insignificant findings regarding any causal or reversed paths. Thus, it was also valuable to focus on identifying atypical profiles, as it enabled to conclude that high SC levels in *both* hindrance and violation dimensions correlated with high levels of burnout and turnover intentions. With a variable-centred design these associations could have remained undetected.

Another limitation is that the intentions of participants to leave their organisation or profession were measured instead of actual turnover. Future studies are thus needed to see whether these intentions were eventually followed through (see also Halter et al., 2017). In addition, more research is needed on whether stress of conscience represents a particular type of stressor, rather than the kinds which arise from more traditional job demands. For instance, high workload or role ambiguity are traditionally seen as putting pressure on employees and increasing burnout and turnover intentions (see, e.g. Van der Heijden et al., 2019), whereas morally challenging situations might also have the positive effect of motivating some employees into taking action. In their review, Jokwiro et al. (2022) presented a model that includes two potential responses to stress of conscience: it can either positively motivate employees to refine their personal values or negatively induce feelings such as guilt, shame and disharmony. Thus, turnover intentions might not always lead to actual turnover, as the employees might find other ways to settle their conscience within the organisation or profession—by taking measures in what they perceive to be the right direction and in line with their own personal values.

In addition, the two-wave study design did not allow testing for any potential mediators that might reveal indirect relationships between stress of conscience and turnover intentions. Such a relationship could, for instance, be explained by an attitudinal change, such as lowered satisfaction and less commitment towards the organisation or profession (Chênevert et al., 2021). Future studies could use a three-wave design, which would provide more information about these mediation processes.

It would also be worthwhile to test for SC predictors that were not included in the present study, such as moral sensitivity (Lützen et al., 2006) or moral identity (Huhtala et al., 2021). Certain healthcare employees, who are particularly sensitive to the moral aspect of certain work situations or who have a strong personal moral identity might experience stress of conscience more easily than others. These factors could also act as potential moderators for the relationship between stress of conscience and well-being outcomes. Differences in moral sensitivity and/or moral identity might mean some employees are more prone to stress of conscience and its negative outcomes than others.

5 | CONCLUSION

This study highlights the importance of identifying two different dimensions to stress of conscience—hindrance- and violation-related. They can associate significantly with employee burnout and turnover intentions, especially when both kinds of SC are experienced at the same time. Although for most employees in this study high SC levels were not a concern, organisations and management must nevertheless try to identify these stressors and the causes behind them. In other words, although only a minority of participants mentioned high stress of conscience, it remains the responsibility of the whole organisation to address it. This

could include, for example, identifying organisational structures that might expose employees to violations of their values and taking steps to implement and sustain support mechanisms (Morley et al., 2022).

Here it is important to consider what kinds of actions are needed to prevent and reduce potential hindrance- and violation-related stressors that are conceptually different, yet both a risk for employees' conscience and well-being. As hindrance-related situations are more likely to happen in everyday work than violation-related events, they could be addressed by enabling time and safe, reflective spaces where nurses can discuss these experiences (Morley et al., 2022). Because healthcare is a complex work environment, it is important to recognise that ethical demands can put the employees in a place where there are no “good solutions”, but instead compromises are needed or “the least bad scenario” must be chosen. Instead, situations that violate the employee's values might happen more rarely but cause high levels of distress. Therefore, these situations should be dealt with by identifying and addressing factors causing them, and the employees should have access to mental support, such as clinical supervision, to process these experiences.

5.1 | Relevance to clinical practice

Although this study was targeted to the whole healthcare personnel of one healthcare district, nurses were the largest occupational group among the participants. Therefore, the findings largely represent nurses' experiences of stress stemming from situations that challenge their conscience at work. As the retention of nurses is a critical aim in the era of nursing shortages and simultaneously increasing health demands, finding ways to retain healthcare staff becomes extremely important. In addition, retaining especially older nurses and their accumulated knowledge and expertise should be an important goal to organisations (Moseley et al., 2008), as the overall healthcare population is aging. For example, in the U.S., the median age of registered nurses was found to be 52 years old in 2020 (Smiley et al., 2021). In the EU, two equally large age groups (aged 35–49 and 50 years or over) both accounted for over a third of the healthcare workforce (Eurostat, 2021). In the current study, half of the studied employees were aged over 45 years. Based on their experiences, reducing stress of conscience can have an important role in supporting employee retention. This finding is relevant for minimising staff turnover especially among the aging healthcare workforce.

Situations at work that set up a discrepancy between healthcare workers' inner voice (personal moral values guiding them how to act) and actions taken (such as having to lower the quality of care because of a lack of time) forces them to ignore their personal values and may lead to a troubled conscience. This was shown to be a significant risk to both burnout and turnover. Thus, providing opportunities and resources for performing one's work in a value-aligned and morally sustainable way should be prioritised to support healthcare personnel's well-being and retention.

AUTHORS' CONTRIBUTION

Mari Herttalampi: conceptualisation (equal); data curation (equal); formal analysis (lead); funding acquisition (supporting); investigation (equal); methodology (equal); project administration (supporting); writing—original draft (lead); writing—review and editing (equal). Taru Feldt: conceptualisation (equal); data curation (equal); formal analysis (supporting); funding acquisition (lead); investigation (equal); methodology (equal); project administration (lead); supervision (lead); writing—review and editing (equal).

ACKNOWLEDGEMENTS

This research was funded by the Academy of Finland (grant number: 308336). The authors have checked to make sure that our submission conforms as applicable to the Journal's statistical guidelines. The statistics were checked prior to submission by an expert statistician Joonas Muotka, joona.s.muotka@jyu.fi. The authors affirm that the methods used in the data analyses are suitably applied to their data within their study design and context, and the statistical findings have been implemented and interpreted correctly. The authors agree to take responsibility for ensuring that the choice of statistical approach is appropriate and is conducted and interpreted correctly. The main statistical methods that were used: development, validation and assessment of instruments/scales; multivariate statistics, for example, factor analysis, PCA, cluster analysis; time series including longitudinal analysis.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT

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

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Herttalampi, M., & Feldt, T. (2023). A new approach to stress of conscience's dimensionality: Hindrance and violation stressors and their role in experiencing burnout and turnover intentions in healthcare. *Journal of Clinical Nursing*, 00, 1–14. <https://doi.org/10.1111/jocn.16797>