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## Research paper

# What makes teachers stay? A cross-sectional exploration of the individual and contextual factors associated with teacher retention in Sweden.



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## HIGHLIGHTS

- Teachers' perceived health state is strongly associated with their intention to remain in the profession.
- Teachers' work motivation is related to their intention to remain in the profession.
- Social support from colleagues is an important contextual factor influencing teachers' retention intention.

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## ABSTRACT

This cross-sectional study aimed to identify individual and contextual factors associated with Swedish teachers' intention to remain in the profession. A sample of 5903 elementary-year teachers completed a questionnaire between 2004 and 2011 assessing their health and perception of individual and contextual factors at work. The findings showed that teachers' intention to remain in the profession is mainly explained by individual factors, predominantly by teachers' perceived health state, work motivation and collegial support. The main implication is the importance of teachers' perceived health state for their intention to remain, underscoring the importance of a health promoting work environment in schools.

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## 1. Introduction

There is a teacher shortage problem facing countries across the world, including Sweden (See & Gorard, 2020). According to projections reported by the Swedish National Agency for Education 227 000 teachers will be needed by 2031 to meet the demands of an increasing student population. During this time-period an estimated 145 000 student teachers will graduate resulting in a shortfall of more than 80 000 teachers in Sweden (European

Commission, 2019). These projected shortages are particularly evident in early childhood education and elementary-year schooling, and are further exacerbated by an ageing teacher population nearing retirement-age (European Commission, 2019; Skolverket, 2017.) However, evidence from the literature has demonstrated that the teacher shortage crisis is mainly driven by the inability to retain teachers, indicated by teachers' turnover and attrition rates (Ingersoll, 2001, Ingersoll, 2003; Rinke & Mawhinney, 2019). Teacher retention refers to keeping qualified teachers in the profession and is the inverse of teacher attrition, which refers to qualified teachers making premature exits from the profession (Kelchtermans, 2017). In Sweden, the proportion of qualified teachers working in the profession has gradually declined over time from ~70% in 2000 to ~60% in 2016 (Adermon & Laun, 2018; Holmlund, Sjögren, & Öckert, 2020). Furthermore, in

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comparison to other occupations such as police officers and nurses, the attrition rate among teachers is high. In 2016 the proportion of qualified nurses and police officers working in the profession was 80% and 70% respectively compared to 60% among teachers (Adermon & Laun, 2018). A survey conducted by Statistics Sweden (2017) examining 7298 teachers' career trajectories revealed that challenging working environments, stressful working conditions and the appeal of other professions were commonly cited reasons for leaving the profession. However, most teachers who left also stated that they would be willing to re-join the profession if the salary and working conditions were improved (Statistics Sweden, 2017).

Teachers turnover rate has been widely used in the literature to capture and classify teachers' occupational mobility (Borman & Dowling, 2008; Vagi & Pivovarova, 2016). Turnover is, to a certain extent, a useful organizational process. For instance, studies have identified higher turnover rates among low-skilled teachers (Karbownik, 2014a), which can be regarded as beneficial from a school improvement perspective. Yet, the negative consequences of high turnover rates are extensive and affect schools, teachers, and students (Brill & McCartney, 2008; Ronfeldt, Loeb, & Wyckoff, 2013). High turnover rates impact schools financially due to the high costs of recruiting new teachers (Ronfeldt et al., 2013; Simon & Johnson, 2015). It also affects the composition of schools as it disrupts the organizational structure, social cohesion, and relational continuity among staff and with students (Kelchtermans, 2017). The spillover effects of these organizational disruptions also impact the remaining teachers as it can lead to instructional burdens and challenging working conditions (Brill & McCartney, 2008; Kelchtermans, 2017). High turnover rates also bear instructional implications as vacancies are often addressed by employing unqualified teachers or novice teachers, resulting in less effective instruction for their students (Barbieri, Rossetti, & Sestito, 2011; Simon & Johnson, 2015). As such, schools with high turnover rates find themselves in a negative spiral as the spillover effects may further intensify turnover rates (Organisation for Economic Cooperation and Development, 2015; Viac & Fraser, 2020). Therefore, regardless of whether teachers choose to move schools or leave the profession, teacher turnover impacts the educational and relational continuity among individual schools (Kelchtermans, 2017).

The extensive negative consequences of high turnover rates underscore the importance of increasing our understanding of how to retain teachers (Mason & Matas, 2015). The crux of the problem lies in the inability to retain teachers and better retention can to a large extent address the current and future teacher shortages (Lindqvist & Nordänger, 2016; Lindqvist, Nordänger, & Carlsson, 2014). Despite this, most of the studies have focused on identifying factors contributing to teacher turnover (Vagi & Pivovarova, 2016). Less focus has been placed on factors that can contribute to better retention (Sell, 2019). Refocusing the attention to retention could yield valuable information needed to provide nuanced organizational practices targeting better retention among teachers (Kuriloff, Hoffman, Jordan, Sutherland, & Ponnock, 2019). By doing so, the literature can advance our understanding of what drives retention which, in combination with the vast turnover literature, can provide a comprehensive understanding of the factors that influence teachers' career decisions.

## 2. Background

### 2.1. Teacher retention

In contrast to the attrition literature, the literature concerning retention is less extensive. Despite studies in the retention

literature identifying individual and contextual factors associated with retention, few studies have explored retention using a conceptual approach based on both teachers' individual characteristics and contextual factors (Mason & Matas, 2015; Rinke, 2008). Contrastingly, the attrition literature has identified a multitude of factors driving teacher's intent to leave (Billingsley & Bettini, 2019; Borman & Dowling, 2008; Nguyen, Pham, Springer, & Crouch, 2019), enabling researchers to explore attrition using a conceptual approach based on the interplay between individual teacher characteristics and contextual factors (e.g. Chambers Mack, Johnson, Jones-Rincon, Tsatenawa, & Howard, 2019; Qin, 2019). By doing so, the attrition literature has shifted from piece-meal explanations of teachers' intention to leave to providing a more coherent view of how teachers' individual characteristics and contextual factors influence their career intentions (Borman & Dowling, 2008). Using this approach can contribute to the retention literature by providing a more robust framework for identifying malleable and non-malleable moderators of retention (Rinke, 2008). In some instances findings derived from studies concerning attrition are inversely interpreted and used as a proxy for understanding teacher retention (e.g. Skaalvik & Skaalvik, 2017a). Although this approach may inform us of factors that can alleviate teachers' intention to leave, it provides no clear delineation between research concerning what makes teachers stay in the profession and what makes teachers leave. In addition to this, many of the studies focusing on retention are qualitative (e.g., Hong, 2012; Zavelevsky & Lishchinsky, 2020), or focus on teacher subgroups such as novice teachers (e.g., Björk, Stengård, Söderberg, Andersson, & Wastensson, 2019; Stockard & Lehman, 2004), and subject teachers (e.g., Suárez & Wright, 2019; Whipp & Salin, 2018).

Similarly, to the attrition literature, most studies have been carried out in the US which complicates generalizations from one teacher population to another, given the vast array of country-specific educational reforms impacting the teacher occupation (Mason & Matas, 2015; Qin, 2020; See, Morris, Gorard, Kokotsaki, & Abdi, 2020; Zieger, Sims, & Jerrim, 2019). As such, the need for more research guiding our understanding of how to enhance retention is warranted (Borman & Dowling, 2008; Mason & Matas, 2015; Rinke, 2008).

### 2.2. Individual factors and retention

The reasons leading teachers to remain in the profession are complex and form part of the continuous negotiation process teachers make (Lindqvist & Nordänger, 2016). Studies focusing on teachers who stay in the profession have indicated that individual factors such as intrinsic motivation and efficacy facilitate retention (e.g. Alexander, Wyatt-Smith, & Du Plessis, 2020; Chiong, Menzies, & Parameshwaran, 2017; Day & Gu, 2009; Tricarico, Jacobs, & Yendol-Hoppey, 2015). Motivation has garnered a lot of interest given its implications for both teacher recruitment and retention (Heinz, 2015). In line with the increasing interest in retention, more studies are examining how long-serving teachers sustain their motivation and commitment over time (Chiong et al., 2017; Gu, 2014; Gu & Day, 2013). Using a mixed-method design Chiong et al. (2017) examined the motivation to remain in the profession among long-serving teachers (>10 years of experience). By utilizing rich-survey data from over 900 teachers and 14 in-depth interviews with teachers they identified two prominent individual-level retention factors. Long-serving teachers were able to sustain their motivation and commitment to teaching due to their intrinsic motivation and sense of professional mastery reflected by student outcomes (Chiong et al., 2017). Other studies have also emphasized the importance of teachers' sense of efficacy, which includes both their instructional and student interaction capabilities, for

retention. (Day & Gu, 2009; Hong, 2012). Studies have also shown that teachers who stay in the profession report higher levels of efficacy for instruction, student engagement, and classroom management in comparison to teachers who leave (De Neve & Devos, 2016; Heikonen, Pietarinen, Pyhältö, Toom, & Soini, 2016). In an interview study comparing seven teachers who left the profession and seven teachers who remained it was found that, despite both groups reporting the same level of motivation for teaching and identifying similar difficulties in classroom management and instruction, teachers who remained in the profession reported higher self-efficacy beliefs (Hong, 2012). Furthermore, these teachers also highlighted the importance of supportive contextual factors that enhanced their motivation, efficacy, occupational health, and retention intention (Hong, 2012). Indeed, in addition to providing an insight into individual retention factors, most narrative studies also provide an insight into the significance of the interplay between individual and contextual factors in facilitating retention (Day & Gu, 2009; Gu, 2014).

### 2.3. Contextual factors and retention

Several studies have identified school-level contextual factors to be associated with retention (e.g., Björk et al., 2019; Zavelevsky & Lishchinsky, 2020). Using two cohorts from the Schools and Staffing Surveys Weiss (1999) explored associations between contextual factors and retention among 2676 novice teachers from 1987–88 and 2412 novice teachers from 1993–94. Teachers' perceptions of their sense of autonomy and job control, in terms of exerting decision authority with regards to curriculum, student discipline and instruction, was strongly associated with their intentions to remain in the profession. Moreover, the findings also highlighted how contextual factors enhance individual resources, as supportive job resources were associated with higher levels of morale among teachers (Weiss, 1999). Given the persistence of teachers' turnover intentions over time and the malleability of the school-related contextual factors influencing their decision-making (Räsänen, Pietarinen, Pyhältö, Soini, & Väisänen, 2020), recent studies in the retention literature have shifted towards exploring the complexity of working environments and its subsequent influence on teacher retention (e.g., McCarthy, Lambert, & Reiser, 2014). In contrast to the turnover literature, which has focused on examining the association between challenging work-level factors and turnover intention, these studies have attempted to mirror naturalistic working environments using cluster analysis of job demands and job resources. For instance, McCarthy et al. (2014) examined the association between coping resources, job satisfaction and retention among 185 elementary teachers. In their study teachers were grouped into three conditions based on their appraisals of job demands and resources. Teachers in the most advantageous working condition, characterized by high levels of job resources and low job demands, reported higher levels of preventative coping resources, job satisfaction and retention intention. Similarly, in Björk et al. (2019) study they followed 397 novice teachers clustering them into four conditions based on their perceived job demands and job resources. In their study, teachers working in the most advantageous situation reported higher levels of social support, decision authority, role clarity, efficacy and experienced lower psychosocial job demands. Furthermore, in contrast to their counterparts working in less advantageous working conditions, a higher proportion of teachers in the most advantageous cluster reported a high willingness to stay in the profession.

Other studies have demonstrated the importance of socio-organizational resources for retention. Many studies point to the importance of vertical support processes, in terms of responsive and supportive school leadership, for facilitating retention (Day &

Gu, 2009; Mäkelä, Hirvensalo, & Whipp, 2015; Suárez & Wright, 2019; Whipp & Salin, 2018; Zavelevsky & Lishchinsky, 2020). Studies have also highlighted how horizontal support processes, in terms of positive social interactions with peers, students and families, can facilitate retention (Geiger & Pivovarova, 2018; Hughes, 2012; Stockard & Lehman, 2004). A commonality of these findings is the suggestion that work-related and socio-organizational job resources can mitigate challenging aspects of teachers work and reinforce their willingness to stay in the profession. For instance, Pomaki, DeLongis, Frey, Short, and Woehrle (2010) examined the role of social support in turnover intention among 71 novice teachers in Canada. In their study, social support from colleagues was significantly associated with teachers' intention to remain in the profession, with this effect upheld even after controlling for workload and teacher demographics. Furthermore, moderation analysis revealed a buffering effect of social support from colleagues as teachers who reported high levels of workload but with high levels of social support were more likely to remain in the profession in comparison to those with less social support. Given the inherent social connectedness found within schools, recent studies have turned their attention to how teachers' career decisions are influenced by socialization processes and the relational aspects of organizations (Grillo & Kier, 2021; Struyve et al., 2016). For instance, Thomas et al. (2021) analysed early career teachers' collegial networks over time and triangulated quantitative information with qualitative data to further explore how teachers network position influenced their job attitudes over time. Their explorative findings illustrated how professional support provided a buffer for occupational challenges and confirmed the positive associations between teachers' social connectedness, job attitudes and their career decisions.

## 3. Aims of study

The aim of the current study is to explore which individual and contextual factors that are associated with teachers' intention to remain in the profession. By using a conceptual approach including individual and school-related contextual factors the study aims to provide valuable knowledge regarding protective factors that can facilitate teacher retention.

## 4. Method

### 4.1. Participants

This cross-sectional study used data collected by the Swedish insurance company AFA-insurance. The data was collected between 2004 and 2011 from municipality workers in Sweden. The original database consists of data from more than 190 000 participants from different occupations. The inclusion-criteria for the current study were qualified elementary-year teachers (ISCED level 1–2) working in public schools (see Fig. 1 for exclusion-criteria). Teachers with temporary-employment contracts were excluded from the sample as these positions are predominantly held by unqualified teachers. In Sweden unqualified teachers are typically employed for shorter periods of time and cannot be permanently employed at a school (Skolinspektionen, 2017). This group was excluded as these teachers often form a large part of the teachers who leave the profession (Karbownik, 2014b; Karbownik & Martinson, 2014), however mainly due to factors such as job insecurity (Cheng & Chan, 2008), which is beyond the scope of the present study. The final study sample consists of 5903 elementary-year teachers from 25 municipalities in Sweden (see Table 1 for descriptive data of the study sample). The study sample is representative of the Swedish teacher population in terms of age, formal qualifications, and

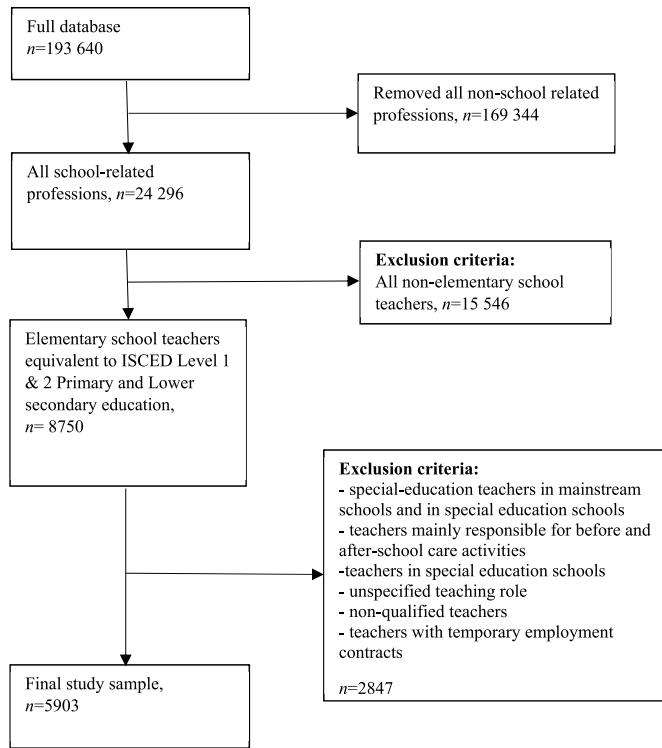


Fig. 1. Sample Selection Procedure. Flowchart illustrating the sample selection procedure.

gender ratio when comparing with the national data (Skolverket, 2012). The sample is also geographically representative of the Swedish teaching population with participants representing 9 of 10 municipality groups (Skolverket, 2011). For more information regarding the educational system in Sweden see Grönqvist, Hensvik, and Thoreson (2020) and Karbownik (2020).

4.2. Data collection and measurements

Data was obtained by questionnaire. The language of the

questionnaire was Swedish. Participation in the study was voluntary and informed written consent was obtained from each employee. By completing the questionnaire employees automatically gave informed consent that data could be used for research purposes. The Stockholm Ethical Board, Sweden, provided ethical approval for the data-collection (Dnr. 00–012, 2011/1258–32) and the research questions of this specific study (2020–04507). In accordance with the variable classifications set by the General Nordic Questionnaire for Psychological and Social Factors at Work (QPS-Nordic) variables were grouped into individual-, work-, and socio-organizational-level factors for the analysis (Dallner et al., 2000).

4.2.1. Individual variables

The following individual variables were included in the study: organizational commitment, work motivation, mastery, work-life interference, health-related quality of life, and exhaustion. The QPS-Nordic (Dallner et al., 2000) was used to assess organizational commitment using three items on a 5-point scale ranging from 1 = disagree totally to 5 = agree totally (e.g., *My values are very similar to the organization's values*); mastery of work using four questions (e.g., *Are you content with your ability to solve problems at work?*), and work-life interference using one question on a 5-point scale ranging from 1 = very seldom or never to 5 = very often or always (*Do the demands of your work interfere with your home and family life?*). Work motivation was assessed using a scale developed by Sjöberg and Lind (1994) and consisted of three questions on a five-point scale ranging from 1 = Yes, often to 5 = No, never (e.g., *Are you motivated to work?*). A shorter version of the scale, which is used in this study, has demonstrated good validity and reliability in previous studies (Aronsson et al., 2020; Björklund, Jensen, & Lohela-Karlsson, 2013). Health-related quality of life was assessed using the EQ-5D-3L instrument of the Swedish version of the EuroQol (EuroQol Research Foundation, 2018). It consists of five dimensions concerning mobility, self-care, usual activities, pain/discomfort and anxiety/depression rated from 1 to 3 using three severity levels: (1) no problems, (2) some problems, and (3) extreme problems. Each dimension is then used to create a descriptive health profile which holds country-specific weights based on health estimates from a reference population using the time trade-off (TTO) (Björk & Norinder, 1999). Values of 0.00

Table 1 Descriptive Data of the Study Sample.

Study sample n = 5903	
Gender, n (%)	
Women	4706, 80%
Men	1178, 20%
Age, m (SD)	45.9 years (10.7)
Teaching experience, (%)	
≤ 5 years	25.2%
>5 years	74.7%
Experience at current school, (%)	
≤ 5 years	38.6%
>5 years	61.3%
Geographical representation of the teaching sample <sup>a</sup>	
Big cities	1%
Suburban municipalities to the big cities	17.1%
Larger cities	46.6%
Suburban municipalities to larger cities	2.3%
Commuting municipalities	1.8%
Tourism and hospitality municipalities	8.5%
Commodity-producing municipalities	8%
Sparsely populated municipalities	1.4%
Municipalities in densely populated regions	–
Municipalities in sparsely populated regions	12.8%

Notes: <sup>a</sup>The Swedish Association of Local Authorities and Regions has categorized the municipalities according to population size and private-sector characteristics resulting in ten distinct municipality groups (see Skolverket, 2011).

indicate a poor health state whereas values of 1.00 indicates the best possible health state.

Exhaustion was measured using the average score of all positively and negatively worded items based on eight items rated on a 4-point scale, ranging from 1 = Strongly disagree to 4 = Strongly agree (e.g., *When I work, I usually feel energized*) from the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003; Demerouti, Mostert, & Bakker, 2010). The Cronbach alpha for the scales used for the individual variables are reported in Table 2 and ranged from 0.50 to 0.83 indicating acceptable to good reliability (Nunnally, 1978).

4.2.2. Work-level variables

The following work-level variables were included in the study: job demands, job control, role expectancy, and school quality. The QPS-Nordic (Dallner et al., 2000) was used to assess job demands, job control, and role expectancy on a 5-point scale ranging from 1 = Very seldom or never to 5 = Very often or always. Job demands consisted of three dimensions: quantitative demands assessed using four questions (e.g., *Do you have too much to do?*), learning demands using three questions (e.g., *Do you perform work tasks for which you need more training?*), and decision demands using three questions (e.g., *Does your work require complex decisions?*). Job control consisted of two dimensions: decision authority assessed using four questions (e.g., *Can you influence decisions that are important for your work?*) and control of work pace using four questions (e.g., *Can you set your own work pace?*). Role expectancy consisted of two dimensions: role conflict assessed using three questions (e.g., *Do you have to do things that you feel should be done differently?*) and role clarity using three questions (e.g., *Have clear, planned goals and objectives been defined for your job?*). The study also includes a new unvalidated scale concerning school quality developed by two of the co-authors (CB, GB) which examines teachers' perception of the quality of education and care provided by the school. School quality was assessed using five items on a 5-point scale ranging from 1 = No, definitely not to 5 = Yes, absolutely (e.g., *Would you as a parent to a student be happy with the education provided at your school?*). The Cronbach alpha for the work-level scales used are reported in Table 2 and ranged from 0.57 to 0.86 indicating acceptable to good reliability (Nunnally, 1978).

4.2.3. Socio-organizational-level variables

The following socio-organizational-level variables were included in the study: social interaction and organizational climate. The QPS-Nordic (Dallner et al., 2000) was used to assess social interaction on a 5-point scale ranging from 1 = Very seldom or never to 5 = Very often or always, and organizational climate on a 5-point scale ranging from 1 = Very little or not at all to 5 = Very much. Social interaction consisted of two dimensions: managerial support assessed using three questions (e.g., *If needed, is your immediate superior willing to listen to your work-related problems?*) and support from colleagues using two questions (e.g., *If needed, are your co-workers willing to listen to your work-related problems?*). Organizational climate consisted of two dimensions: social climate assessed using three items (e.g., *What is the climate like in your work unit?* (i) *Encouraging and supportive*; (ii) *Distrustful and suspicious*; (iii) *Relaxed and comfortable*) and employee-focused climate using two questions (e.g., *To what extent is the management of your organization interested in the health and well-being of the personnel?*). The Cronbach alpha for the socio-organizational-level scales used are reported in Table 2 and ranged from 0.77 to 0.83 indicating good reliability (Nunnally, 1978).

Table 2  
Correlations and descriptive statistics.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	
1. Work motivation	1																			
2. Organizational commitment	.44**	1																		
3. Mastery	.29**	.40**	1																	
4. Work-life interference	-.31**	-.24**	-.37**	1																
5. Health-related Quality of Life	.26**	.19**	.22**	.62**	1															
6. Exhaustion	-.51**	-.36**	-.51**	-.36**	-.45**	1														
7. Quantitative demands	-.17**	-.17**	-.23**	.51**	-.14**	.49**	1													
8. Learning demands	-.12**	-.12**	-.29**	.30**	-.12**	.31**	.35**	1												
9. Decisional demands	-.02	-.04**	-.03	.21**	-.06**	.19**	.38**	.35**	1											
10. Role clarity	.29**	.27**	.31**	.31**	.13**	.28**	.28**	-.21**	-.24**	1										
11. Role conflict	-.26**	-.34**	-.28**	.40**	-.19**	.42**	.50**	.40**	.33**	-.30**	1									
12. Decision authority	.27**	.35**	.27**	-.26**	.19**	-.34**	-.25**	-.15**	-.11**	.06**	-.38**	1								
13. Control of work pace	.15**	.16**	.14**	-.20**	.13**	-.25**	-.25**	-.09**	-.04**	.22**	-.21**	.23**	1							
14. School Quality	.33**	.40**	.34**	-.20**	.17**	-.30**	-.15**	-.17**	.01	.29**	-.29**	.29**	.09**	1						
15. Managerial support	.27**	.48**	.24**	-.21**	.14**	-.28**	-.18**	-.09**	.02	.25**	-.31**	.39**	.20**	.26**	1					
16. Support from colleagues	.28**	.30**	.30**	-.18**	.16**	-.26**	-.10**	-.04**	-.06**	.22**	-.19**	.27**	.11**	.31**	.40**	1				
17. Social climate	.29**	.45**	.25**	-.22**	.17**	-.27**	-.16**	-.09**	-.02	.22**	-.27**	.30**	.13**	.37**	.43**	.52**	1			
18. Employee-focused climate	.24**	.51**	.18**	-.20**	.12**	-.26**	-.20**	-.10**	-.06**	.22**	-.30**	.33**	.18**	.28**	.64**	.26**	.45**	1		
19. Retention intention	.27**	.21**	.17**	-.20**	.40**	-.34**	-.10**	-.06**	-.10**	.11**	-.15**	.19**	.12**	.16**	.16**	.19**	.17**	.14**	1	
Range	1-5	1-5	1-5	1-5	0-1	1-4	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-3
Mean	4.36	3.56	4.01	2.68	.92	2.31	2.97	2.57	3.84	4.31	2.75	3.00	2.15	4.33	3.44	4.23	3.95	3.32	3.95	2.83
St. Deviation	.65	.85	.51	1.08	.07	.54	.78	.66	.68	.68	.83	.62	.77	.60	.94	.75	.73	.93	.73	.93
Cronbach alpha	.76	.83	.73	—	.50	.83	.78	.60	.66	.79	.70	.57	.70	.86	.83	.81	.77	.82	.81	—

\* Correlation is significant at the 0.05 level (2-tailed); \*\* Correlation is significant at the 0.01 level (2-tailed).

#### 4.2.4. Outcome variable: teachers' retention intention

Teachers' retention intention was assessed using item 6 from the Work Ability Index (WAI) instrument (Lundin, Leijon, Vaez, Hallgren, & Torgén, 2017; Lundin, Kjellberg, Leijon, Punnett, & Hemmingsson, 2016). The WAI-6 concerns subjective prognosis of work ability two years from now and has shown to perform well as a single item (Lindberg, Josephson, Alfredsson, & Vingård, 2009). Teacher retention was assessed on a 3-point scale ranging from 1 = Unlikely to 3 = Relatively certain (*Do you believe that – from the standpoint of your health – you will be able to do your current profession two years from now?*).

#### 4.3. Data analysis

All data analyses were conducted using SPSS version 27 for windows. Descriptive statistics were used to describe the study sample. Frequency analysis and reliability analysis were used to compute the means, standard deviation and Cronbach alphas of the indexes used. Pearson's correlation was computed to examine intercorrelations between variables on the individual-, work- and socio-organizational-level. A preliminary multiple regression for the individual, work and socio-organizational-level factors were conducted to compute collinearity statistics. The tolerance statistics for each variable level were greater than 0.01, ranging from 0.42 to 0.80 for individual-level variables; 0.59 to 0.85 for work-level variables; and 0.50 to 0.68 for socio-organizational variables. Moreover, the variance inflation factors for each variable level were below 10, ranging from 1.25 to 2.39 for individual-level variables; 1.17 to 1.67 for work-level variables; and 1.46 to 2.01 for socio-organizational-level variables. The tolerance statistic for the combined model were all greater than 0.01, ranging from 0.43 to 0.81, and the variance inflation factors were all below 10, ranging from 1.22 to 2.32. Analysis of the collinearity statistics and correlational analysis suggested the presence of no multicollinearity and all other assumptions were met (Field, 2018). Separate multiple regression analyses using backward selection were then used to explore the relationship between individual-level factors (model 1), work-level factors (model 2), and socio-organizational-level factors (model 3) with teacher retention. A regression analysis using backward selection was preferred for this exploratory study as it is appropriate for exploratory model building as it begins with a full model and maximizes model fit by eliminating predictors in an iterative process (Field, 2018). Backward selection excludes predictors that meet the removal criterion i.e., predictors that do not make statistically significant contributions to the model. In line with previous studies and due to the large study sample the pre-set  $p$ -value IN = .05 and  $p$ -value OUT = .10 were used to prevent overfitting the model (Bergström, Bodin, Bertilsson, & Jensen, 2007). The significant individual-, work-, and socio-organizational-level factors were then entered into a three-stage hierarchical regression model (model 4) to investigate the contribution of individual-, work-, and socio-organizational-level factors on teachers' retention intention. Individual-level variables were entered at stage one followed by work-level variables at stage two and socio-organizational-level variables at stage three.

### 5. Results

Table 2 displays the means, range, standard deviations, Cronbach alphas and correlations of the variables. Among individual-level factors, the mean scores show high levels (scores  $4 \geq$ ) of work motivation, mastery, and health-related quality of life. On the work-level, the mean scores show high levels of role clarity and favourable perceptions of school quality. On the socio-organizational-level, the mean scores show high levels of support

from colleagues. The proportion of teachers intending to stay in this sample was high, with 85.8% teachers reporting an intention to stay. Most correlations indicated weak to moderate relationships (Field, 2018). Higher correlations were observed between retention intention and health related quality of life, exhaustion, and work motivation.

#### 5.1. Individual, work, and socio-organizational predictors of teacher retention

Table 3 displays the coefficients for the regression models for each variable level. In model 1 individual-level factors explained 20% of the variance in teachers' retention intention  $F(6, 4647) = 199.3, p < .05, R^2 = 0.20, R^2_{Adjusted} = 0.20$ . The strongest association observed was with health-related quality of life ( $\beta = 0.30$ ), followed by exhaustion ( $\beta = -0.16$ ), and work motivation ( $\beta = 0.11$ ). Mastery was not significantly associated with retention intention and was therefore omitted in model 4. In model 2, which included work-level factors, quantitative demands, learning demands and decisional demands were excluded from the model in the automatic selection process. The remaining work-level factors explained 6% of the variance in teachers' retention intention  $F(5, 5577) = 69.5, p < .05, R^2 = 0.06, R^2_{Adjusted} = 0.06$ . The strongest association observed was with school quality ( $\beta = 0.12$ ), followed by decision authority ( $\beta = 0.11$ ). In model 3, socio-organizational-level factors explained 5% of the variance  $F(4, 5767) = 75.1, p < .05, R^2 = 0.05, R^2_{Adjusted} = 0.05$ . The strongest association observed was with support from colleagues ( $\beta = 0.12$ ), followed by social climate ( $\beta = 0.07$ ). Table 4 display the results of the hierarchical multiple regression analysis. In model 4, individual-level predictors significantly contributed to the model,  $F(5, 4424) = 219.3, p < .001$ , and explained 19.8% of the variance in retention intention. In step 2, the work-level predictors explained an additional 0.3%,  $F(5, 4419) = 3.19, p < .05$ . In step 3, socio-organizational-level predictors explained an additional 0.3%,  $F(4, 4415) = 4.50, p < .001$ . The total model explained 20.2% of the variance in retention intention,  $F(14, 4415) = 81.2, p < .001$ . The significant predictors of teacher retention were health-related quality of life ( $\beta = 0.29$ ), exhaustion ( $\beta = -0.14$ ), work motivation ( $\beta = 0.10$ ), support from colleagues ( $\beta = 0.06$ ), work-life interference ( $\beta = 0.05$ ), and organizational commitment ( $\beta = 0.04$ ).

### 6. Discussion

The aim of the study was to explore which individual and contextual factors that were associated with the retention intention of elementary school teachers in Sweden. To the best of our knowledge, only two previous studies have examined teachers' retention intention using a conceptual approach based on individual and contextual factors (Hughes, 2012; Weiss, 1999). As such, the current study contributes to the retention literature by identifying individual-, work-, and socio-organizational-level factors associated with teachers' retention intention using a large and diverse sample consisting of elementary school teachers from 25 municipalities in Sweden. In the present study, teachers' retention intention was mainly explained by individual-level factors, predominantly by health-related quality of life, and only to a small extent by work- and socio-organizational-level factors. In the remaining discussion the results will be discussed in more detail.

#### 6.1. Individual factors and teacher's intention to remain in the profession

Our results suggesting a stronger association between individual-level factors and retention intention are in line with the

**Table 3**  
Stepwise Regression Models for Individual, Work, and Socio-Organizational-level Predictors.

Predictor	Model 1					Model 2					Model 3				
	b	SE B	β	CI upper	CI lower	b	SE B	β	CI upper	CI lower	b	SE B	β	CI upper	CI lower
<i>Individual-level predictors</i>															
Work motivation	.07	.01	.11**	.07	.14										
Organization commitment	.03	.01	.06**	.03	.09										
Mastery	-.02	.01	-.03	-.06	.00										
Work-life interference	.02	.01	.04**	.01	.07										
Health-related Quality of Life	1.90	.09	.30*	.27	.33										
Exhaustion	-.13	.02	-.16**	-.20	-.12										
<i>Work-level predictors</i>															
Quantitative demands <sup>a</sup>						-.01	.01	-.01	-.05	.02					
Learning demands <sup>a</sup>						.01	.01	.01	-.02	.04					
Decisional demands <sup>a</sup>						.01	.01	.02	-.01	.05					
Role clarity						.02	.01	.04*	.01	.06					
Role conflict						-.03	.01	-.06**	-.09	-.03					
Decision authority						.08	.01	.11**	.08	.14					
Control of work pace						.02	.01	.04*	.01	.07					
School Quality						.08	.01	.12**	.09	.14					
<i>Socio-organizational-level predictors</i>															
Managerial support											.02	.01	.05*	.01	.08
Support from colleagues											.07	.01	.12**	.09	.15
Social climate											.04	.01	.07**	.04	.10
Employee-focused climate											.02	.01	.05*	.02	.08

Notes: b = unstandardised coefficient beta; SE B = standard error unstandardised coefficient beta; β = standardised coefficient beta. \*p < .05, \*\*p < .001; CI = standardised beta confidence intervals.  
<sup>a</sup> = variables excluded in the iterative process.

**Table 4**  
Summary of Hierarchical Regression Analyses for Individual, Work and Socio-Organizational-level Predictors on Teacher Retention.

Predictor	B	SE B	β	95% CI upper and lower		cumulative R <sup>2</sup>	R <sup>2</sup> <sub>adjusted</sub>	Δ R <sup>2</sup>
<i>Block 1</i>						.199	.198	
Work motivation	.07	.01	.11**	.07	.14			
Organization commitment	.03	.01	.06**	.03	.09			
Work-life interference	.02	.01	.04*	.01	.08			
Health-related Quality of Life	1.84	.09	.29**	.26	.32			
Exhaustion	-.12	.02	-.15**	-.18	-.11			
<i>Block 2</i>						.202	.200	.003
Work motivation	.07	.01	.10**	.07	.13			
Organization commitment	.02	.01	.05*	.02	.08			
Work-life interference	.02	.01	.04*	.01	.08			
Health-related Quality of Life	1.83	.09	.29**	0.26	0.32			
Exhaustion	-.11	.02	-.14**	-.18	-.10			
Role clarity	-.01	.01	-.01	-.04	.02			
Role conflict	.01	.01	.01	-.02	.04			
Decision authority	.03	.01	.04*	.01	.07			
Control of work pace	.01	.01	.02	-.01	.05			
School Quality	.02	.01	.03	.00	.05			
<i>Block 3</i>						.205	.202	.003
Work motivation	.06	.01	.10**	.06	.13			
Organization commitment	.02	.01	.04*	.00	.07			
Work-life interference	.02	.01	.05*	.01	.08			
Health-related Quality of Life	1.82	.09	.29**	0.26	0.31			
Exhaustion	-.11	.02	-.14**	-.17	-.09			
Role clarity	-.01	.01	-.02	-.04	.01			
Role conflict	.01	.01	.01	-.02	.04			
Decision authority	.02	.01	.03	.00	.06			
Control of work pace	.01	.01	.02	-.01	.05			
School Quality	.01	.01	.01	-.02	.05			
Managerial support	.00	.01	.00	-.03	.04			
Support from colleagues	.03	.01	.06**	.03	.09			
Social climate	.00	.01	.00	-.03	.03			
Employee-focused climate	.00	.01	.00	-.03	.04			

Notes: b = unstandardised coefficient beta; SE B = standard error unstandardised coefficient beta; β = standardised coefficient beta; CI = standardised beta confidence intervals. \*p < .05, \*\*p < .001.

results observed in the study conducted by Hughes (2012), which showed that the addition of contextual factors did not greatly increase the prediction of teachers' retention intention. A potential

explanation for our findings of retention intention mainly being explained by individual-level factors may be due to the operationalisation of the outcome variable used which captured

retention intention based on one's health state. In the present study participants were asked whether they believed that they will be able to continue with their current profession two years from now based on their current health state. It is therefore not surprising that the strongest associations observed were between teachers' reported health state and their intention to remain in the profession. However, other studies have also suggested that teachers' perceived health state is an important facet influencing their decisions regarding whether they choose to continue teaching or not. For instance, studies in the retention literature have suggested the importance of teachers coping with occupational stressors, thus preserving good occupational health, for retention (Hong, 2012; McCarthy et al., 2014). Furthermore, our findings observing a strong association between health-related factors and retention inversely supports previous findings in the turnover literature associating health-impairing processes such as exhaustion and common mental disorders with teachers' intention to leave (Chambers Mack et al., 2019; Skaalvik & Skaalvik, 2017b).

In addition to health-related variables, another prominent individual-level retention factor was work motivation. This corroborates previous findings suggesting the importance of motivation in teachers' career decision-making (Chiong et al., 2017; Day & Gu, 2009; De Neve & Devos, 2016; Hong, 2012; Tiplic, Brandmo, & Elstad, 2015). The literature details how teachers are drawn to their profession due to intrinsic and altruistic motivations and further suggests that sustaining this initial motivation is central to teacher retention (Alexander et al., 2020; Heinz, 2015; Van den Borre, Spruyt, & Van Droogenbroeck, 2021). Studies exploring mechanisms facilitating retention among veteran teachers have pointed to the significance of intrinsic motivation and further suggested that teachers who remained in the profession developed stronger intrinsic and altruistic motivations with time (Chiong et al., 2017). Other studies have also described how intrinsic motivation for teaching enhances teachers' occupational identity and acts as a buffer towards occupational challenges (Castro, Kelly, & Shih, 2010). As such, intrinsic motivation fuels teachers' psychological well-being yielding better health outcomes and engagement (Abós, Haerens, Sevil, Aelterman, & García-González, 2018), which in turn sustains their decision to remain in the profession by enhancing their sense of resilience (Hong, 2012; Tricarico et al., 2015).

## 6.2. Contextual factors and teacher's intention to remain in the profession

In contrast to other studies demonstrating how advantageous working conditions facilitates teachers' retention intention (Björk et al., 2019; Mäkelä et al., 2015; McCarthy et al., 2014; Weiss, 1999; Whipp & Salin, 2018), our findings did not indicate an association between work-level factors and retention intention. Although separate regression analysis in the current study indicated more associations between work-, socio-organizational-level factors and teachers' intention to remain in the profession, when combined with individual-level factors in the final model the direct association of these contextual factors declined markedly. A potential explanation for this decline in effects could be due to other studies using an organizational-based retention outcome (e.g., Björk et al., 2019; Mäkelä et al., 2015; Mäkelä, Hirvensalo, & Whipp, 2014), in contrast to the present study's health-based retention outcome. However, conceptualising retention intention based on health is in line with the job demands-resource model which proposes health impairing and health facilitating processes determining a range of organizational outcomes including turnover (Bakker & Demerouti, 2017). For instance, studies have demonstrated that job demands can indirectly contribute to turnover intention through poor health outcomes (e.g., Rajendran, Watt, &

Richardson, 2020). Several studies using the model have shown how job resources can mitigate job demands and facilitate health outcomes, wellbeing and motivation which subsequently yields positive organizational outcomes such as retention (Bakker & Demerouti, 2017; Klassen & Chiu, 2011). Moreover, the model also proposes that employees with intrinsic motivation for their work are likely to engage in proactive behaviours that enriches their job resources which in turn enhances their occupational health, motivation, and organizational outcomes (Bakker & Demerouti, 2017). Another potential explanation for the decline in effects of contextual factors in the final model could be due to conceptual and methodological difficulties in assessing work conditions. Assessing job demands is an important aspect of work-stress models as the balance between job demands and job resources causes either health impairing or health facilitating processes that determine a range of organizational outcomes (Bakker & Demerouti, 2017). However, results from several studies demonstrate the difficulties in assessing job demands partly due to a lack of conceptual clarity (Kristensen, Bjorner, Christensen, & Borg, 2004; Van der Doef & Maes, 1999; Wännström, Nygren, Asberg, & Gustavsson, 2008). A range of solutions have been proposed attempting to address this issue such as occupation-specific conceptualizations of task-orientated scales (Brough & Biggs, 2015; Sparks & Cooper, 1999), and further differentiation between job characteristics categories (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). Therefore, in light of these potential explanations and the vast literature suggesting contextual influences on teacher retention (see Ovenden-Hope & Passy, 2021), our results should not be interpreted as a lack of a contextual influence on teachers' intention to remain in the profession. Indeed, despite the current study not finding a direct influence of work-level factors on retention intention, correlational evidence indicate potentially mediating associations between work-level factors, teachers' health state and their retention intention. Therefore, given the malleability of work-level factors, future studies should aim to explore potential mediational associations between work-level factors, teachers' perceived health state and their intention to remain in the profession.

Among the socio-organizational-level factors it was only support from colleagues that was significantly associated with retention intention in the final model. The observed association between high levels of support from colleagues and teachers' intention to remain in the profession in the current study is in line with other studies reporting the importance of support from colleagues for teacher retention (Grillo & Kier, 2021; Hughes, 2012; Pomaki et al., 2010; Nguyen, 2021; Zavelevsky & Lishchinsky, 2020). Social support is an important aspect of the school environment that influences teachers' job attitudes. As facilitators of knowledge and socioemotional development, teachers' face both intrinsic and extrinsic pressure (Lindqvist et al., 2014; Sell, 2019; Zavelevsky & Lishchinsky, 2020). The presence of supportive colleagues can facilitate retention by providing a buffering effect against challenging working conditions and occupational stress (Fernet, Gagné, & Austin, 2010; Grillo & Kier, 2021; Pomaki et al., 2010; Struyve et al., 2016; Thomas et al., 2021). Several newer studies have suggested a positive association between a collegial climate, characterized by social connectedness, support and trust, with teacher retention (Grillo & Kier, 2021; Miller & Youngs, 2021; Nguyen, 2021). Furthermore, results from other studies have suggested that supportive colleagues can provide important relational and instructional support creating a sense of collective teaching efficacy which further invigorates teachers and facilitates their intention to stay (De Neve & Devos, 2016; Tiplic et al., 2015). Although other studies have reported an association between managerial support and teachers' retention intention (e.g., Geiger & Pivovarov, 2018;

Weiss, 1999; Zavelevsky & Lishchinsky, 2020), the present study did not find an association between managerial support and retention intention. A potential explanation for this may be due to the study sample consisting of a large proportion of experienced teachers. For instance, Chiong et al. (2017) found that managerial support was more important for less experienced teachers in comparison to long-serving teachers. Other studies which have not found an association between managerial support and retention intention have also included a large proportion of experienced teachers (e.g., Hughes, 2012). Indeed, most of the studies in the retention literature that have reported an association between managerial support and retention intention have been based on novice teachers (e.g., Stockard & Lehman, 2004; Weiss, 1999; Zavelevsky & Lishchinsky, 2020), suggesting that managerial support may be of particular importance for the retention of teachers in their early career stages (Johnson & Birkeland, 2003). However, the measure of socio-organizational factors in a generalized manner in this study should be viewed as a conceptual weakness of the study and may explain the weak associations between socio-organizational-level factors and teachers retention intention. Recent studies have pointed to the importance of a more nuanced exploration of contextual factors which can be accomplished by using a social network perspective (Baker-Doyle, 2010). Studies using a social network perspective, which focuses on patterns of relationships, have led to the unravelling of the dynamics of collegial networks and support. By viewing support from colleagues as a resource embedded in a web of relationships within the school context, these studies have been able to examine nuanced aspects of support such as the formation, range, quality, and usefulness of interpersonal relationships (Fox & Wilson, 2009; Kim, Youngs, & Frank, 2017; Thomas, Tuytens, Devos, Kelchtermans, & Vanderlinde, 2019a), and its subsequent influence on the emotional and psychological antecedents of teacher retention (Struyve et al., 2016; Thomas et al., 2019a, 2019b, 2021).

### 6.3. Methodological considerations

Although this study contributed to the literature by identifying individual and contextual factors associated with teacher retention, there are some methodological considerations that should be taken into consideration when interpreting the results. The primary methodological consideration in this study is the age of the data used in the analysis. Despite the data being collected between 2004 and 2011, results from the Teaching and Learning International Survey (TALIS) from 2013 to 2018 suggests that the teaching profession and its associated occupational demands has not significantly changed since the data was collected (Skolverket, 2014, 2019). The authors do however acknowledge that there has been an increase in the student population and changes to the student composition since the data collection and that this, coupled with teacher shortages, could lead to an additional strain in teachers working environment (also discussed by Niklasson, 2021). As such, it is possible that newer data could reflect this, in terms of the degree of association between contextual factors and teachers' retention intention. However, the results in the present study should not be interpreted as demonstrating an overall lack of a contextual influence on teachers' intention to remain in the profession. Our results, suggesting the importance of teacher's perceived health state for their retention intention, should still be relevant for teachers' current contextual situation as our results do acknowledge the influence of contextual factors evidenced by the study's correlational results indicating potentially mediating associations between contextual factors, teachers' perceived health state and their intention to remain in the profession. Taking the above into consideration, the data is judged to be representative of

current individual teacher and context situations.

This study used a cross-sectional design. As such, the results of this study present associations but do not infer causality. However, the study provides an important first step in unearthing protective factors that can facilitate better teacher retention. Future studies using a longitudinal design are however needed to verify and confirm the effect of individual and contextual factors on teacher retention (Lesener, Gusy, & Wolter, 2018). In addition to this, despite using a robust study sample our study relied on self-report data from teachers which is prone to common method biases which may limit the accuracy of our measurement (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). There are a range of potential sources that can influence respondent behaviour which can affect the observed relationships between predictor and criterion variables. Teachers' responses may be biased by their feelings at the time of filling in the questionnaire and by the need to provide socially desirable responses. Therefore, it would be beneficial for future studies to including objective retention data and make use of mixed-method research designs (Podsakoff et al., 2003). For instance, it would be beneficial to combine survey data concerning teachers psychosocial working environment with interviews to further probe the interplay between individual and contextual factors and how this affects teachers career decision-making. It would also be beneficial to conduct case studies, including survey data, in municipalities which have demonstrated reasonably stable retention rates over time where one could explore retention strategies on the municipal-level; how these are enacted at the school-level; and their subsequent influence on teachers' career decision-making.

We note that the coefficient for the health-related quality of life factor is fairly high and attribute this to the skewness of the variable reflected by the mean score. However, the mean score for health-related quality of life in our study is in line with that of other studies (Burström et al., 2014). The authors also acknowledge the need to interpret the study's results with caution given the methodological and conceptual challenges of using 5-point likert scales (Jamieson, 2004; Knapp, 1990; Wakita, Ueshima, & Noguchi, 2012). Even though the reliability and validity of the QPS-Nordic has been supported (Wännstrom, Peterson, Åsberg, Nygren, & Gustavsson, 2009a,b), 5-point likert scales may be susceptible to median response bias which may have affected the results. Another limitation of the study is that some of the Cronbach alphas of the scales were quite low. The Cronbach's alpha values for 13 of the 18 scales used were acceptable (0.70–0.83), but the reliability of the scales used for learning demands (0.60), decisional demands (0.66), decision authority (0.57) and health-related quality of life (0.50) was lower than the recommended 0.70 cut-off (Nunnally, 1978). In previous studies lower reliability among task-orientated scales in the QPS-Nordic have been attributed to conceptual measurement problems (Kristensen et al., 2004; Wännstrom et al., 2009a, 2009b), which are not uniquely confined to the QPS-Nordic and reflects the need for occupation-specific conceptualizations of task-orientated scales (Van der Doef & Maes, 1999; Wännström et al., 2008; Wännstrom, Peterson, Åsberg, Nygren, & Gustavsson, 2009a,b). Despite the EQ-5D-3L being a good instrument for assessing health-related quality of life (Payakachat, Ali, & Tilford, 2015), other studies have also reported low reliability for the scale. These studies have attributed the low reliability of the EQ-5D-3L to the length of the scale (e.g. Aguirre, Kang, Hoare, Edwards, & Orrell, 2016; Pitkänen et al., 2012), as Cronbach's alpha are affected by the number of items in a scale (Streiner, 2003; Tavakol & Dennick, 2011). Another methodological consideration is the use of stepwise regression models to explore the significant predictors in each variable level. Although stepwise regressions may be appropriate for parsimonious exploratory model building it is prone to

overfitting models with variables that may make trivial contributions especially when several predictors are used (Field, 2018; Smith, 2018). However, the current study aimed to address this issue by using restrictive inclusion criteria to minimize the possibility of overfitting the model. Lastly, our results cannot be generalized to the entire teaching population due to the exclusion-criteria in the sampling process. The study defined teacher retention as keeping qualified teachers in the profession and therefore omitted unqualified teachers from the sample. Teachers with temporary employment-contracts were also excluded due to the influence of job insecurity on career decisions (Cheng & Chan, 2008). We limited our sample to qualified elementary-year teachers as the proportion of qualified elementary-year teachers working in the profession has gradually declined over time and the current, and projected, teacher shortages are particularly high among this teacher group (Adermon & Laun, 2018; Skolverket, 2017). In addition to this, the study sample excluded private school teachers which reduces the generalizability for private school teachers.

#### 6.4. Conclusion, practical implications, and avenues for future research

The reasons underlying teachers' continuous career negotiations are complex. The result in this study contributes to the retention literature by exploring which individual and contextual factors influence teachers' retention intention and by highlighting the importance of teachers perceived health state, motivation, and support from colleagues for teacher retention. The main implication arising from the study's results is the salient importance of teacher health in teacher retention. In Sweden, all organizations are required to engage in systematic work environment management to safeguard and promote health at work (Swedish Work Environment Authority, 2011, 2015). In accordance with these work environment provisions; schools are expected to continuously work with the promotion of a healthy work environment in order to protect employees' health. Previous studies have emphasized the importance of promoting a healthy work environment as a countermeasure to occupational psychosocial hazards, mental ill-health, and sick leave among teachers by establishing and adhering to policies for organizational and social risk management that includes regular assessments and follow-ups of risk factors in the work environment and collectively intervening on these identified risk factors (Arvidsson, Håkansson, Karlson, Björk, & Persson, 2016; Boström et al., 2019; Kwak et al., 2019). Our results go beyond these studies and suggest that schools can facilitate teacher retention by promoting a healthy working environment for teachers. Given the cross-sectional design of the present study, future studies should aim to explore potential mediational associations between contextual factors, teachers' perceived health state and their intention to remain in the profession over time. Furthermore, as the present findings explained 20.2% of the variance in retention intention, future studies should aim to explore other individual-level factors such as psychological and dispositional traits which may further account for teachers' retention intention (Benevene et al., 2019; De Neve & Devos, 2016). The use of cluster analysis may be particularly useful to further examine how different work situations affect teachers job attitudes and their willingness to remain in the profession (Björk et al., 2019). In addition to this, our results suggest that enhancing teachers job resources, particularly their social connectedness, can be an important tool that can aid schools in improving their teacher retention. As our results are based on cross-sectional data and limited in their explanation of exactly how social support can facilitate teacher retention, future studies should use a social network perspective in order to examine

nuanced aspects of support, teachers position within these networks over time, and its subsequent influence on teacher's career decision-making in a Swedish context.

#### Availability of data and materials

The dataset analysed during the current study is not publicly available as the ethical approval for the study does not permit data sharing.

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#### Role of the funding source

The funding body has no role in the design of the study or collection, analysis, and interpretation of data or in writing the manuscript.

#### Authors' contributions

LK is the principal investigator of the study described in the paper. CB was responsible for the initial data collection for the dataset used in the present study. LK, CB, JCH, GB and PL have been involved in the design of the study. JCH has executed the statistical analysis. JCH has written the first draft of the manuscript. JCH, LK, CB, PL and GB have been involved in revising the manuscript and given final approval of the version submitted.

#### Declaration of competing interest

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

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