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Predicting general mental health and exhaustion: the role of emotion and cognition components of personal and collective work-identity

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Abstract

The aim of this study was to investigate relationships between emotion and cognition components of personal and collective work-identity and self-reported general mental health and exhaustion, in Swedish teachers ($N = 768$). In line with our predictions, we showed that the *emotion* component of *personal* work-identity and the *cognition* component of *collective* work-identity associated positively with general mental health and negatively with exhaustion. The reverse result was found, however, for the *cognition* component of *personal* work-identity and *emotion* component of *collective* work-identity. In general, all this indicates that person-work bonding might, to some degree, account for general mental health and exhaustion in employees. In particular, the findings suggest that general mental health and exhaustion may vary symmetrically across the: (1) Type of person-work bonding (personal vs. collective work-identity); and

(2) Type of psychological component (emotion vs. cognition) involved in personal- and collective work-identity.

Keyword: Psychology

1. Introduction

The phenomenon of work-identity is related to the question of “Who am I?” at work, that is, how we categorize and define ourselves in terms of individual and social attributes in a working context (Turner et al., 1987; Causer and Jones, 1996; Cappelli, 2000). Work identity, involving emotion and cognition processes accounting for psychological work bonding (Knez, 2016), can be divided into personal- and collective work-identifications associated with a wide range of work-related behaviors, norms and attitudes (Riketta, 2005; Riketta and Dick, 2005; Lee et al., 2015); as well as, with several aspects of self-reported mental health (see Haslam, 2014; Jetten et al., 2012; Haslam et al., 2009a; Steffens et al., 2016 for reviews).

In the context of work, mental health has been suggested to be reciprocally associated with job characteristics (De Lange et al., 2004). Associations between adverse mental health outcomes and work-related variables have been broadly framed within a psychosocial stress paradigm often focusing on work factors such as job strain, control-related constructs, and effort-reward imbalance (e.g., Stansfeld and Candy, 2006; Michie and Williams, 2003). The cardinal form of such stress-related health adversities have, as stemmed from the seminal work of Maslach (1976) and despite the multiplicities of definitions and operationalizations (Hakanen and Bakker, 2017; Schaufeli et al., 2009), predominantly been conceptualized as “burnout”. Although definitions of burnout as a state of psychological distress caused by exposure to prolonged work-related stress vary considerably depending upon manifestations and symptoms, a core component of *exhaustion* reoccurs in most of the current definitions and measurement models of burnout (Saboonchi et al., 2012; Grossi et al., 2015). Given the magnitude of social and individual costs and suffering linked to psychological distress associated with work-related stress, and the lack of specificity pertaining to the concept of burnout in clinical settings, a diagnostic entity labeled “exhaustion disorder” (ED; F43.8A) has been included in the Swedish version of the 10th revision of the International Classification of Diseases by the Swedish Board of Health and Welfare (Socialstyrelsen, 2003, 2010). Major diagnostic criteria for exhaustion disorder parallel descriptions of clinical level of burnout (Grossi et al., 2015) and include reduced psychological and physical energy, cognitive deficits, reduced ability to cope with demands and/or time pressure, emotional instability, disturbed sleep, and a host of associated physical symptoms (Socialstyrelsen, 2003; Saboonchi et al., 2012).

Although closely interwoven, approaching the concepts of burnout and exhaustion as if they would be interchangeable should be cautioned. Whereas burnout is an overreaching construct that holds a multiplicity of dimensions including recent conceptualizations that outlines it as a process rather than as an end state (Hallsten, 2017), exhaustion delineate an assessable concurrent ill-health status and symptoms of an individual that has been exposed to prolonged stress (for an overview see Schaufeli et al., 2017).

1.1. Work-identity

Work-identity comprises the emotional process of attachment/belonging/closeness, as well as the cognitive processes of thoughts, reasoning, and memories about, and mental travel to work (Knez, 2014, 2016), defining emotion and cognition components (work-related bonds) of work-identity. It occurs, furthermore, at multiple levels of abstraction including an *individual* level that refers to personal work-related associations, and a *social* level that relates to collective (group/organization) work-related associations (Pate et al., 2009). This is in line with, for example, McConnell (2011) who suggested that the self involves multiple, context-dependent selves resulting in multiple identities.

In other words, we define and categorize ourselves in terms of individual attributes, encompassing personal self/identity (Hogg and Terry, 2000; Klein, 2014; Knez, 2016) and social attributes, involving collective self/identity (Jackson et al., 2006; Knez, 2016). Accordingly, work identity involves two identity levels linking two separate knowledge structures (Kihlstrom et al., 2003); that is, a *personal* and a *collective* work-identity (Riketta, 2005; Pate et al., 2009; Miscenko and Day, 2016).

Having a strong identity at one level does not, however, rule out similarly strong identity at another level, implying that the two types of identities are to some extent independent of each other (Brewer and Gardner, 1996; Pate et al., 2009). In addition, personal- and collective work-identity may differ in inclusiveness (Sluss and Ashforth, 2007; Miscenko and Day, 2016), resulting in different definitions and interpretations of the two types of selves/identities (Sedikides et al., 2011; Knez, 2016).

In view of that, personal work-identity includes categorizations of, for example, “My academic profession/work” and “I/Me, as a researcher in psychology”. This incorporates the fundamental human need of *distinguishing* me from others (Brewer and Gardner, 1996) “in order to preserve the personal self, the personal story and its memories” (Knez, 2016, p. 3). Consequently, personal work-identity associates with personal self-related behaviors, motivations, attitudes, values, interests and cognitions (Ybarra and Trafimow, 1998; Johnson et al., 2006), suggesting that the stronger the personal work-identity the stronger the work-related personal goals,

preferences and needs (Ybarra and Trafimow, 1998; Brewer and Gardner, 1996; Ellemers et al., 2004).

Collective work-identity, on the other hand, involves the *We*-descriptions (Knez, 2016), for example, “*We* working at the University of London”. This type of distinction is consonant with our need to *belong* to a social group (Brewer and Gardner, 1996) “in order to be part of the collective self, the collective story and its memories” (Knez, 2016, p. 3). Thus, collective work-identity embraces collective behaviors, motivations, attitudes, values, interests and cognitions (Ybarra and Trafimow, 1998; Johnson et al., 2006). Furthermore, and in line with social identity theory (Tajfel and Turner, 1979, 1986; see Hogg, 2012 for a review), this implies a depersonalization of the individual self, resulting in an attachment/closeness/belonging (emotional component) to the work-group/organization. Given all this, we could say that the more “collectivized” an individual is the stronger s/he will manifest acceptance, loyalty, adherence to decisions, beliefs, values and norms, communicated by the collective (Hogg and Terry, 2000; Ellemers et al., 2004; Johnson and Jackson, 2009); meaning that a depersonalized individual will disseminate motivational and normative mechanisms of the *We*-descriptions (Brewer and Gardner, 1996; Ybarra and Trafimow, 1998; Ellemers et al., 2004).

Following Knez (2014), Knez (2016) suggested a conceptual model for the phenomenon of work-related self/identity, involving *emotion* and *cognition* processes accounting for psychological work-bonding (see also Van Dick and Wagner, 2002). The *emotion* component involves the process of work-related attachment/belongingness/closeness, and the *cognition* component includes the processes of coherence, correspondence, mental time, reflection and agency (see also Klein et al., 2004; Conway et al., 2004). This model additionally implies that the concept of work identity may be defined as a higher order construct (Law et al., 1998; Stajkovic, 2006); that is, a knowledge structure that involves personal, autobiographical, work-related experiences (Knez, 2016).

Moreover, Knez (2016) suggested that the emotion component would precede the cognitive one when establishing work-identity (see also Knez and Eliasson, 2017; Knez et al., 2018 for a similar view). Based on autobiographical memory account (Klein et al., 2004; Conway et al., 2004; Knez, 2014, 2017; Knez and Nordhall, 2017; Knez et al., 2017) the Knez model (2016) is general in the sense that it proposes basic psychological processes accounting for both personal work-identity and collective work-identity types of person-work bonding. This is also in line with the very definition of social identity as suggested by Tajfel (1972), comprising emotional and cognitive processes in identity formation (Tajfel, 1978; Haslam and Ellemers, 2011; Hogg, 2012).

However, collective- in contrast to personal work-identity is supposed to be more of a cognitive entity (Ashforth and Mael, 1989; Harquail and King, 2003), described as

“a product of the dialectic relationship between collective, shared cognition on the one hand and socially structured individual cognitions on the other” (Corley et al., 2006, p. 88). For that reason we may expect that the cognitive component of collective work-identity (in terms of incorporation, identification and assimilation) will precede the emotional one (in terms of pride, esteem, and affective commitment) when collective-, in contrast to personal work-identity, is accountable (Mael and Ashforth, 1992; Van Knippenberg and Sleebos, 2006).

In differentiating between emotion and cognition components of personal- vs. collective work-identity, Nordhall and Knez (2018) recently showed that work-related outcomes may link differently to the emotion and cognition components of personal- and collective work-identity. More precisely, they reported that the effect of personal work-identity on self-determined work-motivation (Ryan and Deci, 2000; Gagne and Deci, 2005; Tremblay et al., 2009) was accounted for by the emotion component, and that the impact of collective work-identity on organizational pay-justice (Colquitt, 2001; Colquitt et al., 2013) was accounted for by the cognitive component. Accordingly, it is suggested that the emotion component of work-identity is primarily accountable when personal work-identity is in charge, and that the opposite is found when collective work-identity is responsible, predominantly involving the cognitive component of work-identity.

Accordingly, in this study, the concept of work identity emanates from two theoretical views, foci of identification (e.g., Reichers, 1985; van Knippenberg and van Schie, 2000; Millward and Haslam, 2013): (1) an autobiographical memory perspective (e.g., Knez, 2014, 2016); and (2) a social identity perspective (e.g. Ashforth and Mael, 1989). Thus, we broaden the multiple focus of identification concept by suggesting that personal career/occupation can be treated at both an autobiographical memory level (*individual*) and an organizational/workgroup level (*social*). This means that career/occupation “can be conceptualized as one of the life goals that we strive for and find meaning in (Gini, 1998), analogous with Sisyphus rolling the boulder up the hill (Camus, 1942)” (Knez, 2016 p. 2).

1.2. Mental health and exhaustion

Burnout as the major manifestation of work-related psychological distress has been conventionally defined on the basis of dimensions of exhaustion, depersonalization, and reduced efficacy (Maslach and Jackson, 1981; Maslach et al., 2001; Maslach and Leiter, 2008). The current accounts of *exhaustion* (Grossi et al., 2015) ascribe a lack of energy in social interactions, physical fatigue, inability to accomplish/cope with everyday demands, impaired memory, concentration difficulties, sleeping problems and emotional instability to this core component of burnout (Saboonchi et al., 2012). Although work environmental factors have broadly been considered as primary determinants of burnout (De Lange et al., 2004; Stansfeld and Candy, 2006; Michie

and Williams, 2003), individual differences in burnout have also been addressed to account for the variability of manifestations of burnout among individuals within similar work environments (Alarcon et al., 2009; Langelaan et al., 2006; Schaufeli et al., 2002).

It has been previously indicated that prevalence of burnout syndrome might be higher among teachers compared to other work groups. For example, about 9.6% of Swedish teachers suffer from burnout compared to a prevalence of 6% among other Swedish occupational work-groups (Hallsten et al., 2002). Since teachers' work involves psychological demands (Demerouti et al., 2001) in terms of prosocial extra-role interactions with students, colleagues and students' parents (Maslach et al., 2001), teachers are regarded as an especially sensitive group in developing the burnout syndrome as a consequence of stress related work overload (Santavirta et al., 2007; Aloe et al., 2014; Zee and Koomen, 2016).

Negative work-related outcomes of exhaustion, at personal and collective levels, are job turnover, lower job satisfaction, productivity and performance, as well as increased job absenteeism. Exhaustion has, additionally, been associated with increased risk of cardiovascular disease and heart attacks (Angerer, 2003; Ybema et al., 2010). A growing body of research has also suggested that work engagement might be considered as the opposite side of the burnout syndrome (González-Romá et al., 2006; Maslach and Leiter, 2008; Maslach, 2011; Lammers et al., 2013).

1.3. Present study

Previous studies on work-identity and mental health have, to a large extent, investigated links between collective work-identity and different health outcomes (Jetten et al., 2012). Accordingly, work-identity has mostly been framed in terms of social identity (Van Knippenberg, 2000; Van Dick and Wagner, 2002; Bjerregaard et al., 2015) and related to health and wellbeing outcomes (Haslam et al., 2009a,b; Jetten et al., 2012; Haslam, 2014; Jetten et al., 2014; Steffens et al., 2016). More precisely, negative associations between different types of collective work-identity and chronic anxiety and depression (Bizumic et al., 2009; Cruwys et al., 2014), workplace stress (Haslam et al., 2005; Haslam et al., 2009b), and psychological distress (Wegge et al., 2006) have been reported. Collective work-identities have also been shown to reduce self-reported stress (Haslam and Reicher, 2006; Wegge et al., 2012) as well as to negatively correlate with exhaustion and other burnout components (Wegge et al., 2006; Haslam et al., 2009b). All in all, this indicates that high levels of collective work-identity may operate as a psychological buffer against the negative impact of work-related stress (Jetten et al., 2012; Haslam et al., 2009a,b).

Why is collective work-identity negatively related to psychological distress, stress, and exhaustion, but positively linked to mental wellbeing? Probably because

collective work-identity provides social support to the members of the collective (Cohen, 2004). Several findings have indeed indicated that social support may mediate the associations between collective work-identity and stress, burnout, and wellbeing (Crabtree et al., 2010; Haslam et al., 2005). In addition, relationships between collective work-identity and mental wellbeing have been indicated to be even stronger when dimensions of collective work-identity are shared among members of the collective (Cohen, 2004; Jetten et al., 2014); especially when cognitive dimensions such as perceived control (Greenaway et al., 2015) and positive attributions of collective work-identity are involved (Cohen, 2004; Jetten et al., 2014; Cruwys et al., 2015).

Only a few studies have, however, addressed the links between personal work-identity and health outcomes. Edwards and Dierette (2010) reported a negative link between personal work-identity (operationalized as professional identification) and the burnout syndrome, comprising exhaustion. Lammers et al. (2013), however, indicated that both personal- and collective work-identity were negatively related to exhaustion. This is probably due to the different definitions of work-identity involved in previous studies (Pate et al., 2009; McConnell, 2011; Sedikides et al., 2011); not dividing and defining emotion and cognition components of work-identity when investigating relationships with different types of work-related outcomes (Corley et al., 2006; Harquail and King, 2003; Knez, 2016; Knez et al., 2018; Nordhall and Knez, 2018). Kremer and Hofman (1985), on the other hand, did address different types of work-related-self-presentation-profiles as personal work-identity in predicting burnout. They reported that all types of personal work-identity-profiles were negatively associated with burnout, but that this association was strongest for the emotional component of personal work-identity, followed by the cognitive one. Also Van Dick and Wagner (2002) indicated that emotional-, compared to the cognitive component of personal work-identity, might negatively associate with a decrease in health and wellbeing.

Finally, Stets and Burke (2000) showed that job stressors may positively relate to psychological distress in employees reporting high levels of job involvement, defined as a cognitive component of personal work-identity (Frone and Russell, 1995). In line with this, it has been shown that obsessive work-passion, a type of job involvement, may positively predict exhaustion. This may in turn be explained by the concept of intense rumination involving repetitive and unintentional perseverative thoughts about ones work (Donahue et al., 2012). Additionally, Fisherman (2015) reported that the emotion component of personal work-identity may negatively associate with exhaustion, while the cognition component may positively link to exhaustion.

Given the above, the aim of this study was to investigate relationships between emotion and cognition components of personal- and collective work-identity and

self-reported general mental health and exhaustion in Swedish teachers, indicating higher prevalence of burnout syndrome compared to other work groups (Hallsten et al., 2002). The links between emotion and cognition components of both personal- and collective work-identity and work-related mental health and exhaustion have, as far as we know, not been addressed by previous studies.

1.4. Hypotheses

Hypothesis 1. In line with, for example, Kremer and Hofman (1985), Van Dick and Wagner (2002), and Fisherman (2015), who indicated that emotion- compared to cognition component of personal work-identity might be notably more pronounced in the negative links between personal work-identity and burnout dimensions, we predicted (a) a *positive* association between emotional personal work-identity and general mental health, and (b) a *negative* one between emotional personal work-identity and exhaustion. These relationships were, subsequently, expected to reverse for the cognition component of personal work-identity; that is, a *negative* association between cognitive personal work-identity and general mental health and a *positive* one between cognitive personal work-identity and exhaustion were predicted.

Hypothesis 2. In line with, for example, Jetten et al. (2014), Cruwys et al. (2015) and Greenaway et al. (2015), who indicated that in particular the cognitive component of collective work-identity might be positively related to mental wellbeing, we predicted (a) a *positive* association between cognitive collective work-identity and general mental health and (b) a *negative* one between cognitive collective work-identity and exhaustion. These relationships were, subsequently, expected to reverse for the emotion component of collective work-identity; that is, a *negative* association between emotional collective work-identity and general mental health and a *positive* one between emotional collective work-identity and exhaustion were predicted.

2. Methods

The present study is a part of a larger research project on work-identity and health, resulting in several publications. Accordingly, the method section is consonant, in general terms, with previous publications within this project (Nordhall and Knez, 2018).

2.1. Participants

Two thousand nine hundred and five members of the Swedish trade union, “The National Union of Teachers” (in Swedish “Lärarnas Riksförbund”), representing *eleven* different local unions, working in the south and middle part of Sweden received a digitized questionnaire by e-mail. In total, 768 questionnaires (26%) were returned. Participants’ mean age was 46.3 ($SD = 10.07$, range 24–67) and mean employment time

within the organization was 14 years ($SD = 10.2$). Ninety-nine per cent of the participants had an educational function, i.e. they worked as teachers or similar, 92.1% of the participants worked within the municipal sector, 95.2% were in permanent employment, 80.5% had full-time jobs, 68% had university studies as their highest level of education, and 75.5% were female.

2.2. Procedure

Chairpersons of eleven municipal associations of the Swedish trade union, “The National Union of Teachers”, were contacted and informed of the aim of this project. They were asked to invite their union members to participate in a survey about work-identity and health. Due to Swedish juridical restrictions that do not permit a chairperson of a trade union to distribute individual e-mail addresses of the members outside the union, a web-link to the questionnaire was distributed to the members by the chairpersons during spring 2016. The questionnaires were accompanied by a covering letter that described the purpose of the project and informed the participants that completion of the questionnaire was taken as an indication of their consent to participate in the present project and that this was voluntary, and that confidentiality and anonymity were assured. After completion of the questionnaire, the participants were asked to fill in their name and address if they wanted to receive a cinema ticket as compensation for their participation. They were informed that nobody but the researchers of the present study would have access to their names and addresses. In this study, we analyzed data related to emotion and cognition component of personal- and collective work-identity, general mental health, and exhaustion.

Finally, an ethical application was reviewed and approved by the Swedish regional ethical committee of Uppsala University (Dnr 2015/423).

2.3. Measures

Exhaustion. “Karolinska Exhaustion Scale 26” (KES26), developed by Saboonchi et al. (2012) was used as the measure of exhaustion. It contains 26 statements measuring six subscales (cognitive exhaustion, disturbed sleep, excessive fatigue, somatic symptoms, irritability, and negative affect) and the question: “How often have you experienced problems with any of the following issues during the past month?”. Responses were made on a five-point Likert scale, defined as: 1 = “never”; 2 = “seldom”; 3 = “sometimes”; 4 = “often”; and 5 = “always”. KES26 has shown good psychometric properties and adequate fit for the one-factor model of this measure. The subscales, except for the subscale of disturbed sleep (consisting of only two items), have shown acceptable internal consistency; primary sample mean $\alpha = .76$ and cross-validation sample mean $\alpha = .82$ (Saboonchi et al., 2012). In the present study, the one factor model of exhaustion showed a Cronbach alpha value (α) of .95 indicating very good internal consistency (see DeVellis, 2003).

General Mental Health was measured by a single item related to the question: “How do you rate your mental health at the present?”. Responses were made on a three-point Likert scale defined as: 1 = “bad”; 2 = “reasonably satisfactory”; and 3 = “good”. The use of a single self-assessment item of general mental health was based on studies showing that self-evaluation of mental health status shows good predicting capability above and beyond the contribution to prediction made by indices based on the presence of health problems. Also, the use of a three-point Likert scale was based on previous results showing that when a GMH scale contains higher number of response categories the extreme categories indicate a low response frequency and thus are redundant (see [Idler and Kasl, 1991](#); [Idler and Benyamini, 1997](#)).

Work-identity. Personal work-identity was measured by an instrument suggested by [Knez, \(2016](#); see also [Knez et al., 2018](#); [Knez and Eliasson, 2017](#)). It includes ten statements measuring emotion and cognition components of personal work-identity: Emotion (“I know my work very well.”; “I miss it when I’m not there.”; “I have strong ties to my work.”; “I am proud of my work.”; “It is a part of me.”); Cognition (“I have had a personal relation with my work over a long period.”; “There is a link between my work and my current life.”; “I can travel back and forth in time mentally to my work when I think about it.”; “I can reflect on the memories of my work”; “My thoughts and memories about my work are part of me.”). Participants were asked to respond to the statements on a five-point Likert-scale ranging from 1 (completely disagree) to 5 (completely agree). In the present study, the Cronbach alpha (α) values were .86 for personal work-identity, .75 for emotion- and .84 for cognition component respectively, indicating acceptable-good internal consistency (see [DeVellis, 2003](#)). In addition, [Nordhall and Knez \(2018\)](#) reported a construct validity statistics for the personal work-identity construct/measure, showing an acceptable data fit (see [Byrne, 2016](#)) of $\text{Chi}^2 = 188.57$, $\text{df} = 28$ ($p = .000$), $\text{CFI} = .95$ and $\text{RMSEA} = .08$.

Collective work-identity was measured with the “Identification with a Psychological Group Scale” ([Mael and Tetrick, 1992](#); [Mael and Ashforth, 1992](#); [Riketta, 2005](#)), theoretically grounded in Social Identity Theory ([Tajfel and Turner, 1979, 1986](#)) and the Self-Categorization Theory ([Hogg and Terry, 2000](#)). This measure includes six statements with a five-point Likert scale, ranging from 1 (completely disagree) to 5 (completely agree). Based on the conceptual model of [Knez \(2014, 2016\)](#) that distinguishes between emotion and cognition components of work-identity ([Knez, 2016](#); [Jackson et al., 2006](#)), the following items of the “Identification with a Psychological Group Scale” ([Mael and Ashforth, 1992](#)) were categorized as belonging to the emotion component (“When someone criticizes my organization, it feels like a personal insult.”; “When someone praises the organization it feels like a personal compliment.”; “If a story in the media criticized the organization, I would feel embarrassed.”) and cognition component (“I am very interested in what others think about the organization.”; “When I talk about this organization, I usually say ‘we’

rather than ‘they’.’; “This organizations’ successes are my successes.”) respectively. This was done in line with Mael and Ashforth’s (1992) suggestions (also supported by Tajfel, 1972, 1978; Hogg, 2012). Following Cronbach alphas (α) applies to the different scales: .87 for collective work-identity, .78 for emotion- and .77 for cognition component, indicating good internal consistency (see DeVellis, 2003). As above, Nordhall and Knez (2018) reported an acceptable construct validity data fit (see Byrne, 2016) of $\text{Chi}^2 = 64.09$, $\text{df} = 7$ ($p = .000$), $\text{CFI} = .97$ and $\text{RMSEA} = .10$ for the collective work-identity concept/measure.

2.4. Design and analyses

In line with the two hypotheses (see Introduction), four types of multiple regression analyses were performed in order to investigate the role of emotion- and cognition components of personal- and collective work identity, respectively, in predicting general mental health and exhaustion. Thus, regression analyses including the following predictors and criterion variables were performed:

Hypothesis 1: (a) Emotional- and cognitive personal work-identity (predictors) and general mental health (criterion variable)

(b) Emotional- and cognitive personal work-identity (predictors) and exhaustion (criterion variable)

Hypothesis 2: (a) Emotional- and cognitive collective work identity (predictors) and general mental health (criterion variable)

(b) Emotional- and cognitive collective work identity (predictors) and exhaustion (criterion variable)

In all four analyses, we controlled for the effects of: age; gender (male vs. female); part of full time employment (%); school sector (public vs. private); years of employment; and educational level (low vs. high). These variables have previously been addressed as potential confounders, related to mental health and exhaustion (De Lange et al., 2004; Houkes et al., 2003; Klusmann et al., 2008; Van Den Broeck et al., 2008). In order to specify a fixed order of entry to control for the effects of potential confounders, in the four multiple hierarchical regression analyses, the covariates were entered in step one and predictors in step two.

3. Results

First, we report the bivariate correlations, N , mean and standard deviation statistics for all variables included in the regression analyses (see Table 1). Second, we report the results for our hypotheses and the types of regression analyses related to each one of the four hypotheses respectively (see section Design and Analyses). None of the

Table 1. Bivariate correlations (r), N , mean (M) and standard deviation (SD) statistics for all variables included in the regression analyses: Emotion (E-) and cognition (C-) component of personal work identity (PWI); emotion (E-) and cognition (C-) component of collective work identity (CWI); general mental health (GMH); exhaustion (E); age; gender; part of full time employment (PFTE); school sector (SC); years of employment (YE); educational level (EL).

	N	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 E-PWI	767	3.62	.71											
2 C-PWI	767	3.61	.86	.610 ^b										
3 E-CWI	767	2.60	.99	.248 ^b	.232 ^b									
4 C-CWI	767	2.97	.98	.294 ^b	.220 ^b	.739 ^b								
5 GMH	767	2.31	.70	.119 ^b	-.119 ^b	.040	.082 ^c							
6 E	767	2.43	.74	-.131 ^b	.150 ^b	.001	-.087 ^c	-.691 ^b						
7 Age	768	46.27	10.07	.041	.005	-.123 ^b	-.083 ^c	.091 ^c	-.060					
8 Gender	768	na. ^a	na. ^a	.205 ^b	.111 ^b	.107 ^b	.061	-.024	.056	-.003				
9 PFTE	768	94.85	12.81	.075 ^c	.022	.085 ^c	.101 ^b	.068	-.054	-.020	-.064			
10 SC	768	na. ^a	na. ^a	-.042	-.018	.016	-.000	-.040	-.000	-.145 ^b	-.021	-.084 ^c		
11 YE	768	14.00	10.22	.063	.052	-.036	-.055	.075 ^c	-.033	.657 ^b	.018	.007	-.239 ^b	
12 EL	768	na. ^a	na. ^a	-.026	-.076 ^c	-.055	-.031	.040	-.039	.064	.082 ^c	-.063	.030	.016

^a na. = not applicable due to categorical data.

^b Correlation is significant at the .01 level (2-tailed).

^c Correlation is significant at the .05 level (2-tailed).

statistical analyses below were subjected to multicollinearity effects, showing Tolerance values of $>.10$, range $.441-.981$ and all VIF (variance inflation factor) <10 , range $1.020-2.269$ (see Menard, 1995; Myers, 1990; Tabachnick and Fidel, 2012).

3.1. Emotion and cognition components of personal work-identity and general mental health and exhaustion

As can be seen in Table 2 (see also Table 4 for the first step regression statistics) emotion and cognition components of personal work identity significantly predicted both general mental health and exhaustion, accounting for 7% and 10% respectively of variance explained by the regression. As expected, emotional personal work identity was shown to *positively* associate with general mental health ($p = .000$), and cognitive personal work identity was shown to *negatively* associate with general mental health ($p = .000$). Also as predicted, and vice versa to general mental health-results, exhaustion linked *negatively* to emotional personal work-identity ($p = .000$) and *positively* to cognitive personal work identity ($p = .000$).

3.2. Emotion and cognition components of collective work-identity and general mental health and exhaustion

As shown in Table 3 (see also Table 4 for the first step regression statistics) emotion and cognition components of collective work-identity significantly predicted general mental health and exhaustion accounting for 1% and 2%, respectively, of variance explained by the regression. Cognitive collective work-identity was as predicted, *positively* related to general mental health ($p = .040$), while emotional collective work-identity was *negatively*, although not significantly ($p = .574$), related to general mental health. Emotional collective work-identity was, on the other hand and as predicted, shown to *positively* associate with exhaustion ($p = .020$), and cognitive collective work-identity was, on the opposite, *negatively* related with exhaustion ($p = .001$).

Table 2. Relations between emotion- (E-) and cognition (C-) component of personal work-identity (PWI) and General Mental Health (GMH) and Exhaustion (E), respectively after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

Outcome	R ² change	Beta (β)	df	F change	t	p
GMH	.07		2. 760	29.01		.000
		.31 E-PWI			6.82	
		-.30 C-PWI			-6.82	.000
E	.10		2. 757	43.38		.000
		-.37 E-PWI			-8.33	
		.36 C-PWI			8.35	.000

Table 3. Relations between emotion- (E-) and cognition (C-) component of collective work-identity (CWI) and General Mental Health (GMH) and Exhaustion (E), respectively after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

Outcome	R ² change	Beta (β)	df	F change	t	p	
GMH	.01		2, 758	3.01		.050	
		-.03 E-CWI			-.56		.574
		.11 C-CWI			2.03		.040
E	.02		2, 757	6.06		.002	
		.13 E-CWI			2.37		.020
		-.19 C-CWI			-3.47		.001

Table 4. Statistics for the first step of the hierarchical regression analysis involving six covariates [age, gender, part of full time employment (PFTE), school sector (SC), years of employment (YE), educational level (EL)] and criterion variables of general mental health (GMH) and exhaustion (E). See Tables 2 and 3 for the main (second step) results.

Outcome Step 1	R ²	Beta (β)	df	F	t	p	
GMH	.02		6, 760	2.07		.060	
		.07 Age			1.53		.130
		-.02 Gender			-.64		.521
		.07 PFTE			1.91		.057
		-.02 SC			-.56		.580
		.02 YE			.43		.666
		.04 EL			1.16		.245
E	.01		6,759	1.45		.193	
		-.06 Age			-1.33		.183
		.06 Gender			1.51		.131
		-.06 PFTE			-1.53		.126
		-.01 SC			-.27		.790
		.01 YE			.15		.883
		-.04 EL			-1.18		.242

3.3. Summary

Below we summarize the main results reported in Tables 2 and 3, in four Figures. This was done in order to figuratively illustrate the findings obtained. In line with our hypotheses, it was shown that emotion and cognition components of personal- and collective work-identity symmetrically associated with general mental health and exhaustion.

As can be seen in Fig. 1, the *emotion* component of personal work-identity (in contrast to the *emotion* component of collective work-identity), was positively related to general mental health. Logically, these relations were reversed for exhaustion, showing that emotional personal work-identity was negatively- and emotional collective work-identity was positively related to exhaustion (see Fig. 2).

As can be seen in Figs. 3 and 4, the *cognition* component of personal work-identity and collective work-identity was reversely related to general mental health and exhaustion; also, symmetrically shifting to the emotion component (emotional personal- and collective work identity) relationships with general mental health and exhaustion (compare Figs. 3 and 4 with Figs. 1 and 2 above).

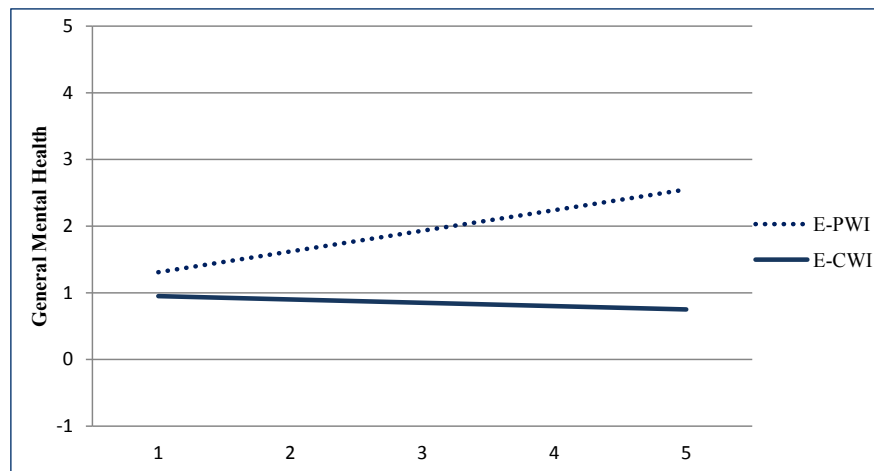


Fig. 1. Relations between emotion (E-) component of personal work-identity (PWI) and collective work-identity (CWI), respectively, and General Mental Health (GMH) after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

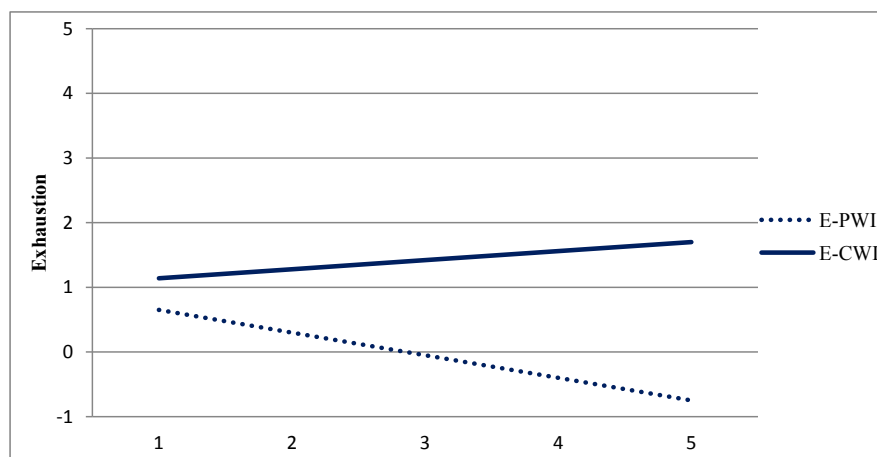


Fig. 2. Relations between emotion (E-) component of personal work-identity (PWI) and collective work-identity (CWI), respectively, and Exhaustion (E) after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

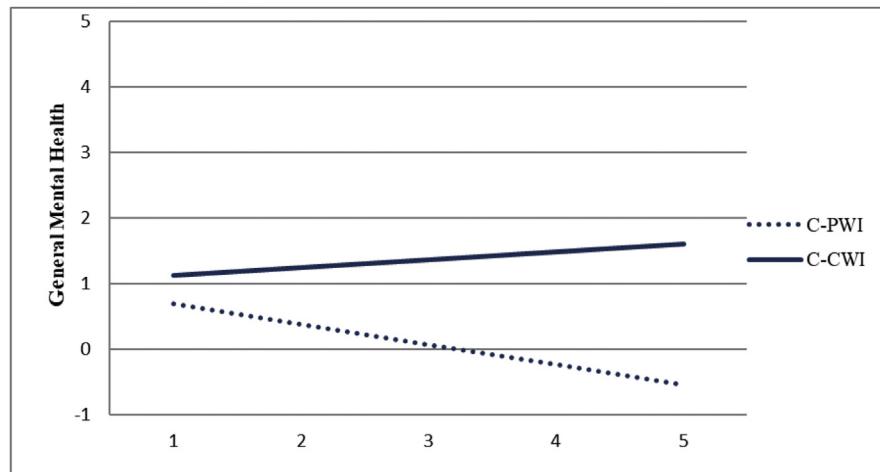


Fig. 3. Relations between cognition (C-) component of personal work-identity (PWI) and collective work-identity (CWI), respectively, and General Mental Health (GMH) after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

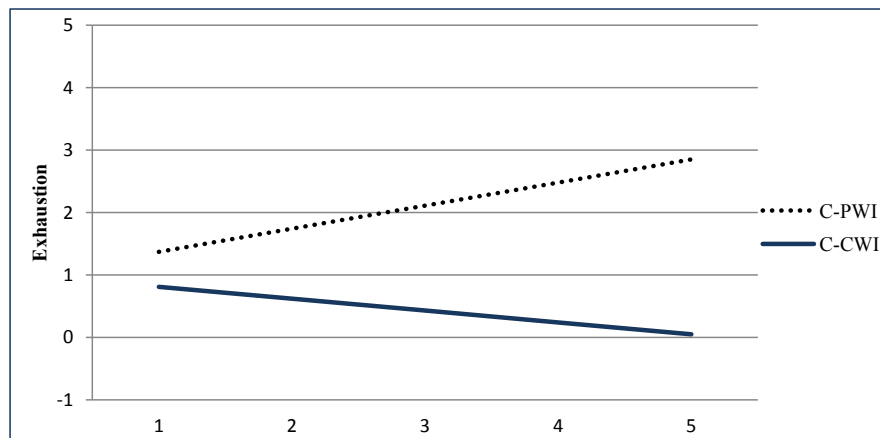


Fig. 4. Relations between cognition (C-) component of personal work-identity (PWI) and collective work-identity (CWI), respectively, and Exhaustion (E) after controlling for the six covariates (age, gender, part of full time employment, school sector, years of employment, educational level).

4. Discussion

The objective of this study was to investigate the relationships between emotion and cognition components of personal- and collective work-identity and self-reported general mental health and exhaustion in teachers, indicating higher prevalence of burnout syndrome compared to other work groups in a Swedish sample (Hallsten et al., 2002). Given that teachers compared to other groups are exposed to psychological demands (Demerouti et al., 2001), in terms of prosocial extra-role interactions with students, colleagues and students' parents (Maslach et al., 2001), makes them especially sensitive in developing burnout syndrome as a consequence of stress related work-overload (Santavirta et al., 2007; Aloe et al., 2014; Zee and Koomen, 2016).

In line with previous research (e.g., Kremer and Hofman, 1985; Van Dick and Wagner, 2002; Fisherman, 2015; Cohen, 2004; Jetten et al., 2014), we predicted that the *emotion* component of *personal* work-identity (Hypothesis 1) and the *cognition* component of *collective* work-identity (Hypothesis 2), would associate *positively* with general mental health and *negatively* with exhaustion; and that reverse links would yield for the *cognition* component of *personal* work-identity (Hypothesis 1) and *emotion* component of *collective* work-identity (Hypothesis 2). The results obtained were shown to support these predictions (except for emotional collective work identity which did not relate significantly, although negatively, to general mental health) and are in accordance with previous research indicating, as in the Swedish sample (Hallsten et al., 2002), higher prevalence for psychological distress, such as burnout and exhaustion, in teachers, compared to other employee groups (Hakanen et al., 2006; Aloe et al., 2014).

Accordingly, our results question some of the previous findings suggesting that both personal- and collective work-identity might associate positively with general mental health and negatively with exhaustion (e.g., Edwards and Dirette, 2010; Wegge et al., 2006; Haslam et al., 2009a,b; Jetten et al., 2012; Haslam, 2014; Jetten et al., 2014; Steffens et al., 2016). We showed, namely, that these relationships might be reversed, accounted for by the emotion- and cognition component of personal- and collective work-identity respectively. Moreover, these links were reported to be stronger for emotion and cognition components of personal work-identity compared to emotion and cognition components of collective work-identity.

With regard to Hypothesis 1, it was reported that, when the process of attachment/belongingness/closeness (emotion component) increases in personal work-identity (Knez, 2016), respondents report better general mental health (De Lange et al., 2004) and, consistently, lower exhaustion (Saboonchi et al., 2012). This was, however, reversed for the cognitive component of personal work-identity involving processes of coherence, correspondence, mental time, reflection and agency. In view of that, we could say that, when respondents *feel more* and *think less* with reference to their *personal* work-identification they will feel mentally better and will be less exhausted, as tentatively implied by Kremer and Hofman (1985), Van Dick and Wagner (2002), and Fisherman (2015).

Concerning Hypothesis 2, it was shown that, when incorporation, identification and assimilation (cognitive processes of collective work-identity; Mael and Ashforth, 1992; Van Knippenberg and Sleebos, 2006; Nordhall and Knez, 2018) increase, respondents report better general mental health and, soundly, lower exhaustion. Collective work-identity's association with general mental health and exhaustion was, as predicted, reversed for the emotion component. Accordingly, when respondents *think more* and *feel less* with reference to their collective work-identification they

will feel better and will be less exhausted, as tentatively implied by [Jetten et al. \(2014\)](#), [Cruwys et al. \(2015\)](#) and [Greenaway et al. \(2015\)](#).

In short, a strong *emotional* component of personal work-identity ([Knez, 2016](#)) and a strong *cognitive* component of collective work-identity ([Mael and Ashforth, 1992](#); [Van Knippenberg and Sleebos, 2006](#); [Nordhall and Knez, 2018](#)) appear to provide a psychological *asset* for the teachers with reference to their general mental health and exhaustion. However, a strong *cognitive* component (coherence, correspondence, mental time, reflection and agency) of personal work-identity and a strong *emotional* component of collective work-identity (pride, esteem, and affective commitment; [Mael and Ashforth, 1992](#); [Van Knippenberg and Sleebos, 2006](#); [Nordhall and Knez, 2018](#)) seem to be responsible for a *disadvantage*, for teachers, with reference to their general mental health and exhaustion.

To some extent, these findings correspond to [Nordhall and Knez \(2018\)](#), who showed that a positive association between personal work-identity and self-determined work-motivation ([Ryan and Deci, 2000](#); [Gagne and Deci, 2005](#); [Tremblay et al., 2009](#)) was accounted for by the *emotion* component of personal work-identity. Correspondingly, previous studies have reported a positive link between aspects of work-related motivation and general mental health (see [Ryan and Deci, 2000](#); [Van den Broeck et al., 2016](#); [Björklund et al., 2013](#)) and a negative association between aspects of work-related motivation and exhaustion ([Hakanen et al., 2006](#); [Björklund et al., 2013](#)). Furthermore, [Nordhall and Knez \(2018\)](#) reported a positive association between collective work-identity and organizational pay-justice ([Colquitt, 2001](#); [Colquitt et al., 2013](#)), accounted for by the *cognitive* component of collective work-identity; hence, indicating a psychological advantage of the cognitive, compared to the emotion, component of collective work-identity as also reported in the present study. Previous research has additionally indicated that different dimensions of organizational justice might relate positively to general mental health ([Spell and Arnold, 2007](#); [Robbins et al., 2012](#); [Eib et al., 2014](#)) and negatively associate with exhaustion ([Robbins et al., 2012](#)).

Thus, and in line with previous research (e.g., [Kremer and Hofman, 1985](#); [Van Dick and Wagner, 2002](#); [Fisherman, 2015](#); [Cohen, 2004](#); [Jetten et al., 2014](#); [Nordhall and Knez, 2018](#)) and Figs. 1, 2, 3, and 4, we might suggest that: (1) Emotion component of personal work-identity and cognition component of collective work-identity will *positively* associate with psychological wellness at work, including work motivation, organizational justice, and general mental health (see [Keyes, 2005](#); [Van den Broeck et al., 2016](#); [Howard et al., 2016](#)); (2) Emotion component of personal work-identity and cognition component of collective work-identity will *negatively* link with psychological distress at work, such as exhaustion ([Saboonchi et al., 2012](#)); and that (3) Reversed relationships between cognition component of personal work-identity and

emotion component of collective work-identity and general mental health and exhaustion will apply.

To sum up, when personal work-identity is involved, the *emotion* component might be mostly responsible for the magnitude of the psychological wellness associated with different work outcomes (Knez, 2016; Knez et al., 2018; Nordhall and Knez, 2018; Knez and Eliasson, 2017), and by contrast, when collective work-identity is engaged, the *cognitive* component might be mostly responsible for the magnitude of the psychological wellness associated with different work outcomes (Ashforth and Mael, 1989; Harquail and King, 2003; Corley et al., 2006; Van Knippenberg and Sleebos, 2006; Knez, 2016; Knez et al., 2018; Nordhall and Knez, 2018; Knez and Eliasson, 2017).

5. Conclusion

In agreement with previous research reporting associations between job characteristics and employees' health (e.g., De Lange et al., 2004; Maslach and Leiter, 2008), we have predicted and shown a significant role of emotion and cognition components of personal- and collective work-identity for the self-reported general mental health and exhaustion in a Swedish teacher sample ($N = 768$). Overall: When teachers *felt more* and *thought less* with reference to their *personal* work-bonding, they felt mentally better and were less exhausted, and by contrast, when they *thought more* and *felt less* with reference to their *collective* work-bonding, they felt mentally better and were less exhausted. The practical implications of our conclusion is to design interventional programs to promote the *advantage* of stronger feeling and to reduce the *disadvantage* of stronger thinking in teachers' personal work bonding, as well as to promote the *advantage* of stronger thinking and reduce the *disadvantage* of stronger feeling in their collective work bonding; due to their feelings of mental health and exhaustion [see van Dierendonck et al. (1998) for a similar intervention related to effects of organizational (in)justice on burnout].

Declarations

Author contribution statement

Ola Nordhall: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Igor Knez, Fredrik Saboonchi: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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