Relationship between Work-related Identity and Stress and the Mediating Role of Work-life Balance

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Sammanfattning

I föreliggande studie undersöktes relationen mellan arbetsidentitet (emotionell och kognitiv komponent) och arbetsrelaterad stress, samt om work-life balance (WLB) och dess komponenter family-work conflict (FWC) och work-family conflict (WFC) medierar denna relation. Studien omfattade 104 deltagare som fyllde i en web-enkät via Facebook. Resultaten visade: (1) Positiv relation mellan den kognitiva komponenten i den arbetsrelaterade identiteten och arbetsrelaterad stress; och (2) Negativ relation mellan den emotionella komponenten i den arbetsrelaterade identiteten och arbetsrelaterad stress. WLB visades också mediera relationen mellan den kognitiva komponenten i den arbetsrelaterade identiteten och arbetsrelaterad stress, och det var mer specifikt WFC som stod för denna effekt.

Nyckelord: Arbetsrelaterad identitet, Kognitiv arbetsrelaterad identitet, Emotionell arbetsrelaterad identitet, Arbetsrelaterad stress, Livspussel, WLB, FWC, WFC
Abstract

In the present study, the relationship between work identity (emotion and cognition components) and work-related stress was investigated, and if work-life balance (WLB) and its components family-work conflict (FWC) and work-family conflict (WFC), might mediate this relationship. The study included 104 participants recruited via Facebook. The results showed: (1) Positive relationship between the cognitive component in the work-related identity and work-related stress; and (2) Negative relationship between the emotional component of the work-related identity and work-related stress. WLB was also shown to mediate the relation between the cognitive component in the work-related identity and work-related stress, accounted for by the WFC-component of WLB.

Preface

I would like to thank all Facebook users who participated in this study and made this possible. I also would like to thank Igor Knez, my supervisor, for constructive guidance. Furthermore I would like to thank my second supervisor Johan Willander for good help and support.
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Introduction

Our relation to the professional work includes a pivotal concept of work-identification. This psychological phenomenon includes personal- and collective work identity (Knez, 2016), associated with different work-related behaviors, attitudes and norms. Thus, it is hard to completely grasp employees work-related actions if we do not consider the importance of their occupational identities (Lee, Park & Koo, 2015; Riketta, 2005; Riketta & van Dick, 2005) involving the processes of emotion and cognition (Knez, 2014; 2016) that differently relate to a wide range of mental health outcomes (Haslam, 2014; Haslam, Jetten, Postmes & Haslam, 2009; Jetten, Haslam & Haslam, 2012; Steffens, Haslam, Schuh, Jetten, & van Dick, 2017).

Furthermore one of the largest work-related problems in the European Union (Bell, Rajendran & Theiler, 2012) is stress, related to both individual and life/work-situational characteristics and factors (Cooper & Cartwright, 1994). A life-situational factor, positively related to work-stress is work-life imbalance (Ford, Heinen, & Langkamer, 2007; Nohe, Meier, Sonntag & Michel, 2015), concerning role fulfillment, where you may feel that you have a balance or imbalance when it comes to the different roles you have in your life (Netemeyer, Boles & McMurrian, 1996). Many people experience difficulties managing the life puzzle due to individual and social interests and high demands related to work and family. These demands and desires in life can be seen as different roles or identities which can, due to lack of time/energy, cause role conflicts or imbalance where you feel that one or more roles are being pushed aside to the benefit of another role (Kalliath & Brough, 2008). One such imbalance is family work conflict (FWC) meaning that the family/private life interferes with work related commitments, role performance, requirements, duties or expectations. Another such imbalance is work family conflict (WFC) indicating an opposite direction of interference compared to FWC. FWC and WFC are conceptualized as the phenomenon of Work-life Balance (WLB) (Netemeyer, Boles & McMurrian, 1996).
Work-identity

Work-identity serves both as a way to distinguish yourself from others at work and as a way to belong to a social group at work. Personal work-identity is based on autobiographical memory and by that related to the self (Klein, 2014; Knez, 2016). The relationship between memory and the self is reciprocal meaning that we are what we remember, and we remember what we are (Knez, 2014; 2016). The need to distinguish oneself from others with the purpose to maintain the personal self, its´ memories and stories constitute the personal work-identity. Furthermore the need to belong to a social group, in that way, being a part of the collective self its´ memories and stories makes up the collective/social work-identity. By that work-identity (collective and personal) involves emotions and cognitions attached to work (Knez, 2016).

Collective work-identity involves identifications with groups and organizations. Personal work-identity, which this study is about, is related to personal career/occupation involving individual work-related goals and attributes. Social- and personal work-identity are relatively independent of each other meaning that one can have both a strong social- and strong personal work-identity (Hogg & Terry, 2000; Knez, 2016).

Personal work-identity includes classifications of “My profession/ work”, for example, “I/Me as a researcher in psychology”. By this the personal work-identity embrace the need to distinguish oneself from others (Brewer & Gardner, 1996; Knez, 2016).

Collective/social work-identity involves We-descriptions in terms of work-groups or organizations, for example “We who work at the university of Gävle” (Knez, 2016). According to social identity theory a social work-identity is defined as the knowledge of belonging to a certain work-group (Hogg, 2012). This is in line with our psychological need to belong to a social group (Brewer & Gardner, 1996).

According to Knez’ (2014; 2016) conceptual model of the work-related self, based on autobiographical memory research (Conway, Singer, & Tagini, 2004; Klein, German, Cosmides & Gabriel, 2004; Knez, 2017; Knez & Nordhall, 2017; Knez, Ljunglöf, Arshamian & Willander, 2017), personal work-identity includes an emotional and a cognitive component, henceforth labeled work-identity-emotion and work-identity-cognition, respectively. The emotional component includes the process of belongingness/closeness/attachment to work, and the cognitive component involves the processes of coherence, correspondence, mental time, reflection and agency related to the occupational work bonding (Knez, 2016).
Work-stress

Stress is a subjective experience that occurs when individuals perceive a situation as threatening, demanding or challenging and strain refers to the physiological, behavioral and psychological changes that occur as a result of exposure to stressors (Hardie, Kashima, & Pridmore, 2005; Thomas & Ganster, 1995). Short term non-repeated stress improves for example human concentration and immune system to enable a "fight or flight" reaction. However, often repeated stress results in corrosive effects (Hardie, et al., 2005; Lovallo, 2016).

One experiences work stress when there is an imbalance between the effort, in terms of physical, emotional and psychological demands related to work, one put in to work and the rewards, in terms of money, esteem, job security and promotion prospects, one gets from work (de Jonge, van Vegchel, Shimazu, Schaufeli, & Dormann, 2010; Eddy, Heckenberg, Wertheim, Kent & Wright, 2016).

Furthermore, whether a stressor is perceived as manageable/controllable or not is also an important factor (Levi, 2005; Theorell, 2005). Being able to exercise control over one’s work means that you can take command over most of everyday work situations and mostly of the unexpected situations that can occur in your work. Control is connected with power, where people who have power usually also have control. Relations have been shown between work-control and work-stress, where work-stress occurs when employees experience lack of/ no control regarding their work situation (Theorell & Karasek, 1996).

Stress disorders not only involve emotional costs for the individual but include risks for organizations too (Theorell & Karasek, 1996). Previous research has reported positive relationships between work stress and poor health behaviors, job dissatisfaction, accidents, mental breakdown, family problems, chronic pain and coronary heart disease (Cooper, & Cartwright, 1994; Bell, et al., 2012; Ortego, Villafañe, Doménech-Garcia, Berjano, Bertozzi & Herrero, 2016).
Work-life balance

Family life, work life and private life are some of the most important and time-consuming factors in many individuals' lives, involving several factors such as family status, type of work, civil status, etc. (Netemeyer, Boles, & McMurrian, 1996). WLB is reached when there is a balance between emotional and time related demands of work, family and private life (Bell, et al., 2012).

Conflicts regarding work and private life can occur because of lack of time or due to role conflict. Time-based conflict is when the time demands of one role (e.g. being required to attend an important meeting) are incompatible with the time demands of another role (e.g. being required to take care of sick children). While role conflicts occur due to different priorities in one’s life, where you may feel that time spent in one area of life is of greater value than time spent in another area of life (Carlson, Kacmar & Stepina, 1995; Greenhaus & Beutell, 1985).

WLB involves two dimensions: (1) Engagement in different roles in work and non-work life; and (2) Minimal conflict between work and non-work roles. To reach WLB balance-, satisfaction-, fulfillment of role salience- and perceived control between multiple roles and equity across multiple roles are of importance (Kalliath & Brough, 2008; Sirgy & Lee, 2017).

WLB concept has furthermore been conceptualized as FWC and WFC. The former occurs when the family/private life interferes with work related commitments, role performance, requirements, duties or expectations. Having small children, elderly relatives to take care of or sick relatives who needs attention can have an impact on FWC (Greenhaus & Beutell, 1985; Netemeyer et al., 1996).

WFC occurs when demands and expectations of occupational work makes it difficult to accomplish demands and expectations of private life. WFC can occur when occupational working hours is non flexible, meetings are at odd hours, or if the occupational work is very unpredictable (Greenhaus & Beutell, 1985; Netemeyer et al., 1996).

Previous research has also shown that higher levels of WLB might positively associate with organizational commitment, job satisfaction, organizational citizenship behavior, productivity, organizational performance, lower turnover intention, increased diversity and equity. Furthermore WLB is an important factor when it comes to individual
well-being such as family satisfaction, health satisfaction and overall life satisfaction (Bell, et al., 2012; Sirgy & Lee, 2017).

WLB can also be seen as comprising high demands and expectations in one role and little support from other roles in life (Thomas & Ganster, 1995; Hakanen, Schaufeli & Ahola, 2008). If one stronger identifies with the family vs. the work an experience of imbalance between these two phenomena will be attributed to the phenomenon of lower identification; i.e., the work. (Carlson & Kacmar, 2000; Carlson, Kacmar & Stepina, 1995).

**Present study**

Previous research has mostly investigated the three phenomena of work identity, stress and WLB separately. Some studies have however reported results on links between work-identity WLB and stress, and how stress might affect WLB (Barker Caza & Wilson, 2009; Carson & Kacmar, 2000; Carlson, Kacmar & Stepina, 1995; Mühlhaus & Bouwmeester, 2016; Cooper & Cartwright, 1994; Bell et al., 2012; Ford, Heinen, & Langkamer, 2007).

It has furthermore been suggested that the emotion- and cognition component of work-identity might be differently related to stress-related outcomes (Fisherman, 2015; Frone & Russell, 1995; Grossi, Perski, Osika, & Savic, 2015; Knez, 2016; Kremer & Hofman, 1985; Lee, Park & Koo, 2015; Saboonchi, Perski, & Grossi, 2012; Stets & Burke, 2000; Van Dick & Wagner, 2002). For example Kremer & Hofman (1985) did specify different types of work-related-self-presentation-profiles as work-identity in predicting burnout. They reported that all types of work-identity-profiles were negatively associated with burnout, but that this association was strongest for the emotional component of work-identity. Also Van Dick & Wagner (2002) indicated that emotional-, compared to the cognitive component of 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 mental illness in employees reporting high levels of job involvement, defined as a cognitive component of work-identity (Frone & Russell, 1995). Additionally, Fisherman (2015) reported that the emotional component of work-identity may negatively associate with emotional exhaustion, while the cognitive component may positively link to emotional exhaustion.
Thus and in other words, when the “feeling” processes of attachment/belongingness/closeness (emotion component) increases in work-identity (Knez, 2016), people report a better general mental health (De Lange, Taris, Kompier, Houtman, & Bongers, 2004) and, consistently, lower stress-related problems (Saboonchi et al., 2012). This is, however, reversed for the cognitive component of personal work-identity involving “thinking” processes of coherence, correspondence, mental time, reflection and agency; meaning that when these processes increase people report a higher degree of mental illness such as stress-related problems (Authors, 2017).

In the context of work, mental health problems such as work-stress, besides being positively predicted by individual factors such as personality (Alarcon, Eschleman & Bowling, 2009; Hakanen & Bakker, 2017) and cognitive processes in the work-identification (Van Dick & Wagner, 2002; Stets and Burke, 2000; Fisherman, 2015), may to some extent be related to occupational- and life situational factors (Hakanen, Schaufeli & Ahola, 2008). One such life-situational factor, positively related to work-stress is work-life imbalance (Allen, Herst, Bruck & Sutton, 2000; Ford, Heinen, & Langkamer, 2007; Nohe, Meier, Sonntag & Michel, 2015).

Regarding WLB it has been shown that it is more likely to experience WFC than FWC (Frone, Russel & Cooper, 1992). Furthermore it has been shown that work-life imbalance is more related to work-stress than it is to general stress (Amazue & Onyishi, 2016; Crompton & Lyonette, 2006; Hauk & Chodkiewicz, 2013).

Previous research has also reported that if you mostly identify with your job vs. your family then you will experience that it is the family that constitutes the conflict (FWC), and vice versa for WFC (Carlson & Kacmar, 2000; Pleck, 1977; Ford, Heinen & Langkamer, 2007).

Individuals who identify themselves with their job to a high extent will not experience thoughts about their job, that is the work-identity cognition (Knez, 2016), as something that causes conflict or stress (Barker Caza & Wilson, 2009; Carlson & Kacmar, 2000; Pleck, 1977; Mühlhaus & Bouwmeester, 2016). Those who experience stress and conflict due to thoughts about their occupational work are therefore probably individuals who more strongly identify with the family than with the work (Carlson & Kacmar, 2000; Greenhaus & Beutell, 1985; Pleck, 1977). When cognitively occupied by work during time with the family one may be unsatisfied due to the divided focus on the family. This might result in greater effort at work in order not to think about work while being with the family,
leading to work-stress (Frone & Rice, 1987; Thompson & Bunderson, 2001). Accordingly and in view of all this WFC might explain why work-identity cognition positively relates to work-stress, and thus positively mediates (MacKinnon, 2007) the positive relation between these two constructs.

Given this, the aim of this study was to firstly investigate whether there is a relation between cognition- and emotion components of work-identity and work-stress in a Swedish Facebook sample including both white- and blue-collar workers.

Secondly, the aim was to investigate if WLB (FWC and/or WFC) mediates a relation between work-identity cognition and work-stress (see figure 1) in a Swedish Facebook sample including both white- and blue-collar workers. The cognition component only since previous research has shown that it is this component of work-identity that is positively related to mental illness and stress (Frone & Russel, 1995; Stets & Burke, 2000).

Accordingly, work-identity, WLB and work-related stress do all have an impact on both the employee and the organization (Cooper & Cartwright, 1994; Bell et al., 2012; Knez, 2016). Previous research has focused on social work-identity and its relation to different health outcomes (Jetten, Haslam & Haslam, 2012; Van Knippenberg, 2000; Van Dick & Wagner 2002; Bjerregard, Haslam, Morton & Ryan, 2015). Given this, the present study is important due to it’s focus on personal work-identity and its relations to the above-mentioned outcomes. Furthermore, the present study is of theoretical importance if WLB might be shown to mediate relation between work-identity cognition and work-stress, and

Figure 1. Mediation model with work-identity cognition (WIC) as predictor, work-stress as criterion variable and work-life balance (WLB), including family-work conflict (FWC) and work-family conflict (WFC) respectively, as mediators.
by that indicating that thinking in the work-related bounding is positively related to mental illness at work. Furthermore all these phenomena have an impact on employee health and are therefore important at an organizational level. The present study is of importance because intervention regarding work-related identity cognition might have a wellness promoting effect on both WLB and work-stress.

Hypotheses
Given the above, the following hypotheses were formulated:

_Hypothesis 1._ In line with Kremer & Hofman (1985), Stets and Burke (2000) and Van Dick and Wagner (2002), a positive relationship between work-identity-cognition and work-stress and a negative relationship between work-identity-emotion and work-stress were predicted.

_Hypothesis 2a._ In line with the above (Carlson, Kacmar & Stepina, 1995; Greenhaus & Beutell, 1985) and figure 1, WLB was predicted to mediate the relationship between work-identity-cognition and work-stress.

_Hypothesis 2b._ More precisely and in line with the above (Allen, Herst, Bruck & Sutton, 2000; Carlson & Kacmar, 2000; Ford, Heinen & Langkamer, 2007; Pleck, 1977) and figure 1, the WLB-component WFC (Greenhaus & Beutell, 1985; Netemeyer et al., 1996) was predicted to mediate the relationship between work-identity cognition and work-stress.

Method

_Literature Review_
To find relevant articles a literature search was applied through Discovery, PsycInfo and Google Scholar. The criteria applied were that the articles should be peer-reviewed, written in either Swedish or English and published in scientific journals with access to full text. The keywords used were; work-identity, identity, social identity, personal identity, stress, work-stress, work-life balance, work-life conflict, family-work conflict and work-family conflict. Combinations of these keywords such as work-identity AND work-stress, were also used.
Participants and design

An internet-based survey including measures of work-identity (emotion and cognition component), work-related stress, and WLB (FWC and WFC) were used in this quantitative cross-sectional study. The survey was available to attend, and be shared on Facebook through my Facebook account, for a period of two weeks. During this period two notifications were sent out. The sample consisted of 104 participants. The age ranged from 23 to 67 and the mean age was 40 years. 77% of the participants were women and 23% were men, and 75% of the participants had a full-time job. Since there were no differences between white-collar (code 1 in SPSS) and blue-collar workers (code 2 in SPSS) regarding work-identity cognition ($t = .519, p = .605$), work-identity emotion ($t = .014, p = .989$), WLB ($t = -.076, p = .940$), FWC ($t = 1.481, p = .142$), WFC ($t = .838, p = .404$) or work-stress ($t = -.156, p = .877$) the participants were treated as a homogeneous group in this study. Furthermore there were no differences between women (code 1 in SPSS) and men (code 2 in SPSS) regarding work-identity cognition ($t = -1.137, p = .258$), work-identity emotion ($t = .832, p = .408$), WLB ($t = -.139, p = .890$), FWC ($t = .343, p = .733$), WFC ($t = -.341, p = .734$) or work-stress ($t = -.514, p = .608$).

Concerning the design, following statistical analyses were performed for each hypothesis respectively (see below for more details): Hypothesis 1 a multiple regression analysis were done with work-identity emotion and work-identity cognition as predictor and work-stress as criterion variable; Hypothesis 2a a mediation analysis were performed with work-identity cognition as predictor, work-stress as criterion variable and WLB (WFC and FWC) as mediator; Hypothesis 2b two mediation analyses were performed with work-identity cognition as predictor, work-stress as criterion variable and one with WFC as mediator and one with FWC as mediator.

Measures

Work-identity was measured by an instrument developed by Knez (2016; see also Nordhall & Knez, 2017; Knez & Eliasson, 2017). It consists of 10 statements, five measuring emotion- and five measuring cognition component of work identity, respectively: 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.”). Responses were made on a five-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree) (see attachment 2a). In the present study, the Cronbach alpha (α) values were .81 for personal work-identity, .61 for emotion- and .81 for cognition component respectively, indicating mediocre-god internal consistency, respectively (DeVellis, 2003).

WLB was measured by Netemeyers, et al. (1996) work-family conflict and family-work conflict scales (see attachment 2b). Work-family conflict and family-work conflict scales involve 10 items, five measuring FWC and five measuring WFC. Responses were made on a seven-point Likert scale with 1 (strongly disagree) and 7 (strongly agree). The internal consistency (Cronbach's alpha, α) for the subscales FWC and WFC in work-family conflict and family-work conflict scales were in Netemeyer, et al. (1996): FWC .86 and WFC .89. In the present study, the Cronbach alpha (α) values were .89 for WLB, .85 for FWC and .94 for WFC respectively, indicating acceptable-god internal consistency (DeVillis, 2003). This measure was indexed as one WLB scale, one FWC scale and one WFC scale, meaning that higher values indicate relatively more work-life imbalance (Netemeyer et al., 1996).

Work-stress was measured by Cohen, Kamarack, & Mermelsteins (1983) Perceived Stress Scale (PSS) (see attachment 2c). Respondents were asked to answer these questions as related to their work situation. PSS contains of 14 items. Responses were made on a five-point Likert scale where 0= never, 1= almost never, 2= sometimes, 3= fairly often and 4= very often. This measure was indexed as one work-related perceived stress scale. The internal consistency (Cronbach's alpha, α) for PSS was .85 in Cohen et al., 1983. In the present study, the Cronbach alpha (α) values for work-stress were .87, indicating acceptable-god internal consistency (DeVillis, 2003).

The above measures are on ordinal scale level but were treated as interval scale level (Norman, 2010).

Analyses of data
Data were analyzed in SPSS with multiple regression analysis and mediation analysis, including work-identity (cognition) as predictor, perceived stress as the criterion variable and WLB, FWC and WFC as the hypothesized mediating variables, in three separate mediation analyses.
The mediation analyses were performed with the statistical tool PROCESS macro developed by Hayes (2013) for SPSS (version 2.16.3), model 4. The relation between predictor and criterion variable when the mediator is excluded versus included in the model was analyzed. When the mediator variable is included in the model indirect effect of the association between the predictor and the criterion variable is reported. The indirect effect is defined as the product of path a and path b, since ab = c - c’ in most cases (see Figure 2). The total effect, also known as path c, was reported when the mediator is not included in the model. If the confidence intervals do not include zero-values one might conclude that the indirect effect probably is a true effect, suggesting that the mediator mediates the relation between predictor and criterion variables (Fairchild & Fritz, 2007; Field, 2013; Hayes, 2009; Hayes & Rockwood, 2016; MacKinnon, 2008; MacKinnon, Krull & Lockwood, 2000; MacKinnon, Fairchild & Fritz, 2007; Preacher & Hayes, 2004).

Aspects of research ethics
The ethical aspects taken into consideration for this study were the four principles of research ethics according to the Swedish science council. These principals are the principal of information, the principal of confidentiality, the principal of consent and the principal of use (Vetenskapsrådet, 2002). Participation was voluntary and the respondents were anonymous since no personal information such as name or personal number was asked for. All data were treated confidentially and only used for scientific purpose, calculated on a

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**Figure 2.** Basic mediation model including predictor (X) criterion variable (Y) and mediator (M), together with the relations between predictor and mediator (a), mediator and criterion variable (b) and the relation between predictor and criterion variable when mediator is not included (c) and when mediator is included (c’) in the model.
mean-level and only group-level results are reported. Before starting answering the survey, participants were informed about the aims of the present study and that completion of the questionnaire was taken as an indication of their consent to participate in the present study (see attachment 1).

**Results**

A multiple regression analysis with work-identity emotion and cognition components as predictors and work-stress as criterion variable indicated no non-normality, multicollinearity (tolerance and VIF) or heteroscedasticity (Pallant, 2010).

Also a multiple regression analysis with WLB, WFC and FWC as predictors and work-stress as criterion variable showed no non-normality, multicollinearity (tolerance and VIF) or heteroscedasticity (Pallant, 2010). Non of the regression analysis indicated multicollinearity effects, showing Tolerance values of >.10, range .707-.840 and all VIF (variance inflation factor) < 10, range 1.190- 1.414 (Menard, 1995; Myers, 1990; Tabachnik & Fidel, 2012). Thus, we can proceed with the statistical analyses related to the three hypotheses.

The results below are reported in the following order. First the means, standard deviations, and bivariate correlations for all variables included in the analysis below will be reported, see table 1 for details.

Second results from regression analysis with work-identity emotion and cognition as predictors and work-stress as criterion variable will be reported (see Table 1 & 2).

Third the results from mediation analysis with work-identity cognition as predictor, work-stress as criterion variable and WLB, WFC and FWC, respectively, as mediators will be reported (See Figure 3 & 4).
Table 1. Bivariate correlations (r), N, mean (M) and standard deviations (SD) statistics for all variables included in present study: Work-Stress, Work-Life Balance (WLB), Work-Family Conflict (WFC), Family-Work Conflict (FWC), Work-Identity Emotion (WIE) and Work-Identity Cognition (WIC).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Stress</td>
<td>102</td>
<td>2.76</td>
<td>.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 WLB</td>
<td>102</td>
<td>2.45</td>
<td>1.12</td>
<td>.352**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 WFC</td>
<td>102</td>
<td>3.26</td>
<td>1.73</td>
<td>.335**</td>
<td>.903**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 FWC</td>
<td>102</td>
<td>1.69</td>
<td>1.01</td>
<td>.208*</td>
<td>.673**</td>
<td>.290**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 WIE</td>
<td>102</td>
<td>3.55</td>
<td>.61</td>
<td>-.009</td>
<td>.009</td>
<td>-.037</td>
<td>.084</td>
<td></td>
</tr>
<tr>
<td>6 WIC</td>
<td>102</td>
<td>3.31</td>
<td>.86</td>
<td>.113</td>
<td>.370**</td>
<td>.350**</td>
<td>.221*</td>
<td>.546**</td>
</tr>
</tbody>
</table>

* Correlation significant at the .05 level (2-tailed)
** Correlation significant at the .01 level (2-tailed)

Relation between work-identity components and work stress

Together emotion and cognition component of work-identity predicted work-stress with an explained variance of 15%. As predicted, hypothesis 1, the regression analysis showed a positive relationship between work-identity cognition and work-stress and a negative relationship between work-identity emotion and work-stress, see table 2 for details.

Table 2. Relation between work-identity emotion (WIE) and work-identity cognition (WIC), respectively and work-stress.

<table>
<thead>
<tr>
<th>R²</th>
<th>Total model</th>
<th>Beta (β)</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>t</th>
<th>Sig. (p)</th>
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</thead>
<tbody>
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<td>.15</td>
<td>WIE &amp; WIC</td>
<td></td>
<td>2</td>
<td>.38</td>
<td>8.86</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.40 WIE</td>
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<td></td>
<td></td>
<td></td>
<td>-3.63</td>
<td>.000</td>
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<tr>
<td></td>
<td>.41 WIC</td>
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<td>3.77</td>
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</tbody>
</table>
**WLB mediation of the link between work-identity cognition and work stress**

In line with hypothesis 2a, a positive relationship between work-identity cognition and work-stress was shown to be mediated by WLB (indirect effect = .12, 95% CI [.0620, .2137]). WLB positively mediated the positive relation between work-identity cognition and work-stress, see Figure 3 for details.

**WFC mediation of the link between work-identity cognition and work stress**

As predicted, hypothesis 2b, the positive relationship between work-identity cognition and work-stress was mediated by WFC (indirect effect = .14, 95% CI [.0675, .2456]) and not by FWC (indirect effect = .06, 95% CI [-.0083, .0571]). WFC positively mediated the positive relation between work-identity cognition and work-stress, see Figure 4 for details.
Discussion

The first aim of this study was to investigate whether there is a relationship between cognition- and emotion component of work-identity and work-stress. The second aim was to investigate if WLB (FWC and/or WFC) mediates a positive relationship between work-identity cognition and work-stress.

In line with hypothesis 1 it was shown that work-identity cognition positively predicted work-stress and work-identity emotion negatively predicted work-stress. This indicates that more intense thinking on one’s occupational work bounding positively relates to work-stress while a decrease in work-stress is accounted for by the emotional bound to one’s occupational work. This is line with Van Dick & Wagners (2002) indicating that emotional-, compared to the cognitive component of work-identity, might negatively associate with a decrease in mental health and wellbeing. Also the results of the present study are in accordance with Stets and Burkes (2000) who showed that job stressors may positively relate to mental illness in employees reporting high levels of job involvement, defined as a cognitive component of work-identity (Frone & Russell, 1995). Additionally these results are consistent with Fisherman (2015) who reported that the emotional component of work-identity may negatively associate with emotional exhaustion, while the cognitive component may positively link to emotional exhaustion.
In line with hypothesis 2a the positive relationship between work-identity cognition and work stress was positively mediated by WLB. This indicates that intense thinking on one’s occupational work bounding may positively predict work-life imbalance, which may positively predict work-stress.

More precisely and in line with hypothesis 2b the positive relationship between work-identity cognition and work stress was positively mediated by WFC but not by FWC. Thus, it can tentatively be argued that more intense thinking on occupational work may positively predict an imbalance where one feels that family life is being set aside because of too much time spent at thinking about the occupational work (but not vice versa) and that this imbalance may positively predict work-stress.

These results (hypothesis 2a and 2b) indicate occupational- and life situational circumstances as important explanatory factors in the relation between persons’ cognitive work bonding (Knez, 2016) and his/her work related mental illness (Hakanen, Schaufeli & Ahola, 2008). Furthermore, the results suggest that stressors and other characteristics specific to one domain in life, work or family, might be related to the satisfaction outside of that domain. In other words, if work-life characteristics are dissatisfactory (thinking too much about work) this do not only have an impact on the domain of work-life but also may have a negative impact on other domains in life, such as the family domain; because one experience that too much time is being spent at work compared to the family (WFC) (Carlson & Kacmar, 2000; Ford, Heinen & Langkamer, 2007).

This may also indicate that it is not only the time spent in different roles of life that is important, but also how one values the role on which time is spent upon (Carlson, Kacmar & Stepina, 1995). Previous research has shown that if you mostly identify with your job vs. your family then you will experience that it is the family that constitutes the conflict (FWC), and vice versa for WFC (Pleck, 1977; Ford, Heinen & Langkamer, 2007). This is indicated in the words of Carlson and Kacmar (2000, p.1037) who stated that “As individuals value one domain more highly than the other they are more likely to perceive antecedents in the less valued domain as causing conflict, resulting in dissatisfaction.”. Accordingly, participants in this study did probably identify stronger with their family than with their work. The results related to hypothesis 2b may also suggest that when intensively thinking about work, one may experience dissatisfaction due to the divided focus on the family during time with the family. This might result in greater effort at work
in order not to think about work while being with the family, leading to work-stress (Frone & Rice, 1987; Thompson & Bunderson, 2001).

**Limitations**

A relatively low number of subjects participated in this study, a larger sample could have provided stronger relationships and more reliable results, since the power of the analyses would have been higher (Fritz & MacKinnon, 2007; Hanley, 2016). However according to Stevens (1996), the number of participants should be at least 15 subjects per predictor, but this has been questioned by others. Tabachnick & Fidell (2007) suggested that the number of participants should follow a formula of $N > 50 + 8m$, where $m$ is the number of predictors. Given this, the number of participants in the present study was acceptable (Pallant, 2010).

Previous research regarding combinations of these factors are few and not necessarily up to date and it can therefore be questioned to which degree they are reliable regarding the present study.

All measures in the present study were based on self-reports which can lead to response bias, i.e. that people tend to answer the questions making themselves look better (Hayes, 2000). However such method bias can be questioned, and Spector (2006) argued that it seems to be more of an “urban legend”.

Furthermore the data used in the present study were cross-sectional, which do not allow inferences of causality (Ford, Heinen & Langkamer, 2007).

Using Facebook as a way to gather respondents for a study is thoroughly discussed and has both pros and cons. It is very cheap, fast and effective way to get quite many respondents in a short period of time with not so much effort to put in to it (Brickmann Bhutta, 2012). It is also important in terms of getting away from samples that are relatively small, consisting of students or consisting of western, educated, industrialized, rich and democratic respondents (Kosinski, Matz, Gosling, Popov & Stillwell, 2015). But using Facebook may also lead to selection bias in the sample since the population using Facebook tends to be younger, educated, females (Baltar & Brunet, 2012). However it has been discussed if this really is the case today when nearly 35% of Americans over 65 were on Facebook in 2014 and these underrepresented groups are only getting larger and in Sweden 58% of people in the age from 66 to 75 reported they used social media in 2017 (Internetstiftelsen i Sverige, 2017; Kosinski, et al., 2016).
**Conclusions**

Intense thinking, as opposite to intense feeling, in the work bonding was positively related to work-stress. In more detail these findings suggest that when the “feeling” processes of attachment/belongingness/closeness (emotion component) increase in work-identity, people may report a better general mental health and, consistently, lower work-stress. This was, however, reversed for the cognitive component of personal work-identity involving “thinking” processes of coherence, correspondence, mental time, reflection and agency. When these cognitive processes increased the participants reported higher work-stress.

Furthermore the positive relationship between work-identity cognition and work-stress was mediated by WLB, suggesting that intense thinking on work can lead to imbalances in life where one may feel that there is not enough time for all the roles in life that are of importance. More specifically this imbalance consists of a feeling that occupational work takes up to much time so that time is not enough for the family/private life (WFC). This imbalance between life roles was shown to positively predict work-stress.

**Practical implications and Future research**

The findings in the present study implicate that if employees were more emotionally oriented in their bonding towards occupational work they would perceive less work-stress. Accordingly organizations could work on supporting emotional work bonding in terms of belongingness, closeness and attachment to work (Knez, 2016).

Furthermore organizations may use family-supportive supervisor training to help their employees to achieve balance between their different roles in life (Odle-Dusseau, Crain, Hammer & Bodner, 2015). If employees experience more balance between their different roles in life they would, according to the findings in present study, experience less work-stress.

Finally, it is of importance to investigate if the findings of the present study will be replicable in another population, not from Facebook, and furthermore it would be of interest to do a longitudinal study in which one can establish causal relationships in a strict sence (Kendler, Karkowski & Prescott, 1999).

Furthermore it would be of interest to investigate which factors that can mediate a relation between the emotional component of work-identity and work-stress.
References


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Hej!

Med vänliga hälsningar

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Bakgrundsfrågor
Vänligen ange din ålder (i hela år)

Kön
- Kvinna
- Man
- Annat
- Avstår

Civilstatus
- Singel
- Sambo/Gift
- Särbo

Vänligen ange din tjänsteform
- Tjänsteman
- Kollektivarbetare

Vänligen ange hur många procent av heltid du jobbar (ange i siffror)

a) Identitet
1. Jag kan mitt arbete mycket väl
2. Jag saknar mitt arbete när jag inte är på jobbet
3. Jag har ett starkt band till mitt arbete
4. Jag är stolt över mitt arbete
5. Mitt arbete är en del av mig
6. Jag har under lång tid haft en nära relation till mitt arbete
7. Det finns ett samband mellan mitt arbete och mitt övriga liv
8. I mina tankar kan jag tidsmässigt färdas fram och tillbaka till mitt arbete
9. Jag kan reflektera över minnen knutna till mitt arbete
10. Mina tankar och minnen kring mitt arbete är en del av mig
b) Work-Family Conflict och Family-Work Conflict scales

Work-Family Conflict Scale
1. Kraven från mitt arbete påverkar mitt familjeliv/privatliv på ett negativt sätt
2. Den mängd tid mitt arbete tar upp gör det svårt för mig att uppfylla mitt familjeansvar
3. Saker som jag vill göra hemma får jag inte gjort på grund av kraven från mitt arbete
4. Mitt arbete är påfrestande vilket gör det svårt att uppfylla familjeplikter
5. På grund av arbetsrelaterade plikter måste jag ändra mina planer för familjeaktiviteter/aktiviteter i privatlivet

Family-Work Conflict Scale
1. Kraven från min familj eller partner påverkar mitt arbete på ett negativt sätt
2. Jag måste skjuta upp saker på arbetet på grund av familjelivet/privatlivet
3. Saker som jag vill göra på arbetet får jag inte gjort på grund av kraven från min familj eller partner
4. Mitt arbetsansvar såsom att komma i tid, utföra arbetsuppgifter och att arbeta övertid påverkas negativt av mitt familjeliv/privatliv
5. Min förmåga att utföra arbetsuppgifter påverkas negativt på grund av påfrestningar från familjelivet/privatlivet

c) Perceived Stress Scale
1. Hur ofta har du under den senaste månaden känt dig upprörd i ditt arbete på grund av att något oväntat har inträffat?
2. Hur ofta har du under den senaste månaden känt att du inte kunnat kontrollera Viktiga saker i ditt arbete?
3. Hur ofta har du under den senaste månaden känt dig nervös och stressad i ditt arbete?
4. Hur ofta har du under den senaste månaden framgångsrikt hanterat jobbrelaterade problem och irritationsmoment i ditt arbete?
5. Hur ofta har du under den senaste månaden känt att du effektivt kunnat hantera viktiga förändringar som inträffat i ditt arbete?
6. Hur ofta har du under den senaste månaden känt tilltro till din egen förmåga att hantera jobbrelaterade problem?

7. Hur ofta har du under den senaste månaden, på arbetet, känt att saker och ting gått din väg?

8. Hur ofta har du under den senaste månaden tyckt att du inte kunnat klara av allt du skulle ha gjort på ditt arbete?

9. Hur ofta har du under den senaste månaden kunnat kontrollera irritationsmoment i ditt arbete?

10. Hur ofta har du under den senaste månaden känt att du har haft kontroll på saker och ting i ditt arbete?

11. Hur ofta har du under den senaste månaden blivit arg på saker som hänt i ditt arbete som du inte kunnat kontrollera?

12. Hur ofta har du under den senaste månaden kommit på dig själv med att tänka på saker som du måste göra i ditt arbete?

13. Hur ofta har du under den senaste månaden känt att du haft kontroll över hur du använder din tid i arbetet?

14. Hur ofta har du under den senaste månaden tyckt att svårigheter i arbetet har tornat upp sig så mycket att du inte kunnat hantera dem?