



Engaged or Obsessed? Examining the Relationship between Work Engagement, Workaholism and Work- Related Health via Work- Home Interaction

ORIGINAL ARTICLE

SIW TONE INNSTRAND

MARIT CHRISTENSEN

EYVIND HELLAND

**Author affiliations can be found in the back matter of this article*



ABSTRACT

The purpose of the present study is to examine the mediating role of work-home interaction (conflict and facilitation) in the relationship between work engagement, workaholism (working compulsively and excessively), and the respondents perception on how this influence their work-related health positively or negatively. Data were collected among Norwegian academics using the KIWEST measure and analyzed by Structural Equation Modelling in Stata (N = 6014). Work engagement, but not workaholism, is directly related to work-related health. Instead, work-home conflict indirectly mediated the relationship between working compulsively and work-related health. In addition, work-home interaction (conflict and facilitation) fully mediated between engagement and work-related health. The findings suggest that work engagement and workaholism represents two different sets of heavy investment at work, positively and negatively related to work-related health, respectively. The mediating role of work-home interaction indicates that this relationship partly can be explained by how this heavy investment and passion at work interfere with the home life. These findings have implications for how organization practitioners and HR representatives should target an eager workforce properly for the future. The present study is timely, given a boundary less work life. Knowledge of the different processes associated with hard working employees is important for organizations to better understand when and how such prolific behavior is beneficial or risky and hence should be supported or not.

CORRESPONDING AUTHOR:

Siw Tone Innstrand

Department of Psychology,
Norwegian University of
Science and Technology, NO
siw.tone.innstrand@ntnu.no

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INTRODUCTION

An ongoing evolution of the academic profession, transforming academic activities, is characterized by two main trends: a diversification and specialization of academic tasks, and an increased control over academic work (Musselin, 2007). Neo-liberal reforms in higher education with an emphasis on accountability and performativity have resulted in an intensification of academic work (Kenny, 2017). Increased stress for academics in combination with high passion, academic freedom and autonomy (Bellamy, Morley, & Watty 2003), and technological adjustments and improvements for where and when work can be done might create the foundation for a boundaryless work life with comprehensive health consequences (Allen & Martin, 2017; Dettmers, 2017; Taris et al., 2011). Indeed, research indicates that academics are stretching their time to meet these demands (Houston, Meyer, & Paewai, 2006) and that work-family conflict is highly prevalent among academics in general (Pejtersen et al., 2010) and among female academics in particular (Dorenkamp & Süß, 2017). In fact, a good work-home interaction has been found to be the highest ranked need for women in the academy (McGuire, Bergen, & Polan, 2004) and the strongest reason for women considered leaving academia (Foster et al., 2000).

Workaholism and work engagement represent two forms of heavy investment at work (Hakanen & Peeters, 2015). Although both represent hard workers who invest a great deal of their resources into their job, research suggests that they are independent and distinct concepts (Di Stefano & Gaudiino, 2019; Van Beek, Taris, & Schaufeli, 2011), unrelated over time (Hakanen & Peters, 2015), and with different associates (Shimazu, Schaufeli, Kamiyama, & Kawakami; 2015). Whereas engaged workers seem to be driven by self-determined, autonomous motivation boosting their health and wellbeing, workaholics are driven more by non-self-determined motivation which is associated with negative health outcomes (Clark et al., 2016; Del Libano et al., 2010; Van Beek, Taris, & Schaufeli, 2011). As both types of motivation represent high investment and passion for work, the intriguing question is *why* they result in different health outcomes. One possible explanation could be in how this work investment and passion conserve or acquire new resources, affecting one's personal life positively or negatively. A recent study suggests that academics working at Norwegian universities experience high levels of workaholism as compared to professionals in different occupations in the Netherlands, and significantly higher levels of workaholism and work-family conflict than their technical and administrative personnel colleagues (Torp, Lysfjord, & Midje, 2018). This is consistent with Dutheil et al.'s (2020) study who found the prevalence of work addiction risk to be greater among highly skilled

occupations with high demands—"active" and "high strain" workers—and in occupations with high levels of decision latitude like academics.

Despite a growing interest in work engagement and workaholism in general, several questions remain unanswered. A recent meta-analysis exploring similarities and differences between workaholism and work engagement (Di Stefano & Gaudiino, 2019), concludes that further research on the relationship between the two are required to separate their commonalities and differences. In addition, it has been argued that studies of the interactions between workaholism and other variables have been a neglected area of research (Clark et al., 2016), and a brand-new Special Issue on workaholism advocates for a more complex approach in the research of workaholism and not a singular focus on "main effects" (Balducci, Spagnoli, & Clark, 2020).

Building upon Conservation of Resource Theory (COR) by Hobfoll (1989) the present study aims to enhance the theoretical grounding for the relationships between workaholism and engagement with work-related health with work-home interaction (WHI) as an important mediator of this relationship. Moreover, the study contributes to the understanding of the difference of being an engaged versus obsessed academic, and how these differences in inner drive might influence academics' health in opposite directions.

WORKAHOLISM, WORK ENGAGEMENT, AND WORK-RELATED HEALTH

In the present study, workaholism is measured by the Dutch Workaholism Scale (DUWAS), which represents the original meaning of the term, an addiction to work like alcoholism (Schaufeli et al., 2006). This measure, which has become the most used tool in quantitative research on this topic (Di Stefano & Gaudiino, 2019), assumes that workaholics are obsessed with their work and work excessively harder than required due to an inner drive or need. Hence, workaholism is conceptualized and operationalized as having two dimensions: working excessively (WE) and working compulsively (WC). Although this two-factor structure has been supported in previous studies (Del Libano et al., 2010; Littman-Ovadia, Balducci, & Ben-Moshe, 2014; Schaufeli, Shimazu, Taris, 2009), some of the items are found to be highly correlated and need to be adjusted to achieve acceptable fit. Because such model refinements are necessary to achieve acceptable fit, it suggests that this measure would benefit from further investigation of its validity and reliability. Consequently, the present study aimed to explore the convergent and discriminate validity of DUWAS as a part of hypotheses testing.

Working compulsively reflecting a strong inner drive, is found to be bad for employees' health and wellbeing and is seen as the core of workaholism (Schaufeli et al., 2006). On the other hand, working hard, or excessively, is

somewhat more positively related to work engagement. The latter refers to a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Although engaged workers also work hard (vigor), are involved (dedication), and feel happily engrossed (absorbed) in their work, they can be distinguished from workaholics in the absence of the compulsive drive (Schaufeli et al., 2006). Whereas workaholics have an internal compulsion or feeling that they “should” work, engaged workers have an internal passion or love for work (Clark et al., 2016) not arising from a compulsion. In contrast to the mainly negative individual, interpersonal, and organizational outcomes associated with workaholism (see Clark et al., 2016 for a meta-analytic review), work engagement has mainly been linked to beneficial outcomes like happiness, perceived health, reduced anxiety and depression, sick leave and work-home enrichment (Innstrand et al., 2012; Clark et al., 2014; 2012; Schaudeli et al., 2006). These findings are analogous to the assumptions of a health impairment versus the work motivation process described by the Job-Demand/Resources model (JD-R; Bakker & Demerouti, 2007), and supported by Molino, Bakker, and Ghislieri (2016).

In general, previous studies suggest that workaholism is related to high ill-health whereas work engagement is related to low ill-health (Shimazu et al., 2015). However, we know less about how these two states of heavy work investment relates to the World Health Organization’s wholistic definition of health and well-being who sees health both positively as a complete physical, mental, and social well-being, and not merely negatively as the absence of disease or infirmity (Grad, 2002, p. 981). Research supports this two-dimensional structure of health as psychological distress and subjective well-being, two distinct and complementary constructs and not merely two poles of the same continuum (Winzer et al., 2014). Low-level psychological distress does not mean automatically high subjective wellbeing. Massé et al. (1998) recommends using concomitant measures of positive as well as negative manifestations. The present study takes this into consideration and expands previous studies by examining how workaholism and work engagement relate to workers’ perception of their impact on health: that work influences their health negatively—labelled negative work-related health (i.e., distress), or positively—labelled positive work-related health (i.e., well-being).

In line with the discussion above, we formulated the following two hypotheses;

Hypothesis 1: Workaholism (WC and WE) is (a) positively related to negative work-related health, and (b) negatively related to positive work-related health.

Hypothesis 2: Work engagement is (a) positively related to positive work-related health, and (b) negatively related to negative work-related health.

THE MEDIATING ROLE OF WORK-HOME INTERACTION

Work-home interaction is a bi-directional concept. It ranges from work to home and from home to work and refers to the point where “work” and “home” intersect, either in a negative or positive way (Innstrand et al., 2009). Negative interference is often labeled work-home conflict (WHC) and is most often defined as “...a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role (Greenhaus & Beutell, 1985, p. 77). Whereas positive interference is defined and measured by concepts like work-home enrichment, enhancement positive spillover, or facilitation (Carlson, Kacmar, Wayne, & Grzywacz, 2006). In the present study we use the term work-home facilitation (WHF) defined as “...occurring when, by virtue of participation in one role (e.g., work), one’s performance or functioning in the other role (e.g., family) is enhanced” (Wayne, Musisca, & Fleeson, 2004, p.110). As meta-analytic reviews of the consequences associated with both work-family enrichment (or facilitation) (McNall, Nicklin, & Masuda, 2009) and work-family conflict (Fabienne et al., 2011) suggest that work interfering with family/home life is more associated with work-related outcomes than family-related outcomes, only conflict and facilitation from work to home was explored in the present study. Central to the COR theory (Hobfoll, 1989) is the assertion that people are motivated to protect their current resources and acquire new resources. Work-home conflict occurs because resources are lost, threatened, or fail to provide anticipated gain in the process of juggling work and home life (Grandey & Cropanzano, 1999). Conversely, work-home facilitation follows when resources contribute to the exchange of gains between the domains (Hobfoll, 1989; Wayne et al., 2007). According to the COR theory, some resources are centrally valued and universal like health, well-being, peace, family, self-preservation, and a positive sense of self. Sometimes these common desired resources outstrip each other and create a “battle for resources” (Hobfoll, 2011, Hobfoll, Halbesleben, Neveu & Westman, 2018). For example, a strong passion for work might interfere negatively with time with family. This might shed light on why obsessive workers experience negative feelings both when attending (i.e., guilt) or not attending (i.e. frustration) to work (Gorgievski, Moriano, & Bakker, 2014). Building upon an addiction perspective of workaholism, Ng, Sørensen, & Feldman (2007) suggest that it is the enjoyment in the act of *working*, not the nature of work

itself, which is the vital aspect of workaholism. On the other hand, negative emotions like guilt, anxiety and depression is experienced when they are deprived of work. Therefore, time for work is a highly valued resource for people who are obsessed with their work and anything that interferes with this, like family or personal life, creates stress or conflict in line with the COR theory (Grandey & Cropanzano 1999). This argument is supported by a meta-analysis (Clark et al., 2016) who found that across all variables, workaholism had the strongest relationship with time commitment to job, followed by job stress, perfectionism, and marital disaffection. Overall, the devastating effect of workaholism on family life was supported by this study as workaholism was positively related to work–life conflict and marital disaffection and negatively related to family satisfaction and functioning. In a two-wave study, Clark et al. (2014) found distinct sets of variables measuring emotions related to workaholism and work engagement and disparate work and home outcomes. Whereas negative emotions (i.e. anxiety, anger, disappointment) mediated the relationship between workaholism and work-home conflict, the relationship between work engagement and work-home enrichment was mediated by positive emotions (i.e. joviality and self-assurance). This agrees with Hakanen and Peeters’ (2015) findings suggesting workaholism to be related to more work-family conflict over time but not to the positive interaction. Work engagement, on the other hand, did not only boost the positive interaction, it also predicted less work-family conflict. Also, Torp et al. (2018) found workaholism to partly mediate the effect of role overload on work-family conflict and suggest that this may influence the health of the individual, as well as their families.

The latter findings of Torp, Lysfjord, & Midje. (2018), relate to another proposition of the COR theory suggesting that initial loss of resources begets further loss, generating loss cycles (Hobfoll, 1998). Thus, the conservation of resources, like time and energy devoted to work, could foster poorer social relationships and less time for recreational activities and hence affect health negatively. Conversely, the COR theory proposes that individuals with more resources are better positioned for resource gain (Hobfoll, 1998). Indeed, work-family conflict has been associated with impaired health and wellbeing (Amstad et al., 2011; Dettmers, 2017; Innstrand et al., 2008), whereas work-family facilitation is associated with improved well-being (Allis & O’Driscoll, 2008; McNall, Nicklin, & Masuda, 2010). Supporting a health impairment process, Molino, Bakker, & Ghislieri (2016), found workaholism to be indirectly related to exhaustion and turnover through WFC. Expanding on these findings the present study examines both a health impairment and a motivation process (Bakker & Demerouti, 2007) by including two facets of hard work (work engagement *and* workaholism), two facets of work-home interaction (conflict *and* facilitation), and lately, two facets of work-related health (positive *and* negative). See **Figure 1**.

Hypothesis 3: The relationship between workaholism (WC and WE) and positive/negative work-related health is mediated by work-home interaction (conflict and facilitation).

Hypothesis 4: The relationship between work engagement and positive/negative work-related health is mediated by work-home interaction (conflict and facilitation).

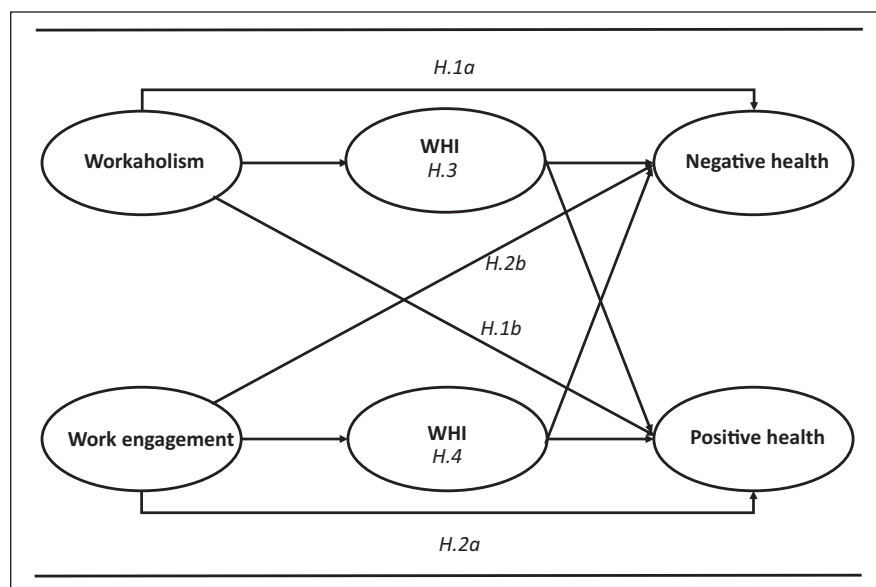


Figure 1 Hypothesized relationship between the study variables.

Note: WHI; work-home interaction (conflict and facilitation). Numbers in italic correspond with the hypotheses. Negative and positive health refer to the respondents perception that work have a positive or negative influence on their health, denoted work-related health in text.

METHOD

SAMPLE AND PROCEDURE

Data were collected among both academic and administrative personnel, as well as janitors and cleaners at Norwegian universities and university colleges using the KIWEST questionnaire (Knowledge Intensive Work Environment Survey Target) in the period from 2013 to 2015. KIWEST is part of the ARK (Norwegian acronym for work environment and climate study) study, a holistic health promotion intervention programmed especially adapted for staff working in the higher educational sector (Innstrand et al., 2015, 2020). A total of 12,170 employees (65%) responded. For this study, only employees with research and/or teaching responsibilities were included in the analyses (N = 6,014). Thus, the sample for this study, labeled Academics, consisted of 47% women and 53% men, age-distributed as follow: under 30 (12.8%), 30–39 (24.6%), 40–49 (24%), 50–59 (22%), and 60 or older (16.6%). Corresponding figures from official statistics from the Norwegian Centre for Research Data indicate that the average year for employees with research and/or teaching responsibilities at Norwegian universities was 45 years in 2015. Most worked beyond pre-agreed working hours per week: 37.6% reported working 1–5 extra hours, 31.7% reported 6–10 extra hours, and 19.9% reported that they worked over 10 hours beyond the agreed working hours per week. Normal working week in Norway is 37 ½ hours.

Regional committees for medical and health research ethics (REK) and Norwegian Centre for research data (NSD) have approved the ARK intervention program, and the data are collected by using ethical standards such as providing information letters, assure anonymity and voluntary participation.

MEASURES

Two dimensions in the short version of the DUWAS (Schaufeli, Shimazu, & Taris, 2009) measured Workaholism. Working excessively (behavioral dimension) was measured by five items like “I seem to be in a hurry and racing against the clock.” Working compulsively (cognitive dimension) was measured by five items like “I often feel that there’s something inside me that drives me to work hard.” Both dimensions were scored on a 4-point scale ranging from 1 (“almost never”) to 4 (“almost always”).

Work engagement was assessed by the nine-item version of the Utrecht Work Engagement Scales (UWES; Schaufeli, Bakker, & Salanova, 2006) covering three aspects of the work engagement concept: vigor (sample item: “At my job, I feel strong and vigorous”), dedication (sample item: “My job inspires me”) and absorption (sample item: “I get carried away when I’m working”). Although Schaufeli et al. (2006) found a three-factor model to fit better to the data than a one-factor model,

they recommend using the total nine-item score as an indicator of work engagement to avoid multicollinearity, and because the internal consistency of the total nine-item version is found to be high across different nations. Hence, a one-factor model based on all nine items was computed and used in the subsequent analyses. The response was scored on a seven-point scale ranging from 0 (“never”) to 6 (“every day”).

Work-home conflict and work-home facilitation were measured by the Norwegian version (Innstrand et al., 2009) of the scale from Wayne, Musisca, and Fleeson (2004). The response alternatives ranged from 1 (“strongly agree”) to 5 (“totally agree”). Work-home conflict consisted of four items like “Stress at work makes me irritable at home.” Work-home facilitation consisted of three items like “Having a good day at work makes me a better companion when I get home.”

Work-related health was assessed by two single items assessing the respondents’ experience of how the work influence their health: “My work has a positive influence on my health” and “My work has a negative influence on my health.” The response alternatives ranged from 1 (“to a very small extent”) to 5 (“a very large extent”). Single items have proved reliable in general (Wanous & Hudy, 2001) and for health in particular (DeSalvo et al., 2006). The items were made for the ARK study and have been published elsewhere (Langseth-Eide, 2019). The reason for linking health and work was to avoid illnesses and health problems beyond work life, like a broken leg caused by skiing or a football match.

Gender and age were regarded as possible confounding variables as both workaholism and work engagement have been related to gender and age. In example, workaholism has been negatively related with age (Andreassen et al., 2014), whereas engagement has been positively related with age (Schaufeli et al., 2006). Using DUWAS -10 as a mean for workaholism like the present study, Littman-Ovadia, Balducci, & Ben-Moshe (2014) found higher levels of workaholism among women, despite working fewer hours per week. This in contrast to Snir and Harpaz (2006) suggesting workaholism to be primarily a male phenomenon. Comparing different nations Schaufeli et al. (2006) found Norwegian men to report slightly higher on work engagement as compared to women. Moreover, a study by Innstrand (2009), suggest gender differences in the prevalence of work-family conflict and facilitation across different occupations in Norway, with women facing more conflict and facilitation between the two domains. In the present study both the mediator variables and the dependent variable were controlled by gender and age. Women was coded as 1 and men as 2. To secure anonymity age was reported into categories of “below 30 years” (1), “30–39 years” (2), “40–49 years” (3), “50–59 years” (4), and “60 years or more” (5). However, in the analysis, age was treated as an interval scale.

STATISTICAL ANALYSES

The data were analyzed by Structural Equation Modelling (SEM) in Stata (Acock, 2013), with maximum likelihood estimation using listwise deletion. The SEM model was considered by these fit indices: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). A value of .90 or higher is considered an acceptable fit for the CFI and the TLI, and a value of 0.08 and lower for the RMSEA and the SRMR (Acock, 2013).

First, the suitability of the measurement model was tested by performing Confirmatory Factor Analyses (CFA). Convergent validity within each latent variable, which includes all study variables except for work-related health measured by a single item, was examined by inspection of the factor loadings in the CFA, average variance extracted ($AVE \geq .5$), and construct reliability ($CR \geq .7$). Discriminant validity between all the latent variables in the study was examined by comparing the AVE estimates for each factor, which should be larger than the squared inter-construct correlation (SC) associated with that factor.

As a second step, controlling for age and gender, the significance of the direct effects was examined by adding paths from workaholism and work engagement to work-related health, and indirectly through work-home interaction (mediated effect). Mediation was evaluated by using the Zhao, Lynch, & Chen (2010, p. 200) typology of mediations and non-mediations.

RESULTS

Descriptive statistics and correlations are depicted in **Table 1**. At the bivariate level, workaholism and work

engagement are inversely related to work-related health. The Raykov's reliability coefficients (RRC) for the various measures indicate acceptable factor reliabilities ranging from .72 to .96 (see **Table 1**), except work-home facilitation which was .67 and slightly below the recommended .70 value (Raykov, 1997).

CONVERGENT AND DISCRIMINATIVE VALIDITY

Based on the Modification Indices (MI) outlined from the analyses and support from previous findings (Del Libano et al., 2010; Littman-Ovadia, Balducci, & Ben-Moshe, 2014), the error terms of item 1 and 3, and item 4 and 5 in working compulsively, were allowed to correlate due to overlapping item content for these variables. The modification indices also suggested that the error terms of item 1 and 2 related to the aspect of vigor, and item 4 and 5 related to the aspect of absorption should be allowed to correlate for work engagement. The factor loadings of all the latent variables were satisfactory ($>.50$), with loadings from $\beta = .49$ to $\beta = .92$.

Inspection of the AVE indicates that work-home facilitation together with the two workaholism scales might have some problems with convergent validity (**Table 2**). In line with other studies (Libano et al., 2010; Littman-Ovadia, Balducci, & Ben-Moshe, 2014), the correlations between latent working excessively and working compulsively were high ($\phi = .87$). The present study expanded these studies by testing the discriminant validity between these concepts and their associates. As shown in **Table 2**, comparing the AVE values against the Squared Correlations (SC) of the latent variables indicates that working compulsively has discriminant validity problems with working excessively ($AVE = .39 < SC = .74$) and work-home-conflict ($AVE = .39 < SC = .51$). Overall, the results indicated an acceptable model fit of the final

VARIABLES	AGE	SEX	WORK EN-GAGEMENT	WORKING COMPULSIVELY	WORKING EXCESSIVELY	WORK-HOME-FACILITATION	WORK-HOME-CONFLICT	POSITIVE HEALTH ^a	NEGATIVE HEALTH ^a
Age	<i>n/a</i>								
Sex	.03*	<i>n/a</i>							
Work Engagement	.09***	-.04**	(.96)						
Working Compulsively	-.15***	-.04*	-.14***	(.72)					
Working Excessively	.07***	-.03*	.13***	.87***	(.79)				
Work-home facilitation	.02(<i>ns</i>)	-.09***	.54***	-.27***	-.12***	(.67)			
Work-home conflict	-.07***	-.11***	-.36***	.71***	.57***	-.41***	(.80)		
Positive health ^a	.06***	-.03*	.44***	-.40***	-.27***	.62***	-.57***	<i>n/a</i>	
Negative health ^a	-.02(<i>ns</i>)	-.05***	-.39***	.50***	.37***	-.43***	.74***	-.69***	<i>n/a</i>

Table 1 Correlation Matrix for the latent and observed variables ($n = 5341$).

Notes: *** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$; *ns* = $p > 0.05$; *n/a* = not applicable; ^awork-related health, Raykov's factor reliability coefficients are displayed in parenthesis on the diagonal. ^aage categories á ten years, ^awomen = 1, men = 2.

	AVE	SC			
		1.	2.	3.	4.
1. Engagement	0.88	–			
2. Working Compulsively	0.39	0.02	–		
3. Working Excessively	0.43	0.02	0.74	–	
4. Work-Home-Facilitation	0.41	0.29	0.07	0.01	–
5. Work-Home-Conflict	0.51	0.13	0.51	0.33	0.17

Table 2 Average variance extracted (AVE) and Squared correlations of latent variables (SC) ($n = 5341$).

measurement model [$\chi^2(282) = 6630.11$, $p > .05$; CFI = 0.91; TLI = 0.90; RMSEA = 0.07; SRMR = 0.08].

TESTING DIRECT AND INDIRECT EFFECTS

The SEM model with direct and mediating effects fitted the data acceptably well [$\chi^2(366) = 7508.12$, $p > .05$; CFI = 0.91; TLI = 0.90; RMSEA = 0.06; SRMR = 0.08] and accounted for a significant amount of variance in the outcome variables of positive work-related health ($R^2 = 50.88\%$), and negative work-related health ($R^2 = 57.35\%$).

The SEM model did not support a direct relationship between working excessively or working compulsively and positive or negative work-related health (Table 3). However, work engagement was positively related to positive work-related health ($\beta = .08$, $p < .001$) and negatively related to negative work-related health ($\beta = -.09$, $p < .001$). Work-home conflict mediated a negative relationship between working compulsively and positive work-related health ($\beta = -.22$, $p < .001$) and a positive relationship between working compulsively and negative work-related health ($\beta = .42$, $p < .001$). Since no direct relationship was found between working compulsively and work-related health, this implies an indirect-only mediation (Zhao et al. 2010). No mediation effect of work-home facilitation was found between the two dimensions of workaholism and work-related health.

The model suggested that work-home conflict mediated a positive relationship between engagement and positive work-related health ($\beta = .10$, $p < .001$) and a negative relationship between engagement and negative work-related health ($\beta = -.20$, $p < .001$). Similarly, work-home facilitation mediated a positive relationship between engagement and positive work-related health ($\beta = .22$, $p < .001$) and a negative relationship between engagement and negative work-related health ($\beta = -.06$, $p < .001$). Because the direct effects from work engagement to positive and negative work-related health were significant, this mediation can be classified as a complementary mediation (Zhao, Lynch, & Chen, 2010). Figure 2 provides a visualization of the direct effects found in the SEM model.

DISCUSSION

The present study illuminates the contradictory relationship between two forms of heavy investment and passion at work (workaholism and work engagement) and positive/negative work-related health by examining the mediating role of WHI. In contrast to previous findings linking workaholism to mental and physical health (i.e., Ng et al., 2007; Shimazu et al., 2015) and health in general (Schaufeli et al., 2006), the direct effect of workaholism on the respondent's perception that work influences their health positively or negatively was not supported in the present analyses (Hypothesis 1a and 1b). Although the study performed by Schaufeli et al. (2006) also assessed health by one item (e.g., «Generally speaking, do you feel healthy? »), it differs from the present study by being context free. As suggested by Ng, Sørensen, & Feldman (2007) a lack of self-determination in the compulsive activities performed by workaholics and a potential denial of the seriousness of workaholism and how work can negative influence their health, might have provided the non-significant relationship in the present study. This potential denial of the seriousness of workaholism among workaholics should be explored further.

Hypothesis 3 was partly substantiated as the model supported an indirect-only mediating effect of work-home conflict between working compulsively and positive/negative work-related health. However, a mediating effect of the work-home facilitation was not found in this association. This is in line with Hakanen and Peeters' (2015) study suggesting that workaholism was related to work-family conflict, but not enrichment, over time. Thus, it seems that it is not the hard work itself that impairs health, but how a heavy work investment negatively interferes with family life. In fact, the mediating effect of work-home conflict between working compulsively and negative work-related health was among the strongest relationship found in the proposed model, suggesting a “battle for resources” between two common desired resources; work and family (Hobfoll, 2011). This agree with a study by Di Stefano and Gaudiino (2018) suggesting workaholism to be more strongly related

PATHS	β	S.E.	CI 95%	TYPES OF MEDIATION
<i>Direct effects^a:</i>				
Working excessively → positive work-related health	-.02	.07	(-.13, .09)	na
Working excessively → negative work-related health	-.02	.05	(-.13, .09)	na
Working compulsively → positive work-related health	-.01	.06	(-.13, .12)	na
Working compulsively → negative work-related health	.01	.06	(-.11, .13)	na
Work engagement → positive work-related health	.08***	.02	(.04, .12)	na
Work engagement → negative work-related health	-.09***	.02	(-.13, -.06)	na
WHC → positive work-related health	-.36***	.02	(-.40, -.31)	na
WHC → negative work-related health	.67***	.02	(.63, .72)	na
WHF → positive work-related health	.42***	.02	(.38, .45)	na
WHF → negative work-related health	-.11***	.02	(-.14, -.07)	na
<i>Mediation effects^a:</i>				na
Working excessively→WHC→ positive work-related health	-.03	.03	(-.08, .03)	No-effect nonmediation
Working excessively→WHC→negative work-related health	.05	.05	(-.05, .15)	No-effect nonmediation
Working compulsively→WHC→ positive work-related health	-.22***	.03	(-.28, -.16)	Indirect-only mediation
Working compulsively→WHC→negative work-related health	.42***	.05	(.31, .52)	Indirect-only mediation
Working excessively→WHF→ positive work-related health	-.02	.03	(-.09, .04)	No-effect nonmediation
Working excessively→WHF→negative work-related health	.01	.01	(-.01, .02)	No-effect nonmediation
Working compulsively→WHF→ positive work-related health	-.06	.03	(-.12, .01)	No-effect nonmediation
Working compulsively→WHF→negative work-related health	.02	.01	(-.00, .03)	No-effect nonmediation
Work engagement→WHC→ positive work-related health	.10***	.01	(.08, .12)	Complementary mediation
Work engagement→WHC→negative work-related health	-.20***	.02	(-.23, -.16)	Complementary mediation
Work engagement→WHF→ positive work-related health	.22***	.01	(.19, .25)	Complementary mediation
Work engagement→WHF→negative work-related health	-.06***	.01	(-.07, -.04)	Complementary mediation

Table 3 Path coefficients of the structural model and types of mediation ($n = 5341$).

Note: β = Beta coefficient, S.E. = standard error, CI = confidence interval, ^acontrolled by gender and age, na = not applicable, WHC = work-home conflict, WHF = work-home facilitation, *** $p < 0.001$.

to work-to-life interference than life-to-work interference, whereas work engagement was more negatively related to life-to-work interference than work-to-life interference. Although the bi-directional association between work and homelife was not explored in the present study, this

confirms the strong relationship found in the present study. Workaholism was found to have a prevalence of 8.3% in a nationally representative sample of Norwegian employees (Andreassen et al., 2014). In light of the particular high risk of work addiction among academics

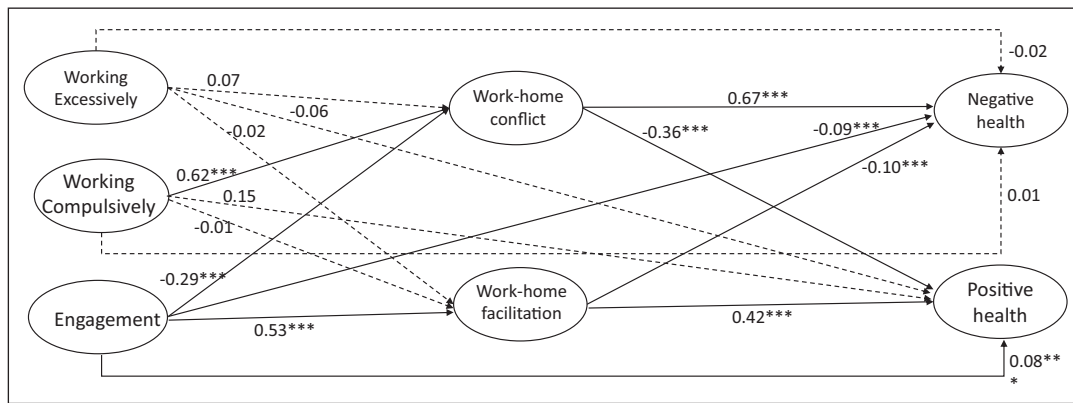


Figure 2 Direct Effect.

Note: *** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$. Dotted lines indicate non-significant paths.

(Dutheil et al., 2020; Torp, Lysfjord, & Midje, 2018), their high prevalence of work-family conflict (Pejtersen et al., 2010), and the related health care cost which threaten organizational profitability (Hewitt Associations, 2006), this finding creates a compelling motive for business and policy makers to adopt work-life solutions for their employees in general, and among academics in particular. Although gender differences were not an aim in the present study, previous findings indicate that such an initiative in particular would be beneficial for making women to stay and thrive in academia (Dorenkamp & Süß, 2017; Foster et al., 2000; McGuire, Bergen, & Polan, 2004).

The finding that work-home conflict mediates the relationship between working compulsively but not excessively and positive/negative work-related health suggests that the two dimensions of workaholism might have different antecedents and consequences, a question previously raised by Del Libano et al. (2010). This is also in line with previous propositions that it is working compulsively, seen as the core of workaholism, which is bad for employees' health and wellbeing (Schaufeli et al., 2006). As suggested by our findings this link to work-related health is due to an inner drive (cognitive component) which spills over negatively to home life and not actual time spent on work (behavior). An analog to this differentiation in the work-home literature is psychological conflicts (van Steenbergen, Ellemers, & Mooijaart, 2007) versus time and/or strain-based conflicts (Greenhaus & Beutell, 1985) respectively. Moreover, our findings that suggest that work-home conflict mediates the relationship between working compulsively and positive/negative work-related health, and work-home facilitation do not, offer support to previous studies that found work-home conflict and facilitation were different constructs (i.e., Innstrand et al., 2008). Our findings should be interpreted carefully, however, as the present study revealed that some convergent and discriminant validity problems may be present within these two workaholism dimensions, as well as problems with discriminant validity between working compulsively and work-home conflict. It is not

surprising that because working compulsively relates to the obsessive part of passion, where the activity takes disproportionate space in the person's identity, conflict is likely to also occur within other life domains (Gorgievski, Moriano, & Bakker, 2014).

Echoing the findings of Schaufeli et al. (2006) and Shimazu et al. (2015), the present study found work engagement to be positively related to positive work-related health and negatively related to negative work-related health, supporting Hypothesis 2a and 2b. Moreover, this relationship was complementary and mediated by work-home interaction (conflict and facilitation), as suggested by Hypothesis 4. Thus, in line with COR theory (Hobfoll, 1989) resources might accumulate and spill over to the home life that positively affect the employees' work-related health. According to Clark et al. (2014) positive emotions like joviality and self-assurance could be such resources linking work engagement and work-home facilitation.

Finally, the present study also confirmed previous findings suggesting that the workaholism dimensions can be differentiated from work engagement (Hakanen & Peters, 2015; Schaufeli, Shimazu, & Taris, 2009; Schaufeli et al., 2006). The present study expands these studies by performing a discriminant validity test comparing the Average variance extracted (AVE) with the Squared correlations of latent variables (SC). Yet, it should be noted that work engagement was measured as a one-dimensional construct in the present study. Thus, we were not able to explore the relations between the subdimensions of workaholism and work engagement. Specifically, the absorption dimension of work engagement has proved to overlap somewhat with the two dimensions of workaholism previously (Di Stefano & Gaudiino, 2019).

Although the workaholism dimensions can be differentiated from work engagement, the present study suggests that working compulsively has discriminant validity problems with working excessively and work-home-conflict instead. Examining the wording in some of the items of working compulsively ("It is hard for me to

relax when I'm not working" and *"I feel guilty when I take time off work"*) it is easy to see overlapping themes with work-home conflict, but also with working excessively (*"I spend more time working than on socializing with friends, on hobbies, or on leisure activities"*). Time spent working at the expense of other important life roles has been one of the key elements in most definitions of workaholism (see Ng, Sørensen, & Feldman, 2007 for a review). Thus, future studies should aim to find solutions to differentiate between workaholism and work-home conflict in a better way. Nevertheless, the inverse relationship of workaholism and work engagement with WHI and health suggest that these are different constructs with different correlates and outcomes. Whereas workaholism represents a harmful way of working hard, the joy and resources provided by the hard work conducted by an engaged employee interacts positively with their family life and boosts health. Awareness of these differences is important for leaders and organizations to identify who is at a risk and should be targeted for interventions.

WEAKNESSES AND STRENGTHS

The current study enhances the theoretical grounding of the relationships between workaholism and engagement with work-related health by suggesting a mediating role of work-home interaction. The study findings are supported by a large and homogenous sample of academic workers, and the use of advanced statistical analyses controlling for measurement errors providing a stronger test of the assumed relationships. The study is also timely, given the changing nature of work: longer working hours, high work demand, new technologies blurring work and home life, and an increased prevalence of workaholism (Andreassen et al., 2014; Ng, Sørensen, & Feldman, 2007). Nevertheless, there are some concerns that needs to be addressed.

Issues relate to the use of a cross-sectional sample and self-reported data to test mediational effects that may be subjected to common method/source variance, one of the main sources of measurement error (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, in the present study the data was analyzed by Structural Equation Modelling (SEM) in Stata controlling for measurement error to minimize this issue. Nevertheless, it should be noted that the causal language talking about "mediation effect" is a statistical expression as our results do not have a valid basis for making causal inferences about our variables. Although our findings are basically consistent with the assumed model (*Figure 1*), there may be several other models that are consistent with our pattern of covariances that we could not rule out. This is a drawback of performing mediation analysis on cross sectional or non-experimental research design (Stone-Romero & Rosopa, 2008). In general, the cross-sectional nature of the data precludes any assumptions of causal inference. Although the assumption that work-

related health would affect workaholism is less likely, longitudinal data provides a stronger test for causal relationships.

As with most self-reported surveys, this study also runs the risk of response bias. Although DUWAS was found to be strongly correlated with peer-reports of workaholism (Littman-Ovadia, Balducci, & Ben-Moshe 2014), the negative emotions found among workaholics versus the positive emotions found among engaged workers (Clark et al., 2014) can produce a systematic difference in the reporting style (e.g., pessimistic people have poor appraisals of both their health and their work-home experiences). Moreover, work-related health is assessed by a subjective measure of how the respondents think that work influences their health positively or negatively. There could be some sort of norm built into questions of self-reported health (e.g., compared to others, or previously). Moreover, the outcome variable of negative/positive work-related health has an "built-in" relation in the wording of the question that suggests that work is affecting the person negatively or positively. Thus, there could be a risk that the concept of negative work-related health overlapped somewhat with work-home conflict, and positive work-related health overlapped with work-home facilitation. Objective measures could overcome these methodological challenges. A single-question self-rating on health is judged to be appropriate for use in population surveys in general and when used as an outcome variable to avoid overlap with different multi-item predictors (Bowling, 2005). Although single-item measures have proven to be a reliable measure for health (DeSalvo et al., 2006), multi-item measures are less prone to sociopsychological biases (Bowling, 2005), and the results must be interpreted with this in mind.

Finally, although the present study uses a large, homogenous sample of academic workers in Norway, it should be noted that the generalizability of the findings might be subject to knowledge workers in Norway. Hobfoll, Halbesleben, Neveu, & Westman (2018) highlight the need to consider resources within the framework of their cultural context. As different resources such as time for family and/or work are valued or ranked differently in individualistic versus collectivist versus familial cultures, the strength of the relationships tested in the present study might vary across cultures. In a recent meta-analysis on workaholism and work engagement, Di Stefano and Gaudiino (2019) found nationality to have a significant moderating effect on the correlations. However, due to many differences in both the direction and magnitude of the correlations, any single, coherent conclusion about the way in which nationality modifies such correlations could not be achieved. As Norway was not included in this comprehensive meta-analysis, the present study adds to the lack of knowledge on workaholism and work engagement in a Norwegian setting. Moreover, previous studies have suggested that

private-sector employees work more hours per week than public-sector employees and that Japanese work more hours per week than all other nationalities (Snir & Harpaz, 2006). The possible influence of such cultural and sectoral differences on the proposed relationships in the present study remains to be explored.

CONCLUSION

The present study makes an important contribution to the literature as this is the first study to provide a comprehensive examination of the contradictory relationship between two forms of heavy investment and passion at work and work-related health by examining the mediating role of WHI. In general, the present study expands previous studies by including two facets of hard work (work engagement and workaholism), two facets of work-home interaction (conflict and facilitation), and last, two facets of work-related health (positive and negative). Our study provides support for the propositions that workaholism dimensions can be differentiated from work engagement by performing discriminant validity tests and revealing different relationships with correlates and outcomes. Overall, this study suggests that workaholism represents a harmful way of working hard, whereas the joy and resources produced by hard work conducted by an engaged employee interact positively with their family life and boost health. Given the mediating role of work-home interaction found on work related health, university leaders, human resources personnel, employee representatives and occupational health services should pay attention and greater focus on the boundary-less work life prevalent among academics. To do so, they should focus on how to facilitate for a work-family friendly climate as a start. As supported by an intervention study by Hammer et al. (2016) a work-family friendly climate is determining for whether supporting initiatives are utilized or not, and hence the key issues for any work-family/home intervention success. Moreover, given the direct relationship between work engagement and both positive/negative work-related health we urge practitioners and leaders to identify ways to increase the employee's work engagement. In a systematic review and meta-analysis investigating the effectiveness of work engagement interventions, Knight, Patterson, & Dawson (2017) demonstrated a medium to large effect of group interventions, highlighting the benefit of working in groups for increasing resources. Overall, we encourage future researchers to test the longitudinal effect the intensification of academic work in combination with high passion, academic freedom and autonomy which might interfere with academics' home life and health. We hope the results of the present study will stimulate future research in this area.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Siw Tone Innstrand  orcid.org/0000-0002-8132-962X

Department of Psychology, Norwegian University of Science and Technology, NO

Marit Christensen  orcid.org/0000-0002-6246-4383

Department of Psychology, Norwegian University of Science and Technology, NO

Eyvind Helland  orcid.org/0000-0001-8018-8987

Department of Psychology, Norwegian University of Science and Technology, NO

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