The Role of Work Prospection on the link between Unfinished Tasks and Sleep

Impairment

Mackenzie Gault

S5131642

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group number 29

Supervisor: Dr. Oliver Weigelt

Second evaluator: Martin Machev, MSc

In collaboration with: Yasmin Baysal, Tisya Bharti, Ria Kaldhone, and Tom Goede.

June 18, 2025

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned

Abstract

Unfinished tasks are tasks that an employee intended to complete, but were left incomplete at the time the employee stopped working. Unfinished tasks are prevalent and may encroach upon off-job time. Recent research has linked unfinished tasks to sleep impairment. However, the contingencies underlying this link are underexplored. Drawing on previous research, we expect that unfinished tasks are positively linked to (1) affective rumination and (2) sleep impairment. We will examine whether positive affective work prospection, which involves positively anticipating future work, buffers these links. We investigated this using a cross-sectional study with data from 99 to 104 employees. The relationships between unfinished tasks, affective rumination, sleep impairment, and positive affective work prospection were investigated by performing regression analyses. Our results show an interaction effect between unfinished tasks and positive affective work prospection that approached significance. Contrary to our expectations, unfinished tasks interacted with positive affective work prospection to worsen sleep impairment. Additionally, our results showed no significant link between unfinished tasks and sleep impairment. Our findings indicate that unfinished tasks might moderate the link between positive affective work prospection and sleep impairment, which showed a strong positive link. We found no interaction effects for positive affective work prospection moderating the links between (1) unfinished tasks and affective rumination and (2) affective rumination on sleep impairment. Significant positive correlations were found between unfinished tasks and affective rumination as well as affective rumination and sleep impairment. Findings suggest that we should help employees tackle the root cause of unfinished tasks.

Keywords: unfinished tasks, affective rumination, sleep impairment, positive affective work prospection

The Role of Work Prospection on the link between Unfinished Tasks and Sleep Impairment

Since the 1990's, advancements in technology and consequential changes in the nature of work has led to intensified work demands, workloads, cognitive complexity of tasks, and workflow interruptions (Green & McIntosh, 2001; Beer & Mulder, 2020). These trends contribute to unfinished work tasks, which is a topic that has been increasingly investigated as an important work stressor that has implications for the well-being of employees (Syrek et al., 2017; Syrek & Antoni, 2014).

Unfinished tasks are tasks that the employee had planned on completing, but were left in an incomplete state at the time of work cessation (Syrek et al., 2017). Research has shown that unfinished tasks is strongly linked to affective rumination, and sleep impairment (Syrek et al., 2017; Berset et al., 2011). However, research has also highlighted the importance of differentiating the type of work-related rumination, showing that different types of work-related rumination are associated with different psychological and physiological outcomes (Querstret & Cropley, 2012). Thus far, occupational health psychology literature has focused on moderating effects of negative or neutral forms of rumination in regard to the stressor-sleep relationship (Syrek et al., 2017; Querstret & Cropley, 2012), overlooking the potential impact of emotionally positive cognitions. Additionally, most work-related constructs are temporally unspecific, which is suggested to result in a large amount of unaccounted for variance (Rutten et al., 2022). This begs the question of which role positive forms of thinking about work play in this dynamic and what benefit can be gained by focusing specifically on future oriented thoughts, which are known to be more reoccurring than present or past thoughts (Baumeister et al., 2020). While positive affective work prospection has recently been shown to have an association with multiple key recovery indicators (Rutten et al., 2022), this construct is novel and has yet to be thoroughly explored beyond bivariate links with

sleep. This is an interesting area of exploration as thinking positively about future work may make employees less receptive to affective rumination and sleep impairment in response to unfinished tasks, acting as a buffer in the stressor sleep relationship.

Understanding how employees can cope with unfinished tasks is important since oftentimes, changing the level of unfinished tasks is quite difficult and would take significant time to address. Therefore, helping employees deal with unfinished tasks, as they appear to be inevitable and difficult to get rid of, holds significant value for both employees and organizations. This has implications for not only how we understand employee well-being, but also the nature of interventions and employee training and support programs we implement in these areas.

Our research will aim to gain an understanding of the effects of positive future-oriented work-related thinking and its impact on helping employees cope with unfinished work tasks. Following Syrek and colleagues (2017), we will try to extend their findings of a buffering effect of problem-solving pondering for affective rumination and sleep impairment to positive affective work prospection. We anticipate that our research will aid in furthering the exploration of positive forms of work-related rumination and future-oriented thinking.

Unfinished Tasks, Affective Rumination, and Sleep Impairment

Unfinished tasks and affective rumination

Affective rumination is a state of cognition in which negative, unwanted, prevalent and persistent thoughts about work are present in the mind (Cropley & Zijlstra, 2011). Based on Martin and Tesser's (1996) model of rumination, ruminative thoughts are related to unattained goals with problematic progress towards goals as a key factor. They assume that rumination occurs when individuals are not in sync with their environmental demands. This problematic progress toward goals results in the unattained goal, as well as related concepts, being flagged in the mind as having priority. The salience of the unattained goal and its related concepts in

the mind influences how unrelated stimuli are categorized (Martin & Tesser, 1996). For example, it makes categorizing according to the unattained goal-related concepts much easier and more accessible. This results in recurring and unintentional thoughts related to the unattained goal. Therefore, when employees end the workweek with unfinished tasks, the resulting discrepancy in goal progress can trigger negative emotions and rumination. Consistent with this rationale, there is empirical evidence that unfinished tasks are linked to affective rumination (Syrek et al., 2017; Berset et al., 2011). From this theoretical reasoning, we anticipate that unfinished tasks will show a positive link to affective rumination.

Hypothesis 1: Unfinished tasks will be positively related to affective rumination.

Unfinished tasks, affective rumination, and sleep impairment

In accordance with Martin and Tesser (1996), negative ruminative thoughts will persist until nonproblematic progress is reached and environmental synchrony of work demands is restored. However, unfinished tasks at the end of the week are very difficult to avoid entirely, especially in a job with high workload demands. Additionally, employees are supposed to use their off-job weekend-time to recover from the work stress of the week. Unfortunately, research has shown that unfinished tasks makes this recovery difficult. Specifically, empirical findings from Syrek and Antoni (2014) show that having unfinished tasks at the end of the week has a direct link with sleep impairment on the weekend. From these findings, we suspect that unfinished tasks will be positively related to sleep impairment.

Hypothesis 2: Unfinished tasks will be positively related to sleep impairment.

Additionally, affective rumination triggered by unfinished tasks at the end of the week not only leaves employees to deal with negative and intrusive work-related thoughts on the weekend, but these thoughts have also shown implications for impairing employee's restorative sleep (Syrek et al., 2017). Syrek and colleagues (2017) found that affective

rumination had a significant mediating effect on the link between end-of-week unfinished tasks and sleep impairment. Thus, we also anticipate that affective rumination will be positively related to sleep impairment. However, due to certain limitations that arise when using a cross-sectional study design, we will focus on direct rather than indirect links among variables and explore this relationship more subtly and not as a formal hypothesis.

Additional Inquiry 1: Affective rumination will be positively related to sleep impairment.

While affective rumination shows clear detrimental implications for sleep, empirical findings have shown support that not all types of rumination are harmful (Syrek et al., 2017; Querstret & Cropley, 2012). In addition to affective rumination, Syrek and colleagues (2017) also investigated the influence of problem-solving pondering in the relationship of unfinished tasks and sleep impairment.

The Interplay of Different Forms of Work-Related Rumination Predicting Sleep Impairment.

Problem-solving pondering is a type of rumination that involves prolonged thinking about a solution or improvement for a certain problem (Cropley & Zijlstra, 2011). Problem-solving pondering does not encompass the affective component that other forms of rumination have. Contrary to affective rumination's harmful impact on sleep, Syrek and colleagues (2017) found that problem-solving pondering had a small negative link with sleep impairment. However, problem-solving pondering became more beneficial for employee sleep if the employees scored high in affective rumination. In these cases, problem-solving pondering acted as a buffer that minimized the negative impact of affective rumination on sleep impairment. From this we can see that problem-solving pondering itself does not have much of an impact on the stressor-sleep relationship, but that it becomes beneficial for sleep

when in interaction with affective rumination. While these findings are more encouraging than the findings for affective rumination, problem-solving pondering is still limited by the benefits only truly being experienced in the presence of affective rumination. Additionally, Syrek and colleagues (2017) suggest that problem-solving pondering may only produce benefits if the pondering is successful in resolving the work-related problem of having unfinished tasks. Further, it is suggested that unsuccessful pondering could even result in affective rumination, as the unfinished tasks would remain active and unresolved in the employee's minds.

These findings encourage further exploration into the potential positive impacts that some forms of work-related rumination could have in acting as a buffer against work stressors, such as unfinished tasks. However, it is clear that problem-solving pondering has limitations in buffering against the negative impacts of work stressors. A type of rumination that specifies the temporal orientation and affective valance of ruminative thoughts, such as the novel construct of work prospection, circumvents these limitations and has shown to be an interesting area for investigation.

Work Prospection

Work prospection is conscious intentional or unintentional thoughts about future work (Rutten et al., 2022). These thoughts are mental representations of potential future work situations and can be purely cognitive, or possess a positive or negative affective component. Work prospection is a valuable work-related rumination construct as, specifically its future-oriented temporal nature, has shown to explain more variance in the recovery of employees than time-unspecific constructs, such as problem-solving pondering (Rutten et al., 2022). Not only does work prospection specify a temporal orientation, but it also capitalizes on the empirically supported notion that people tend to experience more thoughts about the future than the past or present (Baumeister et al., 2020). In fact, Baumeister and colleagues (2020)

found that people have thoughts about the future more than three times as often as the past. Additionally, thoughts about the future were shown to be more activating and arousing than thoughts about the present or past (Baumeister et al., 2020; Van Boven & Ashworth, 2007). This heightened activation and arousal of future thoughts could yield more influential impacts for employee recovery than time-unspecific constructs (Rutten et al., 2022). However, Rutten and colleagues (2022) findings showed that the impact of work prospection on employee recovery heavily depended upon its underlying affective component, with positive and negative work prospection showing significant differing links with recovery indicators. Of particular interest was the finding that positive affective work prospection was linked to decreased fatigue and improved recovery the next morning. Additionally, in their cross-sectional study, positive affective work prospection was positively linked to sleep quality as well (Rutten et al., 2022). These findings give emphasis to not only the value of future thinking, but specifically the importance of the positive valance of future thoughts. Findings from Loft & Cameron (2014) support the claim that the affective valance of emotions is very important for sleep quality, as they found that positive work-related emotions during the day predicted high sleep quality that night. Drawing from these findings, we anticipate that a negative association will exist between positive affective work prospection and sleep impairment.

Hypothesis 3: Positive affective work prospection will be negatively related to sleep impairment.

Positive Affective Work Prospection as a Moderator

Following Syrek and colleagues (2017) line of inquiry that different types of work-related rumination yield different implications for employee recovery, we investigate the influence of positive affective work prospection in place of problem-solving pondering. As

previously explained, unfinished tasks at the end of the week is a key trigger for affective rumination on the weekend (Syrek et al., 2017).

Positive affective work prospection involves positively valanced thoughts and emotions about work, such as excitement and joy (Rutten et al., 2022). People who engage in positive affective work prospection are positively anticipating future work. We anticipate that if employees are able to experience some level of positive affect work prospection in the face of affective rumination regarding unfinished tasks, the positive affect and beneficial future-oriented thinking will minimize the association between unfinished tasks and affective rumination. Support for this can be seen in Martin and Tesser's (1996) model, which proposes that people consider their internal emotional states as an important factor in determining where they are in relation to their goals. For example, negative affect will lead people to infer that they are not progressing towards their goals, whereas positive affect leads people to feel that they are making sufficient progress towards their goals. If employees are able to experience optimism regarding their unfinished tasks, we anticipate that this will decrease negative rumination that also might be present.

Hypothesis 4: Positive affective work prospection will decrease the association of unfinished tasks on affective rumination.

Syrek and colleagues (2017) also found that affective rumination from unfinished tasks impaired employee sleep on the weekend. Being inspired by their findings that problem-solving pondering interacted with affective rumination to lessen its link between unfinished tasks and sleep impairment, paired with the positive bivariate link Rutten and colleagues (2022) found between positive affective work prospection and sleep quality, we suspect that positive affective work prospection will lessen the link between unfinished tasks and sleep impairment on the weekend.

Hypothesis 5: Positive affective work prospection will decrease the association of unfinished tasks on sleep impairment.

We also suspect that positive affective work prospection will decrease the association between affective rumination and sleep impairment. However, due to the constraints of using a cross-sectional design, this will be investigated as simply an additional inquiry and not a formal hypothesis.

Additional Inquiry 2: Positive affective work prospection will decrease the association of affective rumination on sleep impairment.
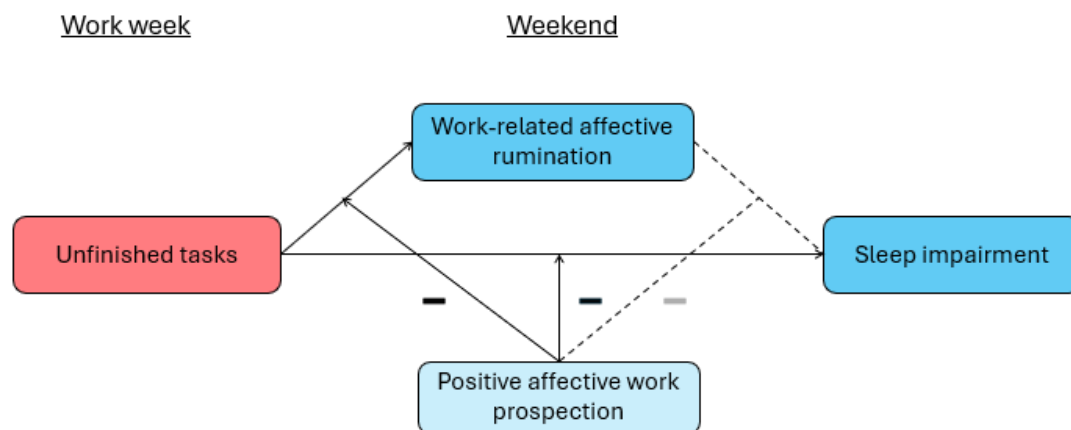

Figure 1. Hypothesized intraindividual-level moderated model.

Methods

Research Design and Procedure

We conducted a cross-sectional survey study to investigate our hypotheses. This study was part of a larger data collection effort by a group of ten bachelor students. See Appendix A for the complete survey, containing all the constructs that were measured. This specific research paper focuses on the predictor construct of unfinished tasks, outcome constructs of affective rumination and sleep impairment, and the moderator construct of positive affective work prospection.

The study was exempt from examination by the Ethics Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen. Participants were recruited via word of mouth and with online social networking platforms like WhatsApp and Instagram. The only requirement to participate was to be employed either part-time or full-time. The only materials used included the survey, which was provided to participants via a digital link. No overly persuasive or forceful recruiting tactics were used. Data collection spanned around a week and a half.

Instructions were provided to the participants at the beginning on how to complete the survey. Additionally, the confidential nature of the data as well as the purely voluntary basis for participation were made clear. Participants had to voluntarily agree to participate in the study before continuing. Additionally, participants were allowed to discontinue the survey at any point if they wished to do so.

The survey was taken individually and had an approximate length of 9-12 minutes. Participants were able to choose to take the survey in English, Dutch, or German. No compensation was provided to participants upon completion of the survey. No deception was used, and no debriefing was necessary. At the end of the survey, participants were offered the opportunity to provide feedback. Additionally, the contact information of two members of the research team was provided at the end of the survey to give the participant the option of requesting a summary of aggregate findings.

Sample

Convenience sampling was used to acquire participants. We received 135 responses to our survey. We excluded 31 participants because of incomplete data, as these participants only completed the demographic section. Of the remaining 104 participants, five did not complete the later portion of the survey, which included the measures of affective rumination, sleep impairment, and positive affective work prospection. Therefore, our study included a

total of *n=104* participants for the measure of unfinished tasks, and a total of *n=99*

participants for affective rumination, sleep impairment, and positive affective work

prospection. The gender of participants were (*n*=53, 51%) female and (*n*=51, 49%) male.

Additionally, participants ranged in age from 21 to 68 years (*M*=42, *SD*=15). Most

participants were of the following nationalities: Germany (*n*=32), The Netherlands (*n*=30),

and India (*n*=22) (see Table A1 for more details). The majority of participants held a Master's

degree (*n*=45, 43.3%) or a Bachelor's degree (*n*=30, 28.8%) as their highest level of

completed formal education. Participants held a wide range of occupations; however, many

were employed in managerial roles, academic positions, engineering, and information

technology. Most participants had 18 years of professional working experience (*SD*=14, range

= 2 months to 45 years). Additionally, our typical participant reported working between 21

and 40 hours per week (*M*=3.61 on a 5-point scale, where 3=21-30 hours and 4=31-40 hours).

Measures

All items used to measure the constructs in our survey came from validated scales in

academic research papers. Instructions and all items in our survey were translated from

English into Dutch and German by members of our research team who are native speakers of

the languages. Some modifications were made to scales consisting of more than 10 items.

Criteria used for shortening the scales included examination of the item's factor loadings and

face value. Additionally, all items were rephrased to be in the present tense. A consistent

response format of a five-point Likert-type scale (1 = strongly agree, 2 = disagree, 3 = neither

agree nor disagree, 4 = agree, 5 = strongly agree) was used for all constructs.

Unfinished Tasks

We measured unfinished tasks using a 6-item scale developed by Syrek and colleagues

(2017). The items measure the degree of importance of unfinished tasks and the amount of

unfinished tasks at the end of a typical workweek. Sample items include "At the end of the

workweek, I have not finished important tasks that I had planned to do," and "At the end of the workweek, I need to carry many tasks into the next week."

Affective Rumination

We measured affective rumination using a 5-item scale developed by Cropley and colleagues (2012). The scale measures the degree of negative affect from work-related issues during off-work time. Sample items include "I become tense when I think about work-related issues during my free time" and "I become irritated by work issues when not at work".

Sleep impairment

We measured sleep impairment using the first 5 items from a scale developed by Soldatos and colleagues (2000). The items were reworded into present-tense statements to be more consistent with the rest of the survey. This modification was done to make the survey more user-friendly, to decrease participant fatigue, and to reduce the risk of errors in responding. The response format was also modified to match the formatting of the other constructs (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). Sample items include "I have trouble falling asleep after turning off the lights" and "Once asleep, I have difficulty staying asleep".

Positive Affective Work Prospection

We measured positive affective work prospection using a 4-item scale developed by Rutten and colleagues (2022). The scale measures the degree of positive affect regarding future work. Participants were guided to think about their experience of these type of emotions and thoughts during off-job time, such as the evenings after work, during weekends, or vacations. Sample items include "I am enthusiastic about the work I still have to do" and "I have positive expectations about the workdays ahead of me".

Analytic Strategy

We analyzed our data using IBM SPSS Statistics (Version 28). In order to investigate our hypotheses, we ran multiple linear regression analyses with interaction effects. The steps of our analysis began with checking the reliabilities of the items to ensure that they accurately capture the intended construct. For this, Cronbach's alpha values and item correlation values were analyzed. Composite scores for the scales were calculated using the means of the items. A correlation table was created which allowed for the correlations and reliabilities to be investigated. Residual plots of the composite scores were created to examine the distributions of the data, specifically the linearity and homoscedasticity assumptions of regression analyses. A P-P plot was created to test the normality assumption. Additionally, the variance inflation factor was analyzed for multicollinearity.

Before running the regression analysis, we centered the data in order to get a meaningful zero point to more easily interpret main effects. To test hypothesis 4, affective rumination was predicted with unfinished tasks, positive affective work prospection, and an interaction term of the two predictor variables. To test hypothesis 5, sleep impairment was predicted with unfinished tasks, positive affective work prospection, and an interaction of the two predictor variables. The additional inquiry 2 was tested with predicting sleep impairment with affective rumination, positive affective work prospection, and an interaction term of the two predictor variables. Hypotheses 1-3, as well as the additional inquiry 1 were all investigated by inspecting the significance of correlations. Regression analyses that suggested potential interaction effects were investigated with simple slopes using values of {-1sd, 0, 1sd} for the moderator.

$$\text{Model equation: } \hat{Y} = b_0 + b_1 X_1 + b_2 X_2 + b_3 \times interaction$$

Results

Preliminary Analysis

The scales measuring unfinished tasks, affective rumination, sleep impairment, and positive affective work prospection all showed high reliabilities as reflected in composite reliabilities of Cronbach's alpha coefficients of .83, .88, .79, .90 respectively.

The assumptions for running a regression analysis were verified during the preliminary analysis. Our residual plots (see Figure A1 – Figure A3) shows that the residuals are scattered randomly around zero, meeting the assumptions of linearity and homoscedasticity. Additionally, our P-P plots (see Figure A4 – Figure A6) show little systemic deviations, meeting the normality assumption. After centering our variables, the variance inflation factor for all variables is below four, ensuring no multicollinearity.

Main Analysis

Unfinished tasks had a significant positive relation with affective rumination, in line with our first hypothesis. However, contrary to our second hypothesis, unfinished tasks was not significantly related to sleep impairment. Affective rumination showed a significant positive relation with sleep impairment, which aligns with our first additional inquiry. Additionally, following our third hypothesis, positive affective work prospection showed a significant moderate negative correlation with sleep impairment. In other words, participants who reported that they felt more positively about future work also reported less sleep impairment.

Table 1

Intercorrelations between Variables

	Unfinished Tasks	Affective Rumination	Sleep Impairment	Positive Affective Work Prospection
Unfinished Tasks	-	.321**	.092	-.250*
Affective Rumination		-	.276**	-.342**
Sleep Impairment			-	-.308**
Positive Affective Work Prospection				-

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

Contrary to our fourth hypothesis, Table 2 shows an insignificant interaction effect between unfinished tasks and positive affective work prospection when predicting affective rumination ($\beta = -.088$, $t = -.670$, $p = .505$).

Table 2

Coefficients Table – Hypothesis 4

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.804	.091		30.840	<.001		
Unfinished Tasks	.321	.133	.237	2.408	.018	.892	1.121
Positive Affective Work Prospection	-.304	.102	-.287	-2.968	.004	.926	1.080
Interaction	-.088	.132	-.064	-.670	.505	.949	1.054

Note. Affective rumination is the outcome variable; Interaction: Unfinished Tasks x Positive Affective Work Prospection

Table 3 shows an interaction effect that approaches significance between unfinished

tasks and positive affective work prospection when predicting sleep impairment (β = .230, t =

1.947, p = .055). However, contrary to our fifth hypothesis, unfinished tasks seems to interact

with positive affective work prospection to increase sleep impairment. A simple slope plot

investigating this interaction using positive affective work prospection values of {-1sd, 0,

1sd} shows that at higher levels of positive affective work prospection, more unfinished tasks

lead to increased sleep impairment (see Figure A7).

Table 3

Coefficients Table – Hypothesis 5

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.694	.082		32.976	<.001		
Unfinished Tasks	.070	.120	.059	.583	.561	.892	1.121
Positive Affective Work Prospection	-.261	.092	-.283	-2.842	.005	.926	1.080
Interaction	.230	.118	.191	1.947	.055	.949	1.054

Note. Sleep impairment is the outcome variable; Interaction: Unfinished Tasks x Positive Affective Work Prospection

Contrary to our anticipated outcome for additional inquiry two, Table 4 shows an

insignificant interaction effect between affective rumination and positive affective work

prospection when predicting sleep impairment (β = .142, t = 1.539, p = .127).

Table 4

Coefficients Table – Additional Inquiry 2

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.698	.083		32.488	<.001		
Affective Rumination	.161	.088	.185	1.831	.070	.880	1.136
Positive Affective Work Prospection	-.266	.097	-.288	-2.743	.007	.811	1.233
Interaction	.142	.092	.152	1.539	.127	.916	1.091

Note. Sleep impairment is the outcome variable; Interaction: Affective Rumination x Positive Affective Work Prospection

Discussion

This study aimed to broaden our knowledge of how unfinished work tasks relate to affective rumination and sleep impairment for employees on the weekend. Drawing on Martin and Tesser's (1996) model of rumination, we hypothesized that unfinished tasks would trigger affective rumination and sleep impairment, and that positive affective work prospection might buffer these effects. Consistent with our expectations, unfinished tasks showed a significantly positive relationship with affective rumination, and affective rumination also showing a significant link with sleep impairment. However, contrary to our hypothesis, unfinished tasks were not significantly related to sleep impairment. Moderation analyses showed no significant buffering effect of positive affective work prospection on the link between unfinished tasks and affective rumination. Positive affective work prospection showed an interaction effect with unfinished tasks when predicting sleep impairment that approached significance,

however, in the opposite direction that we anticipated. Positive affective work prospection was a significant negative predictor of sleep impairment in general, but had an opposite effect when in interaction with unfinished tasks. More specifically, higher levels of unfinished tasks diminished the otherwise beneficial link between positive affective work prospection and sleep. No significant interaction was found between affective rumination and positive affective work prospection when predicting sleep impairment.

Theoretical Implications

A significant theoretical implication that this study contributes to existing occupational health literature is support for the potential of positive affective work prospection to contribute to better sleep for employees. Our findings support research by Rutten and colleagues (2022) that showed beneficial aspects of positive future thinking for employee recovery indicators, including sleep quality. Further, our findings also support literature that argues that the type of rumination, whether positive or negative in affectivity, has a heavy influence on the effect it will have on sleep (Syrek et., 2017, Rutten et., 2022). However, our study finds a significant exception for the benefits of positive affective work prospection for sleep. When employees are faced with unfinished work tasks, positive affective work prospection can actually worsen sleep impairment. It seems as though unfinished tasks act as a moderator for the relationship between positive affective work prospection and sleep. A reason for this might be that employees who feel excited and positive about upcoming work experience more distress when faced with unfinished tasks, as it might be perceived as a disruption to their positive outlook. This internal disruption due to the threat that unfinished tasks pose to employees being able to experience positive future work might therefore make sleep more difficult. Further, employees who don't have positive expectations of their future workdays might not be bothered by unfinished tasks, as it might align with their anticipation that future workdays might be stressful.

Another significant theoretical implication of this study is its finding that unfinished tasks showed no significant relationship with sleep impairment. This contradicts previous empirical findings that showed significant direct links between unfinished tasks and sleep impairment (Syrek et al. 2017; Syrek & Antoni, 2014). Upon reflection, this finding might be due to different approaches to measurement styles and time framing. For example, sleep impairment in the Syrek and colleagues (2017) used items from the Insomnia Severity Index (Bastien et al., 2001) and investigated sleep problems over the weekend with measurements being assessed on Monday morning. Additionally, Syrek and Antoni (2014) also used items from the Insomnia Severity Index with assessment on Mondays that measured sleep disturbances over the weekend. Contrary to these two studies, our study investigated sleep impairment using the Athens Insomnia Scale (Soldatos et al., 2000) and by asking participants to reflect on their general sleep behaviors and quality. Thus, it might be that our way of measuring sleep impairment resulted in findings that opposed prior empirical evidence regarding the relationship between unfinished tasks and sleep impairment. This might shed light to the value of specifying certain recent time windows when attempting to capture sleep problems in employees.

Practical Implications

Practical implications that can be derived from this study include the understanding that in order for employees to actually reap the potential benefits of positive affective work prospection, unfinished tasks themselves should be addressed. Therefore, organizations should explore ways to help employees incur fewer unfinished tasks. Parke and colleagues (2018) found that time management planning (TMP) and contingent planning (CP) are beneficial for helping employees daily performance levels. TMP consists of guiding employees in creating task lists, prioritizing tasks, and creating an implementation plan for the tasks. Additionally, CP encourages employees to expect and plan for potential disruptions

during their workday. CP in particular showed positive outcomes that were invariable to interruptions experienced during the day, which could be very beneficial in today's work environment where workflow disruptions are common (Parke et al., 2018).

Strengths and Limitations

Our study has limitations that should be noted. A key limitation is that our measurement of sleep impairment held many differences to the way in which prior occupational health research studies have measured sleep impairment. Our lack of specific time framing around sleep disturbances might have left a lot of variance unaccounted for. For example, measuring sleep impairment by simply inquiring about general sleep behaviors and quality may result in memory recall issues as employees are not specifically asked to think back on a specific point of time. Additionally, the modifications to the scale that we made in order to make our questionnaire more user-friendly might have impacts for the scale validity and applicability. However, as our questionnaire was already quite long, we opted to prioritize participant experience rather than including overly lengthy instruction texts and mismatch question styles and response formats. This decision decreased the risk of potential participant fatigue and subsequent impaired responses.

Another limitation of our study is that a more beneficial contrasting construct to positive affective work prospection would be negative affective work prospection, instead of affective rumination. This way, the temporal orientation of the cognitions and thoughts could have been matched to both measure the future. However, our decision to use affective rumination came from the fact that we were already investigating the novel construct of positive affective work prospection, and affective rumination is a well-established construct that has shown to be reliable. Additionally, it would have been beneficial to also examine cognitive work prospection, as it is most similar to problem-solving pondering with their

focus of being neutrally valanced. Again, however, we opted to base our research primarily on studies that investigated problem-solving pondering as it was much more established than cognitive work prospection.

Avenues for future research

Future research should aim to further investigate the link between positive affective work prospection and sleep impairment that was seen in our study. However, future studies should utilize a more rigorous and methodical measurement of sleep impairment than this study used, one that accounts for a specific temporal window of experiencing sleep disturbances. This way, the accuracy of responses and measurement of sleep impairment will be improved and more reliable for making inferences about its relationship with positive affective work prospection. Future studies should also aim to explore the link between positive affective work prospection and sleep by use of a larger sample size and a more rigorous study design that has the ability to show causal links. Additionally, future studies should also aim to explore our finding of unfinished tasks having a potential moderating impact on the relationship between positive affective work prospection and sleep. As this is a novel finding, replication and further investigation is necessary in order to see if there is actually a significant interaction, and if so, how strong this moderating effect of unfinished tasks is.

References

Bastien, C. H., Vallières, A., & Morin, C. M. (2001). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep Medicine*, *2*(4), 297–307. https://doi.org/10.1016/S1389-9457(00)00065-4

Baumeister, R. F., Hofmann, W., Summerville, A., Reiss, P. T., & Vohs, K. D. (2020). Everyday thoughts in time: experience sampling studies of mental time travel. *Personality and Social Psychology Bulletin, 46*(12), 1631–1648. https://doi-org.proxy-ub.rug.nl/10.1177/0146167220908411

Berset, M., Elfering, A., Lüthy, S., Lüthi, S., & Semmer, N. K. (2011). Work stressors and impaired sleep: rumination as a mediator. *Stress and Health : Journal of the International Society for the Investigation of Stress*, *27*(2), e71–82.

Bono, J. E., Glomb, T. M., Shen, W., Kim, E., & Koch, A. J. (2013). Building positive resources: effects of positive events and positive reflection on work stress and health. *Academy of Management Journal*, *56*(6), 1601–1627. https://doi.org/10.5465/amj.2011.0272

Brosschot, J. F., Gerin, W., & Thayer, J. F. (2006). The perseverative cognition hypothesis: A review of worry, prolonged stress-related physiological activation, and health. *Journal of Psychosomatic Research*, *60*(2), 113–124. https://doi.org/10.1016/j.jpsychores.2005.06.074

Carver, C. S., & Scheier, M. F. (1990). Origins and Functions of Positive and Negative Affect: A Control-Process View. *Psychological Review*, *97*(1), 19–35.

Cropley, M., Michalianou, G., Pravettoni, G., & Millward, L. J. (2012). The relation of post-work ruminative thinking with eating behaviour. *Stress and Health*, *28*(1), 23–30. https://doi.org/10.1002/smi.1397

Cropley, M., & Millward, L. J. (2009). How do individuals 'switch-off' from work during leisure? A qualitative description of the unwinding process in high and low ruminators. *Leisure Studies*, *28*(3), 333–347. https://doi.org/10.1080/02614360902951682

Cropley, M., & Zijlstra, F. R. H. (2011). Work and rumination. In C. L. Cooper & J. Langan-Fox (Eds.), Handbook of stress in the occupations (pp. 487–502). Northhampton, MA: Edward Elgar. http://dx.doi.org/10 .4337/9780857931153.00061

DiStaso, M. J., & Shoss, M. K. (2020). Looking forward: How anticipated workload change influences the present workload–emotional strain relationship. *Journal of Occupational Health Psychology*, *25*(6), 401–409. https://doi.org/10.1037/ocp0000261

Eurofound, Wilczynska, A., Cabrita, J., Parent-Thirion, A., Biletta, I., Vargas, O., Wilkens, M., & Vermeylen, G. (2017). *6th European working conditions survey; 2017 update*, Publications Office. https://data.europa.eu/doi/10.2806/422172

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Green, F., & McIntosh, S. (2001). The intensification of work in Europe. *Labour Economics*, *8*(2), 291–308. https://doi.org/10.1016/S0927-5371(01)00027-6

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Latif, I., Hughes, A. T. L., & Bendall, R. C. A. (2019). Positive and Negative Affect Mediate the Influences of a Maladaptive Emotion Regulation Strategy on Sleep Quality. *Frontiers in Psychiatry*, *10*. https://doi.org/10.3389/fpsyt.2019.00628

Litwiller, B., Snyder, L. A., Taylor, W. D., & Steele, L. M. (2017). The relationship between sleep and work: A meta-analysis. *Journal of Applied Psychology*, *102*(4), 682–699. https://doi.org/10.1037/apl0000169

Loft, M., & Cameron, L. (2014). The importance of sleep: Relationships between sleep quality and work demands, the prioritization of sleep and pre-sleep arousal in day-time employees. *Work & Stress*, *28*(3), 289–304. https://doi.org/10.1080/02678373.2014.935523

Martin, L. L., & Tesser, A. (1996). Some ruminative thoughts. In R. S. Wyer (Ed.), *Ruminative thoughts.* (pp. 1–47). Lawrence Erlbaum Associates, Inc

McEwen, B. S. (1998). Stress, Adaptation, and Disease: Allostasis and Allostatic Load. *Annals of the New York Academy of Sciences*, *840*(1), 33–44. https://doi.org/10.1111/j.1749-6632.1998.tb09546.x

Noja, A., Kubicek, B., Plohl, N., & Tement, S. (2023). Development and validation of the Work–Home Integration Questionnaire (WHIQ). *Applied Psychology*, *72*(4), 1694–1734. https://doi.org/10.1111/apps.12456

Parke, M. R., Weinhardt, J. M., Brodsky, A., Tangirala, S., & DeVoe, S. E. (2018). When daily planning improves employee performance: The importance of planning type, engagement, and interruptions. *The Journal of Applied Psychology*, *103*(3), 300–312. https://doi-org.proxy-ub.rug.nl/10.1037/apl0000278

Querstret, D., & Cropley, M. (2012). Exploring the relationship between work-related rumination, sleep quality, and work-related fatigue. *Journal of Occupational Health Psychology*, *17*(3), 341–353. https://doi.org/10.1037/a0028552

Rutten, R. L. J., Hülsheger, U. R., & Zijlstra, F. R. H. (2022). Does looking forward set you back? Development and validation of the work prospection scale. *European Journal of*

Work and Organizational Psychology, *31*(6), 922–939.

https://doi.org/10.1080/1359432X.2022.2080058

Soldatos, C. R., Dikeos, D. G., & Paparrigopoulos, T. J. (2000). Athens Insomnia Scale:

Validation of an instrument based on ICD-10 criteria. *Journal of Psychosomatic*

Research, *48*(6), 555–560. https://doi.org/10.1016/S0022-3999(00)00095-7

Sonnentag, S. (2018). The recovery paradox: Portraying the complex interplay between job

stressors, lack of recovery, and poor well-being. *Research in Organizational Behavior*,

38, 169–185. https://doi.org/10.1016/j.riob.2018.11.002

Sonnentag, S., Venz, L., & Casper, A. (2017). Advances in recovery research: What have we

learned? What should be done next? *Journal of Occupational Health Psychology*,

22(3), 365–380. https://doi.org/10.1037/ocp0000079

Syrek, C. J., & Antoni, C. H. (2014). Unfinished tasks foster rumination and impair sleeping -

particularly if leaders have high performance expectations. *Journal of Occupational*

Health Psychology, *19*(4), 490–499. https://doi-org.proxy-ub.rug.nl/10.1037/a0037127

Syrek, C. J., Weigelt, O., Peifer, C., & Antoni, C. H. (2017). Zeigarnik's sleepless nights:

How unfinished tasks at the end of the week impair employee sleep on the weekend

through rumination. *Journal of Occupational Health Psychology*, *22*(2), 225–238.

https://doi.org/10.1037/ocp0000031

Van Boven, L., & Ashworth, L. (2007). Looking forward, looking back: Anticipation is more

evocative than retrospection. *Journal of Experimental Psychology: General*, *136*(2),

289–300. https://doi.org/10.1037/0096-3445.136.2.289

Weigelt, O., & Syrek, C. J. (2017). Ovsiankina's Great Relief: How Supplemental Work

during the Weekend May Contribute to Recovery in the Face of Unfinished Tasks.

International Journal of Environmental Research and Public Health, *14*(12), 1606.

https://doi.org/10.3390/ijerph14121606

Weigelt, O., Syrek, C. J., Schmitt, A., & Urbach, T. (2019). Finding peace of mind when there still is so much left undone-A diary study on how job stress, competence need satisfaction, and proactive work behavior contribute to work-related rumination during the weekend. *Journal of Occupational Health Psychology*, *24*(3), 373–386. https://doi-org.proxy-ub.rug.nl/10.1037/ocp0000117

Wendsche, J., de Bloom, J., Syrek, C., & Vahle-Hinz, T. (2021). Always on, never done? How the mind recovers after a stressful workday? German Journal of Human Resource Management, 35(2), 117–151. https://doi.org/10.1177/23970022211004598

Appendix A

TableA1

Nationality of Participants

	N	%
American	1	1.0%
Austria	1	1.0%
Canada	1	1.0%
Cyprus	1	1.0%
Egypt	1	1.0%
Germany	32	30.8%
India	22	21.2%
Kenya	1	1.0%
Netherlands	30	28.8%
Norway	1	1.0%
Pakistan	1	1.0%
Poland	1	1.0%
Romania	1	1.0%
Singapore	1	1.0%
Turkey	1	1.0%
United Kingdom	2	1.9%
United States	5	4.8%
Missing System	1	1.0%

Table A2

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Unfinished Tasks	104	1.00	4.00	2.26	0.70
Affective Rumination	99	1.00	5.00	2.81	0.96
Sleep Impairment	99	1.00	4.80	2.66	0.83
Positive Affective Work Prospection	99	1.00	5.00	3.33	0.90
Valid N (listwise)	99				

Figure A1

Residual Plot – Hypothesis 4

Hypothesis 4: Outcome Variable - Affective Rumination
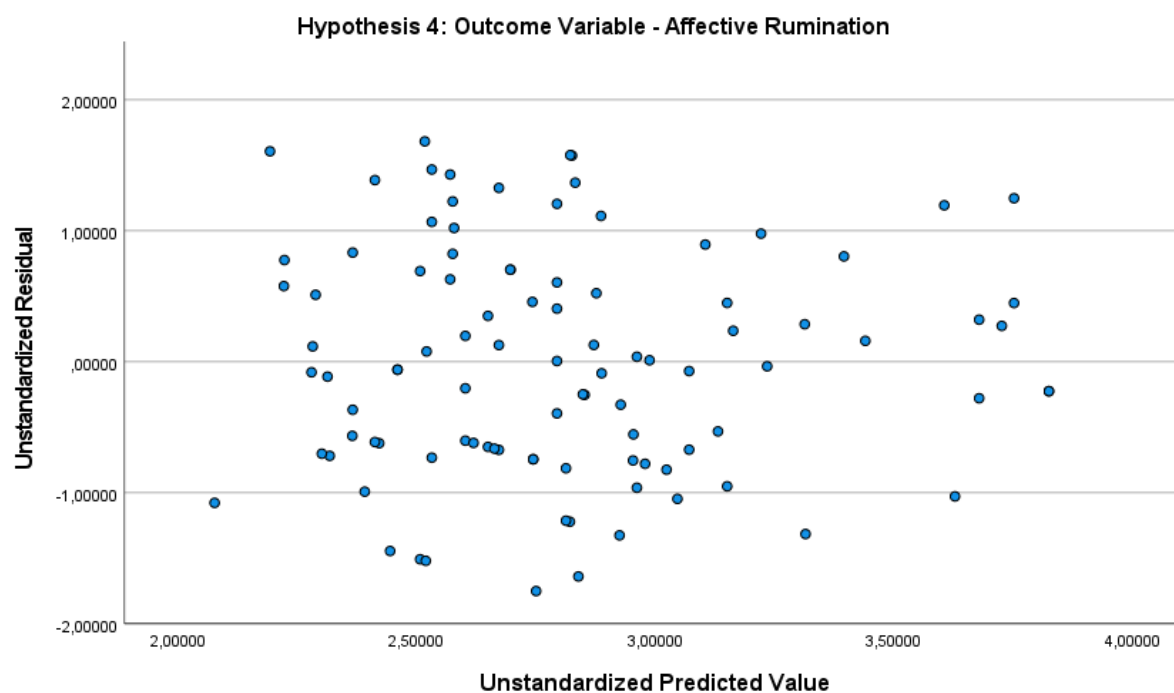
Figure A2

Residual Plot – Hypothesis 5

Hypothesis 5: Outcome Variable - Sleep Impairment
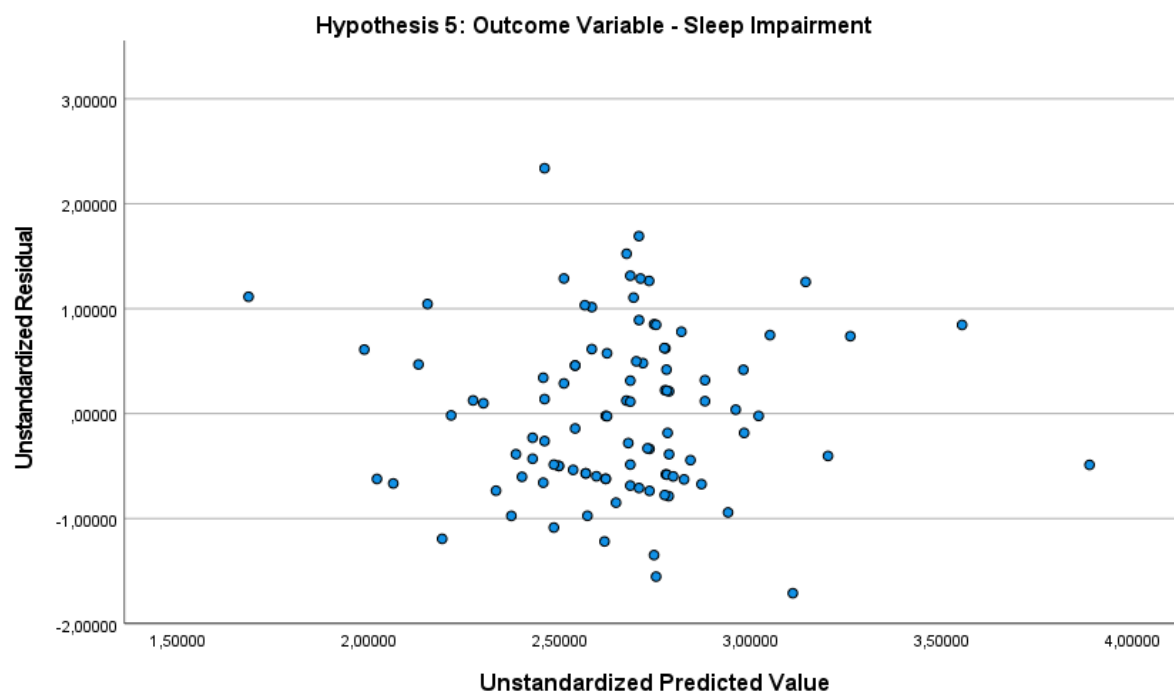
Figure A3

Residual Plot – Additional Inquiry 2

Additional Inquiry 2: Outcome Variable - Sleep Impairment
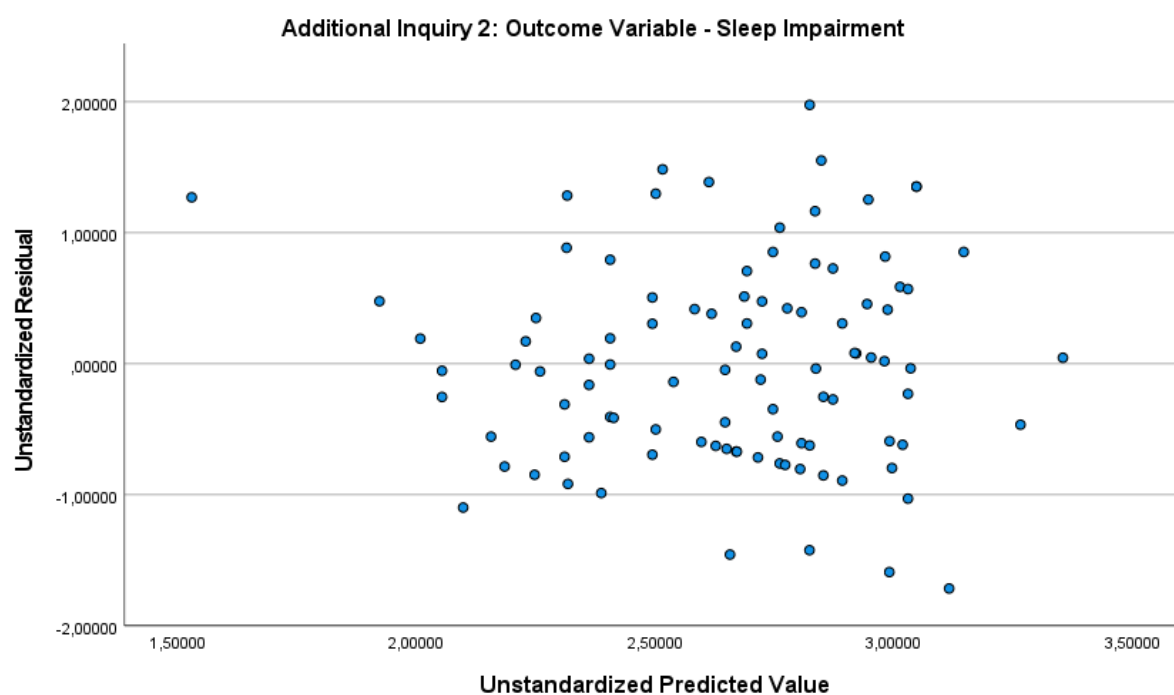
Figure A4

Normal P-P Plot of Regression Standardized Residual – Hypothesis 4

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Composite score AR
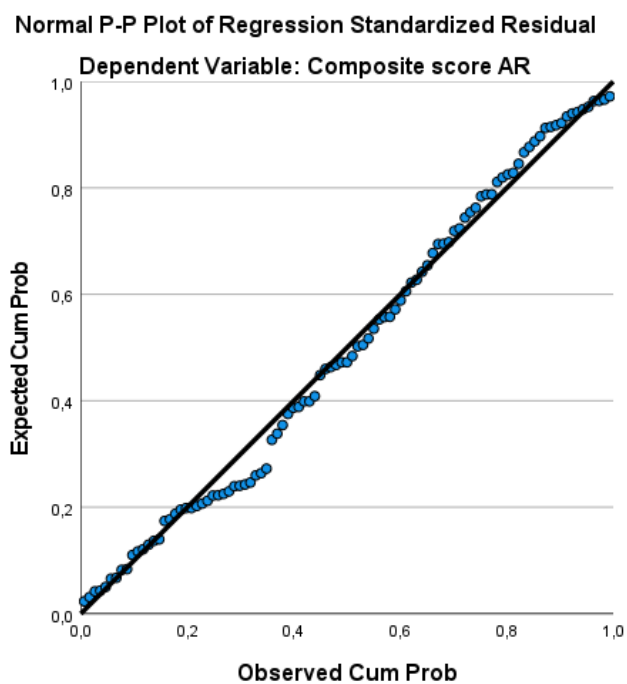
Figure A5

Normal P-P Plot of Regression Standardized Residual – Hypothesis 5

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Composite score Sleep
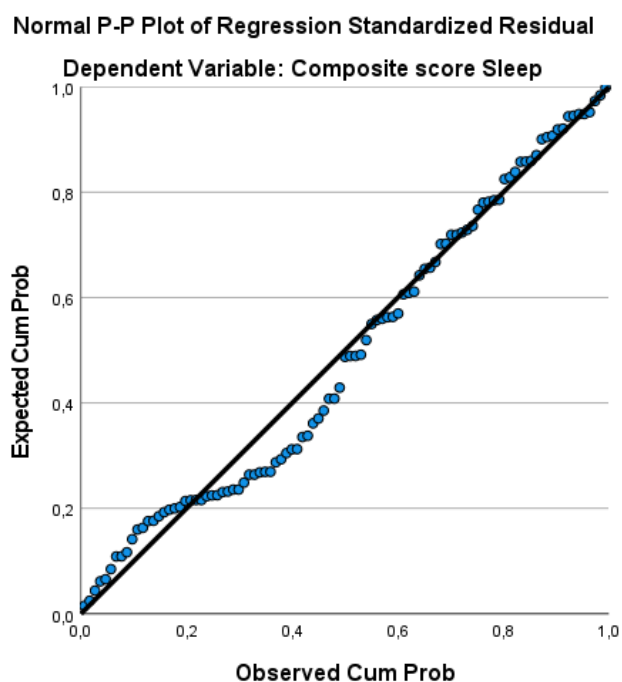
Figure A6

Normal P-P Plot of Regression Standardized Residual – Additional Inquiry 2

Normal P-P Plot of Regression Standardized Residual
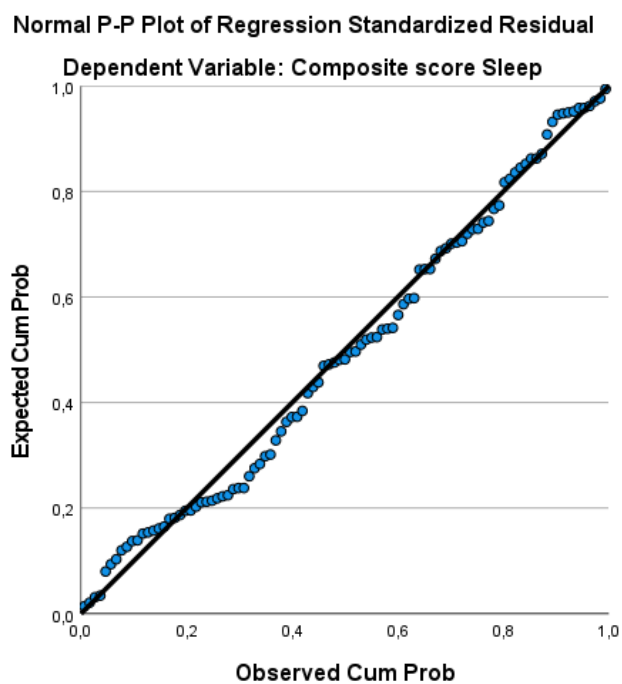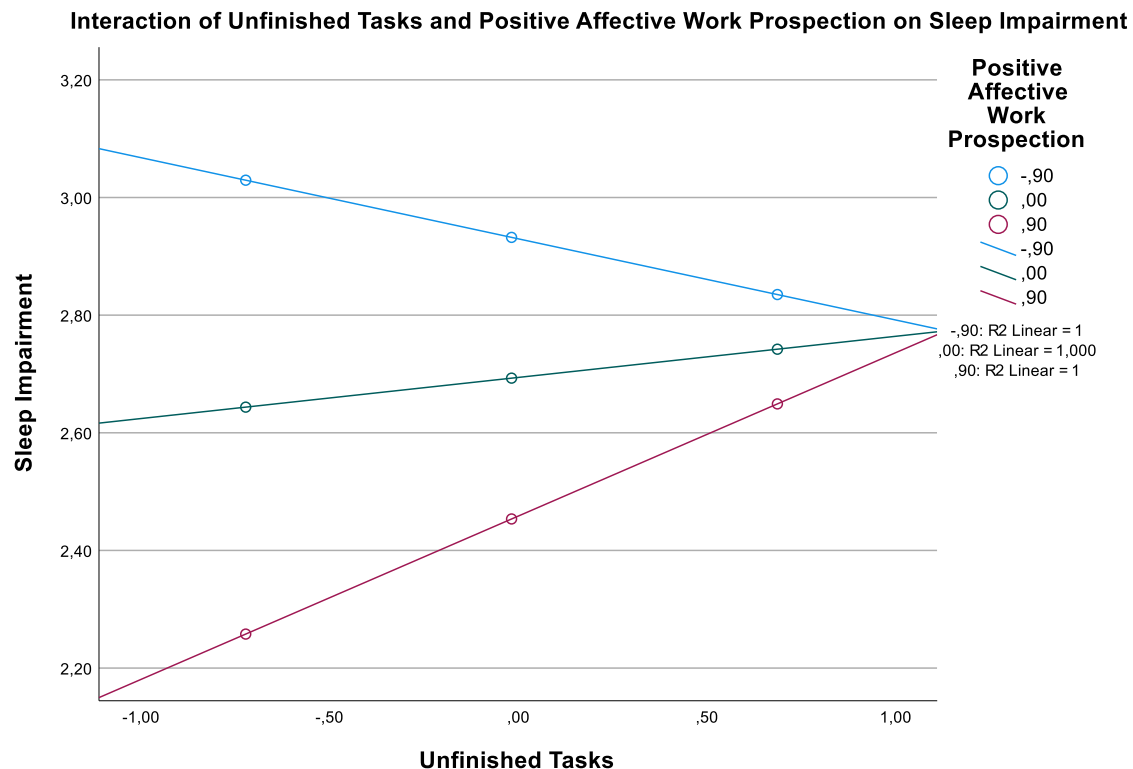Dependent Variable: Composite score Sleep

Figure A7

Simple Slopes of the Interaction Between Unfinished Tasks and Positive Affective Work Prospection on Sleep Impairment

Interaction of Unfinished Tasks and Positive Affective Work Prospection on Sleep Impairment

Survey Instrument

Introduction

This survey explored how employees deal with unfinished tasks and manage to switch off during off-job time. The aim of this research is to identify which strategies work best and detect ways to improve employee well-being. The survey consisted of four parts: demographic information, work-related experiences, general beliefs and behaviors, and work-life balance / sleep / recovery.

Part 1: Demographic Information

Participants were asked to provide basic demographic information and general information about their work.

- What is your gender? (Woman / Man / Non-binary / Prefer not to say)

- What is your age? (open-ended)

- What is your nationality? (open-ended)

- What is your highest level of formal education you have completed? (Primary school / High school / Vocational training / Bachelor's degree / Master's degree / Ph.D.)

- What is your occupation or job title? (open-ended)

- How many professional working years do you have? (open-ended)

- How many hours do you work per week on average? (0-10 hours / 11-20 hours / 21-30 hours / 31-40 hours / More than 40 hours)

Part 2: Work-Related Experiences

Performance Expectations

(Responses were rated on a 5-point Likert scale: 1= Strongly Disagree, 5=Strongly Agree)

- My team leader expects me to perform at my highest level.

- My team leader encourages me to go above and beyond what is normally expected of one (e.g., extra effort).

- My team leader expects me to give 100% all of the time.

Unfinished Tasks

(Responses were rated on a 5-point Likert scale)

- At the end of the workweek, I have not finished important tasks that I had planned to do.

- At the end of the workweek, I have not finished a large amount of due tasks.

- At the end of the workweek, I have not completed urgent tasks.

- At the end of the workweek, I have not even started with important tasks, I wanted to complete

- At the end of the workweek, I need to carry many tasks into the next week.

- At the end of the workweek, I have not started working on urgent tasks that were due.

<u>Taking Charge</u>

(Responses were rated on a 5-point Likert scale)

- I try to bring about improved procedures for the work unit or department.

- I try to institute new work methods that are more effective for the company.

- I try to change how the job is executed to be more effective.

- I try to introduce new structures, technologies, or approaches to improve efficiency.

- I try to implement solutions to pressing organizational problems.

- I try to make constructive suggestions for improving how things operate within the organization.

- I try to correct faulty procedures or practices.

- I try to make innovative suggestions to improve what the organization does.

- I try to change organizational rules or policies that are nonproductive or counterproductive.

- I try to adopt improved procedures for doing my job.

<u>Professional Self-efficacy</u>

(Responses were rated on a 5-point Likert scale)

- I can remain calm when facing difficulties in my job because I can rely on my abilities.

- When I am confronted with a problem in my job, I can usually find several solutions.

- Whatever comes my way in my job, I can usually handle it.

- My past experiences in my job have prepared me well for my occupational future.

- I meet the goals that I set for myself in my job.

- I feel prepared for most of the demands in my job.

Work Competence Need Satisfaction

(Responses were rated on a 5-point Likert scale)

- I really master my tasks at my job.

- I feel competent at my job.

- I have the feeling that I can even accomplish the most difficult tasks at work.

- I am good at the things I do in my job.

- I doubt whether I am able to execute my job properly.

- I don't really feel competent in my job.

Part 3: General Beliefs and Behaviors

Stress Mindset

(Responses were rated on a 5-point Likert scale)

- The effects of stress are negative and should be avoided.

- Experiencing stress facilitates my learning and growth.

- Experiencing stress depletes my health and vitality.

- Experiencing stress enhances my performance and productivity.

- Experiencing stress inhibits my learning and growth.

- Experiencing stress improves my health and vitality.

- Experiencing stress debilitates my performance and productivity.

- The effects of stress are positive and should be utilized.

Regulatory Focus

(Responses were rated on a 5-point Likert scale)

- To achieve something, one must be cautious.

- To avoid failure, one has to be careful.

- Being cautious is the best policy for success.

- You have to take risks if you want to avoid failing.

- The worst thing you can do when trying to achieve a goal is to worry about making mistakes.

- Taking risks is essential for success.

Executive Functioning

(Responses were rated on a 5-point Likert scale)

- I do risky things without considering the consequences.

- I can hold multiple things in my mind at once.

- I am good at multitasking.

- I am an impulsive person.

- I am good at solving math problems in my head.

- I am good at getting back on task after a distraction.

- I do things without thinking them through.

- I am good at working through problems in my head.

- I can shift my focus between different things.

Cognitive Flexibility

(Responses were rated on a 5-point Likert scale)

- I consider multiple options before making a decision.

- When in difficult situations, I consider multiple options before deciding how to behave.

- When I encounter difficult situations, I stop and try to think of several ways to resolve it.

- I often look at a situation from different viewpoints.

- I like to look at difficult situations from many different angles.

- I seek additional information not immediately available before attributing causes to behavior.

- When I encounter difficult situations, I feel like I am losing control.

- When encountering difficult situations, I become so stressed that I can not think of a way to resolve the situation.

- When I encounter difficult situations, I just don't know what to do.

- I feel I have no power to change things in difficult situations.

Part 4: Work-Life Balance, Sleep, and Recovery

<u>Affective Rumination</u>

(Responses were rated on a 5-point Likert scale)

- I become tense when I think about work-related issues during my free time.

- I get annoyed by thinking about work-related issues when not at work.

- I become irritated by work issues when not at work.

- I become fatigued by thinking about work-related issues during my free time.

- I am troubled by work-related issues when not at work.

<u>Problem-Solving Pondering</u>

(Responses were rated on a 5-point Likert scale)

- After work, I tend to think of how I can improve my work-related performance.

- In my free time, I find myself re-evaluating something I have done at work.

- I think about tasks that need to be done at work the next day.

- I find thinking about work during my free time helps me to be creative.

- I find solutions to work-related problems in my free time.

Positive Affective Work Prospection

(Responses were rated on a 5-point Likert scale)

- I am enthusiastic about the work I still have to do.

- I am looking forward to the workdays ahead of me.

- I feel good when I think about upcoming work events.

- I have positive expectations about the workdays ahead of me.

Detachment

(Responses were rated on a 5-point Likert scale)

- I forget about work.

- I don't think about work at all.

- I distance myself from work.

- I get a break from the demands of work.

Sleep

(Responses were rated on a 5-point Likert scale)

- I have trouble falling asleep after turning off the lights.

- Once asleep, I have difficulty staying asleep.

- My final awakening is earlier than desired.

- My total sleep duration is sufficient.

- My overall quality of sleep is satisfactory.

Recovery Activities

(Responses were rated on a 5-point Likert scale)

During off-job time, to what extent do you engage in activities that…

- Require you to be physically active.

- Include vigorous physical activity.

- Include social interaction.

- Involve spending time with others.

- Allow you to be creative.

- Are creative.

- Require you to be mentally active.

- Require you to concentrate.

- Involve spirituality.

- Involve meditation, prayer, or taking time in other ways to find inner peace.

- Occur through digital devices (such as smartphone, computer, tablet).

- Include using the internet.

- Are in fresh air.

- Are performed in a natural environment (e.g., among plants and trees).

Relaxation

(Responses were rated on a 5-point Likert scale)

- I typically feel calm during the day.

- I typically feel relaxed during the day.

- I typically feel at ease in my daily life.

- I typically feel peaceful throughout the day.

- I typically feel content with how things are going.

- I typically feel satisfied emotionally on an average day.