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In Need of Leisure: Investigating the Relationship Between Off-job Crafting, Psychological Needs Satisfaction and Optimal Functioning

Miika Kujanpää



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In Need of Leisure:

Investigating the Relationship Between Off-job Crafting,
Psychological Needs Satisfaction and Optimal Functioning

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In Need of Leisure

Investigating the Relationship Between Off-job Crafting,
 Psychological Needs Satisfaction and Optimal Functioning

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by

Miika Jaakko Kujanpää

born on 9 May 1992
 in Lappeenranta, Finland

Supervisors

Prof. J. de Bloom
Prof. U. Kinnunen

Assessment committee

Prof. M. Vansteenkiste
Prof. S. Scheibe
Prof. O. Janssen
Prof. A. Oksanen

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1 INTRODUCTION

Modern working life is increasingly characterized by a trend of acceleration in the pace of work and job demands (Rosa, 2013; Ulferts et al., 2013). As the pace of working life increases, employees often find themselves experiencing heavier workloads as well as less time to recover from job stress (Rosa, 2013). This work intensification causes challenges for optimal functioning (i.e., feeling and performing well; see also Ryan & Deci, 2001), not only in the job domain (e.g., Mauno & Minkkinen, 2020) but also in the off-job domain, such as in the form of increased work-home conflict (Kubicek & Tement, 2016). Social acceleration permeates the leisure sphere, creating a sense of haste, difficulties in finding time to nurture significant relationships, and an ever-expanding number of options for consumer experiences in the leisure market (Martineau, 2017). Trends such as technological acceleration cause the boundaries between the job and the off-job domains to become increasingly permeable (Adisa et al., 2017). This means that changes in one domain become more likely to influence optimal functioning in the other domain (e.g., Hecht & Boies, 2009). However, employees are not only passive recipients subjected to these societal trends but can also proactively shape their behavior to manage challenges more effectively (e.g., Li et al., 2020). Thus, employees may engage in proactive efforts to optimize their off-job lives to feel more personally satisfied and recovered.

In this dissertation, I examine off-job crafting and psychological needs satisfaction as processes which can help employees to navigate their off-job lives (i.e., non-work life domains such as leisure, house- and childcare and voluntary work) in the face of accelerating challenges with the goal to sustain and enhance optimal functioning. Off-job crafting is defined as “a motivated process including the goal-directed initiation of and engagement in crafting efforts intended to satisfy psychological needs” (de Bloom et al., 2020, p. 1424). Crafting in off-job life has previously been studied and referred to as leisure crafting (Berg et al., 2010; Petrou & Bakker, 2016). Despite the important role of off-job life in fulfilling people’s psychological needs, off-job crafting has been notably less studied than its counterpart in the work context, job crafting (e.g., Tims et al., 2012). The key foci of this dissertation are to examine whether DRAMMA (i.e., Detachment from work, Relaxation, Autonomy, Mastery, Meaning, and Affiliation) needs satisfaction is related to optimal functioning, and whether, by off-job crafting, employees can enhance their psychological needs satisfaction and proactively create optimal functioning over time in both life in general and at work. Thus, I specifically focus on outcomes of DRAMMA needs satisfaction and off-job crafting to examine the importance of these two concepts for employees’ optimal functioning off and on the job. Psychological needs, off-job crafting, and optimal functioning are examined in this dissertation both theoretically in an integrative conceptual review (Study II), and empirically among employees from several different countries, i.e., Germany (Study I), the USA (Study IIIa-c), three German-speaking countries (Germany, Austria, and Switzerland, Study III d), Finland (Study III e/Study IV), Japan (Study III f/Study IV), and the UK (Study III g).

In the next sections of the introduction, I examine earlier research on psychological needs satisfaction in off-job life (Section 1.1.1) and introduce the first key theoretical model underlying the

theorization of off-job crafting, the DRAMMA model (Newman et al., 2014) (Section 1.1.2). Next, I describe earlier theories on crafting in the job and the off-job domain (Sections 1.2.1-1.2.2) and elaborate on the novel theoretical contributions of the construct of needs-based off-job crafting (Section 1.2.3). In the remaining sections, I focus on earlier research on the outcomes of crafting in the off-job domain (Section 1.3), individual as well as cultural antecedents of off-job crafting (Section 1.4), and formulate the aims of this dissertation (Section 1.5).

1.1 Psychological needs satisfaction

Research on psychological needs has a long tradition in psychology. In the 1930s, Henry Murray formulated his systematic theory of needs (Murray, 1938). Early theorists, such as Freud (1978), Maslow (1943), and Hull (1943) influenced particularly the field of clinical psychology and its models of psychological needs with regard to psychological illness, developmental problems, and treatment methods. Psychological needs are defined as “evolved tendencies to seek out certain basic types of psychosocial experiences and to feel good and thrive when those basic experiences are obtained” (Sheldon, 2011, p. 552). Thus, psychological needs are, firstly, drivers and motivators of behavior. Secondly, needs, when satisfied, act as experiential rewards that enhance optimal functioning (Sheldon, 2011). This dissertation focuses specifically on this second perspective, i.e., psychological needs satisfaction and its relationships to optimal functioning. I focus on psychological needs due to their relevance for both optimal human functioning (Ryan & Deci, 2001) and for off-job life (Newman et al., 2014), and because of their relevance for proactive crafting efforts (e.g., Slemp & Vella-Brodrick, 2014; Wrzesniewski & Dutton, 2001), which are the key foci of this dissertation.

Whereas most early need theories were mostly adapted from the clinical field, Self-Determination Theory (SDT, Deci & Ryan, 2000), formulated in the 1980s, was one of the first need theories to be systematically applied in work psychology (Deci & Ryan, 1985). SDT describes three needs: competence, autonomy, and relatedness, as “universal, innate and essential for well-being” (Deci & Ryan, 2000). Need for competence refers to people’s desire for a sense of efficacy when dealing with their internal and external environments (Ryan et al., 2008). Autonomy refers to people’s urge to experience a sense of volition and choice in behavior regulation, while relatedness refers to people’s desire to achieve a sense of connectedness and of being cared for (Ryan et al., 2008). SDT views psychological needs as organismic, meaning that they are psychosocial “nutriments” which, when sufficiently satisfied, foster a person’s psychological growth and well-being. Supporting this perspective, in two meta-analyses, psychological needs satisfaction has been found to positively predict psychological growth and well-being at work (Van den Broeck et al., 2016) and to be positively related to mental and physical health in health care contexts (Ng et al., 2012). However, less attention has been paid to the effects of needs satisfaction in off-job life domains, e.g., at leisure or at home.

1.1.1 Psychological needs satisfaction in off-job life

While jobs usually provide employees with structured job design and a set of tasks assigned to each employee, leisure as a context consists of self-chosen and, for the most part, personally desirable

activities (Stebbins, 2005; Vogel et al., 2016). Thus, psychological needs satisfaction can be expected to play a larger role in an individual's off-job life than work, which is more heavily impacted by outside influences. Studies in the field of SDT have found that satisfaction of the psychological needs for autonomy, competence, and relatedness in off-job life generally fosters optimal functioning. For example, Walker and Kono (2018) found that satisfaction of these three needs was positively related to leisure satisfaction, which, in turn, was positively related to global life satisfaction. Similarly, in a diary study among 74 US employees, autonomy and relatedness (but not competence) needs satisfaction was higher at weekends than on weekdays, which was in turn related to a higher vitality and positive affect, and to fewer physical symptoms (e.g., eating problems, low energy) and negative affect (Ryan et al., 2010). Importantly, in a study among 203 adult participants investigating the effects of a composite score of the three needs, needs satisfaction experienced in different life domains (needs satisfaction at leisure activities, among family and friends, in relationships, in school and at work) independently predicted variance in well-being (measured as vitality, positive affect, and low negative affect; Milyavskaya & Koestner, 2011). Thus, needs satisfaction in various off-job life domains (e.g., leisure and home domains) plays an important role in well-being, which is not reducible to the positive effects of needs satisfaction in other domains (e.g., work and study).

Psychological needs satisfaction in off-job life has also been examined within other theoretical frameworks than SDT. Although reflections on meaning are at least as old as philosophy itself (e.g., MacIntyre, 1998), meaning in life is a more recent addition to empirical psychological needs research and has been examined more in the field of leisure sciences (e.g., Iwasaki et al., 2018). Meaning (in life) as a psychological need is not to be confused with meaning of life, but refers to the desire to experience a sense of purpose in one's life (rather than to possess an ultimate or overarching meaning) (Steger et al., 2006). Leisure promotes a meaningful engagement with life (Iwasaki et al., 2018). However, as meaning has been almost exclusively used as an outcome within leisure sciences and SDT (e.g., Kono et al., 2020; Martela & Ryan, 2019; Martela et al., 2018), surprisingly few studies have looked at the relationships between meaning in off-job life and optimal functioning. Thus, it remains unclear whether meaning in the context of off-job life has similar positive effects on well-being as autonomy, competence, and relatedness.

Besides research on psychological needs satisfaction and meaning in life, psychological experiences in the context of off-job life that cultivate well-being have been studied in the "recovery from work" literature. When employees are faced with high job demands and experience a high need for recovery (Sluiter et al., 1999; Van Veldhoven & Broersen, 2003), they need to unwind from job strain and stress accumulated at work (Geurts & Sonnentag, 2006). In 2007, Sonnentag and Fritz formulated a model of recovery experiences utilizing empirical findings on recovery from job stress and mood regulation. The model includes four recovery experiences which aid recovery from work: psychological detachment, relaxation, mastery, and control. Psychological detachment refers to mental disengagement from work-related tasks, while relaxation describes a state of increased positive affect combined with low psycho-biological activation. Mastery refers to challenging experiences that offer opportunities for learning, and control refers to a sense of freedom that people can choose their actions from among different options (Sonnentag & Fritz, 2007). Meta-analyses show that after-work recovery experiences are positively related to optimal functioning, e.g., positively related to mental and psychosomatic well-being, life satisfaction, vigor, and work performance, and negatively related to fatigue after work (Bennett et al., 2018; Steed et al., 2021). Of the recovery experiences, detachment and relaxation have

shown most consistently positive associations with optimal functioning (Sonnentag et al., 2017). However, despite similarities between some recovery experiences and psychological needs (mastery/competence, control/autonomy), the fields of recovery from work and needs research remained largely disconnected until the mid-2010s.

1.1.2 The DRAMMA model

In 2014, Newman, Tay, and Diener integrated the previously unconnected research streams of SDT, meaning in life, and recovery experiences in the DRAMMA model. Based on an integrative review of 363 research articles, the authors posited that six core needs, namely for detachment from work, relaxation, autonomy, mastery, meaning, and affiliation, are often satisfied in leisure, explaining why engagement in leisure is positively related to leisure satisfaction and life satisfaction. Together, these six needs form the acronym “DRAMMA” (Newman et al., 2014). Whereas detachment and relaxation are defined similarly as in the recovery experiences model by Sonnentag and Fritz (2007), affiliation is defined as being akin to relatedness as examined in SDT. Mastery and autonomy are defined as competence and autonomy in SDT, and respectively closely resemble the recovery experiences of mastery and control.

The DRAMMA model posits that DRAMMA needs satisfaction restores and builds personal resources such as energy, positive mood, and self-actualization that are conducive to optimal functioning (Newman et al., 2014). In line with these perspectives, numerous studies have shown that satisfaction of individual DRAMMA needs is in general positively related to well-being (e.g., Ryan et al., 2010; Walker & Kono, 2018) and negatively related to ill-being (e.g., Hadden & Smith, 2019; Siltaloppi et al., 2009). However, evidence on the joint contribution of DRAMMA needs to optimal functioning over time and the relative importance of DRAMMA needs has so far been lacking.

Evidence from cross-sectional and experimental studies examining all six DRAMMA needs suggests that DRAMMA needs satisfaction during leisure can facilitate well-being. Virtanen et al. (2020) found in a cross-sectional study among 909 Finnish teachers that detachment and relaxation were positively related to life satisfaction and vitality. Control (autonomy), and mastery were positively related to vitality, and meaning and affiliation were positively related to life satisfaction. Thus, all DRAMMA needs were cross-sectionally related to at least one of these two aspects of well-being. None of the DRAMMA needs were significantly related to perceived work ability. In another cross-sectional study among 564 US employees recruited through the Amazon Mechanical Turk, autonomy and mastery were positively related to leisure satisfaction (Kuykendall et al., 2017). All DRAMMA needs had positive relationships with positive leisure affect. Autonomy, mastery, and affiliation were negatively related to negative leisure affect. Surprisingly, meaning had a positive relationship with activated (but not with deactivated) negative affect (Kuykendall et al., 2017). Loveday et al. (2018) provided further support for the DRAMMA model in a qualitative study. All the DRAMMA needs were mentioned as important themes in the descriptions of “ideal leisure” provided by 112 Australian participants, with affiliation being the most (33% of all sentences) and meaning (11% of all sentences) the least prevalent. In another experimental study with a memory reminiscence task (for recalling a vacation or evening memory), particularly the presence of autonomy and affiliation in the memories contributed to decreased fatigue

15 minutes after a demanding laboratory task requiring high levels of executive control (de Bloom et al., 2017).

To summarize, although studies suggest that DRAMMA needs satisfaction is in general positively related to and an important facilitator of well-being, earlier research has been cross-sectional or included only very short time lags between measurements. Thus, it is unclear whether DRAMMA needs satisfaction has consistent positive effects on well-being over time. Moreover, earlier studies did not measure ill-being (e.g., depressive complaints), leaving it unclear how the DRAMMA needs as a whole affect ill-being. Furthermore, no study has so far examined the relative importance of DRAMMA needs (i.e., whether satisfaction of some of the needs is more beneficial for well-being than satisfaction of others). I expect that, on a within-person level, DRAMMA needs satisfaction will prove to be positively related to well-being and negatively related to ill-being over time. Moreover, as an explorative research question, I examine the relative importance of the individual DRAMMA needs satisfaction for optimal functioning.

Outcomes of DRAMMA needs satisfaction

In this section, I will present an overview of outcomes of DRAMMA needs satisfaction which I examine in this dissertation. In Study I, vitality, life satisfaction, and subjective health were used as indicators of optimal functioning. Vitality is defined as the positive energy available to the self and has close associations with mental health and motivation (Ryan & Deci, 2008). Vitality is also positively related to both hedonic (seeking pleasure or comfort) and eudaimonic (seeking to develop the best in oneself) pursuits (Huta & Ryan, 2010). Life satisfaction refers to people's cognitive evaluation of the quality of their lives according to their individual standards (Diener et al., 1985). This is a key outcome of DRAMMA needs satisfaction as posited in the DRAMMA model (Newman et al., 2014). Subjective health refers to a subjective evaluation of a person's own health status (Hunt & McEwen, 1980) and is consistently positively associated with objective health indicators (e.g., Wu et al., 2013).

Depressive complaints, need for recovery, tension, and stress were used as indicators of suboptimal functioning (ill-being) in Study I. Depressive complaints refer to symptoms commonly reported in depression, such as anhedonia, depressed mood, and concentration problems (Kroenke et al., 2009). Need for recovery is defined as a perceived need to recover from effort expended at work (Van Veldhoven & Broersen, 2003). An employee's need for recovery is usually most pronounced during the last hours at work and right after finishing the working day. Tension is defined as the general subjective experience of feeling physically and mentally strained, while stress refers to the general subjective experience of feeling nervous, anxious, restless, and worried (Elo et al., 2003).

1.2 Crafting in job and off-job domains

1.2.1 Job crafting

In the 21st century, research on optimal functioning has examined not only optimal psychological experiences such as needs satisfaction and well-being, but also how these experiences can be proactively pursued and achieved. This perspective, rooted in cognitive psychology and social constructionism,

initially gained ground in work psychology. In 2001, Wrzesniewski and Dutton proposed the concept of job crafting, defined as “the actions employees take to shape, mold and redefine their jobs” (Wrzesniewski & Dutton, 2001, p. 180). Job crafting was proposed to take place in the task, cognitive and relational boundaries of work and to focus on improving experienced meaningfulness at work. For example, a hospital caregiver could craft their job by cognitively shaping the meaning of their job to focus not only on individual work tasks, such as cleaning, but also on the importance of their job for maintaining the health of the patients and fellow workers. Later, Tims and Bakker (2010) adapted this model based on the Job Demands-Resources model (Bakker & Demerouti, 2016; Demerouti et al., 2001). They posited that crafting involves proactively changing the levels of job demands and resources, specifically by increasing challenging job demands and resources, or by decreasing hindrance demands. However, cognitive crafting was not included in this model (Tims & Bakker, 2010). In the 2010s, research on job crafting flourished with numerous meta-analyses demonstrating the many benefits of job crafting for optimal functioning at work, such as occupational well-being and performance (e.g., Lichtenthaler & Fischbach, 2019; Rudolph et al., 2017). However, as discussed in the next section, crafting in off-job life (i.e., leisure crafting, home crafting, and off-job crafting) has remained on the periphery of crafting research. Thus, little is known about the efforts people make to proactively shape their lives outside work.

1.2.2 Leisure crafting and home crafting

The first theorization of crafting in off-job life was posited by Berg et al. (2010), who studied leisure crafting in relation to callings, which are defined as occupations that individuals perceive to be a central part of their identity, personally meaningful, and enjoyable, and feel drawn to pursue. They defined leisure crafting as “people exercising initiative, agency, and proactivity to create opportunities for experiencing states of enjoyment and meaning that they associate with pursuing their unanswered callings as formal occupations” (Berg et al., 2010, p. 982). Vicarious experiencing (seeking fulfilment through others who participate in activities that are similar to one’s calling) and hobby participation (taking on hobbies that help to fulfil personal callings) were proposed as dimensions of leisure crafting, with the overall aim of fulfilling those callings that employees could not fulfil through work activities. Thus, leisure crafting was viewed as secondary to job crafting, and mainly important for employees having more callings than they could fulfil in their work, or callings incongruent with their work activities (Berg et al., 2010). Although the perspective of focusing on callings has since been criticized for coercing the value of work centrality on all employees and even potentially hindering self-initiated crafting efforts (Berkelaar & Buzzanell, 2015), in their interviews among 31 US employees Berg et al. (2010) provided the first evidence that people can and do indeed craft, not only their jobs, but also their off-job lives. Similarly, Kira et al. (2012) found in a sample of 16 interviewees that Finnish executives, unit managers, and experts in a public sector organization engaged in leisure crafting to cope with feelings of anxiety related to an organizational merger.

Petrou and Bakker (2016) built on the theorization by Berg et al. (2010) and proposed that instead of being centered on fulfilling callings, leisure crafting is the “proactive pursuit of leisure activities targeted at goal setting, human connection, learning and personal development” (Petrou & Bakker, 2016, p. 508). Leisure crafting takes place in the task and relational boundaries of leisure in a similar

way as job crafting means shaping the boundaries around work (Petrou & Bakker, 2016; Wrzesniewski & Dutton, 2001). The leisure crafting scale developed in this study was found to have a single-dimensional structure (Petrou & Bakker, 2016).

Recently, Demerouti et al. (2020) proposed the concept of home crafting, adapted from the definition of job crafting based on the Job Demands-Resources model (Tims & Bakker, 2010). Home crafting is defined as changes that employees make to balance their home demands and resources with their needs and abilities to “experience meaning and create or restore their person-environment fit” (Demerouti et al., 2020, p. 4). The home crafting scale, which was based on a job crafting scale by Petrou et al. (2012) and adapted to the home domain, was found to have a three-dimensional structure, with the dimensions of home-seeking resources, home-seeking challenges and home-reducing demands (Demerouti et al., 2020). Earlier results concerning the outcomes and antecedents of leisure and home crafting are discussed in Sections 1.3 and 1.4 below.

1.2.3 The concept of needs-based off-job crafting

Although the original definition of job crafting by Wrzesniewski and Dutton (2001) highlighted experienced meaningfulness as a primary goal of crafting efforts, research on job, leisure, and home crafting has mainly focused on describing discrete behaviors (e.g., asking for social support) instead of a broader delineation of different goals of crafting efforts (e.g., crafting for affiliation). In this dissertation, psychological needs are examined as central to the process of how behavioral and cognitive crafting efforts are enacted. Although needs such as mastery and relatedness have been claimed to be related to the constructs of leisure and home crafting (Demerouti et al., 2020; Petrou & Bakker, 2016), an explicit theorization based on validated need theories on the role that psychological needs play for crafting in off-job life has so far been lacking. The concept of needs-based off-job crafting is a key contribution of this dissertation, with the goal of developing the field of crafting in off-job life with an explicit focus on psychological needs as the key target of crafting efforts. Needs-based off-job crafting is defined as employees’ proactive and self-initiated changes in their off-job lives which target psychological needs satisfaction (de Bloom et al., 2020). Thus, it refers to behaviors and cognitions that are proactively enacted by individuals in the context of their off-job lives with the aim of increasing experienced needs satisfaction. In Study II, the theoretical basis of this needs-based crafting framework is developed. The DRAMMA model is applied to specify six key underlying needs (the “DRAMMA”, explained in detail in section 1.1.2) which can be addressed in crafting processes.

The DRAMMA model (Newman et al., 2014) integrates the fields of the SDT, research on recovery from work and leisure sciences to comprehensively include all the major theories on psychological needs satisfaction in off-job life. The DRAMMA model was used as a theoretical background to define the underlying dimensions of (needs-based) off-job crafting. Thus, off-job crafting is posited to include six dimensions, i.e., off-job crafting for detachment, relaxation, autonomy, mastery, meaning and affiliation. For example, off-job crafting for autonomy refers to proactive and self-initiated changes in off-job life which are targeted at improving satisfaction of the need for autonomy.

Research on crafting in the off-job domain (Berg et al., 2010; Demerouti et al., 2020; Petrou & Bakker, 2016) has focused on leisure primarily as a domain that is used to compensate for shortcomings experienced at work. However, leisure is more than a secondary solution to utilize when one does not

feel satisfied at work. Indeed, leisure is widely regarded as a very important life domain which enables people to pursue things that matter to them most (Loveday et al., 2018). Unlike earlier conceptualizations of crafting in off-job life, the concept of needs-based off-job crafting highlights the unique qualities of off-job life as an enriching and valuable life domain (e.g., Iwasaki, 2017; Shen & Yarnal, 2010). In line with this idea, off-job crafting is directly applicable to other populations besides employees, such as students and unemployed or retired individuals. Moreover, developing and validating the concept of needs-based off-job crafting answers recent calls which suggest that recovery experiences (Sonnentag & Niessen, 2020; Virtanen et al., 2020) and SDT needs (Vansteenkiste et al., 2019) are not only passive experiences, but can also potentially be proactively crafted for. These ideas and the concept of needs-based off-job crafting are theoretically developed in Study II and empirically examined in Studies III and IV. Due to the rather broad nature of the theoretical model presented in Study II, it was not possible to thoroughly examine all its facets (e.g., interactions between crafting in multiple life domains, need discrepancies) in Studies III and IV. To examine the importance of off-job crafting for optimal functioning, I focus on the question whether off-job crafting is beneficial for psychological needs satisfaction and optimal functioning in general (proposition 5 in Study II) and optimal functioning in the job domain (proposition 13). Moreover, the role of cultural antecedents was examined in Study IV as important contextual factors that may influence off-job crafting (proposition 7 in Study II).

In the following sections of this introduction, I summarize findings from earlier studies on outcomes and antecedents of crafting in off-job life (leisure and home crafting), and examine the theoretical links between off-job crafting and its potential outcomes and antecedents.

1.3 Outcomes of crafting in the off-job domain

1.3.1 Psychological needs satisfaction

In this dissertation, psychological needs satisfaction is proposed to be the key mechanism behind off-job crafting. More specifically, off-job crafting is a needs-based phenomenon in that satisfaction of psychological needs in off-job life (based on the DRAMMA model; Newman et al., 2014) is conducive to optimal functioning and is the key target of off-job crafting. Therefore, it is essential to examine whether off-job crafting efforts generally succeed in their goal of enhancing needs satisfaction over time (e.g., whether off-job crafting for autonomy leads to enhanced autonomy over time). Studies on SDT-based interventions have shown that people can behaviorally enhance their needs satisfaction (Ntoumanis et al., 2020). For instance, Sheldon et al. (2010) found that persistent pursuit of need-related goals, but not pursuit of simply changing life circumstances such as housing or clothing, led to increased happiness over the course of a six-month follow-up period. However, these studies have rarely considered whether this behavior is proactive or self-initiated, which is a key question for crafting research.

Studies on the relationships between crafting in off-job life and psychological needs satisfaction have so far only focused on the “AMMA” of the DRAMMA model (autonomy, mastery (competence), meaning, and affiliation (relatedness)). In an interview study by Berg et al. (2010), employees mentioned

that leisure crafting often brought about meaningful experiences. Similarly, weekly leisure crafting was positively related to meaning-making (measured by combining items for meaning-making and experienced meaningfulness) in a diary study among 119 Dutch employees (Petrou et al., 2017). This relationship was stronger when job crafting opportunities were low (Petrou et al., 2017). Weekly leisure crafting was also positively related to autonomy and relatedness, but not to competence among 80 Dutch employees (Petrou & Bakker, 2016).

Relationships between crafting and needs satisfaction have also been recently studied in educational psychology with a need crafting scale based on SDT, combining an awareness component (i.e., awareness of one's own sources for needs satisfaction) and an action component (i.e., tendency and capability to make choices that satisfy needs) (Laporte et al., 2021a). In studies among Flemish and Belgian students, a composite score of need crafting was found to be positively related to needs satisfaction and negatively related to needs frustration (Laporte et al., 2021a, Laporte et al., 2021b).

To summarize, earlier research suggests that crafting in off-job life is positively related to autonomy, meaning, and affiliation (relatedness), whereas no relationship to mastery (competence) was found in the leisure domain. On the other hand, key recovery experiences of detachment and relaxation (Sonnentag & Fritz, 2007) have not previously been examined as outcomes of crafting in off-job life. I expected, in light of the DRAMMA model, that needs-based off-job crafting would improve matching dimensions of DRAMMA needs satisfaction over time (e.g., that off-job crafting for relaxation would improve experienced relaxation over time).

1.3.2 Optimal functioning

Optimal functioning in general

The DRAMMA model (Newman et al., 2014) posits that DRAMMA needs satisfaction during leisure promotes leisure satisfaction, which is related to general subjective well-being (e.g., life satisfaction). In line with this proposition, needs satisfaction in one domain has been shown to influence needs satisfaction in life as a whole, with bottom-up and top-down processes in between the domain-specific needs and needs in general life (Milyavskaya et al., 2013). Similarly, successful off-job crafting efforts focusing on DRAMMA needs can be expected to create both domain-specific optimal functioning (optimal functioning in off-job life) and optimal functioning in life in general. More specifically, through off-job crafting, employees can shape their off-job activities to be more personally satisfying, meaningful and recovering, which is expected to contribute positively to optimal functioning, such as enhanced well-being or improved performance in the family domain. In addition, in line with the Conservation of Resources Theory (Hobfoll, 1989) off-job crafting may restore personal resources such as energy and positive mood, helping employees to feel energized and function optimally in their daily lives.

Although evidence on the relationship between crafting in off-job life and optimal functioning beyond needs satisfaction has been scarce, recent studies have produced results that match this perspective. Leisure crafting was positively related to leisure satisfaction in a cross-sectional study among 836 Chinese employees (Zhao et al., 2020). Similarly, Tsaour et al. (2020) reported high correlations between leisure crafting and person-leisure fit in a Taiwanese sample of 200 birdwatchers

and 200 leisure dancers. In a longitudinal study, Chen et al. (2020) found a positive association between online leisure crafting and thriving at home two months later among 340 Chinese service sector employees. Thus, crafting in off-job life may create benefits for optimal functioning that extend over a longer time (e.g., several months). However, as the outcomes were only measured at T2 in the study by Chen et al. (2020), it is not clear whether this effect would have persisted after taking into account the possibly high stability in thriving at home (i.e., controlling for baseline thriving). At the day level, leisure crafting was found to be negatively related to emotional exhaustion in a diary study over a period of seven days among 178 German employees (Hadi et al., 2021). Similar results have been found within educational psychology using the Need Crafting Scale (Laporte et al., 2021a). Crafting to enhance psychological needs satisfaction was found to be positively related to subjective well-being and positive affect, and negatively related to negative affect among students (Laporte et al., 2021a; Laporte et al., 2021b). To summarize, based on theory and earlier results, I expect that off-job crafting is positively related to optimal functioning in life (e.g., overall experienced subjective vitality) over time.

Life satisfaction and family role performance were measured in Study III, and vitality was measured in Study IV as indicators of optimal functioning in life in general. Life satisfaction and vitality are defined in Section 1.1.2. Family role performance refers to “the fulfillment of obligations and expectations stemming from the roles associated with participation in the family domain” (Chen et al., 2014, p. 193). It consists of two distinct factors: task- and relational-level performance. Thus, family role performance captures perceptions of an individual’s ability to successfully perform household, maintenance and care tasks and engage in pleasant social interactions in the family domain (Chen et al., 2014).

Optimal functioning at work

As the boundaries between work and off-job life become increasingly blurred due to work intensification, digitalization and place-and time independent work, spillover processes between the two domains become more prevalent (e.g., Kubicek & Tement, 2016). Thus, the potential benefits of off-job crafting may not be limited to optimal functioning in off-job life or in life in general but can spill over into the job domain. The effects of crafting efforts could extend to other life domains, causing similarities in outcomes between domains. For instance, successful off-job crafting efforts may create enhanced states of positive mood, happiness, and energy which could positively affect not only off-job life, but also work-related outcomes. Potential spillover processes for off-job crafting can also be described by viewing off-job crafting as a resource-seeking activity, as DRAMMA needs satisfaction can be described as a personal resource (e.g., Glazer et al., 2014; Hobfoll, 1989). Quinn et al.’s (2012) model of human energy posits that resource-seeking activities in one domain can enhance a person’s resource reserves, which can in turn energize behavior in various contexts, benefiting optimal functioning. Similar processes have been described as “resource caravans” by Hobfoll (2002). This means that resources often coexist and cluster together. Thus, as long as there is permeability between the two domains (i.e., that what happens in one domain tends to affect what happens in the other) optimal functioning in off-job life enhanced through off-job crafting can combine and create resource gains in optimal functioning at work, thereby benefiting both domains (Hobfoll, 2002).

Research has found both positive and negative relationships between crafting in off-job life and job crafting (Demerouti et al., 2020; Petrou et al., 2017), indicating potential spillover processes between the two. Similarly, online leisure crafting was positively related to career self-management after two

months (Chen et al., 2020). However, relationships between crafting in off-job life and optimal functioning at work have not previously been examined. To summarize, based on these spillover processes explicated in prior studies, I expect that off-job crafting is positively related to optimal functioning at work (e.g., perceived work ability) over time.

Job satisfaction, perceived work ability, and work engagement served as indicators of optimal functioning at work in Study III. Job satisfaction refers to an overall evaluation of how satisfied an employee currently is with their job (Wanous et al., 1997). Perceived work ability is defined as an employee's assessment of their ability to keep working in their job, when considering the personal resources they have and their job characteristics (McGonagle et al., 2015). Work engagement refers to "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Bakker et al., 2002, p. 74).

Incremental validity of off-job crafting for optimal functioning

To show that the novel concept of off-job crafting has practical relevance, it is important to demonstrate its incremental validity over other relevant concepts (e.g., Hunsley & Meyer, 2003). Needs-based off-job crafting has a broader scope than leisure crafting and home crafting (Demerouti et al., 2020; Petrou & Bakker, 2016). That is, off-job crafting includes more off-job life domains than leisure, such as voluntary work, care tasks (e.g., childcare), and house care (e.g., household chores, maintenance tasks). Moreover, off-job crafting has a multi-factor structure focusing on specific needs, as opposed to a single-factor structure focusing on leisure crafting in general, and has a broader focus of crafting goals not examined in previous crafting instruments such as crafting for detachment, for relaxation, and for meaning. Therefore, I expect to find evidence for incremental validity of off-job crafting for predicting optimal functioning (in general and at work) over and above job crafting, leisure crafting, and home crafting. Moreover, I expect that the potential benefits of off-job crafting are not only due to the person having a general tendency to effectively influence their environment. Thus, I expect that off-job crafting shows incremental validity for optimal functioning over and above proactive personality.

1.4 Individual and cultural antecedents of off-job crafting

Individual antecedents

Individual factors, such as personality and age, may affect how much people engage in crafting. Individual antecedents can influence whether psychological needs are individually perceived as salient or not, as well as how many opportunities people generally have for crafting (e.g., Bipp & Demerouti, 2015). Regarding personality variables, I focus on proactive personality due to its salience for crafting processes which has been documented in studies on job crafting (Bakker et al., 2012; Rudolph et al., 2017). As crafting efforts are proactive by definition, individuals with a more proactive personality tend to engage more in crafting efforts. Indeed, a meta-analysis of job crafting has shown that proactive personality is decidedly positively related to job crafting (Rudolph et al., 2017). Leisure crafting has also been positively associated with proactive personality in a study among German employees (Hadi et al.,

2021), and with proactive personality and novelty seeking among the employees of a multi-national company (Petrou & Bakker, 2016). I expected that off-job crafting would be similarly positively related to proactive personality.

Studies on crafting in off-job life have so far not focused on demographic factors (e.g., age, gender) as focal variables. In this dissertation, I focused on age, gender, education, tenure, and working hours as potential demographic individual antecedents of off-job crafting. Studies on leisure and home crafting have reported negative correlations for age, null correlations for education and working hours, null or positive correlations for tenure. Gender had either no effect, or men engaged more in crafting than did women (Chen et al., 2020; Demerouti et al., 2020; Petrou & Bakker, 2016; Petrou et al., 2017; Zhao et al., 2020). However, as research and discussion on these relationships have been very limited, it is unclear which contextual factors (e.g., availability of leisure for different demographic groups) may or may not underlie these differences.

In the next section, I discuss the interplay between individual and cultural antecedents as important factors affecting the extent to which people can and do craft their off-job lives depending on their individual situations and contexts.

Cultural antecedents

Culture is commonly defined by scholars as “the set of attitudes, beliefs, and behaviors shared by a group of people, but different to each individual, communicated from one generation to the next” (Papayiannis & Anastasiou-Hadjicharalambous, 2011, p. 440). Much of psychological research is dominated by western cultural contexts, and largely ignores issues specific to countries in other parts of the world (e.g., Christopher & Hickinbottom, 2008). Importantly, cross-cultural research is essential to explain and reduce culture-bound biases, uncover individual mechanisms underlying group-based differences, and examine the universality and specificity of psychological processes (Gelfand et al., 2017; Wang, 2016). Job crafting research suggests that culture can influence how much effort is invested in different crafting goals (Erez, 2010; Gordon et al., 2015). Similarly, Demerouti et al. (2020) found differences in mean levels of seeking challenges and reducing demands at home among 139 employees from six countries, although the potential factors behind these differences were not discussed in this study.

In Study IV, I focused on the similarities and differences between the Finnish and the Japanese culture as potential influencers of the relationship between individual antecedents and off-job crafting in these two countries. To obtain more intricate information on the relationship between individual/contextual antecedents and off-job crafting, I focused on two dimensions of off-job crafting specifically in Study IV, i.e., on off-job crafting for meaning and for affiliation. I focused on these dimensions because meaning and affiliation are the two more recent additions to the recovery from work literature of the six DRAMMA needs (de Bloom et al., 2017; Newman et al., 2014) as well as key positive experiences in serious leisure pursuits (e.g., Liu, 2014).

There are vast differences between the working conditions of Finland and Japan. For instance, typical yearly working hours are over 2,000 in Japan (Ono, 2018) compared to about 1,600 in Finland (OSF, 2018). On the other hand, while leisure is perceived as an important, autonomy-supporting life domain in Finland, leisure (“yoka”) is commonly viewed as the time remaining after work in Japan, which even has negative connotations for people (Ito & Walker, 2014; Wang & Wong, 2014). Beyond

these differences, Finland and Japan also differ in cultural values, especially the values of long-/short-term orientation and masculinity-femininity (Hofstede et al., 2010). Whereas Finland is a short-term oriented and feminine country, Japan is characterized as a long-term oriented country and is one of the most masculine countries in the world (Hofstede et al., 2010). In the following paragraphs, I briefly describe how these cultural values may affect the relationship between the four demographic antecedents examined in Study IV (age, gender, human capital, working hours) and off-job crafting for meaning and for affiliation.

In accordance with socioemotional selectivity theory, as people age, they globally tend to become more motivated to seek out emotional meaning and social contact (Carstensen et al., 1999). Therefore, I expect that age would be positively related to off-job crafting (for meaning and for affiliation) in both Finland and Japan. However, as future-oriented planning such as long-term orientation (e.g., focusing on long-term gains) promotes proactive efforts (Grant & Ashford, 2008; Parker et al., 2010), I expect that the relationship between age and off-job crafting would be stronger in a long-term oriented country (Japan) than in a short-term oriented country (Finland). Whereas gender norms and roles of engagement in leisure and home chores are fairly equal in Finland, in Japan traditional gender roles prevail and women are expected to take care of tasks at home (Osawa, 2020). Working very long hours, Japanese men may have limited opportunities for and interest in off-job crafting as they tend to prioritize work over other activities (Peltokorpi, 2013). Thus, I expect that female Japanese employees would engage more in off-job crafting than male Japanese employees, and that gender would have a weaker relationship to off-job crafting in Finland.

Human capital, defined as skills and knowledge gained through education and training (Becker, 1964), is often operationalized as education and tenure (e.g., Ng & Feldman, 2010). Since skills that translate to off-job life can be acquired through education and tenure (e.g., Wilhelm & Hirschi, 2019), I expect that human capital is positively related to off-job crafting in both Finland and Japan. However, as higher human capital also promotes a high work centrality, specifically in the masculine Japanese culture, through a higher embeddedness in the performance-oriented working context, potentially reducing off-job crafting (Ono, 2018; Peltokorpi, 2013), I expect that this effect would be stronger in Finland than in Japan. On the other hand, since long working hours reduce opportunities for recovery in off-job life (Härmä, 2006), I expect that working hours would be negatively related to off-job crafting in Finland and Japan. However, as Japanese employees often spend 10-12 hours per day in the office (Nemoto, 2013), commute on average almost 1.5 hours daily (Statistics Bureau of Japan, 2016) and often have to spend hours after the regular working day in meetings with clients (Ikeda et al., 2011), I expect that the relationship between working hours and off-job crafting would be more negative in Japan than in Finland.

Discriminant validity of off-job crafting

Besides the links between off-job crafting and its antecedents (e.g., convergent validity), I examine the discriminant validity of off-job crafting compared to recreational activities. As off-job crafting specifically concerns proactive and self-initiated changes in off-job life which target psychological needs satisfaction, off-job crafting is a distinct construct from engagement in recreational (off-job) activities in general. For example, people may engage in recreational activities for various other reasons than seeking to enhance their needs satisfaction, such as social pressure (e.g., Shaw, 1994) or routinely/out

of habit (Sonnentag & Jelden, 2009), in which case this behavior is not considered off-job crafting. Thus, I expect that engaging in recreational activities can be distinguished from off-job crafting.

1.5 Study aims

This dissertation consists of four original publications. The overall aims of this research project were to develop an integrative needs-based model for crafting, to empirically validate the DRAMMA model and the concept of needs-based off-job crafting, and to examine the outcomes and antecedents of off-job crafting. Figure 1 shows the hypothesized nomological network of off-job crafting and DRAMMA needs satisfaction which I examine in this dissertation. My hypotheses are presented in detail in the results section (Table 4).

In Study I, I validated the DRAMMA model and examined the relationships between DRAMMA needs satisfaction and optimal and suboptimal functioning (i.e., well-being and ill-being). The research questions were as follows:

- 1) *Does the DRAMMA model show sufficient structural longitudinal validity?*
- 2) *Is DRAMMA needs satisfaction related to optimal and suboptimal functioning over time?*
- 3) *What is the relative importance of individual DRAMMA needs satisfaction for optimal and suboptimal functioning?*

The aim of Study II was to develop an integrative model of needs-based crafting applicable within and across different life domains based on an integrative conceptual review. The research questions were:

- 1) *Why and how do people engage in crafting efforts?*
- 2) *When and why are crafting efforts effective (or not effective) in achieving optimal functioning?*
- 3) *How does the sequential process of crafting unfold over time?*
- 4) *How do crafting processes unfold across different life domains?*

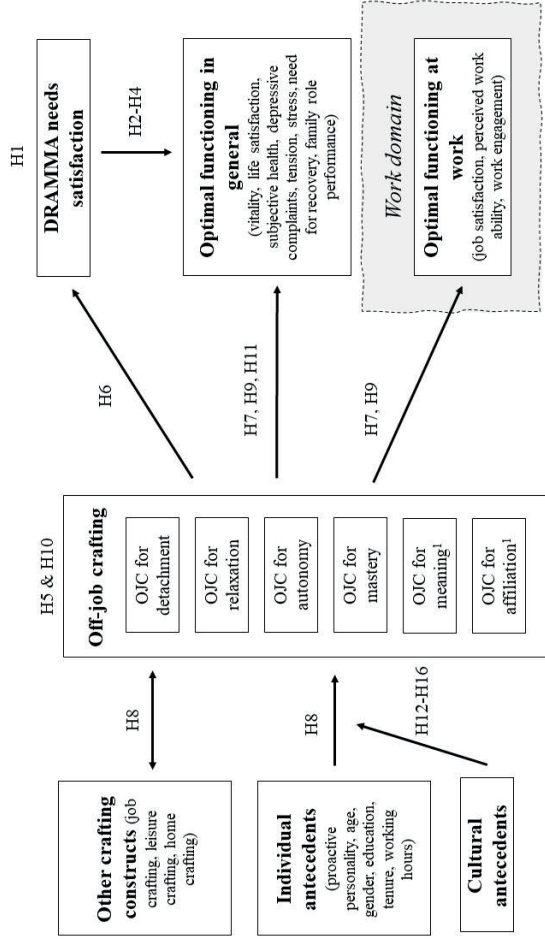
The aim of Study III was to develop the concept of needs-based off-job crafting and an associated scale (the Needs-based Off-job Crafting Scale; NOCS) to measure off-job crafting, examining the structural, convergent, discriminant, incremental, and criterion validity of off-job crafting in several countries. The research questions were:

- 1) *Does the NOCS show sufficient cross-sectional and longitudinal structural validity evidence?*
- 2) *Is off-job crafting positively related to job crafting, proactive personality, leisure crafting and home crafting (convergent validity)?*
- 3) *Is off-job crafting a distinct construct from recreational activities (discriminant validity)?*
- 4) *Is off-job crafting positively related to optimal functioning in general (i.e., life satisfaction and family role performance; criterion validity) over time?*
- 5) *Is off-job crafting positively related to optimal functioning in the work domain (i.e., job satisfaction, perceived work ability, and work engagement; criterion validity) over time?*
- 6) *Does off-job crafting show incremental validity evidence for optimal functioning over and above job crafting, proactive personality, leisure crafting, and home crafting?*

The aim of Study IV was to examine the relationship between off-job crafting for meaning, off-job crafting for affiliation, and vitality over time. Moreover, I examined the interplay between individual and contextual antecedents of off-job crafting. The research questions were:

- 1) *Are off-job crafting for meaning and for affiliation related to vitality over time?*
- 2) *Are individual antecedents (age, gender, human capital, working hours) differentially related to off-job crafting for meaning and for affiliation among Finnish and Japanese employees?*

Figure 1. A summary of the hypothesized relationships in Studies I, III and IV between off-job crafting and its antecedents and outcomes. ¹ Only off-job crafting for meaning and off-job crafting for affiliation were included in Study IV (H11-H16). OJC = off-job crafting. See also Table 4 for the exact hypotheses.



2 METHODS

2.1 Participants and procedure

The studies of this dissertation mostly consisted of self-report surveys, with data collections conducted online. Study I was a diary study based on self-reports and part of the development of a smartphone app focusing on aiding employee recovery from work (Holidaily). The study was conducted in Germany in 2016 and 2017 and announced in local newspapers, radio interviews, and on television. Participants completed five questionnaires over a period of two consecutive months - two weeks before the start of their vacation, on the last day at work before the vacation, during their vacation, on the first day after returning to work, and two weeks after returning to work. Average length of vacation was 17.6 days ($SD = 6.9$). A total of 279 German employees from different branches and various companies took part in Study I. Participants completed on average 3.4 surveys (total $n = 942$). Background characteristics of the samples are reported in Table 1.

In Study II, an integrative conceptual review was conducted based on existing studies and concepts of crafting in different life domains. The literature review focused on delineating and integrating the existing concepts on crafting in the job and the off-job domains, and at the interface between the two. Moreover, the literature on the paths between psychological needs and crafting efforts, crafting efforts and need satisfaction, and crafting efforts and optimal functioning was reviewed and summarized to provide a holistic overview of needs-based crafting.

Table 1. Sample characteristics of empirical Studies I, III and IV

Background factors	Longitudinal sample, German employees (Study I) (N = 279)	Cross-sectional sample, US employees (Study IIIa) (N = 99)	Cross-sectional sample, US employees (Study IIIb) (N = 97)	Cross-sectional sample, US employees (Study IIIc) (N = 106)	Longitudinal sample, German-speaking employees from countries (Study III d) (N = 2,104)	Longitudinal sample, Finnish employees (Study IIIe & IV) (N = 578)	Longitudinal sample, Japanese employees (Study III f & IV) (N = 228)	Cross-sectional sample, UK employees (Study IIIg) (N = 237)									
	N	%	N	%	N	%	N	%	N	%							
Gender																	
Women	210	75	41	41	44	45	42	40	1,051	50	456	85	80	36	110	46	
Men	69	25	58	59	52	54	64	60	1,053	50	77	14	143	64	125	53	
Education¹																	
Lower	66	24	29	29	29	30	32	30	1,064	51	266	50	26	12	69	29	
Higher	213	76	70	71	68	70	74	70	1,040	49	266	50	198	88	168	71	
Field																	
Healthcare or social services	-	-	11	11	9	9	5	5	283	13	197	37	8	4	17	7	
Public administration	-	-	0	0	1	1	6	6	222	11	104	20	3	1	0	0	
Education	-	-	6	6	9	9	10	10	132	6	56	11	7	3	16	7	
Trade	-	-	7	7	1	1	4	4	223	11	2	0	0	0	5	2	
Information technology	-	-	0	0	18	19	21	20	112	5	10	2	128	57	53	22	
Other	-	-	75	76	59	61	60	57	1,132	54	162	31	78	35	146	62	
Continuous variables	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	40.00	10.68	38.37	9.74	31.56	7.91	30.98	7.81	43.68	11.13	48.70	10.23	30.86	6.35	31.08	7.19	
Tenure	9.21	9.01	-	-	-	-	-	-	11.66	10.21	14.65	11.86	4.85	4.57	-	-	
Working hours ²	38.92	11.36	42.81	5.60	41.36	6.66	40.28	6.53	-	-	38.88	4.38	48.26	9.79	39.97	6.53	

Note. ¹Lower = High school/vocational school or lower. Higher = College or higher. ²Weekly contractual hours plus hours worked overtime. - = Information not available.

Sub-studies IIIb-d were longitudinal studies with three measurements over a period of six months in 2018 and 2019. Study III d was conducted among employees in three German-speaking countries (Germany, Austria, and Switzerland). A total of 3,132 employees were invited to participate and of these 2,104 employees' (65%) answers were retained after screening out partial and hasty responders, and employees who worked less than 20 hours per week. Study III e was conducted in Finland among employees who were members of a large trade union, as well as employees of cities, municipalities, other trade unions, churches, and through an earlier study, as well as social media. Employees had to work at least 24 hours per week to be eligible to participate. Three participants' answers were removed due to failing all three attention checks at each measurement time. The final sample included 578 Finnish employees. Study III f was conducted among employees in Japan recruited through a consultancy agency. Employees had to work at least 24 hours per week to be eligible to participate. A total of 228 Japanese employees participated in Study III f. The data in Study IV included the Finnish and Japanese samples of Study III (i.e., the samples from Studies III e and III f).

2.2 Measures

The next sections provide a brief overview of the questionnaire measures used in this research project. Since this study was part of a larger project, some scales with multiple items were shortened to reduce participant burden. Cronbach's alphas (α) are reported at the between-person level unless otherwise indicated.

DRAMMA needs satisfaction

Three items were used to measure each subdimension of DRAMMA needs satisfaction. Detachment from work was measured in Study I (within-person $\alpha = .89$) with items adapted from the recovery experiences questionnaire (REQ; Sonnentag & Fritz, 2007) and the cognitive irritation scale (Mohr et al., 2006), and in Study III e ($\alpha = .85-.88$) with the REQ. Relaxation was measured in Studies I (within-person $\alpha = .92$) and III e ($\alpha = .84-.85$) with the REQ. Autonomy was measured in Study I (within-person $\alpha = .85$) with the Basic Needs Satisfaction in General Scale (BNSGS; Johnston & Finney, 2010), and in Study III e ($\alpha = .85-.89$)

with the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015). Mastery was measured in Study I (within-person $\alpha = .78$) with the REQ, and in Study IIIe with the BPSNFS ($\alpha = .89-.90$). Meaning was measured in Study I (within-person $\alpha = .80$) with items from the Job Diagnostic Survey (Hackman & Oldman, 1974) reformulated to apply to leisure, and in Study IIIe ($\alpha = .83-.88$) with the Meaning in Life Questionnaire (Steger et al., 2006). Affiliation was measured in Study I (within-person $\alpha = .82$) with the BNSGS and in Study IIIe ($\alpha = .90-.91$) with the BPNSFS.

Crafting in off-job and job domains

Off-job crafting was measured in Studies IIIa-b, IIId-g, and IV with the Needs-based Off-job Crafting Scale (NOCS) developed in Study III, with six items per each of the six off-job crafting dimensions in Study IIIa reduced to three items per dimension, which were used in Studies IIIb, IIId-g and IV ($\alpha = .70-.92$; Table 2). Only the dimensions of off-job crafting for meaning and off-job crafting for affiliation were used in Study IV.

Table 2. Reliabilities of the six dimensions of the NOCS in Studies IIIb and IIId-g

Scale dimension	Study IIIb (US sample, $N = 97$)	Study IIId (German-speaking sample, $N =$ 2,104)	Study IIIe (Finnish sample, $N = 578$)	Study IIIf (Japanese sample, $N =$ 228)	Study IIIg (UK sample, $N = 237$)
	T1	T1, T2, T3	T1, T2, T3	T1, T2, T3	T1
OJC for detachment	.85	.85, .85, .87	.92, .91, .89	.77, .85, .83	.88
OJC for relaxation	.90	.83, .81, .81	.86, .85, .89	.80, .85, .86	.82
OJC for autonomy	.88	.71, .73, .75	.86, .87, .89	.82, .84, .88	.81
OJC for mastery	.86	.77, .79, .80	.72, .70, .75	.75, .85, .81	.81
OJC for meaning	.92	.77, .75, .74	.88, .89, .87	.85, .85, .84	.85
OJC for affiliation	.91	.86, .88, .88	.86, .87, .90	.80, .90, .89	.90

Note. Cronbach's alphas at T1, T2, and T3 of each study. Off-job crafting for meaning and off-job crafting for affiliation were assessed also in Study III with the samples from Studies IIIe and IIIf. OJC = off-job crafting.

Job crafting was measured in Study IIIg with the job crafting scale by Tims et al. (2012) assessing the dimensions of increasing structural job resources, decreasing hindering job demands, increasing social job resources, and increasing challenging job demands ($\alpha = .83-.88$). Leisure crafting was measured in Study IIIe ($\alpha = .92$) with

the leisure crafting scale by Petrou and Bakker (2016). Home crafting was measured in Study IIIg with the scale developed by Demerouti et al. (2020), assessing the dimensions of seeking resources, seeking challenges and reducing demands. Reliability for this scale was rather poor ($\alpha = .55-.76$), especially for the dimension of seeking resources.

Optimal functioning in general

Vitality was measured in Study I (within-person $\alpha = .90$) with four items from the Profile of Mood States (McNair et al., 1971), and in Study IV ($\alpha = .93-.96$) with four items from the Subjective Vitality Scale (Ryan & Frederick, 1997). Life satisfaction was measured in Study I with a single item “How satisfied do you feel about this day?”, and in Studies IIIId-g with a single item referring to private life. The item used in Study IIIId was “How satisfied are you when you look at your private life as a whole?”, and in Studies IIIe-g “How satisfied have you been with your private life over the past month?” (Van den Broeck et al., 2010). Subjective health was measured in Study I with a single item “How healthy did you feel today?”. Depressive complaints were measured in Study I (within-person $\alpha = .82$) with eight items from the PHQ-8 (Kroenke et al., 2009). Need for recovery was measured in Study I (within-person $\alpha = .87$) with four items referring to time after work by Van Veldhoven and Broersen (2003). Tension was measured in Study I with a single item “How tense did you feel today?”. Stress was measured in Study I with a single item “How stressed did you feel today?”. Task- and relationship-level family role performance were measured in Studies IIIe ($\alpha = .87-.89$), IIIf ($\alpha = .88-.93$), and IIIg ($\alpha = .84$) with the family role performance scale by Chen et al. (2014).

Optimal functioning at work

Job satisfaction was measured in Study IIIId-g with a single item. The item used in Study IIIId was “How satisfied are you when you look at your professional life as a whole?”, and in Studies IIIe-g “How satisfied have you been with your job over the past month?” (Van den Broeck et al., 2010). Work engagement was measured in Studies IIIId ($\alpha = .94-.95$), IIIe ($\alpha = .94$), IIIf ($\alpha = .92-.95$), and IIIg ($\alpha = .93$) with six items from the vigor and dedication dimensions of the Utrecht Work

Engagement Scale-9 (Schaufeli et al., 2006), which are considered the key dimensions of work engagement (González-Romá et al., 2006). Perceived work ability was measured in Studies IIIe-g with a single item “How many points would you give your current ability to work?” from the Work Ability Index (Ilmarinen, 2006).

Individual antecedents and recreational activities

Proactive personality was measured in Study IIIe ($\alpha = .80$) with a six-item version of the Proactive Personality Scale (Bateman & Crant, 1993). Chronological age, gender, human capital (highest education qualification obtained and organizational tenure in years), and working hours (contractual hours plus hours worked above contractual hours) were used as individual antecedents of off-job crafting in Study IV. Recreational activities were measured in Study IIIe with individual items adapted from earlier studies (Brajša-Žganec et al., 2011; Demerouti et al., 2009; Tinsley & Eldredge, 1995).

2.3 Statistical analyses in empirical Studies I, III and IV

The statistical analyses pertaining to Studies I, III, and IV are described briefly below and discussed in more detail in the original publications.

Following Schermelleh-Engel et al. (2003), the CFI, TLI, RMSEA and SRMR fit indices were used in all studies to examine the fit of Confirmatory Factor Analysis (CFA) and other structural equation models in this dissertation. In Study I, multilevel CFA was used to test if the six DRAMMA needs satisfaction scales represent distinct constructs at the within- and the between-person levels. Growth modeling with random coefficients (Bliese & Ployhart, 2002) was used to examine within-person relationships between DRAMMA needs satisfaction and optimal functioning. Pratt indices (Pratt, 1987; Thomas et al., 1998) were estimated to examine the relative importance of each DRAMMA need's satisfaction on optimal functioning. Furthermore, I used hierarchical regression analysis following Sheldon and Niemiec (2006) to examine if balanced DRAMMA needs satisfaction contributes to optimal functioning over and above the individual effects of each need.

I used exploratory factor analysis with principal axis factoring (Promax rotation) in Study IIIa to examine the factor structure of the 36-item version of the NOCS. The relationship between the number of crafting examples generated and the means of the NOCS was examined with partial correlations in Study IIIb, controlling for the participants' questionnaire responding time. Longitudinal CFAs were used in Studies III d-f to examine the model fit of the six-factor model of the NOCS, to compare the fit to alternative factor solutions, and to examine scale invariance. I assessed longitudinal criterion validity of off-job crafting to optimal functioning in Studies III d-g with partial correlations, controlling for the baseline (T1) of outcomes. In Studies III e and III g, I examined convergent validity with Pearson's correlation coefficients. I examined discriminant validity in Study III e with CFAs. I used hierarchical regression analyses to examine incremental validity in Studies III e and III g.

In Study IV, I used multi-group growth modeling to examine the relationships between the longitudinal (within-person) increases in off-job crafting and vitality and the effect of contextual variables on the levels of off-job crafting (i.e., on how much participants engaged in crafting). The data and main variables and analysis methods used in each study are summarized in Table 3.

Table 3. Summary of the studies and sub-studies of the dissertation

Study	Country	Data	Research aims	Main variables used	Main analysis methods
Study I	Germany	Longitudinal, five measurements before, during, and after a vacation (N = 279)	Examining the longitudinal validity of the DRAMMA model	DRAMMA needs satisfaction, vitality, life satisfaction, subjective health, depressive complaints, need for recovery, stress, tension	Multilevel CFA, growth modeling, Pratt indices, hierarchical regression
Study II	Not applicable	Prior concepts and studies on crafting	To integrate existing literature on crafting and develop a model for needs-based crafting	Not applicable	Integrative conceptual review
Study IIIa	USA	Cross-sectional (N = 99)	Testing the structural validity of off-job crafting	Off-job crafting	Exploratory factor analysis
Study IIIb	USA	Cross-sectional (N = 97)	Assessing the criterion validity of off-job crafting	Off-job crafting, examples for off-job crafting efforts	Partial correlations
Study IIIc	USA	Cross-sectional (N = 106)	Testing the discriminant validity of off-job crafting	Off-job crafting and recreational activity items	Percentage of items classified correctly
Study IIId	Germany, Austria, and Switzerland	Longitudinal, three measurements over a period of six months (N = 2,104)	Assessing the structural and criterion validity of off-job crafting	Off-job crafting, life satisfaction, job satisfaction, work engagement	Longitudinal CFA, partial correlations
Study IIIf	Finland	Longitudinal, three measurements over a period of six months (N = 578)	Testing the structural, convergent, discriminant, criterion, and incremental validity of off-job crafting	Off-job crafting, proactive personality, recreational activities, leisure crafting, DRAMMA needs satisfaction, life satisfaction, family role performance, job satisfaction, work ability, work engagement	Longitudinal CFA, partial correlations, Pearson regression
Study IIIg	Japan	Longitudinal, three measurements over a period of six months (N = 228)	Assessing the structural and criterion validity of off-job crafting	Off-job crafting, life satisfaction, family role performance, job satisfaction, work ability, work engagement	Longitudinal CFA, partial correlations
Study IIIh	UK	Cross-sectional (N = 237)	Assessing the convergent and incremental validity of off-job crafting	Off-job crafting, job and home crafting, life satisfaction, family role performance, job satisfaction, work ability, work engagement	Pearson correlations, hierarchical regression
Study IV	Finland, Japan	Data from Studies IIId and IIIf was used in Study IV	Examining the relationships between off-job crafting for meaning and for affiliation, vitality, age, gender, human capital, working hours	Off-job crafting for meaning and for affiliation, vitality, age, gender, human capital, working hours	Multi-group growth modeling

3 OVERVIEW OF THE RESULTS

3.1 Study I – A longitudinal validation of the DRAMMA Model

The aim of Study I was to examine the evidence for structural and criterion validity of the DRAMMA model of psychological needs satisfaction (Newman et al., 2014) longitudinally in a study among 279 German employees. Thus, factor structure and internal consistency of DRAMMA needs satisfaction, and the predictive value of DRAMMA needs satisfaction for optimal functioning over time were assessed. The fit of the six-factor model, with detachment, relaxation, autonomy, mastery, meaning, and affiliation on individual factors, ranged between good and acceptable at the within- and the between-person levels ($\chi^2 = 443.97$, $df = 205$, $p < .001$, CFI = .98, TLI = .97, RMSEA = .035, SRMR_{within} = .046, SRMR_{between} = .078) and was better than the fit of all alternative models tested.

Satisfaction of all DRAMMA needs increased during participants' vacations and decreased thereafter. In zero-order within-person correlations, all DRAMMA needs satisfaction facets were positively related to optimal functioning (i.e., well-being, as indicated by life satisfaction, vitality, and subjective health) and negatively related to suboptimal functioning (i.e., ill-being, as indicated by depressive complaints, need for recovery, stress, and tension). However, when the needs predicted outcomes conjointly in the growth models, only mastery, and marginally detachment and autonomy, were significant positive predictors of vitality over time. Relaxation, and marginally mastery, positively predicted life satisfaction, whereas only relaxation predicted subjective health. Thus, relaxation and mastery, and marginally detachment and autonomy, had positive relationships with optimal functioning, while taking into account the combined effects of all the DRAMMA needs' satisfaction over time. For suboptimal functioning, relaxation and mastery negatively predicted depressive complaints over time, and detachment, relaxation, and mastery negatively predicted need for recovery. Detachment, and marginally affiliation, negatively predicted tension. Detachment and relaxation, and marginally affiliation, were negative

predictors of stress. Thus, detachment, relaxation, and mastery, and marginally affiliation, had negative relationships to suboptimal functioning. Contrary to expectations, DRAMMA needs satisfaction predicted on average twice as much variance in suboptimal functioning than in optimal functioning. Finally, in the analysis concerning the relative importance of DRAMMA needs satisfaction for optimal and suboptimal functioning, relaxation was the strongest predictor for four of the seven outcomes, detachment was the strongest (negative) predictor for tension and stress, and autonomy was the strongest predictor for vitality.

3.2 Study II – Integrative conceptual review of crafting within and across life domains

In Study II, a novel model of crafting within and across life domains (the *Integrative Needs Model of Crafting*) was developed based on an integrative conceptual review of existing crafting concepts and empirical studies. Based on the Two Process Model of psychological needs (Sheldon, 2011) and the literature review, a key proposition emerging through the model is that psychological needs influence crafting both as motivational drivers of crafting efforts and as experiential rewards that follow crafting. More specifically, unsatisfied needs act as drivers and motivators of crafting behavior, making people more likely to initiate crafting to resolve the tension between their perceived and preferred level of needs satisfaction. On the other hand, needs satisfaction was conceptualized as the target of crafting efforts, acting as an experiential reward when crafting efforts are successful. Crafting was further conceptualized as an identity-based process, where crafting efforts take place in the context of an individual's role identities across various life domains (e.g., parent, coworker, volunteer worker).

The integrative review showed that psychological needs satisfaction can lead to optimal functioning in the domain in which the crafting efforts are enacted, and also to optimal functioning in other domains through spillover processes. For example, psychological needs satisfaction gained through crafting can create increased energy and positive mood in one life domain, which in turn enhances energy and mood in another domain. Crafting may also operate via a compensation mechanism, where need dissatisfaction in one domain can lead to compensatory crafting efforts in

another domain. A conflict mechanism applies if investing energy and time in crafting efforts in one domain reduces crafting efforts exerted in other domains. Furthermore, five key features of crafting efforts were proposed in Study II. More specifically, crafting efforts were conceptualized to be 1) proactive, 2) intentional, 3) self-initiated, 4) self-targeted, and 5) substantial. Finally, contextual and individual factors such as culture, personality, age, and gender were posited to influence how much people can and will engage in crafting in each life domain.

3.3 Study III – Reliability, validity, and nomological network of off-job crafting

The aim of Study III was to examine evidence for structural, convergent, discriminant, criterion, and incremental validity of needs-based off-job crafting in different countries, and to develop a novel reliable and valid measure (the NOCS) for off-job crafting. A literature review of existing scales and 21 qualitative interviews conducted in Finland ($N = 15$) and Japan ($N = 6$) resulted in a pool of 36 suitable items. In Study IIIa, the long 36-item version of the NOCS (six items per scale dimension) showed a six-factor structure in an exploratory factor analysis as well as good internal reliability among 99 US employees. Based on the factor loadings and expert feedback, each scale dimension was reduced to three items (18 items in total). In Study IIIb with a sample of 97 US employees, off-job crafting as measured with the NOCS had positive partial correlations with the number of generated off-job crafting examples for each dimension (range .17-.43). All partial correlations between off-job crafting scores and the number of examples generated were significant with the exception of off-job crafting for detachment. In Study IIIc, the participating 106 US employees allocated an average of 80% of the off-job crafting items and 78% of recreational activity items to the correct category. Items for off-job crafting for relaxation were more difficult to categorize (66% correct), whereas off-job crafting for autonomy items were easier to categorize (92% correct).

In Study IIIId with a longitudinal sample of 2,104 German-speaking employees, a longitudinal CFA showed that the six-factor model of the NOCS had a good to excellent fit ($\chi^2 = 824.50$, $df = 360$, $p < .001$, CFI = .96, TLI = .95, RMSEA = .062, SRMR = .048), and fitted better than other factor structures examined. Moreover, the NOCS demonstrated strong invariance over time and adequate test-retest

reliability. Off-job crafting was positively related to life satisfaction over time and also had small (but significant) positive associations with job satisfaction over time. Off-job crafting was only weakly related to work engagement, and had positive (for crafting for mastery), negative (for crafting for detachment), as well as non-significant relationships (for all other crafting dimensions) to work engagement over time.

In Study IIIe with a longitudinal sample of 578 Finnish employees, proactive personality was positively related to off-job crafting, with the exception of the dimensions of crafting for detachment and for relaxation. Off-job crafting was shown to be positively related to leisure crafting, as well as distinct from recreational activities. Off-job crafting dimensions also positively predicted the matching dimensions of DRAMMA needs satisfaction over time, with the exception of crafting for detachment. Off-job crafting had positive relationships with life satisfaction, family role performance, and perceived work ability over time, whereas off-job crafting was unrelated to job satisfaction over time. Again, mixed results were found for work engagement as crafting for meaning and for affiliation were positively and crafting for detachment was negatively related to work engagement over time. Moreover, off-job crafting significantly predicted variance in all optimal functioning outcomes over and above proactive personality and leisure crafting.

In Study IIIf with a longitudinal sample of 228 Japanese employees, off-job crafting for meaning was positively related to life satisfaction and family role task performance over time, whereas off-job crafting for affiliation was positively related to family role relational performance and perceived work ability. No significant relationships were found for job satisfaction or work engagement, or for the other off-job crafting dimensions.

Finally, In Study IIIg with a cross-sectional sample of 237 UK employees, off-job crafting was in general positively related to job crafting and home crafting. Off-job crafting explained variance beyond job crafting in life satisfaction, family role performance, and perceived work ability, but not in job satisfaction and work engagement. Off-job crafting had slightly higher correlations to optimal functioning (mean $r = .23$) than did home crafting ($r = .16$). Off-job crafting explained variance beyond home crafting in life satisfaction and family role performance, and marginally in perceived work ability and work engagement, but not in job satisfaction.

3.4 Study IV – Relationship between off-job crafting, vitality, and the demographic and cultural context of Finnish and Japanese employees

The aim of Study IV was to examine the within-person relationship between off-job crafting (for meaning and for affiliation) and vitality, as well as to examine potential differences in the relationship between off-job crafting and individual antecedents (age, gender, human capital, working hours) among Finnish and Japanese employees. The samples from Studies IIIe and IIIf were used in Study IV. Among Finnish employees, increases in off-job crafting for meaning and for affiliation were positively related to increased vitality over time. Similarly, increases in off-job crafting for affiliation were positively related to increased vitality among Japanese employees. However, increases in off-job crafting for meaning were not significantly related to increases in vitality among Japanese employees. Age was positively related to off-job crafting for meaning (but not to off-job crafting for affiliation) among Finnish employees. However, contrary to expectations, age was negatively related to off-job crafting for meaning among Japanese employees. Female Japanese employees engaged in more off-job crafting for affiliation (but not in more off-job crafting for meaning) than did Japanese male employees, whereas no relationships were found between gender and off-job crafting for meaning or for affiliation in Finland. Human capital and working hours were unrelated to off-job crafting for meaning and for affiliation among both Finnish and Japanese employees.

The hypotheses for each study and whether they received support are summarized in Table 4.

Table 4. Summary of the hypotheses and results for empirical Studies I, III, and IV¹

Study	Longitudinal analysis	Hypothesis	Supported
I	Yes	H1	Supported
	Yes	H2	Partially supported (for detachment, relaxation, autonomy, and mastery)
	Yes	H3	Partially supported (for detachment, relaxation, and mastery)
	Yes	H4	Not supported (results opposite to hypothesis)
III	a) Yes	Explorative analysis	a) Supported (Study III d)
	b) Yes		b) Supported (Studies III d-f)
	c) No		c) Supported (Studies III d-g)
	d) Yes		d) Supported (Study III e)
	No	H5	Supported (except for off-job crafting for detachment, Study III b)
	Yes	H6	Supported (except for off-job crafting for detachment, Study III e)
	Yes	H7	a) Supported (Study III d), partially supported (Studies III e-f) b) Partially supported (Studies III e-f) c) Partially supported (Study III d), not supported (Studies III e-f) d) Partially supported (Studies III e-f) e) Partially supported (Studies III d-e), not supported (Study III f)

Table 4: continued. Summary of the hypotheses and results for empirical Studies I, III, and IV¹

No	H8		
		Off-job crafting is positively related to a) job crafting, b) proactive personality, c) leisure crafting, and d) home crafting	a) Partially supported (Study IIIg) b) Partially supported (Study IIIe) c) Supported (Study IIIe) d) Partially supported (Study IIIg)
No	H9	Off-job crafting predicts variance in optimal functioning beyond a) job crafting, b) proactive personality, c) leisure crafting, and d) home crafting	a) Partially supported (Study IIIg) b) Supported (Study IIIe) c) Supported (Study IIIe) d) Partially supported (Study IIIg)
No	H10	Engaging in recreational activities can be reliably distinguished from and is not systematically related to off-job crafting	Supported (Studies IIIc, IIIe)
Yes	H11	Increases in off-job crafting ¹ are positively related to increases in vitality among Finnish employees	Supported
Yes	H12	Increases in off-job crafting ¹ are positively related to increases in vitality among Japanese employees	Supported (for off-job crafting for meaning)
No	H13	Age has positive, and stronger relationships to off-job crafting ¹ in Japan than in Finland	Partially supported (age was positively related to off-job crafting for meaning in Finland but negatively in Japan)
No	H14	Japanese female employees engage in off-job crafting ² more often than Japanese male employees, but gender has weaker relationships to off-job crafting ¹ in Finland	Supported (for off-job crafting for affiliation)
No	H15	Human capital has positive, and stronger relationships to off-job crafting ¹ in Finland than in Japan	Not supported (relationships non-significant in both countries)
No	H16	Working hours have negative, and stronger relationships to off-job crafting ¹ in Japan than in Finland	Not supported (relationships non-significant in both countries)

Note. ¹ No hypotheses were presented in Study II. ² Only off-job crafting for meaning and off-job crafting for affiliation were measured in Study IV. NOCS = Needs-based Off-job Crafting Scale

4 DISCUSSION

4.1 Main findings

4.1.1 Summary of the main findings

The results of Study I provided evidence for the structural validity of the DRAMMA model longitudinally, as DRAMMA needs satisfaction had a well-fitting six-factor structure at the between- and within-person level. In the zero-order within-person correlations, satisfaction of all the DRAMMA needs was consistently positively related to optimal functioning and negatively related to suboptimal functioning. However, when DRAMMA needs satisfaction conjointly predicted optimal and suboptimal functioning, only detachment, relaxation, and mastery had significant relationships with optimal and suboptimal functioning. Autonomy and affiliation had marginal relationships to outcomes, whereas meaning was not related to any of the outcomes. Relaxation, followed by detachment, was the most consistently important predictor of the outcomes. Autonomy was the most important predictor for vitality.

The integrative conceptual review in Study II integrated prior concepts of crafting within and across different life domains in the Integrative Needs Model of Crafting. The crafting process was proposed to begin from a discrepancy in needs (i.e., psychological needs as motives of crafting), leading to crafting efforts within a specific life domain. Crafting efforts in one domain can then lead to optimal functioning in that specific life domain as well as in other life domains through psychological needs satisfaction. Support for the integrative model was provided both in terms of existing theoretical concepts as well as in empirical findings.

In Study III, focusing on off-job crafting (i.e., proactive efforts targeted at improving DRAMMA needs satisfaction), the six-factor, 18-item NOCS was shown to have structural validity longitudinally (i.e., a well-fitting six-factor structure, invariance over time, and adequate test-retest reliability). The number of examples given for off-job crafting efforts correlated positively with the participant's score on the corresponding scale dimension of the NOCS. Off-job crafting was mostly positively related to job crafting, proactive personality, leisure crafting, and home crafting, and was a distinct construct from recreational activities. Moreover, off-job crafting was positively related to matching dimensions of DRAMMA needs satisfaction (with the exception of crafting for detachment), and to life satisfaction, family role performance, and perceived work ability over time in different countries, although fewer significant relationships between off-job crafting and optimal functioning were found in the Japanese sample (Study IIIg). Off-job crafting had both positive and non-significant relationships to job satisfaction and non-significant, positive, and negative relationships to work engagement over time in the different sub-studies. Off-job crafting for meaning and for affiliation were most consistently related to optimal functioning longitudinally across the sub-studies, but the dimensions of off-job crafting for relaxation, for autonomy and for mastery also had positive relationships with optimal functioning. Off-

job crafting for detachment was positively related to life satisfaction and negatively related to work engagement over time. Finally, off-job crafting predicted variance beyond other crafting constructs (job-, leisure-, and home crafting), especially for optimal functioning in general (life satisfaction, family role performance) but also for optimal functioning at work (especially for perceived work ability).

In Study IV, increases in off-job crafting for meaning and for affiliation at the within-person level were positively related to increases in vitality among Finnish employees. Increases in off-job crafting for meaning, but not in off-job crafting for affiliation, were positively related to increases in vitality among Japanese employees. Older Finnish employees engaged in more off-job crafting than did younger Finnish employees, whereas a reverse relationship was found among Japanese employees. Female Japanese employees engaged in more off-job crafting for affiliation than did male Japanese employees. No relationships were found for human capital and working hours as predictors of off-job crafting.

4.1.2 DRAMMA needs satisfaction and optimal functioning

The results of Study I support the structural validity of the DRAMMA model (Newman et al., 2014), as the six-factor structure, with each of the DRAMMA needs loading on their individual factors, had a good fit and was better than the fit of all other tested models at the between- and the within-person level. Thus, this study showed that the DRAMMA model is an internally consistent model to longitudinally measure satisfaction of distinct needs salient for off-job life. The positive zero-order correlations between the satisfaction of individual DRAMMA needs and optimal functioning replicate findings from numerous earlier studies (e.g., Bennett et al., 2018; Newman et al., 2014; Walker & Kono, 2018), indicating that DRAMMA needs satisfaction is positively related to well-being. Similarly, the satisfaction of individual DRAMMA needs was negatively related to suboptimal functioning, thereby replicating earlier findings (e.g., Ryan et al., 2010; Steed et al., 2021).

When satisfaction of DRAMMA needs predicted optimal and suboptimal functioning conjointly, providing the first examination of these effects at the within-person level, the number of significant relationships decreased. Detachment, relaxation, and mastery predicted optimal and suboptimal functioning most consistently, whereas only marginal effects were found for autonomy and affiliation, and meaning was unrelated to the outcomes in this analysis. Relative weights analysis showed that the majority of the effects of DRAMMA needs satisfaction to optimal and suboptimal functioning were driven by detachment and relaxation. Thus, detachment and relaxation were the most salient predictors of optimal and suboptimal functioning, which suggests that satisfaction of these needs has a primary role in enhancing optimal functioning before, during, and after vacations.

These findings are in line with the literature on the recovery experiences model that shows that of the four recovery experiences, detachment from work and relaxation tend to have the most consistent associations with optimal functioning (Sonnentag et al., 2017). Importantly, it seems that experiencing mental disengagement from work and relaxation of body and mind in off-job life are stronger predictors of optimal functioning than satisfaction of the SDT needs and meaning. Unlike the other DRAMMA needs (such as mastery), detachment and relaxation do not require many resources to be attained and may therefore be more readily available to employees (Sonnentag et al., 2017). Thus, especially in situations where resources are scarce, detachment and relaxation may be salient for employees to regain

their personal resources such as energy and positive mood. These regained resources could, in turn, be utilized to satisfy other DRAMMA needs, such as mastery, and to initiate positive resource cycles, thereby contributing to optimal functioning (Halbesleben et al., 2014). As mastery also showed consistent relationships with optimal functioning and as autonomy was the strongest predictor of vitality, all four recovery experiences (i.e., also control (autonomy) and mastery) seem to be important enhancers of optimal functioning.

To summarize, this dissertation provides evidence that, at the within-person level, it may be more important to satisfy certain DRAMMA needs (i.e., detachment and relaxation) than to satisfy other needs. However, although according to the results detachment and relaxation seem to be more important predictors of optimal and suboptimal functioning than meaning and affiliation, this does not necessarily mean that proactive efforts to increase detachment and relaxation in off-job life (i.e., off-job crafting) are more beneficial than off-job crafting for meaning and for affiliation, as these results concern different levels of mental and behavioral processes (i.e., passive experiences vs. proactive efforts, see also Bateman & Crant, 1999; Wrzesniewski & Dutton, 2001). This is an important point to which I will return in Section 4.1.4, where I discuss the relationships between the off-job crafting dimensions and optimal functioning.

4.1.3 Structural, incremental, and discriminant validity of off-job crafting

Structural validity

The results reported in Study III showed that the NOCS has good structural validity in several countries. More specifically, the six-factor structure with each off-job crafting dimension based on the DRAMMA model (i.e., off-job crafting for the DRAMMA needs) provided good internal consistency longitudinally and had strong invariance over time in three German-speaking countries (Study III d), Finland (Study III e), and Japan (Study III f). This demonstrates that the NOCS is an appropriate instrument for reliably assessing off-job crafting among employees longitudinally and in various cultural contexts. The test-retest reliabilities of off-job crafting are comparable to those of job crafting found in studies with similar time intervals between measurements (Lu et al., 2014; Vogt et al., 2016), showing that off-job crafting also exhibits both consistency and change over time.

Incremental validity

Off-job crafting consistently predicted variance in optimal functioning in general over and above job crafting, leisure crafting, home crafting, and proactive personality. This was true also in the work domain for perceived work ability, as well as partially for job satisfaction and work engagement. The results support the idea that off-job crafting has a broader scope than leisure crafting (Petrou & Bakker, 2016) and home crafting (Demerouti et al., 2020). In other words, the benefits of needs-based off-job crafting (i.e., proactively shaping off-job life with the goal of increasing DRAMMA needs satisfaction) exceed the benefits of leisure crafting (i.e., proactively shaping leisure activities) and home crafting (i.e., proactively seeking resources and challenges and decreasing demands at home). As this result was found consistently for optimal functioning in general, it seems that the concept of off-job crafting robustly

captures positive effects of crafting in off-job life beyond prior crafting constructs. Moreover, the benefits of off-job crafting are not due only to having a general tendency to behave proactively (i.e., having a more proactive personality), thereby demonstrating that targeting psychological needs satisfaction is an important component of the concept of off-job crafting. Moreover, as demonstrated in Study IV (examining within-person variability of off-job crafting across time), this means that off-job crafting has a state-like component that can potentially be addressed and enhanced in interventions (see section 4.2 for initiatives and ideas on interventions).

Discriminant validity

Recreational activities could be distinguished from off-job crafting both using an item sorting task and in a factor analysis. Similarly to job crafting which is a distinct concept from engaging in work tasks, off-job crafting is distinct from engaging in recreational activities. Examples of crafting given by the participants in Study IIIb support the idea that although some activities (e.g., exercise, spending time with family and friends, and hobbies) are crafted by many people, there is clear variation regarding which off-job activities different people prefer to craft and which activities are crafted with satisfying a specific DRAMMA need in mind. To illustrate, while person A may craft their jogging hobby by increasing the length of their run to improve their running skills (off-job crafting for mastery), person B may choose to change their running route to surroundings that look pleasant to them and help them to relax (off-job crafting for relaxation), and person C may ask a friend to join them for a jog to help build and enrich their friendship (off-job crafting for affiliation). Thus, off-job crafting and recreational activities also seem to be qualitatively distinct concepts.

4.1.4 Outcomes of off-job crafting

Psychological needs satisfaction

In Study IIIe, the six off-job crafting dimensions were positively related to the matching dimensions of DRAMMA needs satisfaction over time (e.g., crafting for relaxation was positively related to relaxation), with the exception of crafting for detachment, which was not related to detachment over time when controlling for detachment at baseline. The results confirm the key proposition of the Integrative Needs Model of Crafting stating that needs-based off-job crafting is a strategy to proactively increase needs satisfaction. Thus, crafting acts as a bottom-up strategy that employees can utilize to enhance their own needs satisfaction. This confirms also other recent proposals that recovery experiences and psychological needs are not only passively experienced but can also be proactively crafted for (Vansteenkiste et al., 2019; Virtanen et al., 2020). The non-significant results for crafting for detachment imply that, unlike other off-job crafting dimensions, proactively focusing on increasing detachment from work may not be a very effective strategy to benefit needs satisfaction. Since off-job crafting for detachment focuses on decreasing the negative effects of work on off-job life (e.g., reducing stress caused by work-related thoughts), rather than gaining more resources through off-job life (e.g., by increasing mastery), crafting for detachment may be a form of avoidance crafting (as opposed to

approach crafting), which is usually less effective than approach crafting (Zhang & Parker, 2019) as has also been suggested by the needs-based model of crafting presented in Study II.

Optimal functioning in general

Off-job crafting had positive relationships with life satisfaction over time in all countries studied (i.e., in the German-speaking countries, Finland, and Japan). Thus, the results extend the tenets of the DRAMMA model (Newman et al., 2014) in that not only passively experiencing DRAMMA needs satisfaction, but also proactively striving to increase DRAMMA needs satisfaction is beneficial for life satisfaction. Through off-job crafting, employees can proactively shape their off-job lives to be more personally satisfying and meaningful, which provides an enhanced sense of satisfaction with life (see also Berg et al., 2010). This finding is similar to those of other recent studies showing that leisure crafting is positively correlated with leisure satisfaction and thriving at home (Chen et al., 2020; Zhao et al., 2020).

Moreover, off-job crafting is positively related not only to well-being outcomes such as life satisfaction, but also to role performance in family-related tasks and social interactions. Off-job crafting was positively related to task-related family role performance over time, especially in Finland. Through off-job crafting, employees can energize their behaviors at home (such as washing dishes and managing home finances), by focusing on personally meaningful and satisfying aspects of the task (see also Demerouti et al., 2020). Moreover, crafting for affiliation was positively related to relational family role performance over time in both Finland and Japan. Focusing on creating a sense of connection and relatedness in social relationships could also improve the quality of social interactions and communication, thereby benefiting family role performance (see also Downie et al., 2008).

In Study IV, focusing on the within-person level, increases in off-job crafting for meaning and affiliation over time were positively related to increases in vitality over time in both Finland and Japan (with the exception of crafting for affiliation, which was not significantly related to vitality over time in Japan). In other words, when employees actively increase their off-job crafting efforts, this is associated with benefits in vitality. As psychological needs satisfaction acts as a nutriment that builds up feelings of vitality and invigoration (Martela et al., 2016), successful needs-based off-job crafting efforts can replenish employees' energy resources, helping them to feel more vital. Thus, in line with Quinn et al.'s (2012) model of human energy, increasing off-job crafting can positively energize employees, benefiting their optimal functioning over time. Moreover, it is possible that increased vitality through successful off-job crafting efforts energizes further crafting efforts, creating a positive feedback loop between off-job crafting and vitality.

To summarize, through off-job crafting, employees can enhance their life satisfaction and vitality, as well as their family role performance, creating optimal functioning in life in general. Thus, empirically confirming a key proposition of the Integrative Needs Model of Crafting, off-job crafting seems to be an effective bottom-up strategy to positively influence general well-being and family role performance.

Optimal functioning at work

Off-job crafting was positively related to perceived work ability in Finland over time, whereas only crafting for affiliation was positively related to perceived work ability in Japan. The results show that the benefits of off-job crafting can spill over to the job domain, supporting an important proposition of the theoretical model presented in Study II: crafting creates similarities in outcomes in different life domains through spillover processes. Through off-job crafting, employees can build personal resources such as needs satisfaction and energy. These personal resources, in turn, may form “resource caravans” which translate to the job domain, benefiting optimal functioning at work such as perceived work ability (Hobfoll, 2002). This resource-building perspective concurs with the findings by McGonagle et al. (2015) that personal resources (such as having a sense of mastery and control) are especially beneficial for work ability. Thus, off-job crafting is a promising strategy which employees could use to enhance their sustainable, long-term work ability (Kira et al., 2010).

Off-job crafting also had positive effects on job satisfaction over time in the German-speaking countries, but not in Finland or Japan. The results suggest that off-job crafting can have positive effects on job satisfaction over time, but that these effects would be smaller than the positive effects for work ability. This would explain why significant results were detected only in Study IIIId, which had a much larger sample size than Studies IIIe-f. As job satisfaction largely depends on work characteristics such as time pressure and organizational culture (Dormann & Zapf, 2001), it is perhaps not surprising that the longitudinal effects of crafting in the off-job domain may be relatively small. However, these small (but significant) longitudinal associations are still amenable to interpretation, since they demonstrate that off-job crafting can positively influence not only life satisfaction, but also job satisfaction, indicating a positive spillover process from off-job crafting to subjective well-being in the job domain (see also Kuykendall et al., 2015).

Regarding work engagement, mixed effects were found. Off-job crafting for mastery (in the German-speaking countries), and for meaning and for affiliation (in Finland) had positive relationships with work engagement over time. It seems that proactively striving to improve the satisfaction of the needs for mastery, meaning, and affiliation in off-job life has potential to energize employees not only in their off-job activities, but also at work, thereby enhancing work engagement. On the other hand, crafting for detachment was negatively related to work engagement over time in German-speaking countries and in Finland. This relationship may be explained by the findings of Shimazu et al. (2016) that detachment has a curvilinear relationship with work engagement, with moderate levels of detachment being most beneficial for work engagement. Thus, aiming to improve detachment beyond moderate levels could even be detrimental for work engagement, as it may divert attention away from positive work-related thoughts which promote work engagement (Weigelt et al., 2019). A strong focus on crafting for detachment could also imply a situation where psychological needs are persistently frustrated, such as for an employee who perceives their work to be highly stressful or boring (see also Olafsen et al., 2021). In such a situation, employees may tend to focus their efforts and energy away from work to enhance detachment, with potential benefits for their well-being (e.g., life satisfaction) but on the other hand hindering their work engagement.

To summarize, through off-job crafting, employees can create optimal functioning also in the work domain. Of the variables investigated in this study, the positive longitudinal effects of off-job crafting are strongest for work ability, while small positive associations were also found for job satisfaction. For

work engagement, the effectiveness of off-job crafting depends on the type of off-job crafting used. It should be noted that a part of the significant effects of off-job crafting found in Study III, especially those related to spillover to work domain, were rather small. However, since I controlled for the baseline of optimal functioning in all longitudinal analyses, the results show that off-job crafting can create benefits in optimal functioning longitudinally over and above the stability effects of optimal functioning (for a more detailed discussion of stability effects, see Lang et al., 2012; Zapf et al., 1996). Moreover, many of the positive effects of off-job crafting can be seen in optimal functioning six months later, indicating that off-job crafting may create fairly long-lasting positive effects for optimal functioning. Thus, even the small effects between off-job crafting and optimal functioning at work found in Study III (i.e., over a period of three to six months and above stabilities) can be considered to have practical significance and value for employees, showing that off-job crafting can have some relatively long-lasting effects for optimal functioning also in the work domain.

Off-job crafting for meaning and for affiliation were most consistently related to optimal functioning in general and at work across Sub-studies III d-f. They were also the only off-job crafting dimensions that were positively related to optimal functioning in an Eastern cultural context (Japan). Thus, although detachment and relaxation most consistently predicted optimal functioning in Study I, off-job crafting for meaning and for affiliation seem to be in general the most effective enhancers of optimal functioning over time. This apparent paradox in the results is difficult to explain comprehensively, given the paucity of research focusing on both specific needs satisfaction and on proactively striving to increase that need. However, the answer may in part lie in the important role that meaning and affiliation play for cultivating and broadening positive identities (e.g., Thoits, 1983; Wrzesniewski et al., 2013). As crafting is enacted in the context of an individual's role identities (e.g., parent, hobbyist, volunteer) and focuses on enhancing needs satisfaction within specific identities, needs-based crafting efforts could be closely linked to the construction and shaping of identities (Wrzesniewski et al., 2013). Thus, by creating a sense of purpose and value, and close connectedness of different role identities, crafting for meaning and for affiliation may be especially helpful for enriching personally valuable and important role identities and thus optimizing individual functioning in different life domains. On the other hand, detachment and relaxation are especially negatively affected by work-related pressures and difficult to achieve in jobs that entail taking care of work-related issues during off-job time (Kuykendall et al., 2018; Sonnentag et al., 2017; Weigelt & Syrek, 2017). Thus, other off-job crafting dimensions, and especially off-job crafting for meaning and for affiliation, may be more readily and effectively used strategies to benefit optimal functioning through off-job life.

4.1.5 Antecedents of off-job crafting

Individual antecedents

Proactive personality was positively related to off-job crafting for autonomy, for mastery, for meaning, and for affiliation, but unrelated to off-job crafting for detachment and for relaxation. These results are comparable to the findings by Ouyang et al. (2019) that off-job agency and mastery predicted proactive behavior through highly-activated positive affect and role breadth self-efficacy, whereas off-job detachment and relaxation were only related to low-activated positive affect but not to proactive

behavior. Employees with a more proactive personality may engage more readily in efforts to overcome challenges and seek needs satisfaction through off-job crafting. However, more proactive employees may prioritize crafting strategies that focus on actively collecting novel personal resources (e.g., off-job crafting for mastery) over off-job crafting for detachment and for relaxation, which could explain the non-significant findings concerning the latter crafting dimensions (see also Ten Brummelhuis & Trougakos, 2014, on active and passive recovery).

Cultural antecedents

This dissertation provides the first evidence that the cultural context of employees may interact with demographic variables to hinder or promote crafting in off-job life. Age was positively related to off-job crafting for meaning (but not for affiliation) in Finland. This result is in line with the socioemotional selectivity theory, which posits that people become more motivated to seek emotional meaning as they age (Carstensen et al., 1999). Through off-job crafting for meaning, older Finnish employees may, as they age, increasingly utilize the autonomy-supporting context of leisure in Finland in order to shape their off-job lives to enhance their feeling of having a purpose in life. Contrary to expectations, however, in Japan younger employees engaged more in off-job crafting for meaning than did older employees. This finding may be explained by recent societal changes in Japan. Due to economic recession, Japanese early-career employees can no longer expect to find meaning in a stable career path, which has traditionally provided a reliable source of job security for Japanese employees (Kawai & Moran, 2017). Thus, young Japanese employees may use crafting for meaning to cope with and compensate for their uncertain career prospects.

Furthermore, in Japan, female employees crafted more for affiliation (but not for meaning) than did male employees. As women in Japan are often expected to take care of tasks at home, female Japanese employees may proactively seek affiliation from close contacts in their off-job life to gain social resources (e.g., relatedness) that are necessary for successfully managing the home domain (Osawa, 2020). Moreover, the high masculinity of Japanese culture could make off-job crafting for affiliation more difficult to engage in for male Japanese employees, as in masculine cultures seeking affection is often seen as less appropriate for men than for women (Hofstede et al., 2010). On the other hand, gender was not related to off-job crafting for meaning and for affiliation in Finland. In the feminine Finnish cultural context, leisure is widely seen as a valued and highly autonomy-supporting life domain (Hofstede et al., 2010; Wang & Wong, 2014), which may equally enable Finnish employees of different genders to craft their off-job lives.

Human capital and working hours were unrelated to off-job crafting for meaning and for affiliation in both Finland and Japan. It may be that skills acquired through human capital (education and tenure) are mainly used in the work domain, with little impact on off-job crafting efforts. Another possibility is that education and tenure have stronger associations with off-job crafting dimensions more closely related to recovery experiences. The dimension of off-job crafting for mastery in particular is conceptually related to skills development and could therefore be positively affected by human capital. For working hours, although employees who work long hours have in general less off-job time available, some of those employees may also seek to optimize their use of off-job time by engaging in off-job crafting. Thus, the relationship between working hours and off-job crafting may be rather complex, which could explain some null results.

Although no hypotheses were posed regarding cross-cultural differences in Study III, it can also be informative to compare results between the longitudinal sub-studies, i.e., off-job crafting in the German-speaking countries, Finland, and Japan. Japanese employees engaged in less off-job crafting on all crafting dimensions than did employees in the German-speaking countries and Finland. Off-job crafting also had fewer significant relationships with optimal functioning over time in Japan. Due to their long working hours and the masculine, work-oriented Japanese work culture, Japanese employees may have fewer opportunities to craft their off-job lives than employees in German-speaking countries and Finland. They may also be more likely to direct their crafting efforts to their jobs rather than to their off-job lives. On the other hand, the more widely available off-job time and opportunities for engaging in and choosing off-job activities in the German-speaking countries and Finland may enhance the effectiveness of off-job crafting efforts for optimal functioning in these countries.

4.2 Limitations and directions for future research

This study has several limitations. First, for the most part self-report questionnaires were used to measure variables in each study. Thus, common method bias may have affected the results (Podsakoff et al., 2012). However, most of the studies and sub-studies used a longitudinal design, which should reduce the effects of common method bias (Podsakoff et al., 2012). As needs satisfaction is a profoundly innate experience, self-report measures are arguably the most valid way to measure DRAMMA needs satisfaction. Similarly, since crafting is a bottom-up process, crafting efforts are best evaluated by the individuals who enact them (Qi et al., 2014; Wrzesniewski & Dutton, 2001). Future studies could use also other-rated (e.g., ratings by family members, co-workers, or supervisors) measures to measure antecedents (e.g., personality) and outcomes (e.g., optimal functioning) of off-job crafting. Moreover, conducting more qualitative, experimental, and intervention studies on off-job crafting and its role in optimal functioning could complement the knowledge gained from survey studies. Concerning interventions, prior research on need support (e.g., Slemp et al., 2021) could also inform the development of off-job crafting interventions. For example, Weinstein and colleagues (2016) provided Syrian refugees with a list of potentially need satisfying activities. The participants were asked to engage in these activities every day. Behavioral change was encouraged through 10–15-minute informal meetings with a social worker every other day, in which the participants discussed implementation barriers and reflections on the activities. The intervention lowered refugees' self-reported stress and depression symptoms (Weinstein et al., 2016). Recently, a group of researchers developed an intervention to encourage Iranian university students to carry out need supporting activities for a period of 10 consecutive days. The students were similarly provided with examples for potentially need-satisfying activities every morning and could get instant advice and support from a research assistant. Following the intervention, participants reported greater psychological needs satisfaction and less needs frustration, higher subjective vitality, and lower perceived stress (Behzadnia & FatahModares, 2020). More needs-based crafting interventions have been recently developed and implemented (Kosenkranius et al., 2020; Laporte et al., 2021) and the upcoming years will show whether crafting across various life domains can indeed increase individuals' needs satisfaction, well-being and performance.

Second, although off-job crafting showed positive relationships with family role performance over time, I did not measure work performance as a potential outcome. As DRAMMA needs satisfaction (with the exception of detachment) is positively associated with work performance (Allan et al., 2019; Cerasoli et al., 2016; Steed et al., 2021), successful needs-based off-job crafting efforts could potentially spill over also to enhance performance in the work domain. Thus, future research could test whether employees can benefit from off-job crafting not only in terms of occupational well-being (e.g., work ability), as demonstrated in this study, but also in terms of work performance. Moreover, potential off-job crafting outcomes related to ill-being (e.g., depressive complaints) were not tested in Studies III and IV. Future research could examine whether off-job crafting can, in addition to enhancing well-being, also alleviate ill-being such as negative affect and depressive complaints (see also Hadi et al., 2021). Since in Study I DRAMMA needs satisfaction explained twice as much variance in ill-being as in well-being outcomes, the relationship between off-job crafting and ill-being could be a fruitful research avenue to examine in greater detail. However, Berg et al. (2010) have suggested that leisure crafting efforts can sometimes also invoke feelings of stress and regret when employees pursue their unanswered callings through crafting. Thus, future studies could also examine whether off-job crafting might be also positively related to ill-being under certain boundary conditions.

Third, as the focus of this dissertation is on more general individual antecedents (i.e., proactive personality and demographic antecedents) of off-job crafting, I did not examine potential motivational antecedents of off-job crafting. Future research could further examine the proposition of the Integrative Needs Model of Crafting that perceived needs discrepancies are key drivers of off-job crafting efforts, and test whether needs discrepancy mainly motivates future crafting efforts, or if employees who engage in crafting efforts also benefit more from crafting when they experience a higher needs discrepancy. Moreover, the role of other potential motivational antecedents of off-job crafting such as autonomous motivation, self-efficacy, need support, and leisure salience could also be examined. It is also possible that different off-job crafting dimensions have partially distinct motivational antecedents. For instance, leisure salience may be a strong motivator for crafting for detachment, as crafting for detachment focuses on decreasing the presence of work-related thoughts in one's off-job life. Regarding work-domain antecedents, the role of work centrality, work values, or work-related callings could also be examined in future studies. For example, employees low on work centrality could be more eager to focus their crafting efforts on other life domains, and therefore more likely to engage in off-job crafting rather than job crafting. Furthermore, more conceptual work would be necessary to fully distinguish proactive crafting efforts motivated by needs discrepancies from reactive processes, such as coping, which could potentially also be motivated by a perceived needs discrepancy. For example, if one considers proactivity versus reactivity to be a key distinction between crafting and coping (which is one of the key propositions in Study II), concepts such as proactive coping (Greenglass et al., 1999) may rather constitute crafting than coping.

Fourth, since the samples in the different sub-studies were convenience samples collected through various organizations and different platforms in different countries, the samples varied regarding demographics and professions. Thus, some of the cross-cultural findings in Studies III and IV may be explained by these differences in the samples. It would be valuable to examine the role of cultural context and values in off-job crafting using samples with more equal participant characteristics and from more countries. Moreover, countries from areas which are underrepresented in work psychology, such as Africa and Eastern Europe, could be included (Myers, 2016). Multilevel analyses could also be

used to examine antecedents of off-job crafting more rigorously, simultaneously at the higher-order (e.g., characteristics of a country or the organization) and at the individual level (e.g., individual characteristics).

Fifth, as the integrative conceptual review in Study II covered other life domains than off-job life (i.e., work and the interface between job- and off-job life), many of the theoretical propositions presented in Study II concerning job and boundary crafting were not examined in Studies III and IV, which focused only on crafting in off-job life. Future studies could assess whether the principles of needs-based crafting (e.g., needs discrepancies as motives for crafting and needs satisfaction as experiential rewards that link crafting efforts to optimal functioning) are also at play regarding crafting efforts in other life domains. Future research could also examine the interrelations between needs-based off-job crafting and crafting in other life domains, such as at the boundary of job and off-job life (Gravador & Teng-Calleja, 2018) or in the study domain (Vansteenkiste et al., 2019).

Sixth, I only examined needs satisfaction as a proximal outcome of off-job crafting. I did not examine the role of needs frustration for off-job crafting efforts (see also Laporte et al., 2021a; Toyama et al., 2021). Successful needs-based crafting efforts could potentially decrease needs frustration, in addition to enhancing needs satisfaction. However, the relationship between off-job crafting and needs frustration may also be more complex. Although needs discrepancies (e.g., need dissatisfaction) were theorized in Study II to act as drivers of crafting efforts (see also Sheldon, 2011), needs frustration could be a hindering rather than motivating factor for off-job crafting. For example, while an employee who experiences a lack of relaxation (i.e., relaxation need dissatisfaction) in their off-job life may be more inclined to proactively seek out ways to gain experiences of relaxation, someone who frequently experiences severe tension and strain in the body and the mind (i.e., relaxation need frustration) could be too strained to invest their energy in proactive efforts to reshape their off-job life. Future research could test the role of needs frustration for off-job crafting to expand on the conceptualization and results found in this dissertation.

Finally, although the DRAMMA model provides a comprehensive and meaningful grounding theory for needs-based off-job crafting, the list of six needs based on the DRAMMA model that are crafted for in off-job life may not cover exhaustively all needs-based off-job crafting efforts that employees utilize in their off-job lives. On the one hand, future research could explore if other needs recently proposed as potential basic psychological needs in the SDT literature, such as novelty-variety (Bagheri & Milyavskaya, 2020) and nature relatedness (Hurly & Walker, 2019) might also be crafted for, and, if so, whether these efforts would be beneficial for optimal functioning. On the other hand, the list of six needs could also be criticized to be too lengthy, as only the needs for autonomy, mastery (competence), and affiliation (relatedness) are considered to be important across all different life domains and contexts (Vansteenkiste et al., 2020). However, in an intensifying working life, off-job detachment, relaxation, and meaning may also be crucial for most employees' optimal functioning (Iwasaki et al., 2018; Mauno & Kinnunen, 2021). The results from Study I match with this idea, showing that of all the six DRAMMA needs, detachment and relaxation were especially important predictors of well-being and ill-being. Still, more research on the relative contribution of specific needs in off-job life would be required to establish the relative importance of needs outside the three basic psychological needs proposed by SDT.

4.3 Theoretical and practical implications

This dissertation shows good structural validity longitudinally for the DRAMMA model, confirming that the satisfactions of the six DRAMMA needs are distinct constructs that can be reliably measured over time. Moreover, given the results concerning the relative importance of DRAMMA needs satisfaction, it seems that relaxation and detachment are primary mechanisms that explain increases in employees' optimal functioning and decreases in suboptimal functioning during a vacation period. Thus, based on this first examination of the relative importance of DRAMMA needs satisfaction, it seems that satisfaction of some of the DRAMMA needs is more important than satisfaction of other needs for enhancing optimal functioning. Studies on recovery from work have so far focused mostly on detachment, which has been proposed to be the key recovery experience (Sonnentag et al., 2017; Steed et al., 2021). Since relaxation was the most important predictor of over half of the outcomes in Study I, it seems that it could be advisable to add relaxation alongside detachment when considering key recovery experiences.

Studies II-IV extend the hitherto scarce literature on crafting in off-job life, with a conceptual review to integrate related but so far disconnected crafting concepts, followed by empirical studies on off-job crafting with a strong methodological design (i.e., longitudinal studies conducted among employees in several countries from different continents). The results of Studies III and IV support the theoretical propositions made in Study II that off-job crafting efforts increase psychological needs satisfaction, and that off-job crafting increases optimal functioning, especially in the off-job domain. Moreover, the results support the idea that off-job crafting can also produce similar outcomes in other domains (i.e., in the work domain). The concept of needs-based off-job crafting integrates research on leisure and home crafting, psychological needs satisfaction, and leisure sciences, providing an integrative and overarching framework for studying crafting efforts in off-job life. In line with this, the NOCS had incremental validity over and above prior crafting scales, especially for the off-job domain. Furthermore, this study is the first to include measurement of off-job life domains beyond leisure and home, which have so far been neglected in crafting research (i.e., voluntary work, work breaks).

Study IV provides a holistic perspective to explain the inconsistent results reported in earlier studies concerning the relationship between demographic antecedents and crafting in off-job life. It seems that cultural values can interact with demographic antecedents to promote or hinder crafting efforts, as was shown for the hypothesized positive relationship between female gender and off-job crafting for affiliation among Japanese employees. However, societal trends may also have the potential to create results that go against the anticipated effects of the cultural context created by values, such as the unexpected negative relationship between age and off-job crafting for meaning among Japanese employees. The interplay of the antecedents of crafting and the cultural context is complex, as cultural values can interact with more fluid societal changes and demographic variables to provide a complex array of effects on crafting efforts. The relationship between demographic antecedents and crafting efforts should not be assumed to be more or less universal, but rather examined within the unique cultural contexts of individuals to form a more accurate picture of which individuals engage in which types of crafting efforts in which types of contexts.

This dissertation also has important practical implications. Through off-job crafting, employees can proactively enhance their own psychological needs satisfaction and optimal functioning. According to the results, off-job crafting for meaning and for affiliation in particular, but also off-job crafting for

relaxation, for autonomy, and for mastery are beneficial strategies that employees can utilize to help them increase their well-being and family role performance over time. The six needs of the DRAMMA model (Newman et al., 2014) can be flexibly crafted according to an employee's unique life situation and motives, focusing on needs in which they experience needs discrepancies. Hobbies and voluntary work have been previously examined in literature on serious leisure as important life domains that offer opportunities for individuals to express themselves more (Stebbins, 2001). This dissertation highlights that employees can proactively enhance their optimal functioning also in other off-job life domains that are not traditionally viewed in this fashion, such as house- and childcare or work breaks. The multitude of potential off-job life domains that can be utilized in crafting efforts provides employees with multiple options for targeting their off-job crafting to life domains that they perceive to be most relevant for them, or most flexible to shape. For example, a parent of young children who perceives few opportunities to craft their work or leisure could still find opportunities to craft their childcare activities to fulfill their needs for meaning or affiliation.

The results of this dissertation are also informative for groups of people other than employees. Policymakers could foster individuals' optimal functioning in societies by providing more opportunities for people to engage in off-job crafting efforts, by widening the available selection of off-job activities (e.g., hobbies and opportunities for voluntary work) and by promoting equality so that employees of different genders and ages have opportunities to engage in crafting efforts. Organizational leaders could encourage employees to consider their individual needs and to keep a healthy work-life balance by shaping both their job and off-job lives to meet their needs. Occupational health practitioners could utilize the DRAMMA model to help their clients explore which psychological needs might be most salient to craft for to benefit their well-being and to develop individual action plans for off-job crafting. Arts and sports educators could use the DRAMMA model as a guidance and have their students reflect on how they could craft their hobbies to be more personally satisfying. Finally, although the main focus of this dissertation was on employees' off-job crafting, off-job crafting is also readily applicable to retired and unemployed individuals, to students, as well as to employees not currently working due to personal or parental leave. Thus, off-job crafting is a practically relevant concept for a large variety of people, highlighting that individuals can and do shape their leisure, hobbies, voluntary work, and other off-job life domains in personally enriching and empowering ways (see also Iwasaki, 2017; Stebbins, 2015).

4.4 Ethical considerations

All studies were conducted in accordance with the ethical guidelines on the responsible conduct of research and principles of good scientific practice issued by the Finnish National Board on Research Integrity (TENK) and the American Psychological Association. Participants provided informed consent and received appropriate information before agreeing to participate, such as that participation was voluntary, they could withdraw from the study at any point, and that the data collected would be managed confidentially. None of the studies and sub-studies contained any features necessitating ethical approval according to the ethics committee of the Tampere region (e.g., participants under the age of 15 or exceptionally strong stimuli used in the study).

As in all fields of science, research on psychological needs satisfaction and crafting is not completely free from researchers' individual and cultural biases. Research on job crafting has recently been criticized for its implicit roots in individualistic and neoliberal ideologies (Bal & Dóci, 2018). More specifically, focusing on job crafting can potentially reduce the focus on the responsibility that organizations have for designing jobs for their employees, burdening the employees who may receive unclear instructions on the specifics of their work tasks. The concept of needs-based off-job crafting may help to partially alleviate these concerns. Instead of focusing on proactive individual efforts that often have a direct benefit for the organizations at little or no cost to them (e.g., proactively taking on new work tasks on top of existing tasks, and thus increasing individual efforts possibly without extra pay), off-job crafting focuses on increasing the satisfaction of an individual's own psychological needs (e.g., creating opportunities for experiencing more autonomy). Still, the focus on proactive, bottom-up crafting efforts should not be used to downplay the responsibility that societies and organizations have for the well-being and health of individual employees. As shown in Study IV of this dissertation, which focused on demographic and cultural antecedents of off-job crafting, not everyone has equal opportunities to engage in proactive crafting efforts. It is the primary responsibility of the many (e.g., society, organizations) and of those in power (e.g., policymakers, managers) to care for those critically in need of help to restore or retain their well-being and health (see also Buchanan, 2000; Marks, 2002).

4.5 Conclusion

“Health is about accepting and perceiving and dealing with reality on reality’s terms” (Ward et al., 2020)

As the above quote from the TV series *The Midnight Gospel* illustrates, human optimal functioning is more than passively having positive experiences. Through off-job crafting, employees in different cultural contexts can take the initiative in shaping their off-job lives with the goal to experience more detachment, relaxation, autonomy, mastery, meaning, and affiliation. This dissertation shows that DRAMMA needs satisfaction and off-job crafting can act as positive enhancers of optimal functioning over time. Thus, through proactively focusing on improving their psychological needs satisfaction, employees can “deal with reality” in meaningful ways, making changes to steer their off-job lives in personally satisfying and valuable directions.

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PUBLICATIONS

In the following sections, you can find the publications on which the previous chapters are based.

5.1 AUTHOR CONTRIBUTIONS

This is a statement of the author's contribution to each article that is part of the dissertation. The author (Miika Kujanpää) has made a substantial contribution to each of the four articles. In Publication I, he contributed to the formulation of research questions and hypotheses, and performed the hierarchical regression analyses. He also wrote the first draft of the article, and integrated text and feedback received from all co-authors and reviewers.

In Publication II, he contributed to the development of the theoretical model, performed a part of the literature review, and actively contributed to writing the first draft of the article, as well as to addressing the reviewer feedback.

In Publication III, he actively took part in the development and piloting of a novel scale to measure off-job crafting which was then validated in several sub-studies. He collected data of the Finnish longitudinal sub-study, contributed to data collection in the Japanese, US, and UK sub-studies, contributed to the formulation of research questions and hypotheses, and performed cross-lagged panel models, hierarchical regressions, average variance extracted analyses, and the cross-sectional factor analyses. He also wrote the first draft of the article, and integrated text and feedback by all co-authors and reviewers.

In Publication IV, he collected the data of the Finnish longitudinal sub-study, contributed to the data collection of the Japanese longitudinal sub-study, contributed to the formulation of research questions and hypotheses, and performed all statistical analyses. He also wrote the first draft of the article, and integrated text and feedback received from all co-authors and reviewers.

5.2 PUBLICATION I

Need Satisfaction and Optimal Functioning at Leisure and Work: A Longitudinal Validation Study of the DRAMMA Model

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Need Satisfaction and Optimal Functioning at Leisure and Work: A Longitudinal Validation Study of the DRAMMA Model

M. Kujanpää¹, C. Syrek², D. Lehr³, U. Kinnunen¹, J. A. Reins³, & J. de Bloom^{1,4}

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¹Tampere University, Department of Psychology, Kalevantie 5, 33014 Tampere University, Tampere, Finland

²University of Applied Sciences Bonn-Rhein-Sieg, Department of Management Sciences, Von-Liebig-Str. 20, 53359 Rheinbach, Germany

³Department of Health Psychology and Applied Biological Psychology, Leuphana University of Lueneburg, Universitaetsallee 1, 21335 Lueneburg, Germany

⁴University of Groningen, Department of HRM & OB, Nettelbosje 2, 9747 AE Groningen, Netherlands

ABSTRACT

In recent years, there has been an increasing interest in psychological need satisfaction and its role in promoting optimal functioning. The DRAMMA model integrates existing need and recovery models to explain why leisure is connected to optimal functioning (i.e., high well-being and low ill-being). It encompasses six psychological needs: detachment, relaxation, autonomy, mastery, meaning, and affiliation (DRAMMA). While the individual needs of the DRAMMA model have been previously shown to relate to different aspects of optimal functioning, a longitudinal study examining the entire model has not been conducted before. In this longitudinal field study covering leisure and work episodes, we tested the within-person reliability and (construct and criterion) validity of the operationalization of the DRAMMA model in a sample of 279 German employees. Participants filled out measures of DRAMMA need satisfaction and optimal functioning at five measurement times before, during, and after vacation periods in 2016 and 2017. The six-factor model showed good fit to the data. In the multilevel models, relaxation, detachment, autonomy, and mastery had the most consistent within-person effects on optimal functioning, while the relationships between optimal functioning, meaning, and affiliation were considerably weaker. In conclusion, DRAMMA need satisfaction can aid and nurture employees' optimal functioning.

Keywords: Psychological Needs, DRAMMA Model, Well-Being, Optimal Functioning, Validation

Introduction

Changes in modern working life have resulted in increasing work intensification and social acceleration, which may pose a threat to employees' well-being and health (Rosa 2013; Ulferts et al. 2013). As employees are expected to work longer hours and experience work-related stress, mental and physical exhaustion may build up, leading to higher need for recovery, depressive complaints (e.g., Theorell et al. 2015; Van Veldhoven and Broersen 2003) and even to coronary heart disease and stroke (Kivimäki et al. 2015).

Characterized by a relative absence of high job demands and pressure, leisure is the most important sphere of life where recovery from strain caused by work can take place (i.e., after work, during weekends and vacations). In a recent qualitative study eliciting descriptions of people's ideal future, 41% of the responses were related to leisure and participants indicated that they currently had less leisure than they would desire (Loveday et al. 2018a), demonstrating that leisure constitutes an important component of optimal functioning (conceptualized as both high well-being and low ill-being).

Besides having sufficient time for leisure, subjective experiences during leisure time are crucial for recovery from work stress (Bennett et al. 2018; Kono et al. 2017; Sonnentag et al. 2017). An important factor explaining differences in employees' optimal functioning in relation to increasing job pressures is psychological need satisfaction. If an employees' psychological needs are adequately satisfied at work, they may have more energy to cope with changing and demanding work situations and may also experience increasing job demands as less burdensome (e.g., Deci et al. 2001; Van den Broeck et al. 2016; Van Hooff and Geurts 2015). Satisfaction of psychological needs during leisure allows employees to rebuild and expand their physiological and psychological resources that were invested during the working day (Newman et al. 2014; Sirgy et al. 2017; Van Hooff and Geurts 2014). For example, a recent diary study showed that daily competence satisfaction at home compensated for lack of daily competence satisfaction at work (Hewett et al. 2017). Thus, need satisfaction at work and leisure can help employees achieve optimal functioning in both life domains.

This study is grounded on a recent model of need satisfaction during leisure, the DRAMMA model, which includes six psychological needs (detachment, relaxation, autonomy, mastery, meaning and affiliation) connecting leisure to better well-being (Newman et al. 2014). Together, these needs form the acronym "DRAMMA". In the next two chapters, we briefly describe the DRAMMA model and the existing research on the relationships between DRAMMA need satisfaction and optimal functioning.

In the present study, we first focus on assessing the reliability and (construct and criterion) validity of the operationalization of the DRAMMA model in a sample of 279 German employees. Second, we investigated within-person changes in DRAMMA need satisfaction and optimal functioning across a vacation period. Vacationing constitutes a "natural experiment" which enabled us to investigate co-occurring changes over time within the same employees. Using a within-person perspective, we examined individual variability (person-based effects) in need satisfaction and optimal functioning. The relationship between psychological need satisfaction and optimal functioning can be understood as a process occurring and possibly changing over time. Thus, studying intraindividual variation captures unique effects of the state-like qualities of need satisfaction that are easily overlooked in between-person designs (Bolger et al. 2003; Huta and Ryan 2010; Ilies et al. 2015; McCormick et al. 2018). For

example, during weeks in which a person detaches from work, she may recover better from work than during weeks with low detachment, regardless of whether she is generally high or low in detachment in relation to other employees.

Third, we studied the contribution of the satisfaction of each DRAMMA need both separately and conjointly in predicting optimal functioning. Importantly, the relative importance of individual DRAMMA needs for optimal functioning as well as potential reciprocal relationships between the DRAMMA needs and optimal functioning were also examined to obtain a clearer picture of their interrelations. Lastly, this study adds to the existing body of knowledge by examining whether balanced need satisfaction contributes to optimal functioning over and above satisfaction of single DRAMMA needs.

The DRAMMA Model: A Framework Connecting Leisure and Optimal Functioning

Despite the importance of psychological needs in the choice and conduct of leisure activities (Porter et al. 2010; Vogel et al. 2016), need theories have gained more attention in leisure research only in the 2010s. The first theory explicitly connecting leisure and psychological need satisfaction is the DRAMMA model (Newman et al. 2014). Based on a review of 363 research articles examining the links between leisure activities, needs, and well-being, Newman et al. (2014) posited that the satisfaction of psychological needs, namely detachment, relaxation (referred to as detachment-recovery in the original model), autonomy, mastery, meaning, and affiliation during leisure time is conducive to improved well-being.

Detachment from work refers to mental disengagement (e.g., “switching off”) from work-related thoughts and tasks during employees’ free time (see also Sonnentag and Bayer 2005). Relaxation refers to psychobiological unwinding in combination with low activation and high positive affect (Sonnentag and Fritz 2007). Recovery researchers have shown convincingly that detachment and relaxation are separate constructs that contribute to optimal functioning in unique ways (e.g., Bennett et al., 2016, 2018; Sonnentag and Fritz, 2007). Detachment and relaxation are seen as passive recovery, allowing the mind and body of a fatigued employee to return to a homeostatic baseline (Bennett et al. 2018; Ten Brummelhuis and Trougakos 2014). Autonomy refers to a sense of being in control over one’s life, actions, and choices (see also Ryan and Deci 2008), and is an essential component of leisure (Newman et al. 2014). Mastery refers to experiencing proficiency and skillfulness in the tasks in which the person engages in (Sonnentag and Fritz 2007). Meaning refers to experiencing a sense of purpose and significance in one’s life and activities (Steger et al. 2009), whereas affiliation refers to feeling closely related and emotionally connected to people (see also Baumeister and Leary 1995).

Relations Between DRAMMA Need Satisfaction and Optimal Functioning

In earlier studies, the DRAMMA needs have mainly been examined in work and organizational psychology, either in the context of Self-Determination Theory (SDT) (Deci and Ryan 2000) or as recovery experiences (Sonnentag and Fritz 2007). In a meta-analytic review by Van den Broeck et al. (2016), the SDT’s three psychological needs for autonomy, competence (mastery), and relatedness (affiliation) at work were all related to aspects of well-being (such as job satisfaction and general well-being). The three needs, while still related to ill-being (e.g., negative affect and strain), explained about twice the variance in well-being outcomes. This suggests that satisfaction of psychological needs may

be more significant for well-being than for ill-being (Sheldon et al. 2001; Van den Broeck et al. 2016; Zika and Chamberlain 1992). Besides western studies, positive relations between autonomy, competence, relatedness, and well-being (such as vitality and life satisfaction) and negative relations to ill-being (such as anxiety) have also been found in Eastern European, Latin American and Asian samples, providing cultural validity for the SDT needs (Chen et al. 2015; Church et al. 2013; Deci et al. 2001; Rasskazova et al. 2016). Furthermore, besides absolute levels of the satisfaction of autonomy, competence and relatedness, their balanced satisfaction has also been shown to be positively related to well-being (Milyavskaya et al. 2009; Sheldon and Niemiec 2006).

Out of the four recovery experiences (Sonnetag and Fritz 2007), especially detachment from work and relaxation, and, less consistently, control (autonomy) and mastery have been related in numerous studies to optimal functioning (i.e., higher well-being and lower ill-being) (e.g., Bennett et al. 2018; Sonnetag et al. 2017; Wendsche and Lohmann-Haislah 2017). Psychological detachment following a stressful day at work seems to be particularly important, while little evidence has been reported in this regard for the other recovery experiences (Sonnetag et al. 2017; Wendsche and Lohmann-Haislah 2017). One of the first studies to compare conjoint profiles of recovery experiences found that people who experienced high levels of all four recovery experiences, as well as low problem-solving pondering (called the “leaving work behind” group), had the lowest levels of ill-being (i.e., emotional exhaustion and somatic complaints) in two different samples (Bennett et al. 2016).

Unlike the other DRAMMA needs, the need for meaning has been mainly examined in leisure sciences (see e.g., Iwasaki, 2017 for a review). The need for meaning taps directly into people’s sense of needing to find something personally valuable and meaningful in life, a concept which is often missing among need theories. Meaningfulness is a pervasive theme in many accounts of what constitutes good leisure, especially in non-Western cultures (Iwasaki 2007). Already in the 1940s Viktor Frankl posited meaning as a fundamental human need (Frankl 1963). People unable to satisfy the need for meaning may feel distressed, empty or hopeless (Snyder 2002; Steger and Kashdan 2013). In the DRAMMA model, meaningful experiences during leisure time are seen as an important factor connecting leisure to subjective well-being (Newman et al. 2014; Newman et al. 2018; Zika and Chamberlain 1992).

To the best of our knowledge, the DRAMMA model’s needs (detachment, relaxation, autonomy, mastery, meaning and affiliation) have so far been studied together only in two cross-sectional quantitative studies. Virtanen et al. (2019) examined the DRAMMA model among 909 school teachers and principals. Relaxation, mastery, control and detachment related positively to vitality, and control, meaning, detachment and affiliation related positively to life satisfaction, suggesting that all DRAMMA needs play a role in well-being (Virtanen et al., 2019). Moreover, in an unpublished study on 704 college students (Twilley 2017), mastery, meaning, and affiliation correlated positively with subjective well-being (subjective happiness, global life satisfaction, and positive and negative emotions) and with leisure satisfaction, whereas autonomy was negatively related to leisure satisfaction (Twilley 2017). Besides these quantitative studies, Loveday et al. (2018a) examined the DRAMMA model qualitatively. The most frequently mentioned DRAMMA needs in 112 participants’ visions of their ideal future leisure were affiliation, followed by autonomy. Each of the DRAMMA needs accounted for at least 10% of the sentence-level responses (Loveday et al. 2018a).

To summarize, while the individual needs of the DRAMMA model have been shown in various studies to relate to optimal functioning and while people view the DRAMMA needs as important

qualities in their leisure, a longitudinal study examining the model as a whole is needed to examine if and how DRAMMA needs conjointly affect subjective well-being and ill-being over time and interact to create a within-person process for optimal functioning.

Hypotheses

In this study the six DRAMMA needs were examined together in a longitudinal design with five measurement points. We expected each individual DRAMMA need to show sufficient internal and test-retest reliability. Furthermore, to operationalize the full model for the first time in a quantitative data analysis, we expect that the DRAMMA needs load on six distinct factors and that the six-factor model provides a better fit to the within-person data than do alternative models (Hypothesis 1).

Satisfaction of individual DRAMMA needs has been consistently linked in earlier studies to higher subjective well-being (Newman et al. 2014; Van den Broeck 2016). When people are able to satisfy their psychological needs, they feel better and are more able to take care of themselves physically and mentally, which benefits their well-being. Because of these fairly well-established links between well-being and the DRAMMA needs, we expect that satisfaction of each of the needs for detachment, relaxation, autonomy, mastery, meaning, and affiliation is positively related to better optimal functioning (i.e., subjective well-being: higher vitality, life satisfaction, and subjective health) (Hypothesis 2).

Conversely, when people have unsatisfied needs and the situation persists for an extended time, maladaptive behaviors, high negative emotions, and even helplessness may result (Sheldon 2011). Thus, lack of need satisfaction (need dissatisfaction) may exacerbate subjective ill-being. Research has shown that satisfaction of the different DRAMMA needs is negatively related to measures of ill-being, such as strain, psychological distress, anxiety, and negative affect, although these relationships have been weaker than the positive relationships between need satisfaction and well-being (Baard et al. 2004; Sheldon et al. 2001; Van den Broeck et al. 2016; Zika and Chamberlain 1992). Thus, need dissatisfaction (the reversed score of need satisfaction) has been related positively to ill-being, but the relationships have not been as strong as the positive relationships between need satisfaction and well-being. In line with past research, we expect that satisfaction of DRAMMA needs is negatively related to suboptimal functioning (i.e., subjective ill-being: more depressive complaints, need for recovery, tension and stress) (Hypothesis 3) but that the negative relations between DRAMMA needs and subjective ill-being are weaker than the positive relations between DRAMMA needs and subjective well-being (Hypothesis 4).

While there is an increasing body of research on the benefits of psychological needs satisfaction, studies rarely compare the relative strength of the effects of each satisfied need on outcomes. For example, when resources for increasing need satisfaction (e.g., time, money or recovery opportunities) are limited, is it enough to satisfy a single need (such as autonomy) to achieve distinctly higher levels of optimal functioning (Sheldon and Hoon 2007)? On the other hand, besides having a low level of overall need satisfaction, an imbalance in satisfaction levels between different psychological needs can also be detrimental to optimal functioning (Mack et al. 2011; Sheldon and Gunz 2009; Sheldon and Niemiec 2006). To make sense of the multitude of conceptualizations between the different determinants of optimal functioning, the relative importance of its predictors should be investigated more (Sheldon and Hoon 2007). Thus, to investigate need importance for each outcome, we studied the order of relative importance of each DRAMMA need for each outcome. This means that we tested which DRAMMA

needs' weekly satisfaction most consistently predicted weekly optimal functioning (i.e., higher well-being and lower ill-being). We proposed no hypotheses regarding the relative importance of DRAMMA needs: research on this topic is scarce and need theories seldom provide information on the relative importance of specific needs within their models.

Methods

Procedure and Sample

We conducted an online diary study across a period of two consecutive months during 2016 and 2017 in Germany. Participants filled out a baseline questionnaire (T1) two weeks prior to their vacations. The questionnaires at T2-T5 were filled on the participants' last day of work, during their vacation (average length of vacation = 17.60 days, SD = 6.90 days), in the evening after the first day back at work after the vacation, and two weeks after the vacation respectively. In our final data set (N = 279), participants completed an average of 3.38 surveys, resulting in 942 measurements. Although this response rate of 67.5% is less than desired, it is much better than the mean response rate of 35% usually found in online surveys (Cook et al. 2000; Rogelberg and Stanton 2007). To better understand the nature of the missing values and to ensure that missing data do not bias our results, we applied Little's MCAR test for the DRAMMA dimensions and the outcome variables at all measurement points. Little's MCAR test was not statistically significant ($\chi^2(1372) = 263.38, p = .98$), indicating that the missing data are missing at random.

The study was announced in several local newspapers, on television and by means of radio interviews with the research team members. Participants were directed to the study's homepage, which explained the purpose of the study in detail, gave assurances of confidentiality, confirmed voluntary participation, and stipulated that participants had to be at least 18 years old and employed to be eligible to participate in the study. The link to the first online survey was sent to employees who had provided an email address, thereby confirming their willingness to participate in the study. Participants were offered the opportunity to enter a lottery for 13 gift certificates ranging in value between 50 and 500 Euros. In total, 279 employees working in different branches (e.g., teaching, management, banking and saleswork) participated in the study. A total of 75.1% of the employees were female. Employees were between 19 and 66 years old (M = 40.00, SD = 10.68). The minimum duration of employment was less than one year; maximum 40 years (M = 9.21, SD = 9.01). Most employees had a permanent employment contract (84.0%) and worked full time (73.1%). One third (34.5%) had a managerial position.

Measures

All questionnaires were administered in German. If the scale was only available in English, two experts translated and back-translated the items to achieve the greatest possible correspondence. We calculated several multilevel reliability indicators at the intraindividual (level 1) and interindividual level (level 2), and these are available on request. All scales had acceptable to high internal consistency (multilevel alphas ranging from .78 to .98). Table 1 illustrates the study design and reference points of the respective response formats.

Table 1. Design of the study. reference timepoint of response format.

Variables	T1 (two weeks before vacation)	T2 (last day at work)	T3 (first half of vacation)	T4 (first day back at work)	T5 (two weeks after vacation)
DRAMMA	last 7 days during leisure time	last week before vacation during leisure time	first half of vacation	during vacation	last 7 days during leisure time
Vitality	last 7 days	last 7 days	first half of vacation	during today's work day	last 7 days
Life satisfaction	today	today	today	today	today
Subj. health	today	today	today	today	today
Depressive complaints	last 7 days	-	-	during vacation	last 7 days
Need for recovery	last 7 days during leisure time	last 7 days during leisure time	-	today during leisure time	last 7 days during leisure time
Tension	today	today	today	today	today
Stress	today	today	today	today	today

Note. - = not assessed.

DRAMMA Need Satisfaction

To assess the six DRAMMA needs, we used the same set of 18 items as De Bloom et al. (2017a), who found good psychometric properties and reported good fit indices of the six-factor model: Three items to measure detachment were adapted from the well-validated Recovery Experience Questionnaire (REQ; Sonnentag and Fritz 2007) and the cognitive irritation subscale of the Irritation Scale (Mohr et al. 2006). Relaxation and mastery were also measured with the REQ with three items each (Sonnentag and Fritz 2007). To measure meaning, three items from the Job Diagnostic Survey (Hackman and Oldham 1974) were reformulated to apply to leisure time. Autonomy and affiliation were each assessed with three items adapted from the Basic Needs Satisfaction in General Scale (Johnston and Finney 2010). Example items are: “During the last 7 days during leisure time”, “... I forgot about work” (detachment), “... I did relaxing things” (relaxation), “... I felt like I was free to decide for myself how to live my life” (autonomy), “... I did things that challenge me” (mastery), “... I did something that was important to me” (meaning) and “... I felt close to the people I was interacting with” (affiliation). Answers could range between 1 (totally disagree) to 5 (totally agree). The DRAMMA needs were assessed at each of the five measurement points, referring to the previous working week (T1, T2, T5) or the vacation period (T3, T4) respectively (Table 1). Multilevel alphas were .89 (level 1, within persons) and .89 (level 2, between persons) for detachment, .92 (level 1) and .93 (level 2) for relaxation, .85 (level 1) and .83 (level 2) for autonomy, .78 (level 1) and .94 (level 2) for mastery, .80 (level 1) and .92 (level 2) for meaning, and .82 (level 1) and .93 (level 2) for affiliation.

Optimal Functioning

For well-being indicators, *vitality* was measured with four items from the Profile of Mood States (McNair et al. 1971) at all five points in time, referring to the last seven days (T1, T2, T5), vacation (T3) or first day at work (T4) (Table 1). An example item for vitality is: “During the last 7 days, I felt alive and vital”. Answers could range from 1 (not at all) to 7 (extremely). Multilevel alphas for vitality were .90 (level 1) and .98 (level 2). *Life satisfaction* was assessed with a single item (“How satisfied do you feel about this day?”) at all five points in time. Answers could range between 1 (not at all) to 10 (very much). *Subjective health* was assessed with a single item (“How healthy did you feel today?”) at all five points in time. Answers could range between 1 (not at all) to 10 (very healthy).

For ill-being indicators, *depressive complaints* were assessed with eight items from the PHQ-8 (Kroenke et al. 2009) at three points in time (T1, T4, T5). The items referred to the last seven days (T1, T5) or the vacation period (T4) (Table 1). The overall question was “Over the last 7 days/during your vacation, how often have you been bothered by any of the following problems?” An example item is: “Little interest or pleasure in doing things”. Answers could range between 0 (not at all) and 3 (nearly every day). Multilevel alphas were .82 (level 1) and .88 (level 2) for depressive complaints. *Need for recovery* was measured with four items from Van Veldhoven and Broersen (2003) at four points in time, referring to leisure time (time after work) during the last seven days (T1, T2, T5) or leisure time after the first day back at work (T4) (Table 1). An example item is “When I got home from work, I needed to be left in peace for a while”. Answers could range between 1 (totally disagree) to 5 (totally disagree). Multilevel alphas ranged from .87 (level 1) to .94 (level 2). *Tension* was assessed with a single item (“How tense did you feel today?”) at all five points in time. Answers could range between 1 (not at all) and 10 (very

much). *Stress* was assessed with a single item (“How stressed did you feel today?”) at all five points in time. Answers could range between 1 (not at all) and 10 (very much).

Statistical Analysis

We applied conventional item analysis techniques (Allen and Yen 2001; Waltz et al. 1991) to evaluate the psychometric properties of the items (frequencies, standard deviations, interitem correlations, item-total correlations, and alpha if item deleted). Items were considered good if they correlated moderately or highly with the other items within their subdimension and if the correlation with the items on other subdimensions was weak.

To test Hypothesis 1, we conducted a multilevel confirmatory factor analysis with Mplus (Muthén and Muthén 2006) due to the hierarchical structure of the data (i.e., weeks nested in persons). We first conducted several preliminary analyses (Grilli and Rampichini 2007; Heck and Thomas 2000) to assess whether a multilevel approach was warranted and to identify measurement structure problems. A multilevel confirmatory factor analysis (MCFA; Hox 2002; Muthén 1994) examines the model fit at the between-person and the within-person levels simultaneously and is used in the context of longitudinal and diary data (e.g., Merz and Roesch 2011; Stone et al. 2007). Similar to single-level CFA, factors in MCFA are defined a priori and competing models are compared statistically to determine the best fitting model. To test our first hypothesis, we first examined if the DRAMMA subscales represented distinct constructs at both the within- and the between-person level. Thus, to assess construct validity we analyzed a six-factor model with all items loading only on their intended need. We followed the recommendations of Schermelleh-Engel et al. (2003) and analyzed the following indices: TLI (Tucker Lewis index), CFI (confirmatory fit index), RMSEA (root mean square error of approximation) and SRMR (standardized root mean square residual). For the TLI and CFI values above .90 indicate acceptable fit values and for the RMSEA values under .05 indicate a good model fit and between .05 and .08 an acceptable model fit (Schermelleh-Engel et al. 2003). For the SRMR a value less than .08 is considered a good fit, less than .10 indicates an acceptable fit (Schermelleh-Engel et al. 2003).

To test Hypotheses 2-5, we accounted for the nonindependence of the data as well as for the systematic, chronological structure of the predictor (i.e., time) by following Bliese and Ployhart's (2002) five-step approach for growth modeling using random coefficient models in R, using the NLME library written by Pinheiro and Bates (2000). In the first step, a simple model without any random effects serves as a baseline and is compared to a model with a random intercept term to examine whether the models allowing employees to randomly vary in terms of their initial outcome value fit the data better than do the models that fix the intercept constant across employees. Complexity is added with each step and log-likelihood ratios serve as a means of comparison between models. In the next steps, we determined the error structure by estimating whether we needed to account for autocorrelation (i.e., responses close in time are more strongly related than responses farther apart) and heteroscedasticity (i.e., responses may become less or more variable over the time period analyzed). In these steps, we estimated models that included an autoregressive structure and modeled heteroscedasticity by increasing or decreasing the within-person residual variance by a single estimated power function describing the nature of the variance change (see Bliese and Ployhart (2002) for more information). In the next step, we tested for linear and quadratic, as well as for cubic time trends. First, we determined the fixed functions for time (linear-only model, adding a quadratic time trend, then including a cubic time trend), which allowed random intercepts but assumed that all employees follow the same growth

trajectory, and then determined if we find variability in the growth parameters by model comparison. To scrutinize criterion-oriented validity we predicted weekly vitality, life satisfaction, and subjective health as indicators of well-being (Hypothesis 2), and weekly depressive complaints, need for recovery, tension and stress as indicators for ill-being (Hypothesis 3). For these outcome variables we included the DRAMMA needs as predictor variables in the last step of our model building.

Following Raudenbush and Bryk (2002), we centered the DRAMMA needs around the person mean (group-mean centering), depicting within-person variance and included aggregated person-level predictors (grand-mean centered, capturing the overall level of the predictor across the five measurement points), so that the effect is broken down into within- and between-person components and the between-person effect does not inherit the relationships within persons. In Tables 3-4 we provide the results for the within-person relationships. Our analyses consequently refer to deviations from the average level of each variable over multiple weeks for each person. We focused on the within-person effects to capture the individual, episodic effects of need satisfaction during the study period (Ilies et al. 2015; McCormick et al. 2018). For estimation, restricted maximum likelihood was used.

Furthermore, we examined whether the DRAMMA needs were a more important predictor for well-being than ill-being variables (Hypothesis 4) by comparing the average predicted variance and range of predicted variance in well-being and ill-being outcomes to one another. In order to examine the relative importance of each DRAMMA need, we followed Liu et al. (2014) to estimate the Pratt index (Pratt 1987; Thomas et al. 1998) in multilevel models. The Pratt index, due to its additive property, orthogonally partitions the R-square and sums to one, which provides a criterion of how much each DRAMMA need contributes to the explained variance in the respective outcome variable orthogonally (Liu et al. 2014). Comparing the Pratt indices of predictors differs from simply comparing coefficients such as standardized beta-weights in regression analyses in that the Pratt index takes account of the individual importance of the predictors regardless of correlation among them. Thus, the Pratt index provides a measure of relative importance that is robust to collinearity between predictors (Liu et al. 2014).

Results

Construct Validity: Multilevel Confirmatory Factor Analysis for the DRAMMA Model

Multilevel confirmatory factor analyses were conducted using the 18 DRAMMA items to evaluate the factor structure at the between- and within-person levels. The model fit statistics indicated a good fit at the within-person level and the between-person level ($\chi^2 = 443.97$, $df = 205$, $p < .001$, $RMSEA = .035$, $90\% CI [.023; .045]$, $CFI = .98$, $TLI = .97$, $SRMR_{within} = .046$, $SRMR_{between} = .078$). The fit of a model with two second-order factors (detachment and relaxation loading on one higher-order factor; autonomy, mastery, meaning and affiliation loading on the second higher-order factor) showed poorer fit indices ($\chi^2 = 627.98$, $df = 221$, $p < .001$, $RMSEA = .044$, $90\% CI [.034; .053]$, $CFI = .96$, $TLI = .95$, $SRMR_{within} = .058$, $SRMR_{between} = .214$). Similarly, a five-factor model in which detachment and relaxation loaded on the same first-order factor did not show better model fit ($\chi^2 = 424.79$, $df = 200$, $p < .001$, $RMSEA = .035$, $90\% CI [.023; .045]$, $CFI = .98$, $TLI = .97$, $SRMR_{within} = .058$, $SRMR_{between} = .268$). The fit of a single-factor model was not acceptable ($\chi^2 = 3722.81$, $df = 271$, $p < .001$, $RMSEA$

= .116, 90% CI [.110; .122], CFI = .71, TLI = .68, SRMR_{within} = .122, SRMR_{between} = .334). Summing up, a six-factor model with all items loading on their intended DRAMMA need had a good model fit, supporting Hypothesis 1.

Preliminary Analyses: Change in DRAMMA Need Satisfaction Over Time

In the first step, we determined the strength of data non-independence and estimated a null model (Bryk and Raudenbush 1992). Intraclass correlation coefficient (ICC1) for all DRAMMA subscales was above .20 (Table 2), indicating that approximately a quarter of the variance in individual ratings of performance was due to inter-individual differences and that there was also substantial variance within persons across measurement points. Thus, a multilevel approach was warranted. The results showed that models with random intercepts fitted the data better, implying that individuals varied in terms of their overall level on the respective DRAMMA subscale.

Next, we assessed the error structure of the models. For detachment, autonomy, and mastery, models that did not include autocorrelation, but incorporated heterogeneity in the error structures, fitted best. For meaning a model including autocorrelation as well as heterogeneity in the error structure fitted best, while for relaxation and affiliation, models without autocorrelation and heterogeneity in the error structure fitted best.

In the next step, we tested for linear and quadratic, as well as for cubic time trends to examine the growth trajectory of the DRAMMA needs. For all DRAMMA needs, the linear as well as the quadratic slopes for time were significant, indicating that DRAMMA need satisfaction increased over the five measurement points and followed a u-shaped trend over time (Figure 1, Appendix). In a subsequent step, we determined variability in the growth parameters to assess if employees follow different growth trajectories. Our results showed no significant slope variance for the linear and quadratic time slopes for detachment, relaxation, mastery, and affiliation. Thus, models that allowed random intercepts (i.e., random initial levels of these DRAMMA needs) and assumed that all employees follow the same growth trajectory fitted the data best. For autonomy, the model including a random linear time slope fitted the data better ($\Delta\chi^2(2) = 7.27, p < .05$), similarly for meaning ($\Delta\chi^2(2) = 6.22, p < .05$), indicating that the linear time trend varied between employees.

Table 2. ICCs, descriptive statistics, and within-person inter-correlations between DRAMMA needs.

Variable	ICC	M	SD	Det	Rel	Aut	Mas	Mea	Aff
Gender ¹		0.26	0.44	-.03	.02	-.02	-.03	-.08	-.09
Age		40.00	10.68	-.01	.05	-.02	.03	-.09	-.05
Dur. of employ. ²		9.21	9.01	.12	.05	-.03	-.07	-.09	-.10
Full-time work ³		0.74	0.44	-.14*	.00	.14*	.00	.02	-.04
Manager ³		0.34	0.47	-.08	.05	.07	.04	.09	.01
Detachment	.20	3.10	0.78						
Relaxation	.21	3.00	0.79	.77**					
Autonomy	.21	3.36	0.69	.65**	.76**				
Mastery	.38	3.04	0.83	.31**	.37**	.44**			
Meaning	.34	3.22	0.86	.34**	.42**	.45**	.61**		
Affiliation	.34	4.03	0.56	.48**	.59**	.61**	.35**	.40**	
Vitality		4.32	1.24	.37**	.40**	.40**	.31**	.31**	.32**
Life satisfaction		6.79	1.91	.24**	.32**	.26**	.23**	.22**	.23**
Subj. health		6.65	2.23	.23**	.26**	.21**	.19**	.18**	.21**
Depr. complaints ⁴		5.59	4.39	-.55**	-.59**	-.53**	-.41**	-.35**	-.39**
Need for recovery		2.92	0.98	-.52**	-.55**	-.44**	-.34**	-.32**	-.33**
Tension		5.28	2.28	-.42**	-.36**	-.31**	-.16**	-.15**	-.28**
Stress		5.01	2.31	-.46**	-.46**	-.39**	-.18**	-.19**	-.32**

Note. $N = 279$. * $p < .05$. ** $p < .001$. ¹Gender coded as 0 = female. 1 = male. ²Duration of employment. ³Coded as 0 = no. 1 = yes (full-time work/managerial position). ⁴Depressive complaints reported as a sum score instead of mean. Potential range of DRAMMA: 1 (totally disagree) to 5 (totally agree).

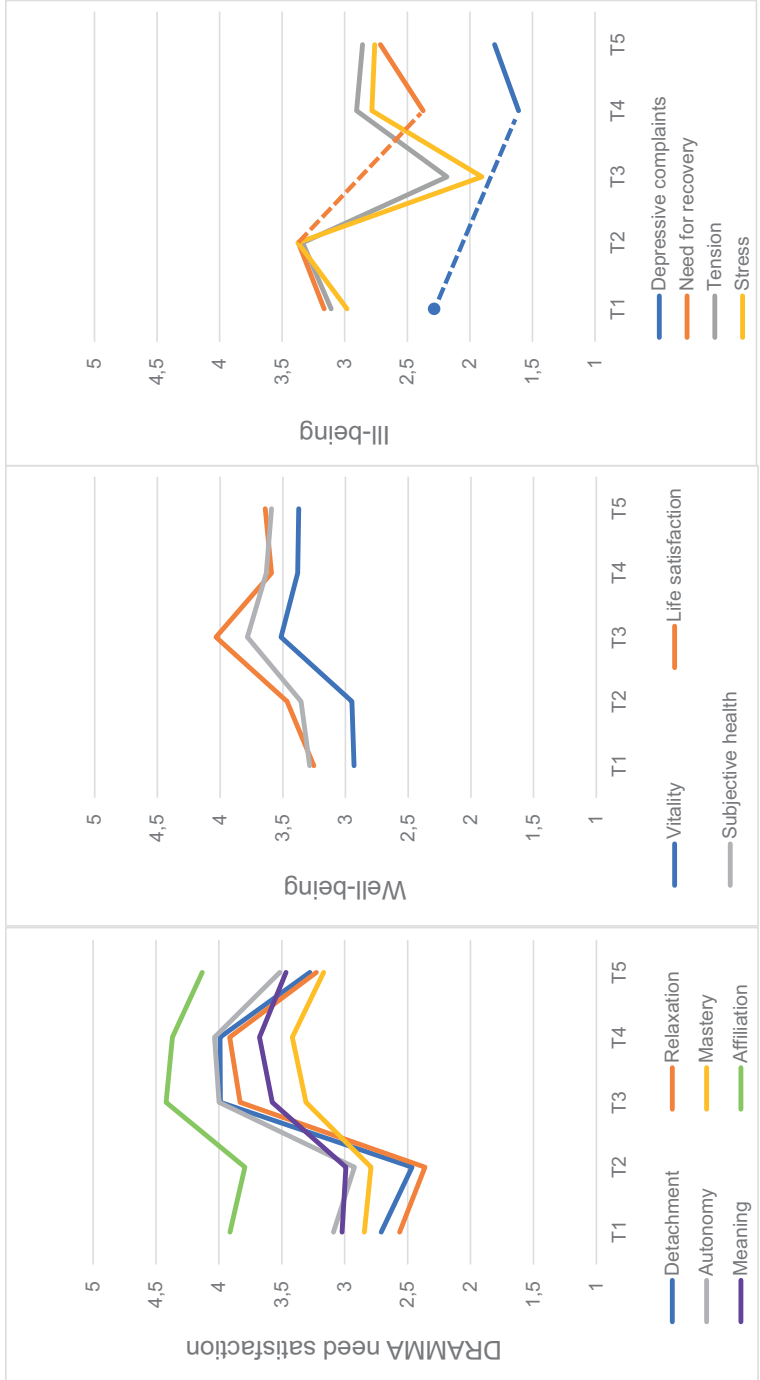


Fig. 1 Time trends of DRAMMA need satisfaction, well-being and ill-being across the study period. Values for all scales for well-being and ill-being (except need for recovery) transformed to a 1 to 5 Likert scale. T1 = two weeks before vacation, T2 = the last working day before vacation, T3 = in the middle of the vacation, T4 = the first working day after vacation, T5 = two weeks after vacation

Criterion Validity: DRAMMA Needs Predicting Optimal Functioning

As in our preceding analyses focusing on the DRAMMA needs, we followed a model building approach and tested first the degree of nonindependence for the indicators of well-being and ill-being. We then determined the error structure and examined if the model fit could be improved by including estimates of autocorrelation and heteroscedasticity in the within-group errors. In a subsequent step, we examined linear, quadratic, and cubic time trends and tested for significant slope variance. The steps so far allowed us to conclude a) if there was sufficient variability between employees, b) if the error structures were adequately addressed, c) if there was a linear or quadratic trend in the indicators of well-being and ill-being over time, d) if employees differed in terms of their initial levels, and e) if the individual growth patterns varied among individuals. The results of these first steps are presented in Tables 3-4. To test Hypotheses 2-5, we then examined the extent to which satisfaction of DRAMMA needs predicted optimal functioning within persons (i.e., indicators of well-being and ill-being, Tables 3-4), comparing their contribution to predicting optimal functioning conjointly.

The results showed that weekly vitality depended mainly on weekly mastery (Table 3), and marginally on weekly detachment and autonomy. This finding implies that participants experienced greater vitality if they experienced more mastery and by trend more detachment from work and autonomy in a given week than in other weeks. For weekly life satisfaction, results indicated that weekly relaxation and mastery were particularly important. With regard to weekly subjective health, we found that weekly relaxation was particularly important. Thus, Hypothesis 2 was partially supported. Detachment, relaxation, autonomy and mastery all predicted one or two of our three well-being outcomes, while meaning and affiliation did not significantly predict well-being (Table 3), when jointly regressed with other DRAMMA needs.

For weekly depressive complaints, relaxation and mastery were of particular importance (Table 4). This finding implies that participants experienced a lower level of depressive complaints if they experienced more relaxation and mastery in a certain week than in other weeks. These findings were similar for need for recovery except that for need for recovery weekly detachment also played a significant role. For weekly tension, weekly detachment and affiliation served as significant predictors. For weekly stress, the most important DRAMMA needs were weekly detachment, relaxation and marginally affiliation. Thus, Hypothesis 3 was partially supported. When conjointly assessed with other DRAMMA needs, detachment, relaxation, mastery, and marginally affiliation predicted at least two of our four ill-being outcomes, while autonomy and meaning did not significantly predict ill-being (Table 4).

Table 3. Multilevel estimates for models predicting well-being. Obs = the number of observations for each model.

	Vitality (Obs = 928, n = 274)				Life satisfaction (Obs = 928, n = 274)				Subjective Health (Obs = 929, n = 275)						
	Est	SE	t	p	Pratt	Est	SE	t	p	Pratt	Est	SE	t	p	Pratt
Intercept	3.89	.15	26.44	<.01		5.43	.26	20.68	<.01		5.98	.30	20.26	.01	
Time linear	.17	.11	1.49	.14		.94	.20	4.70	<.01		.36	.22	1.65	.10	
Time quadratic	-.02	.02	-1.01	.31		-.15	.03	-4.68	<.01		-.06	.04	-1.62	.11	
Detachment	.11	.06	1.90	.06	.20	-.16	.10	-1.62	.11	-.11	.09	.11	0.83	.41	.17
Relaxation	.08	.07	1.22	.22	.19	.46	.12	3.92	<.01	.84	.29	.13	2.24	.03	.44
Autonomy	.13	.07	1.89	.06	.24	-.03	.12	-0.22	.83	-.05	-.14	.14	-0.99	.32	-.07
Mastery	.14	.06	2.60	.01	.18	.19	.10	1.94	.05	.18	.16	.11	1.48	.14	.19
Meaning	.08	.06	1.40	.16	.11	.07	.10	0.65	.51	.05	.06	.11	.55	.58	.07
Affiliation	.09	.08	1.21	.23	.08	.07	.13	0.55	.58	.09	.22	.15	1.47	.14	.19
Level-1 intercept variance (SE)	.55	.74				2.26	1.50				2.57	1.60			
Level-1 Delta R ²	.42					.27					.22				
AIC	2739.75					3617.86					3906.39				
BIC	2826.49					3699.69					3997.95				

Note. For the calculation of Delta Pseudo R² we used the formulas of Snijders and Bosker (1994) to estimate the amount of variance explained compared to each null model. The model for vitality included heteroscedasticity, the time slope for subjective health was random. Relationships between the DRAMMA needs and outcome variables were estimated at the within-person level as well as the between-person level, for reasons of parsimony only relationships at the within-person level are displayed.

Table 4. Multilevel estimates for models predicting ill-being. Obs = the number of observations for each model.

	Depressive complaints (Obs = 552, n = 267)			Need for recovery (Obs = 755, n = 273)			Tension (Obs = 929, n = 275)			Stress (Obs = 929, n = 275)					
	Est	SE	t	p	Pratt	Est	SE	t	p	Pratt	Est	SE	t	p	Pratt
Intercept	1.04	.09	11.09	<.01		3.02	.12	25.74	<.01		5.33	.34	15.86	<.01	
Time linear	-.18	.09	-2.03	.04		.06	.10	.59	.55		-.03	.26	-.11	.91	
Time quadratic	.03	.01	1.69	.09		-.02	.02	-1.29	.20		.03	.04	.61	.54	
Detachment	-.04	.03	-1.22	.22	.08	-.16	.05	-3.42	<.01	.37	-.84	.13	-6.69	<.01	.82
Relaxation	-.11	.04	-3.07	<.01	.18	-.22	.06	-3.78	<.01	.48	-.11	.15	-.70	.48	.09
Autonomy	-.04	.04	-1.18	.24	.06	.00	.06	.08	.93	.00	.03	.16	.21	.83	-.02
Mastery	-.09	.03	-2.93	<.01	.12	-.13	.05	-2.86	<.01	.14	-.08	.13	-.64	.52	.02
Meaning	.00	.03	.11	.91	-.02	-.01	.05	-.22	.83	.01	.08	.13	.63	.53	-.02
Affiliation	-.02	.04	-.39	.70	.03	.00	.06	.01	.99	-.01	-.34	.17	-1.99	.05	.11
Level-1 intercept	.10	.34				.30	.55				3.88	1.97			
variance (SE)															
Level-1 Delta R ²	.34					.46					.25				
AIC	745.30					1862.09					4065.45				
BIC	822.48					1945.06					4147.37				

Note. For the calculation of Delta Pseudo R² we used the formulas of Snijders & Bosker (1994) to estimate the amount of variance explained compared to each null model. The model for need for recovery included heteroscedasticity, the models for depressive complaints and stress included an autoregressive structure. Relationships between the DRAMMA needs and outcome variables were estimated at the within-person level as well as the between-person level, for reasons of parsimony only relationships at the within-person level are displayed.

The focus of this study was on within-person effects. For transparency and clarity, in the following paragraph we report the results at the between-person level: Detachment from work positively predicted all well-being outcomes and negatively predicted all ill-being outcomes at the between-person level. Thus, the persons who on average experienced more detachment across all time points, experienced also higher well-being and lower ill-being across all time points. Relaxation was positively related to life satisfaction and negatively to depressive complaints, tension and stress. Autonomy was positively related to vitality and negatively to need for recovery. Mastery and meaning were not significantly related to the outcomes. Affiliation was positively related to all well-being outcomes, and negatively to depressive complaints. To summarize, the between-person level results were largely similar to the results at the within-person level with three exceptions. Mastery only showed relationships to optimal functioning at the within-person level, whereas affiliation showed relationships mostly at the between-person level. Detachment from work had even stronger relationships to optimal functioning at the between-person than at the within-person level.

To examine whether the DRAMMA needs were more important predictors for well-being rather than ill-being, we compared predicted variance in well-being outcomes (vitality, life satisfaction, subjective health) to predicted variance in ill-being outcomes (depressive complaints, need for recovery, tension, and stress). The total predictive variance of DRAMMA needs ranged from .09-.21 for well-being (mean = .14, mean *SE* = .03) and from .19-.39 for ill-being (mean = .29, mean *SE* = .04) (Tables 3-4). Thus, Hypothesis 4 was not supported. On average DRAMMA needs predicted almost twice as much variance for ill-being than for well-being outcomes.

Relative Importance of the DRAMMA Need Satisfaction Predicting Optimal Functioning

We estimated the relative importance of each DRAMMA need for optimal functioning using Pratt indices (Figure 2). Concerning well-being indicators, vitality was best predicted by autonomy, closely followed by detachment, relaxation, and mastery. Relaxation showed the greatest relative importance for life satisfaction and subjective health. Regarding ill-being indicators, relaxation had the greatest relative importance for depressive complaints and need for recovery, while detachment had the greatest relative importance for stress and tension (Figure 2). To summarize, relaxation was the strongest predictor for four of the seven relationships investigated between weekly DRAMMA needs and weekly optimal functioning (57% of all relationships studied), while detachment from work was the strongest predictor for two of the seven relationships (29% of all studied relationships) (Figure 2).

Additional Analyses: Balanced Need Satisfaction

To explore whether balanced DRAMMA need satisfaction affects optimal functioning, we correlated balanced need satisfaction with optimal functioning for each measurement point (T1-T5). Balanced need satisfaction scores were created in line with Sheldon and Niemiec (2006), by computing absolute values for the differences (divergences) between each DRAMMA need pair (e.g., absolute value of detachment minus relaxation). A sum of those absolute values was then created for each time point to mark the divergence in DRAMMA needs. Finally, the divergence scores were reversed by subtracting each participant's score from our highest observed divergence score of 33.33 to create scores for balanced need satisfaction for each time point (Sheldon and Niemiec 2006).

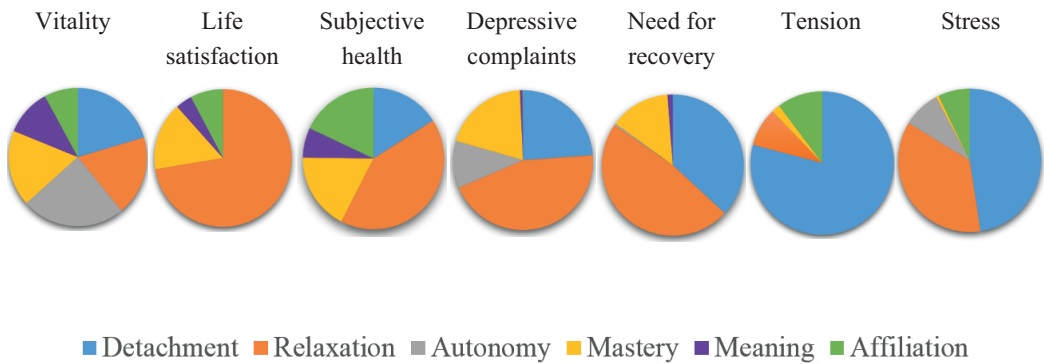


Fig. 2 Pratt indices of the weekly DRAMMA needs predicting weekly optimal functioning

Overall, the correlations between balanced need satisfaction and optimal functioning were modest (average r 's ranging from $-.13$ to $.09$). Next, we conducted hierarchical linear regressions for each well-being and ill-being outcome with aggregated mean scores, where satisfaction of all the six DRAMMA needs were entered at step 1 as predictors and balanced need satisfaction was entered at step 2. For subjective health, balanced need satisfaction was a significant positive predictor beyond all individual DRAMMA needs ($\Delta R^2 = .009$), $F(1, 268) = 4.11$, $p = .044$). For stress, balanced need satisfaction as a negative predictor was marginally significant beyond the influence of individual DRAMMA needs ($\Delta R^2 = .009$), $F(1, 268) = 3.70$, $p = .056$). For all other optimal functioning outcomes, balanced need satisfaction did not explain significant variance beyond the individual DRAMMA needs. Thus, for subjective health and marginally for stress, balanced need satisfaction predicted variance beyond the influence of individual DRAMMA needs, suggesting that balanced need satisfaction also plays a role in optimal functioning.

Discussion

This study examined the reliability and validity of the operationalization of the DRAMMA model (Newman et al. 2014) in explaining optimal functioning over time. We conducted a longitudinal study over a period of two months, covering both leisure and work periods. We focused on within-person changes in investigating the relationship between satisfaction of DRAMMA needs and optimal functioning (i.e., high well-being and low ill-being). Rather than comparing people who are generally high on need satisfaction to those who are not, our results focused on whether people feel better off in terms of optimal functioning in weeks when they experienced more need satisfaction, compared to weeks when their need satisfaction is low. Thus, we were able to examine within-individual variability and weekly state-like effects in need satisfaction and optimal functioning.

The six-factor model, consisting of experienced satisfaction of psychological needs for detachment, relaxation, autonomy, mastery, meaning, and affiliation, showed a good fit in our sample of 279 German employees. The needs defined in the DRAMMA model were found to be separate constructs, which were related positively and consistently to one another. Thus, Hypothesis 1 was supported. The results provide support for the proposed six-factor structure of the DRAMMA model, suggesting that the six needs could also be reliably investigated conjointly in future studies with relatively brief questionnaires (three items per need).

Analyses of the longitudinal data showed that DRAMMA needs and optimal functioning co-developed across time (i.e., leisure and work). That is, the DRAMMA needs were more likely to be satisfied during the vacation than before or after it. Optimal functioning followed the same time-trend. Optimal functioning was highest during the vacation and lower before and after the vacation, which is substantiated by findings from vacation research (e.g., De Bloom et al. 2010). Using within-person correlations, we could demonstrate that all the DRAMMA needs were significantly related to optimal functioning (positively related to well-being and negatively related to ill-being).

However, when all needs predicted the outcomes conjointly, the stronger predictive power of certain DRAMMA needs caused many of the previously significant relationships to weaken or disappear. For vitality, mastery and marginally detachment from work and autonomy showed positive effects, whereas relaxation and mastery were significant predictors of life satisfaction. For weekly subjective health, only relaxation showed significant relations. Relaxation is commonly seen as an important component in interventions intended to prevent physical and mental health problems (Richardson and Rothstein 2008; Verbeek et al. 2019). Relaxation is a psychobiological need which, when satisfied, helps people to recover from bodily strain and can have prolonged effects for well-being and health (Kleiber 2000; Krajewski et al. 2011; Ohtsu et al. 2012). Perhaps relaxation, containing a psychological as well as a biological component, can act as a mediator that connects the satisfaction of other psychological needs to psychobiological well-being and health benefits.

To summarize, all DRAMMA needs except meaning and affiliation were related to at least one of the three well-being variables in the multilevel analyses in our study. On a weekly level, it seems that specific needs (e.g., relaxation) can explain a greater share of variance in well-being outcomes (e.g., life satisfaction) than other needs (e.g., meaning). Thus, Hypothesis 2 received only partial support. Relaxation especially explained variance in subjective health, and together with mastery in life satisfaction, whereas for vitality all DRAMMA needs, especially mastery, detachment and autonomy were relatively equal predictors.

Poor detachment from work predicted ill-being (need for recovery, tension, and stress) in the multilevel analyses, with the exception of depressive complaints. Relaxation and mastery were negatively related to depressive complaints and need for recovery, but not to tension. Relaxation was also negatively related to stress. Affiliation was negatively related to tension and marginally to stress, but not to depressive complaints or need for recovery. Need for recovery, tension and stress can be seen as a reaction to mental or physiological overload such as that caused by heavy job demands (Sonnentag et al., 2010). Psychological detachment creates mental distance from experienced strain, helping people to recover better in the evening and to better satisfy their needs to overcome strain and fatigue. Consistent with our results, in their meta-analysis, Wendsche and Lohmann-Haislah (2017) found that psychological detachment was related to better sleep quality and less physical discomfort. The effects of relaxation are also compatible with those reported in intervention studies, where

relaxation interventions such as relaxation therapy and deep-breathing have been used for alleviating people's stress, fatigue and anxiety (De Bloom et al. 2017b; Richardson and Rothstein 2008; Thiart et al. 2015). Moreover, our results suggest that, besides detachment and relaxation, mastery may also be important in alleviating employees' depressive complaints and need for recovery. Satisfying the need to feel proficient and skillful may help a person to experience less negative affect and strain by building up positive personal resources and self-esteem (e.g., Iwasaki 2007). In summary, Hypothesis 3 received partial support. That is, detachment from work, relaxation, and mastery negatively predicted several outcomes of ill-being.

Earlier research has shown the DRAMMA needs to be more consistently related to well-being rather than ill-being (Sheldon et al. 2001; Van den Broeck et al. 2016; Zika and Chamberlain 1992). However, contrary to Hypothesis 4, the DRAMMA needs explained around twice as much variance for ill-being compared to the predicted variance for well-being. Earlier research has often used direct measures of positive and negative affect as the main variables for measuring subjective well- and ill-being. Perhaps the benefits of DRAMMA need satisfaction for well-being are especially prominent regarding the affective side of well-being rather than for more cognitive measures such as life satisfaction and subjective health. Nevertheless, our results suggest that besides impacting subjective well-being, the DRAMMA needs may also be of great importance in relation to ill-being (such as depressive complaints and need for recovery). A lack of psychological need satisfaction can exacerbate ill-being and over time may even lead to increased negative affectivity and helplessness (Sheldon 2011). Indeed, DRAMMA need satisfaction may act as an important psychological buffer mechanism, protecting people from depression, various stress symptoms, and fatigue. Our results suggest that the relative importance of psychological need satisfaction for well-being and ill-being should be further examined in future studies, to ascertain if, when analyzed conjointly, psychological needs do indeed explain more variance in ill-being rather than in well-being outcomes.

According to our results, it seems that, of all the DRAMMA needs, relaxation and detachment from work are most consistently related to optimal functioning. Based on Pratt indices, which prevent problems of multicollinearity, relaxation was the strongest predictor for four relationships between weekly DRAMMA need satisfaction and weekly optimal functioning (57% of all relationships studied), while detachment was the strongest predictor for two relationships (29% of all relationships studied). This is in line with the review of recovery experiences by Sonnentag et al. (2017), who found most consistent links between detachment from work, relaxation, well-being, and ill-being outcomes. In a modern working society, work intensification and social acceleration pose a serious challenge to employees' optimal functioning (Rosa 2013; Ulferts et al. 2013). Detachment and relaxation, while sometimes labeled "passive recovery", can be very important mechanisms in counteracting effects of job strain and emotional exhaustion (Bennett et al. 2018; Sonnentag et al. 2017; Wendsche and Lohmann-Haislah 2017).

Besides high levels of certain satisfied DRAMMA needs (especially relaxation and detachment), balanced DRAMMA need satisfaction was also important for subjective health (and marginally for stress). This suggests that satisfying one or two needs may not suffice for a consistent experience of feeling healthy, whereas having an even level of satisfaction between the DRAMMA needs seems to play a less important role for other variables. To summarize, detachment from work and relaxation seem to be especially important needs for consistent optimal functioning, while for subjective health the overall balance between the DRAMMA needs also plays a role.

Although all DRAMMA needs (including meaning and affiliation) were positively related to well-being and negatively related to ill-being, when all needs were examined conjointly only detachment, relaxation, autonomy, mastery and to a small degree affiliation were related to optimal functioning. Four of the needs are identified as recovery experiences in the framework by Sonnentag and Fritz (2007). Thus, the four recovery experiences included in the DRAMMA model explained most of the variance in optimal functioning, while affiliation was only weakly related and meaning was not significantly related to optimal functioning in the conjoint model.

Other recovery experiences, such as problem-solving pondering, have also been recently examined together with detachment, relaxation, control, and mastery (Bennett et al. 2016). Besides being examined as psychological needs, meaning and affiliation could also be seen as experiences helping people to better recover from work through experiencing leisure as meaningful and feeling connected to people outside work. According to our results, the addition of meaning and affiliation to the original four recovery experiences might not bring much incremental value in explaining additional variance in optimal functioning. However, the role of meaning and affiliation should not be ignored. Recent qualitative research using a best possible selves paradigm (Loveday et al. 2018b) showed that affiliation was considered the most important ingredient participants described when envisioning their ideal future and that meaning also played a role in living a good life (Loveday et al. 2018a). Similarly, Virtanen et al. (2019) found that meaning and affiliation were positively related to life satisfaction among schoolteachers and principals.

Moreover, our design studying the DRAMMA needs conjointly did not allow us to examine hierarchical relationships among the DRAMMA needs. For example, to replenish resources lost due to job strain, detachment from work and relaxation may need faster satisfaction during leisure time than other DRAMMA needs and be therefore more salient early on in the need satisfaction process than autonomy, mastery, meaning, and affiliation. The DRAMMA model does not specify hierarchical temporal relationships within DRAMMA needs, which is why we did not examine these possible relationships. Future need research should investigate if some needs require the satisfaction of other needs as preconditions.

Concerning measurement, it may be that the outcomes we measured lean more towards the hedonic rather than the eudaimonic side of well-being. Future research may include eudaimonic outcomes (e.g., personal growth, beneficence, transcendence) to reassess the value of meaning and affiliation. Moreover, the scales we used to measure meaning and affiliation may not be optimal for capturing the richness of these constructs. We developed the scales and adapted them from the Job Diagnostic Survey (Hackman and Oldham 1974; Johnston and Finney 2010). Although the scales had good internal reliabilities, their validity may not be optimal. Especially the affiliation item “I really liked the people I interacted with” may have confounded social preferences with experiences of affiliation and relatedness. Future studies may benefit from measuring affiliation with items involving more closely the innate experience of closeness and relatedness. For meaning, it may be useful to attempt to distinguish between presence of meaning and searching for meaning (e.g., Newman et al. 2018).

Our results suggest that the interrelations between different need and recovery models (e.g., DRAMMA, SDT, and recovery experiences) should be more thoroughly investigated. For instance, although, like psychological need satisfaction, recovery experiences are also seen as “internal resources”, recovery experiences differ from SDT needs in that recovery experiences are not seen as universal, organismic, or always fundamentally innate (Sonnentag and Fritz 2007; Vansteenkiste et al. 2010).

Affiliation (relatedness), an established SDT need that is important for leisure and work well-being (Loveday et al. 2018a; Newman et al. 2014; Sirgy et al. 2017; van den Broeck et al. 2016), explained very little additional variance in our within-person outcomes compared to detachment from work, relaxation, autonomy, and mastery. Perhaps in the context of leisure well-being, recovery experiences are the definitive factors contributing to optimal functioning. The null results for meaning are also interesting. Meaning has more often been examined as an outcome of autonomy, competence, and relatedness (affiliation) than as a psychological need (e.g., Martela et al. 2017). The role of meaning in tying together the process of need satisfaction and improved optimal functioning should be investigated more thoroughly in the future, also in the context of leisure.

Strengths and Limitations

Our study has four key strengths. First, this study was the first to examine all DRAMMA needs conjointly in a longitudinal model, providing validity information on the direction and stability of the model and its effects. Second, studying the interrelationships, similarities and dissimilarities of Self-Determination Theory needs and recovery experiences helps to disentangle the fields of psychological need satisfaction at work and leisure and recovery from work during leisure time. Third, the five measurement points enabled us to examine the DRAMMA needs and outcomes both during leisure (vacation) and during work episodes (in the evening after work), investigating both domains in a single study. Fourth, we compared the importance of all predictor needs for outcomes, which allowed not only to conventionally test significances but to also examine the relative strengths and relative importance of each DRAMMA need using the Pratt index (Pratt 1987; Thomas et al. 1998).

This study is not without limitations. Although our participants had various different professions, our sample was not random and thus could potentially suffer from some degree of selection bias. Three out of four of the participants were female, so the generalizability of our findings to more male-dominated professions may be limited. Moreover, since there was only a single measurement point during the employees' vacation, we were not able to compare the importance of DRAMMA needs for optimal functioning between domains (i.e., work and leisure). Finally, in order to reduce participant burden over the study's five measurement times, many of our measures for optimal functioning were single-item measures. Thus, we could not examine reliability coefficients for those measures.

Suggestions for Future Research

Future studies could extend our results in several ways. First, although there is accumulating evidence on the importance of psychological need satisfaction for optimal functioning, how different combinations of needs might contribute to optimal functioning over time has not received much attention. Building on our results, one might study whether different profiles of the DRAMMA needs, such as high psychological detachment combined with high relaxation versus high satisfaction of other DRAMMA needs yield differing benefits, or whether specific combinations of dissatisfied DRAMMA needs are more detrimental to optimal functioning than others. Latent Profile Analysis could be applied to investigate this issue in more detail.

Second, the great importance of psychological detachment and relaxation for optimal functioning compared to other DRAMMA needs could be investigated further. Detachment from work and

relaxation were likewise more consistently related to higher well-being and lower ill-being than mastery and control in a systematic review of recovery experiences by Sonnentag et al. (2017). Reminding employees of the importance of psychological detachment and relaxation for optimal functioning could be of great economic and clinical value in this age where active, difficult, and energy-consuming leisure pursuits are often valued over simple, more “leisurely” ways of spending one’s leisure time such as reflection and rest (Kleiber 2000).

Third, although the relationships between balanced need satisfaction and optimal functioning were rather weak in general, balanced need satisfaction predicted subjective health (and marginally stress) beyond the influence of overall levels of DRAMMA need satisfaction. Balance of the DRAMMA needs could be an interesting topic for a more thorough examination. Perhaps the potential positive effects of a life with balanced DRAMMA need satisfaction are more protective than instant satisfaction of single needs, safeguarding the self from harm caused by conflicts in need satisfaction to long-term future well-being (Sheldon and Niemiec 2006). Consistent with this idea, in our results balanced need satisfaction was slightly more strongly linked to ill-being than to well-being.

Conclusion

In this study we validated the DRAMMA model with a longitudinal research design. Factorial structure of the six-need model was found to be robust, suggesting that the six DRAMMA needs could also be investigated conjointly in future studies on psychological need satisfaction. We focused on the within-person level to examine individual patterns in need satisfaction and optimal functioning across leisure and work. Among the DRAMMA needs, relaxation and detachment from work were found to be most strongly associated with optimal functioning. In modern working life, where work intensification and social acceleration are increasingly present, psychological need satisfaction during leisure and in the evening hours after work can aid and nurture employees’ well-being, providing the necessary ingredients for optimal functioning.

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Compliance with ethical standards

Ethical approval: This study was approved by the ethics committee of the Leuphana University in Lüneburg, Germany (reference number: 201606, EB-Antrag Lehr201606_holiday). The trial is also registered at the German Clinical Trial Register (DRKS00013650).

Conflict of interest: The authors declare that they have no conflict of interest.

Informed consent: Participants provided their informed consent.

Appendix: DRAMMA need satisfaction predicted by linear and quadratic time.

DRAMMA		Estimate	SE	t-value
Detachment	(Intercept)	1.23	0.14	8.93***
	Time linear	1.33	0.10	12.99***
	Time quadratic	-0.18	0.02	-10.67***
	Variance within	.98 (.56)		
Relaxation	(Intercept)	1.30	0.12	10.13***
	Time linear	1.15	0.10	11.58***
	Time quadratic	-0.14	0.02	-8.70***
	Variance within	.68 (.82)		
Autonomy	(Intercept)	1.95	0.12	15.87***
	Time linear	1.02	0.09	11.52***
	Time quadratic	-0.14	0.01	-9.78***
	Variance within	.95 (.97)		
Mastery	(Intercept)	2.35	0.12	18.87***
	Time linear	0.46	0.10	4.80***
	Time quadratic	-0.06	0.02	-3.49***
	Variance within	.65 (.80)		
Meaning	(Intercept)	2.38	0.13	18.02***
	Time linear	0.56	0.10	5.80**
	Time quadratic	-0.07	0.02	-4.34***
	Variance within	.85 (.92)		
Affiliation	(Intercept)	3.39	0.08	38.87***
	Time linear	0.45	0.07	6.67***
	Time quadratic	-0.06	0.01	-5.25***
	Variance within	.30 (.55)		

Note. *** $p < .001$.

5.3 PUBLICATION II

An Identity-Based Integrative Needs Model of Crafting: Crafting Within and Across Life Domains

de Bloom, J., Vaziri, H., Tay, L., Kujanpää, M.

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5.4 PUBLICATION III

Needs-based Off-job Crafting Across Different Life Domains and Contexts

Kujanpää, M., Syrek, C., Tay, L., Kinnunen, U., Mäkikangas, A., Shimazu, A., Wiese, C. W., Brauchli, R., Bauer, G. F., Kerksieck, P., Toyama, H., de Bloom, J.

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Miika Kujanpää^{1,2}, Christine Syrek³, Louis Tay⁴, Ulla Kinnunen¹, Anne Mäkikangas⁵, Akihito Shimazu⁶, Christopher W. Wiese⁷, Rebecca Brauchli⁸, Georg F. Bauer⁸, Philipp Kerksieck⁸, Hiroyuki Toyama⁹ & Jessica de Bloom^{1,10}

¹ Faculty of Social Sciences (Psychology), Tampere University

² School of Business, University of South-Eastern Norway

³ Department of Management Sciences, University of Applied Sciences Bonn-Rhein-Sieg

⁴ Department of Psychological Sciences, Purdue University

⁵ Faculty of Social Sciences (Work Research Centre), Tampere University

⁶ Department of Policy Management, Keio University

⁷ School of Psychology, Georgia Institute of Technology

⁸ Center of Salutogenesis, Epidemiology, Biostatistics and Prevention Institute, University of Zurich

⁹ Department of Education, University of Helsinki

¹⁰ Department of HRM & OB, University of Groningen

5.5 PUBLICATION IV

The Forgotten Ones: Crafting for Meaning and for Affiliation in the Context of Finnish and Japanese Employees' Off-Job Lives

Kujanpää, M., Weigelt, O., Shimazu, A., Toyama, H., Kosenkranius, M., Kerksieck, P., de Bloom, J.

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ABSTRACT

In an intensifying working life, it is important for employees to proactively shape their lives beyond work to create opportunities for satisfying personal needs. These efforts can be beneficial for creating and sustaining wellbeing in terms of vitality. In this study, we focused on off-job crafting for meaning and off-job crafting for affiliation, conceptualized as proactive changes in off-job life with the aim of increasing satisfaction of needs for meaning and affiliation, among employees in Finland and Japan, two countries with disparate cultural values. We examined longitudinal within-person relationships between the two off-job crafting dimensions and vitality, as well as the relationships between off-job crafting and contextual variables, such as age and gender. We conducted a longitudinal study over six months with three measurement points. A total of 578 Finnish and 228 Japanese employees participated in the study. Hypotheses were tested with Latent Growth Analysis. Increases in off-job crafting for meaning and for affiliation were mostly positively related to increases in vitality over time in both countries. In Finland, age was positively related to off-job crafting for meaning. In Japan, age was negatively related to off-job crafting for meaning and female gender was positively related to off-job crafting for affiliation. Focusing on increasing meaning and affiliation in off-job life can be beneficial strategies for employees to feel positively energized. The role of contextual variables and culture in off-job crafting should be examined further in future studies.

Keywords: off-job crafting, context of crafting, meaning, affiliation, vitality, recovery experiences, DRAMMA model

Introduction

“*Happiness is thought to depend on leisure; for we are busy that we may have leisure*” (Aristotle, 2009, p. 195).

How can one craft a life worth living? How can one proactively shape one’s life to experience wellbeing and to feel energized and alive? Modern working life exposes employees to all sorts of busyness in the form of intensifying job tasks and high workload (Kubicek and Tement, 2016; Rosa, 2013), with little time or guidance for identifying which aspects of the various activities are truly important on a personal level. Leisure plays a central role in balancing the challenging work domain and in fostering health, wellbeing, and a sustainable working life (e.g., Kuykendall et al., 2015; Zawadzki et al., 2015). Numerous studies have shown that the four recovery experiences of detachment from work, relaxation, control, and mastery in leisure time measured with the Recovery Experience Questionnaire (REQ; Sonnentag and Fritz, 2007) are closely connected to mental wellbeing and energy (Bennett et al., 2018; Sonnentag et al., 2017; Steed et al., 2021). However, these studies in the field of recovery from work have been driven by a rather narrow conceptualization of off-job life as the absence of stress and work tasks (Eden, 1990; Meijman and Mulder, 1998). Integrating knowledge from leisure sciences and the wider wellbeing benefits of leisure with recovery research can complement and go beyond this earlier perspective (Kelly et al., 2020; Stebbins, 2015).

The DRAMMA (i.e., Detachment, Relaxation, Autonomy, Mastery, Meaning and Affiliation) model addresses these objectives and integrates insights from the fields of recovery from work and leisure sciences (Kujanpää et al., 2020; Newman et al., 2014). Based on a literature review of 363 scientific articles, Newman et al. (2014) proposed that six psychological experiences mediate the positive relationship between leisure and wellbeing. In addition to the recovery experiences of detachment from work, relaxation, autonomy (originally referred to as “control” in recovery research) and mastery, which had previously been identified and investigated intensively (Sonnentag and Fritz, 2007; for meta-analyses, see Bennett et al., 2018; Steed et al., 2021), two important factors of recovery from work were newly added in the DRAMMA model: *meaning* and *affiliation*. These two experiences, which are “forgotten ones” in recovery research will be the focus of this study – more specifically: employees’ *proactive efforts* to experience meaning and affiliation through off-job life, their role in fostering vitality, and their contextual antecedents (i.e., age, gender, human capital, and working hours).

Crafting for Meaning and for Affiliation

Research to date has shown that some meaning- and affiliation-related experiences (the latter also interchangeably referred to as “relatedness” or “belongingness” in the literature) and activities, such as engagement in personally meaningful activities (Hooker et al., 2019), experiences of meaning in life (Hadden and Smith, 2019), meaningfulness (Crego et al., 2020), as well as sharing positive experiences with others (Lambert et al., 2011), and feelings of relatedness (Martela et al., 2016) can provide a source of enhanced vitality, conceptualized as “the subjective experience of being full of energy and alive” (Bostic et al., 2000, p. 313). Some studies have also reported inconsistent or mixed results. For instance, strategies for finding a purpose in life turned out to be negatively related to wellbeing (e.g., search for meaning; Li et al., 2020; struggle with ultimate meaning; Wilt et al., 2017) or have shown both positive and negative

relationships to different aspects of wellbeing (meaning-making; Park, 2010). In addition, research on the role of meaning and affiliation as enhancers of the recovery process beyond recovery experiences of the REQ has rendered both null and positive effects (Kujanpää et al., 2020; Virtanen et al., 2020). As meaning and affiliation at leisure time are highly culturally and contextually shaped experiences (Iwasaki, 2018), examining these two newer facets of recovery experiences in distinct cultural contexts is meaningful.

Importantly, we suggest that the mixed findings so far could originate from the conceptualization of meaning and affiliation in the body of research on recovery experiences and the DRAMMA model as *passive experiences* that happen by coincidence rather than experiences that can be *proactively shaped* (i.e., *crafted*; de Bloom et al., 2020). As such, the active role employees can play in striving for and making these experiences happen has been overlooked. We propose and investigate a novel perspective that employees can proactively craft off-job experiences of meaning and affiliation, which in turn is expected to enhance their vitality, an indicator of wellbeing (Ryan and Frederick, 1997). We test these propositions empirically in a longitudinal survey among Finnish and Japanese employees. We focus on two proactive off-job crafting strategies (OJC), OJC for meaning and for affiliation as potential enhancers of vitality. Moreover, we examine similarities and differences in the relationship between OJC and contextual antecedents among Finnish and Japanese employees. OJC for meaning and for affiliation are conceptualized as proactive and self-initiated changes in an employee's off-job life (including off-job life domains such as leisure, hobbies, voluntary work, and child- and housecare) aimed at increasing satisfaction of the need for meaning/affiliation (Kujanpää et al., Manuscript under review).

Contributions and Research Aims

This study makes four key contributions to the literature: First, studying if and how experiences of meaning and affiliation can be proactively shaped and crafted for advances the literature on recovery experiences by focusing on these two recovery experiences newly added in the DRAMMA model (Newman et al., 2014), which have previously been neglected in recovery research. Second, the concept of OJC contributes to the recovery literature by adding the perspective of recovery as a proactive process. Third, we use an advanced longitudinal measurement design with three measurement occasions, with an analogous measurement approach in Finland and Japan to examine the relationship between OJC and vitality. Thus, our study follows recent calls in crafting research to examine within-person changes across time (e.g., Rofcanin et al., 2019). Fourth, we investigate cross-cultural differences in OJC in two countries that differ widely as regards cultural values and the perceived value of leisure as compared to work (i.e., Finland and Japan; Hofstede et al., 2010). Examining the promoting or inhibiting role of contextual variables (e.g., age, gender) for crafting in distinct cultures is important to understand how often and in which ways people engage in crafting (see also Zhang and Parker, 2019). Thus, we provide novel insights on the role of the cultural context for OJC.

Off-job Crafting as a Strategy to Enhance Vitality

By proactively shaping off-job life, employees can match their off-job activities with their personal needs, goals, and interests (Berg et al., 2010; Demerouti et al., 2020). The concept of OJC was recently developed based on the DRAMMA model (Kujanpää et al., Manuscript under review). The dimensions of 1) OJC for meaning and 2) OJC for affiliation, respectively, refer to proactively shaping one's off-job life to 1) provide a sense of purpose and 2) allow for more opportunities for experiencing a sense of close connectedness to relevant others.

Earlier research has supported the notion that proactive crafting efforts in the off-job domain have positive implications for experiencing meaning and affiliation. Petrou and colleagues found that weekly crafting of leisure time related positively to weekly relatedness satisfaction (Petrou and Bakker, 2016), as well as to meaning-making (Petrou et al., 2017). However, we know very little of the role OJC plays for other important indicators of wellbeing, such as vitality. For the purposes of this study, we chose vitality as the examined outcome since it is closely related to both hedonic (seeking pleasure) and eudaimonic (seeking to develop oneself) wellbeing (Huta and Ryan, 2010).

The Integrative Needs Model of Crafting (de Bloom et al., 2020) posits that OJC efforts lead to higher wellbeing through the satisfaction of psychological needs, such as meaning and relatedness. Thus, experiences of meaning and affiliation gained through successful OJC efforts can serve as personal resources that generate wellbeing and optimal functioning over time (de Bloom et al., 2020). In accordance with this idea, and based on the model on human energy by Quinn et al. (2012), we propose that satisfaction of meaning and affiliation needs experienced through successful OJC accumulates the supply of personal resources, increasing energetic activation (vitality) over time across different cultural contexts. Thus, we expect that 1) OJC for meaning and 2) OJC for affiliation, i.e., proactively shaping off-job life with the goal of increasing the satisfaction of the need for 1) meaning and 2) affiliation, are both positively related to vitality among both Finnish (H1) and Japanese employees (H2) longitudinally at the within-person level. We examined within-person effects to focus on the individual, state-like variation over time in OJC and vitality (Ilies et al., 2015; McCormick et al., 2020).

Off-job Crafting in Context

In addition to studying the relationship between OJC and vitality in two culturally distinct countries, we also examined the role of cultural and demographic factors in how often people engage in OJC for meaning and for affiliation. We argue that examining the possible cultural mechanisms that interplay with demographic variables helps to create a more refined picture of the conditions that increase or decrease people's crafting efforts (see also Urbach et al., 2020). Despite calls for crafting research in different cultural contexts, studies adopting a cross-cultural framework are scarce (Erez, 2010; Schachler et al., 2019; Zhang and Parker, 2019). Moreover, although demographic variables such as age and gender are routinely controlled for in crafting studies (e.g., Bindl et al., 2019), their role in crafting has been only rarely examined (for a notable exception, see Kooij et al., 2017). We focus on OJC in a Western and an Eastern country: Finland and Japan. While both are developed, high-income, and industrialized countries, they are very

different in terms of access to leisure time, the perceived value of leisure compared to that of work, as well as in cultural values, especially for the value dimensions of long-/short-term orientation and masculinity-femininity (Hofstede et al., 2010). This makes these countries interesting examples to examine how crafting is influenced by dissimilar cultural contexts. For instance, Finland is a state with a strong social welfare regime, with strictly enforced regulations on employee working hours and social security (Virtanen et al., 2018). On the other hand, there are far fewer labor regulations in Japan, and employees tend to prioritize their careers more often above the leisure and home domains (Isakjee, 2017; Peltokorpi, 2013).

Most crafting research to date has been conducted in Western, individualistic countries (Sakuraya et al., 2017). Comparing crafting antecedents, efforts and outcomes across both a Western (i.e., Finland) and an Eastern country (i.e., Japan) will render new insights on to what extent OJC as a proactive approach to shaping off-job life is universally applicable or dependent on the cultural context (see also Lomas, 2015). To learn about the effects of individual-level demographic and employment characteristics on OJC, we chose to focus on four commonly assessed variables which are highly relevant in an occupational context (Rudolph et al., 2017): age, gender, human capital (education and tenure), and working hours.

As people age, they tend to internalize the values of their cultural context (Fung, 2013). Since motives related to seeking emotional meaning and social contact increase in prominence globally as people age (Carstensen et al., 1999), we expect that chronological age is positively related to OJC for meaning and for affiliation in both Finland (H3a) and in Japan (H3b). Moreover, we propose that the cultural value dimension of long-/short-term orientation may be relevant with regard to age. In short-term orientation focused countries, such as Finland, the focus of the outcomes of organizational and personal activities is on the immediate future. Countries with a high long-term orientation, such as Japan, which has one of the highest values in the world on this dimension, are characterized by focusing on the importance of long-term gains (Hofstede et al., 2010). Accordingly, while the Finnish media portray the ageing workforce with negative connotations, the Japanese media describe ageing in more positive terms, emphasizing the value and knowledge ageing employees contribute to society (Ishikawa Unpublished dissertation). Future-oriented planning promotes proactive and goal-oriented behavior, such as crafting (Grant and Ashford, 2008; Parker et al., 2010). Due to the pronounced long-term orientation focus in Japan (Hofstede et al., 2010), we expect that the positive relationships between age and OJC for meaning, and age and OJC for affiliation are stronger in Japan than in Finland (H3c).

Finland and Japan differ markedly in the extent to which gender roles affect how people live their lives. These differences can be explained by the cultural value dimension of masculinity-femininity, defined as the valuation of earnings, recognition, advancement, and challenges (masculine values) versus valuation of relationships, cooperation, and security (feminine values) (Hofstede et al., 2010). While Finland is quite a feminine culture, Japan is one of the most masculine cultures in the world (Hofstede et al., 2010). Accordingly, Finnish men and women spend fairly equal time at work (Lee et al., 2007). Due to relatively equal gender norms regarding leisure and housework in Finland, we expect that gender will not be strongly related to OJC in Finland. In Japan, traditional gender roles play a greater role in that women are often expected to take care of housework (Osawa, 2020). Furthermore, in spite of recent trends towards more gender equality in Japanese organizations (e.g., Kurokawa, 2020; Shimazu, 2020), male Japanese employees quite often prioritize their careers over their off-job lives and have more opportunities to do so than do

female employees (Nemoto, 2013; Usui, 2018). While female Japanese employees may be able to shape their off-job lives by crafting for meaning and for affiliation, male Japanese employees may have fewer opportunities for OJC and may prioritize work over other activities (Peltokorpi, 2013). Thus, we expect that gender is more strongly related to OJC in Japan (than in Finland), implying that female Japanese employees are expected to engage in OJC more than male employees (H4).

Human capital refers to employees' skills and knowledge gained through education and training, which increase the chances of success in the job market (Becker, 1964). It is commonly operationalized as education and tenure (e.g., Ng and Feldman, 2010). Human capital helps employees to self-manage their careers and work-home boundaries (Sturges, 2008). As education and tenure can produce skills that translate to the off-job domain (e.g., Wilhelm and Hirschi, 2019), they make OJC efforts potentially more likely and efficient. Moreover, experiencing successes through skillful crafting efforts may promote further crafting (de Bloom et al., 2020). Accordingly, we expect that human capital (education and organizational tenure) is positively related to OJC for meaning and for affiliation among both Finnish (H5a) and Japanese (H5b) employees. However, this relationship may also be affected by the cultural working context. Masculine cultures emphasize a "performance society" over other foci in life (Hofstede et al., 2010). In the masculine Japanese work context, human capital also promotes more pronounced work centrality and embeddedness in work (Ono, 2018). Highly educated and tenured Japanese employees tend to become more firmly embedded in the organization and their professional networks, which makes pursuing non-work-related goals less crucial for them (Peltokorpi, 2013). Thus, we expect that the positive relationships between human capital (education and organizational tenure) and OJC are weaker for Japanese than for Finnish employees (H5c).

In the decidedly masculine Japanese culture, employees are expected to work long hours, with working days often extending to 10-12 hours (Nemoto, 2013). Moreover, it is common to spend several hours after the regular working day in more informal meetings with employers or clients (Ikeda et al., 2011), and commuting takes the average Japanese worker almost 1.5 hours each day (Statistics Bureau of Japan, 2016), which further decreases their available leisure time. Working very long hours, Japanese employees may need to use their limited off-job time primarily for activities such as personal care and sleep. In Finland, a typical working week lasts 37 hours (OECD. Stat Extracts, 2020), and leisure time is generally seen as an important part of life (Hofstede et al., 2010; Wang and Wong, 2014). Consequently, employees in Finland have more leisure time and more opportunities to shape their working hours to match their needs (Härmä, 2006). Working long hours may therefore reduce OJC, especially among Japanese employees, but not as much for Finnish employees. Thus, we expect that there is a negative relationship between working hours and OJC among both Finnish (H6a) and Japanese employees (H6b), and that this link is stronger in Japanese employees (H6c).

Materials and Methods

Procedure and Participants

We conducted a longitudinal study with three measurement points between 2018 and 2019 among Finnish ($n = 578$) and Japanese ($n = 228$) employees recruited through various organizations. There were three-months time lags between measurements, following calls for more “shortitudinal” study designs (Dormann and Griffin, 2015; Dormann and Van de Ven, 2014). All employees had to work at least 24 hours per week to be able to participate. The participants provided informed consent. The samples differed between countries: Mean age was 48.70 years ($SD = 10.23$) among Finnish employees and 30.86 years ($SD = 6.35$) among Japanese employees. A total of 85% of Finnish and 37% of Japanese employees were female, and 50% of the Finnish and 95% of the Japanese employees had an academic degree. Less than half (39%) of the Finnish employees and one fourth (24%) of Japanese employees had at least one child living at home. Finnish employees worked on average 39 hours and Japanese employees 48 hours per week (including unpaid overtime). Finnish employees worked mainly in the public sector, such as health care and education, whereas Japanese employees worked mainly in information technology.

Statistical Analyses

The hypotheses were examined using Latent Growth Analysis (LGA) in Mplus 8.4 (Muthén and Muthén, 1998). LGA is well suited for examining within-person changes in a predictor variable and outcome over time (McArdle, 2009). In LGA, two latent growth curve parameters are estimated: the intercept (i.e., the initial level), and the slope (i.e., the rate of change over time). Moreover, growth curves for two or more variables can be created to examine the relationships between the intercepts and slopes of those variables (McArdle, 2009). Robust maximum likelihood estimation (MLR) was used to take into account missing values and potential deviances from normality (Muthén and Muthén, 1998). We used a full information maximum likelihood (FIML) approach that allowed us to use all the observations in the data to estimate model parameters without imputing data. Following Schermelleh-Engel et al. (2003), we evaluated model fit with commonly used indicators: CFI, TLI, RMSEA, and SRMR. For TLI and CFI, values above .90 indicate acceptable fit. For RMSEA, values under .05 indicate good model fit, while values between .05 and .08 indicate acceptable fit. For SRMR, values below .08 indicate good fit, while values between .08 and .10 indicate acceptable fit (Schermelleh-Engel et al., 2003).

We used multi-group LGA to estimate models simultaneously for Finnish and Japanese employees. First, univariate latent growth curve models were created for OJC for meaning, OJC for affiliation and vitality to examine stability and development during the six-month study period in these variables. Next, we estimated bivariate models separately for the relationships between OJC for meaning and vitality, and between OJC for affiliation and vitality. We estimated the relationships between intercepts (i.e., the initial values) as well as the relationships between slopes (i.e., the developments over time) of OJC and vitality. These analyses thus show whether OJC and vitality co-vary across time (Hypotheses H1-H2). Finally, we added the contextual variables (gender, age, education, organizational tenure, and working hours) as

predictors of the intercepts of OJC (Figure 1). Hypotheses H3-H6 were then tested by examining the significance of the contextual variables in predicting the initial values of OJC for meaning and for affiliation. We report standardized estimates throughout all analyses.

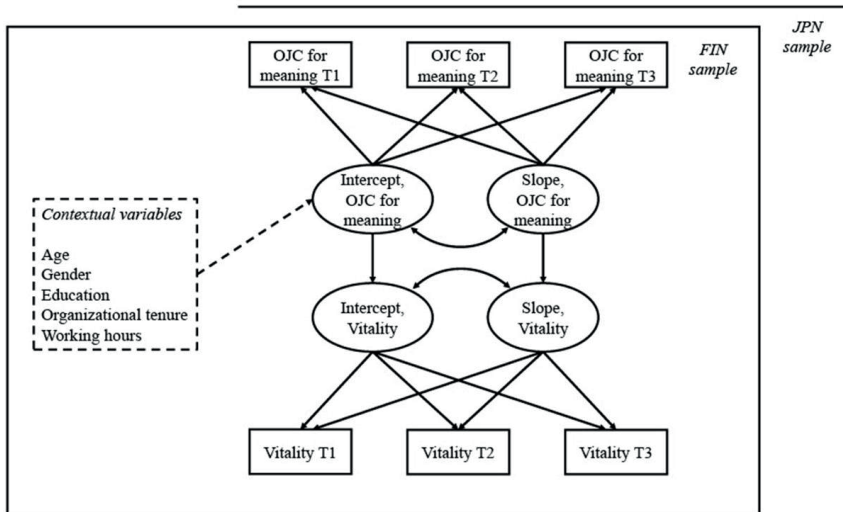


Figure 1. Multivariate growth curve model for OJC for meaning, vitality, and contextual variables. Contextual variables (dashed lines) were added to the model in a second step. A similar model was made separately for OJC for affiliation. OJC = off-job crafting, FIN = Finnish sample, JPN = Japanese sample

Measures

Chronological age, gender, human capital (education and organizational tenure), and working hours (weekly contractual hours plus hours worked over and above contractual hours) were measured at T1. OJC was measured with the Needs-based Off-job Crafting Scale (NOCS; Kujanpää et al., Manuscript under review) at all three time points, with three items for both OJC for meaning and for affiliation. Measurement properties demonstrating strong measurement invariance for the NOCS in the Finnish and Japanese sample are reported elsewhere (Kujanpää et al., Manuscript under review). All items started with “Over the past month...”. Example items are “I’ve made sure to experience meaning in my life during off-job time” for crafting for meaning and “I’ve made sure to experience close connections to the people around me during off-job time” for crafting for affiliation. Answers could range from 1 (never) to 5 (very often). Cronbach’s alphas from T1 to T3 were .88, .89, and .87 for crafting for meaning and .86, .87, and .90 for crafting for affiliation in Finland. Cronbach’s alphas from T1 to T3 were .85, .85, and .84 for crafting for meaning and .80, .90, and .89 for crafting for affiliation in Japan.

Vitality was measured with four items from the subjective vitality scale by Ryan and Frederick (Bostic et al., 2000; Ryan and Frederick, 1997) at all three time points. An example item is “Over the past month, I felt alive and vital”. Answers could range from 1 (very rarely or never) to 5 (very often or all the time). Cronbach’s alphas from T1 to T3 for vitality were .93 at all three time points in Finland, and .94, .96, and .93 in Japan.

Results

To confirm that OJC for meaning and for affiliation and vitality are distinct constructs, we conducted a multigroup confirmatory factor analysis of these three scales at T1. The fit of the three-factor model was acceptable ($\chi^2(74) = 233.03, p < .001, CFI = .96, TLI = .95, RMSEA = .08, SRMR = .05$), and all factor loadings were significant (loadings .77-.94, $p < .001$). These results were also similar for the T2 and T3 measurements. Finnish employees engaged in OJC for meaning and for affiliation more than Japanese employees at all time points ($t(515-715) = 10.77-13.87, p < .001$) (Table 1). OJC for meaning was positively correlated to vitality at the within-person level among both Finnish and Japanese employees. OJC for affiliation positively correlated to vitality at the within-person level among Finnish, but not among Japanese employees. Demographic characteristics were modestly related to OJC in zero-order correlations (Table 1).

(Insert Table 1 about here)

Relationships between OJC and Vitality

The intraclass correlation coefficients (ICC1) showed that 51% to 67% of the variation in OJC and vitality could be explained by between-person variation (Table 1). Thus, conducting LGA was appropriate as sufficient variance could be explained by both within- and between-person levels. The univariate latent growth curve model for OJC for meaning ($\chi^2(2) = 0.05, p = .98, CFI = 1.00, TLI = 1.00, RMSEA = .00, SRMR = .00$) indicated that on average, scores of OJC for meaning were fairly stable over time for the employees in both countries (FIN slope $M = 0.01, SE = 0.10, p = .94$; JPN slope $M = 0.18, SE = 0.17, p = .30$). Similarly, the model for OJC for affiliation ($\chi^2(2) = 0.32, p = .85, CFI = 1.00, TLI = 1.00, RMSEA = .00, SRMR = .01$) indicated that the scores were on average stable over time for the employees in both countries (FIN slope $M = -0.01, SE = 0.10, p = .94$; JPN slope $M = -0.04, SE = 0.10, p = .71$). For vitality ($\chi^2(4) = 11.33, p = .02, CFI = .98, TLI = .97, RMSEA = .07, SRMR = .04$), there was a decreasing trend over time for Finnish employees (slope $M = -0.48, SE = 0.18, p < .01$), while the average change in vitality over time was non-significant for Japanese employees (slope $M = 0.55, SE = 0.42, p = .19$).

In the next step, we examined the relationships between the development of OJC and the development of vitality and the baselines of OJC and of vitality with multivariate growth curve models. The model for the relationships between OJC for meaning and vitality ($\chi^2(20) = 58.17, p < .001, CFI = .96, TLI = .94, RMSEA = .07, SRMR = .08$) showed that the increase in OJC for meaning over time was positively related to the increase in vitality over time in both countries (FIN $\gamma = .26, SE = .09, p < .01$; JPN $\gamma = .40, SE =$

.19, $p < .05$). Similarly, the model for the relationships between OJC for affiliation and vitality ($\chi^2 (20) = 35.27, p < .05, CFI = .98, TLI = .97, RMSEA = .04, SRMR = .07$) showed that the increase in OJC for affiliation over time was also positively related to the increase in vitality over time among Finnish employees ($\gamma = .19, SE = .09, p < .05$) but not among Japanese employees ($\gamma = .22, SE = .14, p = .10$). The initial levels of OJC and vitality were positively correlated in both countries ($\gamma = .22-.51, SE = .04-.08, p < .01$). To summarize, H1 was supported, as among Finnish employees the increase in OJC was positively related to the increase in vitality over time. H2 was partially supported, since among Japanese employees only the increase in OJC for meaning (and not OJC for affiliation) was positively related to the increase in vitality over time.

Contextual Variables and OJC

In the next step, we added each of the contextual variables (gender, age, education, organizational tenure, and working hours) as predictors of the intercepts of OJC for meaning and for affiliation to test hypotheses H3-H6. Model fit remained acceptable for the LGA models for both OJC for meaning and vitality ($\chi^2 (70) = 133.47, p < .001, CFI = .94, TLI = .93, RMSEA = .05, SRMR = .07$) and OJC for affiliation and vitality ($\chi^2 (70) = 106.16, p < .01, CFI = .97, TLI = .96, RMSEA = .04, SRMR = .07$). Supporting H3a, age was positively related to OJC for meaning among Finnish employees ($\gamma = .13, SE = .06, p < .05$), indicating that older Finnish employees engaged in more OJC for meaning at baseline than younger Finnish employees. Surprisingly, age was negatively related to OJC for meaning among Japanese employees ($\gamma = -.22, SE = .09, p < .05$), indicating that younger Japanese employees engaged in more OJC for meaning than older Japanese employees. Age was not related to OJC for affiliation in either country ($\gamma = -.08-.04, SE = .05-.07, p = .30-.44$). Thus, H3a was partially supported, as age was positively related to OJC for meaning among Finnish employees. Contrary to H3b-c, age was related negatively to OJC for meaning among Japanese employees. Gender was related to OJC for affiliation among Japanese employees ($\gamma = .25, SE = .07, p < .001$), indicating that female Japanese employees engaged in OJC for affiliation more than male Japanese employees. Gender was not related to either OJC dimension among Finnish employees ($\gamma = .03, SE = .05, p = .57$) and was also not related to OJC for meaning among Japanese employees ($\gamma = .09, SE = .07, p = .19$). Thus, H4 was partially supported, since female Japanese employees engaged in more OJC for affiliation (but not in more OJC for meaning).

Education was not related to OJC for meaning ($\gamma = .10, SE = .05, p = .06$) or OJC for affiliation ($\gamma = -.10, SE = .07, p = .18$) among either Finnish employees, or Japanese employees ($\gamma = .07-.10, SE = .07, p = .12-.35$). Similarly, tenure ($\gamma = -.03-.07, SE = .06-.07, p = .23-.59$) and working hours ($\gamma = .02-.07, SE = .05-.07, p = .31-.80$) were not related to OJC in either country. Thus, H5a-c and H6a-c were not supported.

Discussion

Relationships between OJC and Vitality

We examined the within-person relationships between OJC and vitality over time, expanding research on recovery experiences to focus on the two “forgotten ones”, i.e., recovery experiences of meaning and affiliation (Newman et al., 2014). Supporting hypotheses H1 and H2, the increase in OJC for meaning was positively related to the increase in vitality among both Finnish and Japanese employees, while the increase in OJC for affiliation was positively related to the increase in vitality among Finnish, but not among Japanese employees. These results are in line with the DRAMMA model, indicating that aiming to gain experiences of meaning and affiliation is a beneficial strategy to increase wellbeing. Thus, meaning and affiliation complement the four recovery experiences measured by the REQ as off-job life wellbeing enhancers (Newman et al., 2014; Sonnentag and Fritz, 2007). Our results also lend indirect support to the Integrative Needs Model of Crafting, which suggests that successful OJC efforts lead to higher wellbeing through satisfied psychological needs, such as meaning and affiliation (de Bloom et al., 2020). Increasing OJC for meaning and for affiliation presumably provides the opportunity for need satisfaction (i.e., experiences of meaning and affiliation), which can be further utilized as personal resources that increase energetic activation (Halbesleben et al., 2014; Quinn et al., 2012). Thus, our results show that shaping off-job life to include more opportunities for experiencing meaning and affiliation can bring increased vitality over time. The null results found for the relationship between the development of OJC for affiliation and vitality among Japanese employees may be due to the smaller sample size in Japan compared to the Finnish sample and the different professions in the two samples, and may also reflect the marked masculinity of Japanese culture (Hofstede et al., 2010). In masculine cultures such as Japan, relatedness and particularly displays of affection between adults are seen as less important aspects of social relationships than in feminine cultures (Hofstede et al., 2010). Thus, the positive effects of OJC for affiliation, such as sharing emotions with significant others, may take more time to unfold in masculine than in feminine cultures (see also Mitchell and James, 2001). To summarize, the results for the relationships between OJC and vitality lend robust support to the positive longitudinal (within-person) associations between OJC for meaning and vitality, and OJC for affiliation and vitality, highlighting that OJC is a beneficial strategy for employees to increase their positive energy.

Contextual Variables and OJC

Our results demonstrated that Finnish employees consistently engaged in more OJC for meaning and for affiliation than did Japanese employees. Leisure is a widely available and autonomy-supporting life domain in Finland (Wang and Wong, 2014), whereas the long hours spent working, socializing with colleagues and clients, and commuting limit the availability of leisure time for Japanese employees (Nemoto, 2013; Statistics Bureau of Japan, 2016). Thus, Finnish employees probably experience more opportunities for crafting their off-job lives than do Japanese employees.

Partially supporting H3a, our results showed that older Finnish employees engaged more in OJC for meaning (but not in OJC for affiliation) than younger Finnish employees at baseline. This finding is in line with studies which show that that motives for emotional meaning become more important to people as they age (e.g., Carstensen et al., 1999). Through OJC for meaning, older Finnish employees may seek to make the best out of the more limited time they have left in life (Fung, 2013). However, contrary to H3b and H3c, younger Japanese employees engaged more in OJC for meaning (but not in OJC for affiliation) than older Japanese employees. Thus, it seems that shaping off-job life to experience a sense of purpose is more popular among older employees in Finland, whereas in Japan it is more common among younger employees. This discrepancy in the relationships may be partly explained by recent transitions among the younger generations in Japan. With greatly reduced opportunities for lifelong employment due to the Japanese economic recession in recent decades, Japanese students, in order to attain sustainable future life perspectives for themselves, are increasingly seeking for meaning beyond having a stable career path (Kawai and Moran, 2017). This process continues to early working life (Kawai and Moran, 2017). Thus, through OJC for meaning, younger Japanese employees can seek to compensate, through their off-job lives, for the uncertainty caused by uncertain career prospects.

Our results provided partial support for H4, in that female Japanese employees engaged in more OJC for affiliation (but not OJC for meaning) than male Japanese employees. The results support the notion that the relatively traditional gender roles in the masculine Japanese culture make OJC in the home domain more accessible (and perhaps also more necessary) for Japanese women than for men (Hofstede et al., 2010; Nemoto, 2013). In other words, Japanese women are more likely to craft for and seek affiliation in their off-job lives than are men, both because they spend more time at home, having more opportunities to craft their off-job life, and also because they may experience a stronger need to seek relatedness in the home domain than do men, who have more social contacts at work (Nemoto, 2013; Peltokorpi, 2013). Furthermore, in masculine cultures seeking for relatedness and emotional connection is often seen as behavior more appropriate to women than men (Hofstede et al., 2010). This may further increase the gender differences in engaging in OJC for affiliation, which may explain why this relationship was found especially for OJC for affiliation in Japan and not for OJC for meaning. In addition, female Japanese employees also experience significantly more stress in interpersonal relationships at work (e.g., difficult or demanding relationships with colleagues or clients) than do male employees, which may increase their need to seek social connection in off-job life (Shimazu, 2020). On the other hand, the feminine values and more widely available leisure time for both genders in Finland can explain why no gender differences were found in OJC among Finnish employees.

For human capital (education and organizational tenure), even though tenure was positively related to OJC for meaning among Finnish employees in the zero-order correlations, this relationship became non-significant in the models with all contextual variables as predictors of OJC. Since no other relationships emerged between human capital and OJC for meaning or OJC for affiliation, H5a-c were not supported. It may be that the skills employees acquire through education and organizational tenure are not easily translatable to the context of off-job lives.

Similarly, H6a-c were not supported as no relationships were found between working hours and OJC for meaning or OJC for affiliation. It seems that not only Finnish employees, who experience more

opportunities to shape their working hours to match with their needs (Härmä, 2006), but also Japanese employees engage in OJC independent of their weekly hours worked although to a lesser extent (as evident in the lower averages for OJC). It is possible that the relationship between working hours and OJC is more complex than the direct linear relationships tested for in this study. For example, there may be boundary conditions which could explain why working long hours does not reduce OJC for some employees (e.g., if the individual is able to take holidays when needed, or has a personality trait such as openness to experiences that could help them in finding opportunities for engaging in OJC even when working long hours).

Limitations and Suggestions for Future Research

This study has three limitations. First, although we used an identical study procedure among both Finnish and Japanese employees, the samples of Finnish and Japanese employees differed in terms of the professions (e.g., health care in Finland and information technology in Japan) and the distributions of contextual variables (e.g., in terms of age and gender). This was related to the existing company contacts in the two countries and the recruitment process. It is possible that OJC efforts of employees in some professions (e.g., in health care) are more effective in terms of increasing vitality than those of employees in other professions (e.g., in IT). Future studies on OJC could build on this research to investigate OJC in different countries with more homogenous samples. Second, while we present findings between the relationships of OJC and vitality, we examined only this single wellbeing indicator as an outcome of OJC. For a more comprehensive understanding of the relationship between OJC and wellbeing, it would be important to examine the role of OJC for other wellbeing indicators, such as personal growth, self-actualization, or burnout. Third, this study captured only longer-term variation in OJC and vitality (due to the three-month time lags), leaving potential daily or weekly fluctuations unaccounted for. Diary studies testing the relationships between OJC and wellbeing would be useful to examine whether the within-person relationships found in this study also exist at the daily or weekly level (e.g., whether individuals who engage in OJC daily experience higher daily wellbeing). Moreover, qualitative studies would be helpful to gain more insight on what employees specifically do when they engage in OJC for meaning and for affiliation.

Practical Implications

Even though studies on OJC have so far focused mainly on employees, the concept of OJC is relevant not only for employees, but also, for example, for hobbyists, students, unemployed and retired individuals, who can also proactively shape their off-job life domains such as leisure and childcare to experience meaning and affiliation. Moreover, the results of this study are encouraging for off-job wellbeing interventions, which could benefit from a focus on OJC for meaning and for affiliation to help individuals to foster their vitality and mental wellbeing in general as well as job satisfaction (see Sirgy et al., 2020 regarding spillover between life domains). Such interventions could use evidence-based techniques such as writing about values and purposeful goals (Schippers and Ziegler, 2019) or strengths spotting (Kosenkranius et al., 2020). Finally, the disparate results between Finnish and Japanese employees concerning the relationships between

contextual variables and OJC provide the first empirical evidence that these relationships are affected by the cultural context, which can promote or hinder OJC. Taking into account the role that culture plays in how individuals shape their off-job life experiences is vital for building more cross-culturally sensitive leisure programs and interventions (Edgington et al., 2017).

Conclusions

In this longitudinal study among Finnish and Japanese employees, we focused on off-job crafting (OJC) for meaning and OJC for affiliation as predictors of vitality. We moreover studied the relationships of contextual variables such as age and gender with OJC. OJC for meaning and for affiliation were consistently related to vitality in both Finland and Japan longitudinally at the within-person level, the only exception being OJC for affiliation, which was not related to vitality among Japanese employees. To conclude, OJC is beneficial for increasing vitality among Finnish and Japanese employees. The differing relationships between contextual variables and OJC found in the two countries provide the first evidence on how both the cultural and demographic context can affect how people shape their off-job lives to enhance their wellbeing. More research is needed to achieve a better understanding of the role crafting contexts play for OJC.

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Table 1. ICCs, descriptive statistics (T1), and the inter-correlations between variables (within-person correlations between OJC for meaning, OJC for affiliation and OJC for vitality, and between-person correlations at T1 for all other pairs of variables). ICCs, means, and standard deviations for Finnish employees before and for Japanese employees after the forward slash. Correlations for Finnish employees above and for Japanese employees below the diagonal. Gender coded as 1 = male, 2 = female. Education (highest qualification obtained) coded as 1 (primary school or lower), 2 (vocational school or college), 3 (vocational institute or bachelor's degree), 4 (master's degree), 5 (higher degree). ICC = intra-class correlation coefficient (ICC1), M = mean, SD = standard deviation, OJC = off-job crafting. * $p < .05$, ** $p < .01$.

	ICC	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Age		48.70 / 30.86	10.23 / 6.35		-.09*	-.39**	.57**	-.03	.10*	.07	.02
2. Gender		1.86 / 1.37	0.36 / 0.50	.05		.06	-.05	-.03	.05	.02	-.05
3. Education		2.74 / 3.96	0.91 / 0.63	-.06	.03		-.33**	.14**	-.02	-.02	.05
4. Organizational tenure		14.65 / 4.85	11.86 / 4.57	.49**	.04	.08		-.02	.12**	.08	.01
5. Working hours		38.88 / 48.26	4.38 / 9.79	-.13*	-.21**	.06	.02		.01	.01	-.00
6. OJC for meaning	0.59 / 0.51	3.69 / 2.61	0.87 / 1.13	-.20**	.07	.09	-.04	.01		.43**	.14**
7. OJC for affiliation	0.61 / 0.54	3.79 / 2.82	0.82 / 1.01	-.06	.23**	.11	-.03	.03	.45**		.12**
8. Vitality	0.67 / 0.54	3.56 / 3.36	0.90 / 1.05	-.05	.01	-.02	-.01	.13*	.17**	.07	

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contributions

MiK, AS, and JdB contributed to the conception and design of the study. MiK, AS, HT, and JdB collected the data. MiK performed the statistical analyses. MiK, OW, and JdB wrote the first draft of the manuscript. All authors contributed to, read and approved the submitted version.

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Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation, to any qualified researcher.

ABBREVIATIONS

BNSGS	Basic Need Satisfaction in General Scale
BPNSFS	Basic Psychological Need Satisfaction and Frustration Scale
CFA	Confirmatory Factor Analysis
NOCS	Needs-based Off-job Crafting Scale
OJC	Off-job Crafting
REQ	Recovery Experiences Questionnaire
SD	Standard Deviation
SDT	Self-Determination Theory

SUMMARY IN ENGLISH

Global changes in modern working life have led to an increased pace of work, and of life in general, causing challenges to optimal functioning (i.e., feeling and performing well). The purpose of this dissertation is to examine how employees can sustain and enhance their optimal functioning by off-job crafting, defined as proactive efforts targeted at improved psychological needs satisfaction in their off-job lives. Off-job crafting is examined as a needs-based phenomenon with six psychological needs (detachment from work, relaxation, autonomy, mastery, meaning and affiliation) posited by the DRAMMA model of leisure needs satisfaction.

This dissertation consists of four original publications. In Study I, the DRAMMA model was longitudinally validated. This study examined the factor structure of the DRAMMA model, as well as relationships between DRAMMA needs satisfaction, optimal and suboptimal functioning (well-being and ill-being). In Study II, crafting in different life domains was conceptualized as a needs-based phenomenon and an integrative model of needs-based off-job crafting describing motives, processes, and outcomes of crafting efforts was developed in a conceptual review. Study III endeavored to validate the concept of off-job crafting and a novel scale - the Needs-based Off-job Crafting Scale - to measure off-job crafting by examining the structural, convergent, discriminant, criterion, and incremental validity of off-job crafting in seven sub-studies. Proactive personality was examined as a potential antecedent of off-job crafting. Life satisfaction, family role performance, job satisfaction, perceived work ability and work engagement were examined as potential outcomes of off-job crafting to assess optimal functioning both in general and at work. Study IV focused on examining the relationship between off-job crafting and subjective vitality at the within-person level, and whether the relationship between off-job crafting and its demographic antecedents (e.g., age, gender) is different in two distinct cultural contexts (i.e., Finland and Japan).

This dissertation used survey data from multiple countries across three continents. Study I used a longitudinal sample of 279 German employees with five measurement points collected before, during, and after a vacation. Study III used cross-sectional samples among US (Study IIIa-c, $N = 97-106$) and UK employees

(Study IIIg, $N = 237$), as well as longitudinal samples with three measurements over a period of six months among employees in Germany, Austria, and Switzerland (Study IIIId, $N = 2,104$), Finland (Study IIIe, $N = 578$) and Japan (IIIIf, $N = 228$). A slight majority of the participants (55%) were female across all sub-studies. Participants were mostly highly educated, and their mean age was 42. Study IV used the same Finnish and Japanese longitudinal samples as Study III.

Study I generated evidence for structural validity of the DRAMMA model and showed that DRAMMA needs satisfaction positively predicts optimal functioning and negatively predicts suboptimal functioning outcomes over time. The integrative theoretical model of needs-based crafting developed in Study II posited that psychological needs can act both as motives and goals of crafting efforts within life domains, with spillover effects to other domains. The results of Study III showed that the Needs-based Off-job Crafting Scale is a reliable and valid instrument in several countries around the world. Off-job crafting is positively related longitudinally especially to optimal functioning in life in general but also to optimal functioning at work. Study IV demonstrated that increases in off-job crafting for meaning and off-job crafting for affiliation were also positively related to increases in vitality over time. Furthermore, in Japan, age was negatively related to off-job crafting for meaning and female employees engaged in more off-job crafting for affiliation than did male employees, whereas in Finland age was positively related to off-job crafting for meaning.

This dissertation extends literature on crafting and DRAMMA needs satisfaction in off-job life by focusing on the role of DRAMMA needs satisfaction in optimal functioning, how proactive off-job crafting efforts focusing on needs can be beneficial for well-being, perceived work ability, and family role performance over time, and the similarities and differences of off-job crafting in different cultural contexts. The results are informative for occupational healthcare practitioners, leaders, and policymakers with a focus on how not only proactive shaping of the job (e.g., job crafting) but also crafting efforts in off-job life can be beneficial for optimal functioning. Through off-job crafting, employees can not only compensate for possible deficiencies in psychological needs experienced at their work, but also more holistically create psychological needs satisfaction and optimal functioning in both their off-job and working life.

SAMENVATTING IN HET NEDERLANDS

Wereldwijde veranderingen in het moderne beroepsleven hebben geleid tot een hoger werktempo en leven in het algemeen, waardoor optimaal functioneren wordt belemmerd (d.w.z. je goed voelen en presteren). Het doel van dit proefschrift is om te onderzoeken hoe werknemers hun optimale functioneren kunnen behouden en verbeteren door *off-job crafting*, gedefinieerd als proactieve inspanningen gericht op bevrediging van psychologische behoeften in iemands leven buiten het werk. *Off-job crafting* wordt onderzocht als een op behoeften gebaseerd fenomeen met zes psychologische behoeften (onthechting, ontspanning, autonomie, competentie, zingeving en verbondenheid) gebaseerd op het DRAMMA-model dat gaat over bevrediging van psychologische behoeften in de vrijetijd.

Dit proefschrift bestaat uit vier publicaties. In Studie I is het DRAMMA-model longitudinaal gevalideerd. Deze studie onderzocht de factorstructuur van het DRAMMA-model, evenals relaties tussen DRAMMA-behoeftebevrediging, optimaal en suboptimaal functioneren (welzijn en ziekte). In Studie II werd crafting in verschillende levensdomeinen onderzocht als een op behoeften gebaseerd fenomeen in een integratieve conceptuele review. Studie III trachtte het concept van *off-job crafting* en een nieuwe schaal – de Needs-based Off-job Crafting Scale – te valideren door de structurele, convergente, discriminante, criterium- en incrementele validiteit van *off-job crafting* te onderzoeken in zeven deelstudies. Proactieve persoonlijkheid werd onderzocht als een mogelijk antecedent van *off-job crafting*. Levensvoldoening, gezinsrolprestaties, werktevredenheid, waargenomen werkvermogen en -bevlogenheid werden onderzocht als mogelijke uitkomsten van *off-job crafting*. Studie IV richtte zich op het onderzoeken van de relatie tussen *off-job crafting* en subjectieve vitaliteit op het niveau van de persoon en de relatie tussen *off-job crafting* en demografische antecedenten (bijv. leeftijd, geslacht) in twee verschillende culturele contexten (bijv. Finland en Japan).

Dit proefschrift maakte gebruik van enquêtegegevens uit meerdere landen verspreid over drie continenten. Studie I gebruikte een longitudinale steekproef van 279 Duitse werknemers met vijf meetmomenten voor, tijdens en na een vakantie. Studie III gebruikte cross-sectionele steekproeven onder Amerikaanse (Studie IIIa-c, N = 97-106) en Britse werknemers (Studie IIIg, N = 237), evenals longitudinale

steekproeven met drie metingen gedurende een periode van zes maanden onder werknemers in Duitsland, Oostenrijk, Zwitserland (Studie III_d, N = 2,104), Finland (Studie III_e, N = 578) en Japan (III_f, N = 228). Een kleine meerderheid van de deelnemers in alle deelstudies was vrouw (55%). De deelnemers waren meestal hoogopgeleid en hun gemiddelde leeftijd was 42 jaar. Studie IV gebruikte dezelfde Finse en Japanse longitudinale steekproeven als Studie III.

Studie I genereerde bewijs voor structurele validiteit van het DRAMMA-model en toonde aan dat DRAMMA-behoeftebevrediging een positieve voorspeller is van optimaal functioneren en een negatieve voorspeller van suboptimaal functioneren na verloop van tijd. Studie II toonde aan dat psychologische behoeften zowel drijfveren voor als doelen van off-job crafting kunnen zijn met spillover effecten naar andere levensdomeinen. De resultaten van Studie III toonden aan dat de Needs-based Off-job Crafting Scale een betrouwbaar en valide instrument is zoals gebleken in verschillende landen over de hele wereld. Off-job crafting is vooral positief longitudinaal gerelateerd aan optimaal functioneren in het algemeen, maar ook aan optimaal functioneren op het werk. Studie IV toonde aan dat toenames in off-job crafting voor zingeving en off-job crafting voor verbondenheid ook positief gerelateerd waren aan een toename van vitaliteit na verloop van tijd. Bovendien was in Japan leeftijd negatief gerelateerd aan off-job crafting voor zingeving en waren vrouwelijke werknemers meer betrokken bij off-job crafting voor verbondenheid dan mannelijke werknemers, terwijl in Finland leeftijd positief gerelateerd was aan off-job crafting voor zingeving.

Dit proefschrift breidt de tot nu toe schaarse literatuur over crafting en DRAMMA-behoeftebevrediging in het leven buiten het werk om uit, door te focussen op de rol van DRAMMA-behoeftebevrediging bij het optimaal functioneren. De studies laten zien hoe proactieve off-job crafting-inspanningen gericht op behoeften gunstig kunnen zijn voor het welzijn, waargenomen werkvermogen en gezinsrolprestaties na verloop van tijd en de overeenkomsten en verschillen van off-job crafting in verschillende culturele contexten. De resultaten zijn informatief voor bedrijfsartsen, leidinggevenden en beleidsmakers met een focus op hoe niet alleen proactieve vormgeving van het werk (bijv. job crafting), maar ook processen buiten het werk gunstig kunnen zijn voor optimaal functioneren. Door off-job crafting kunnen werknemers niet alleen eventuele tekortkomingen in psychologische behoeften die ze op hun werk ervaren compenseren, maar ook op een meer holistische manier psychologische behoeftebevrediging en optimaal functioneren in zowel hun vrije tijd als hun beroepsleven creëren.

TIIVISTELMÄ SUOMEKSI

Työn ja vapaa-ajan vauhti kiihtyy työelämän murroksessa. Nämä muutokset luovat haasteita työntekijöiden optimaaliselle toimintakyvylle, joka määritellään hyvinvointina sekä työ- ja perhe-elämän roolisuoriutumisenä. Tässä väitöskirjassa tutkittiin, kuinka työntekijät voivat vapaa-ajan tuunauksen, eli proaktiivisten, psykologisten tarpeiden täyttymiseen keskittyvien vapaa-ajan ponnistelujen avulla pyrkiä tukemaan optimaalista toimintakykyään. Psykologisten tarpeiden täyttymistä käsiteltiin tutkimuksessa vapaa-ajan hyvinvoinnin DRAMMA-mallin esittämien kuuden psykologisen tarpeen (työstä irrottautuminen, rentoutuminen, autonomia, taidonhallinta, merkityksellisyys, yhteenkuuluvuus) mukaisesti.

Väitöskirja koostuu neljästä alkuperäisjulkaisusta. Ensimmäinen tutkimus keskittyi DRAMMA-mallin validointiin pitkittäisasetelmassa. Tutkimuksessa tarkasteltiin DRAMMA-mallin mukaisen faktorirakenteen sopivuutta aineistoon, sekä DRAMMA-tarpeiden täyttymisen ja optimaalisen toimintakyvyn (hyvinvoinnin ja pahoinvoinnin) välisiä yhteyksiä. Toisessa tutkimuksessa kehitettiin olemassa olevan kirjallisuuden pohjalta tarvepohjainen tuunauksen käsitteellinen malli, joka kuvaa tuunauksen motiiveja, prosesseja ja seurauksia. Kolmas tutkimus keskittyi vapaa-ajan tuunauksen käsitteen sekä uuden mittarin (Tarvepohjaisen vapaa-ajan tuunauksen kysely) validointiin. Kolmannen tutkimuksen seitsemässä osatutkimuksessa tarkasteltiin vapaa-ajan tuunauksen rakenne-, rinnakkais-, erottelevaa, kriteeri- ja inkrementaalista validiteettia. Vapaa-ajan tuunauksen potentiaalisena selittäjänä tarkasteltiin proaktiivista persoonallisuutta. Kriteerivaliditeettimuuttujina mitattiin vapaa-ajan tyytyväisyyttä ja perhe-elämän roolisuoriutumista (optimaalinen toimintakyky vapaa-ajalla) sekä työtyytyväisyyttä, itse koettua työkykyä ja työn imua (optimaalinen toimintakyky työelämässä). Neljäs tutkimus tarkasteli vapaa-ajan tuunauksen ja elinvoimaisuuden välistä yhteyttä intraindividuaalisella tasolla. Lisäksi tutkittiin, onko demografisten taustamuuttujien ja vapaa-ajan tuunauksen välisissä yhteyksissä eroja Suomen ja Japanin toisistaan eroavissa kulttuuri- ja konteksteissa.

Tätä väitöskirjaa varten on käytetty kolmella mantereella eri maissa kerättyjä kyselyaineistoja. Ensimmäisen tutkimuksen aineisto koostui 279 saksalaisen työntekijän vastauksista, jotka kerättiin viidellä kyselykerralla ennen lomaa, loman

aikana ja loman jälkeen. Kolmannen tutkimuksen osatutkimukset perustuivat yhdysvaltalaisien ($N = 97-106$) sekä brittiläisten työntekijöiden ($N = 237$) poikittaisaineistoihin, sekä kuuden kuukauden tutkimusjaksolla kerättyihin kolmen kyselykerran aineistoihin, jotka kerättiin työntekijöiltä Saksassa, Itävallassa ja Sveitsissä ($N = 2,104$), Suomessa ($N = 578$) ja Japanissa ($N = 228$). Kaikkiaan osatutkimuksissa osallistujista naisia oli hieman yli puolet (55%). Osallistujien keski-ikä oli 42, ja he olivat pääosin korkeasti koulutettuja. Neljännessä tutkimuksessa käytettiin samoja suomalaisten ja japanilaisten työntekijöiden aineistoja kuin kolmannessa tutkimuksessa.

Ensimmäinen tutkimus osoitti, että DRAMMA-mallin tarpeilla on hyvä rakennevaliditeetti pitkittäisesti. DRAMMA-tarpeiden täytyminen ennusti positiivisesti hyvinvointia ja negatiivisesti pahoinvointia yli ajan. Toisessa tutkimuksessa kehitetty tarvepohjainen tuunauksen teoreettinen malli esittää esimerkiksi psykologisten tarpeiden toimivan sekä tuunauksen motiiveina että sen päämäärinä ja tuunauksen vaikuttavan sekä elämänaalueiden sisällä että elämänaalueelta toiselle. Kolmannen tutkimuksen tulokset osoittivat, että tarvepohjaisen vapaa-ajan tuunauksen kysely on luotettava ja validi mittari useassa eri maassa. Vapaa-ajan tuunaus oli pitkittäisesti positiivisessa yhteydessä erityisesti optimaaliseen toimintakykyyn vapaa-ajalla, mutta myös optimaaliseen toimintakykyyn työssä. Neljännessä tutkimuksessa merkityksellisyden ja yhteenkuuluvuuden tuunauksen lisääminen oli yhteydessä kasvaneisiin elinvoimaisuuden kokemuksiin yli ajan. Japanilaisilla työntekijöillä ikä oli negatiivisesti yhteydessä merkityksellisyden tuunaukseen, ja naissukupuoli oli positiivisesti yhteydessä yhteenkuuluvuuden tuunaukseen, kun taas suomalaisilla työntekijöillä ikä oli positiivisesti yhteydessä merkityksellisyden tuunaukseen.

Väitöskirja laajentaa toistaiseksi lukumäärältään vähäistä tutkimusta vapaa-ajan tuunauksesta ja DRAMMA-tarpeiden täyttymisestä. Väitöskirja antaa uutta tietoa DRAMMA-tarpeiden täyttymisen ja optimaalisen toimintakyvyn välisistä yhteyksistä, sekä siitä, kuinka työntekijät voivat psykologisiin tarpeisiin keskittyvillä vapaa-ajan tuunausponnisteluilla edistää hyvinvointiaan, itse koettua työkykyään sekä perhe-elämän roolisuoriutumista yli ajan. Lisäksi väitöskirja tarjoaa uutta tietoa vapaa-ajan tuunauksen yhtäläisyyksistä ja eroista eri kulttuurisissa konteksteissa. Työterveyden ammattilaiset, johtajat ja päättäjät voivat hyödyntää tutkimuksen tuloksia siitä, miten työn proaktiivisen tuunauksen lisäksi myös vapaa-ajan tuunausponnistelut voivat tukea optimaalista toimintakykyä. Työntekijät voivat vapaa-aikaansa tuunaamalla paitsi kompensoida työssä koettuja puutteita, myös laajemmin täyttää psykologisia tarpeitaan ja tukea optimaalista toimintakykyään niin vapaa-ajalla kuin työelämässäänkin.

CURRICULUM VITAE

Miika Kujanpää gained the titles of Master of Arts (in psychology) and licensed psychologist in Finland in 2017 from the University of Tampere. His master's thesis was titled "Relaxation and exposure to nature during lunch breaks: Effects of cortisol, perceived stress and fatigue". Before his academic career, Miika worked as a psychologist trainee at the Päijät-Häme Central Hospital (Lahti, Finland) and as a personal assistant at the City of Tampere. He conducted his doctoral research at the Faculty of Social Sciences (Department of psychology) of Tampere University, Finland, and at the Faculty of Economics and Business (Department of HR Management & Organizational Behavior) of the University of Groningen, the Netherlands. Miika has collaborated with researchers around the world, with invited research visits at Purdue University, the USA (Prof. Louis Tay), and Leuphana University Lüneburg, Germany (Prof. Dirk Lehr). Among various national and international conference presentations, he acted as chair for symposia at the 14th European Academy of Occupational Health Psychology Conference and at the Terveyspsykologian päivät 2020 conference. Beyond academic presentations, Miika has presented at seminars for practitioners and implemented workshops on off-job crafting for students and research participants. In 2020, he presented a keynote address in a seminar organized by the Finnish Institute in Japan (Tokyo, Japan). At Tampere University, Miika has supervised bachelor's theses, provided lectures on research methods, and supervised research assistants.

Miika has completed courses on a wide range of topics, such as on advanced statistical modelling methods, scientific writing, open science, and therapeutical intervention methods. He has also served as ad hoc reviewer for several scientific journals. Miika is currently working as a researcher in the School of Business of University of South-Eastern Norway (since 2021).

List of publications

Kujanpää, M., Syrek, C., Lehr, D., Kinnunen, U., Reins, J. A., & de Bloom, J. (2021). Need satisfaction and optimal functioning at leisure and work: A longitudinal validation study of the DRAMMA Model. *Journal of Happiness Studies*, 22(2), 681–707. doi: 10.1007/s10902-020-00247-3

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Miika Kujanpää



In Need of Leisure: Investigating the Relationship Between Off-job Crafting, Psychological Needs Satisfaction and Optimal Functioning Miika Kujanpää



Life domains outside work, such as leisure, hobbies, household- and childcare activities play an important role for preserving employees' well-being and functioning when their work is stressful. Six psychological needs - detachment from work-related thoughts, relaxation, autonomy, mastery, meaning, and affiliation, abbreviated as "DRAMMA" - were examined in this dissertation. These experiences may explain why off-job life is often beneficial for employee well-being. The dissertation consists of four scientific publications. In the first publication, DRAMMA experiences, and especially detachment and relaxation, were found to be important for supporting well-being at leisure and work. Importantly, employees can also proactively increase their own DRAMMA experiences, a process called off-job crafting. The second publication presents a novel theoretical model on crafting processes at play within and across different life domains. Off-job crafting was then empirically examined in the third and fourth publication using longitudinal datasets including European and Japanese employees. Off-job crafting was found to be positively related to well-being, self-rated work ability and performance in family roles. Moreover, cultural contexts can influence what kind of opportunities employees perceive to have to engage in off-job crafting. These findings have important implications for practice, highlighting that DRAMMA experiences play a key role in supporting employee well-being, and that employees can and do engage in efforts to bring about DRAMMA experiences and satisfaction of psychological needs.