

**This is a self-archived version of an original article. This version may differ from the original in pagination and typographic details.**

**Author(s):** Punna, Mari; Sihvonen, Sanna; Aunola, Kaisa; Rönkä, Anna

**Title:** Daily moods, health routines and recovery among employees working in the retail and services sector : A diary study

**Year:** 2023

**Version:** Published version

**Copyright:** © 2022 The Authors. International Journal of Social Welfare published by Akadem

**Rights:** CC BY 4.0

**Rights url:** <https://creativecommons.org/licenses/by/4.0/>

**Please cite the original version:**

Punna, M., Sihvonen, S., Aunola, K., & Rönkä, A. (2023). Daily moods, health routines and recovery among employees working in the retail and services sector : A diary study. *International Journal of Social Welfare*, 32(3), 278-290. <https://doi.org/10.1111/ijsw.12564>

## ORIGINAL ARTICLE

# Daily moods, health routines and recovery among employees working in the retail and services sector: A diary study

Mari Punna<sup>1</sup>  | Sanna Sihvonen<sup>2</sup> | Kaisa Aunola<sup>3</sup>  | Anna Rönkä<sup>4</sup> 

<sup>1</sup>School of Professional Teacher Education, JAMK University of Applied Sciences, Jyväskylä, Finland

<sup>2</sup>School of Health and Social Studies, JAMK University of Applied Sciences, Jyväskylä, Finland

<sup>3</sup>Department of Psychology, University of Jyväskylä, Jyväskylä, Finland

<sup>4</sup>Department of Education, University of Jyväskylä, Jyväskylä, Finland

## Correspondence

Anna Rönkä, Department of Education, University of Jyväskylä, Jyväskylä, Finland.

Email: [anna.k.ronka@jyu.fi](mailto:anna.k.ronka@jyu.fi)

## Funding information

Finnish Work Environment Fund, Grant/Award Number: 112313

## Abstract

This study examined the quality and fluctuation of daily moods as well as health routines and means of recovery from work strain among employees ( $n = 38$ ) working nonstandard, often unpredictable schedules in the retail and services sector in Finland. Data were collected via a background questionnaire and a one-week mobile diary. The results indicated that the daily moods of employees were relatively positive but varied greatly from day to day. Hectic working days, unpredictable changes in work schedules, and compounded responsibilities at home and work were reported as causes of daily strain stemming from work. In contrast, more sleep and exercise were positively associated with daily mood and, therefore, are likely to enhance recovery from work related strain. Additional activities employees reported as useful in recovering from work strain included low-effort leisure activities along with social activities with family and friends, as well as mastery experiences stemming from successful work experiences.

## KEYWORDS

nonstandard working time, retail and services sector, health behavior, diary study, work-family interaction

## INTRODUCTION

Globally, nonstandard work schedules, referring to work that regularly falls outside the so-called standard Monday-to-Friday 9-to-5 working day (Arlinghaus et al., 2019; Presser et al., 2008) are widespread in retail and service industries (Presser et al., 2008; Richbell, Brookes, Brewster, & Woods, 2011). Importantly, nonstandard schedules in these work sectors differ from traditional shift work as they are often unpredictable: start and end times may vary, while unplanned overtime, last-minute changes to work

schedules, and cuts in working hours are also possible (Campbell & Chalmers, 2008; Henly et al., 2006; Henly & Lambert, 2014). This is partly due to the increasing practice of adjusting staffing according to fluctuations in consumer demand (Cleveland et al., 2007). Employees typically have little autonomy over the hours they work in these jobs making them vulnerable toward possible changes in work schedules (Henly et al., 2006; Henly & Lambert, 2014).

In this study, we sought to gain a better understanding of the daily moods and health routines of employees in the retail and services work sector, specifically those

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2022 The Authors. *International Journal of Social Welfare* published by Akademikerförbundet SSR (ASSR) and John Wiley & Sons Ltd.

whose working time is not only nonstandard but also unpredictable. By health routines, we mean daily habits in relation to health. These routines refer to actions and behaviours that persons engage in their everyday life concerning physical activity, nutrition, and sleep. Health routines are described as permanent behaviours that have been shaped over time thus difficult to change. (Kelly & Barker, 2016). Further, we were interested in how these employees cope with unpredictable working times and the possible consequences, as well as how they recover from the work stress. We were particularly interested in their daily moods as an indicator of their wellbeing (Emmons & McCullough, 2003), health routines in maintaining daily wellbeing as well as their ways of coping and recovering from daily work strain. A mobile diary method, only seldom utilised among blue-collar workers, gave us access to the fluctuating everyday lives of participants.

## Nonstandard and unpredictable working time and health

Working nonstandard hours may induce negative health effects with short-term and long-term physical, and psychosocial risk factors associated with them (Antunes et al., 2010; Buchvold et al., 2015; Merkus et al., 2015). Physiological processes have the potential to disrupt circadian deprivation, leading to sleep deficit or activation which in turn may lead to sleep loss, sleepiness and fatigue. However, short-term effects may be reversed with re-entrainment of the body's circadian rhythm, restorative sleep, and complete recovery. Nevertheless, if the desynchrony between work and recovery persists longer it may start to increase vulnerability to various diseases. Chronic conditions such as obesity, metabolic syndrome, cardiovascular disease, type II diabetes, and cancer have been associated with a limited ability to tolerate long-term work and recovery imbalance. (Wang et al., 2015; Boivin & Boadreau, 2014). Barnes-Farrell et al., 2008 found in their representative study of healthcare workers that permanent night shifts were most harmful from the point of view of physical and mental wellbeing. Permanent afternoon/evening work for its part affected physical wellbeing negatively and work on Sundays increased work-family conflict.

Recently, in addition to physiological processes, significant attention has been focused on the effects of daily health routines, a special focus in this study. Compared to relative to standard schedule workers, workers with non-standard working schedules were at increased risk for non-optimal sleep, substance abuse, greater recreational screen time, worse dietary practices, obesity, and depression (Winkler et al., 2018). Shift work may also be accompanied by difficulties in maintaining routines

which may lead to unhealthy eating habits or so-called food insecurity (Coleman-Jensen, 2011), insufficient physical exercise, and increased risky health behaviours such as smoking (Puttonen et al., 2010).

Scholarship has suggested that the increased risk for psycho-social issues associated with working nonstandard hours may be caused by a lack of autonomy over one's working time, and a persistent imbalance between work and personal life including family life (Sonnetag & Zijlstra, 2006). Henly and Lambert (2014) found out that unpredictability of work schedules in retail jobs, especially last-minute changes in them, create both time and strain-based work-family conflicts by disturbing non-work obligations. Similarly, Rönkä et al. (2017) found in their cross-national research of parents working either in standard or nonstandard hours, that it was the unpredictability of work schedules that were most consistently related both to lower positive parenting and parenting stress in all three countries (Finland, NL, GB). Tammelin et al. (2017) found on the basis of the same cross-national data that working nonstandard schedules was associated with increased time-based work-family conflict, but only among Finnish and British parents. Likewise, Murtorinne-Lahtinen et al. (2016) found using qualitative interviews with Finnish mothers working nonstandard hours that unpredictable work schedules made it challenging to maintain daily routines in meals and coordinate daily activities in the family.

## Recovery from work strain

Despite nonstandard work schedules compromising one's health and family routines, it is possible to cushion adverse consequences with resources. This is called recovery: replenishment of one's psychological and physical resources after work strain (Ragsdale et al., 2011). An employee has recovered from work at the point when his or her resources have returned to the same level they were before work (Sonnetag & Zijlstra, 2006), a condition often accompanied by feelings of relaxation and vigor (Binnewies et al., 2010; Ragsdale et al., 2011).

Typically, recovery from work strain takes place when an employee has spent sufficient time not working or thinking about work, gets relaxed via low-effort activities, does challenging activities that offer mastery experiences or has received a feeling of control over time schedules during leisure (Sonnetag & Fritz, 2007).

Previous research indicates that given the nature of non-daytime hours, and particularly working nights, non-standard work schedules may require more time and resources to recover from work strain compared to that required of the regular work day (e.g., Gifkins et al., 2020) as good quality of sleep is one key factor in recovery

(Rook & Zijlstra, 2006). It has been argued that inadequate sleep in the long term has a negative impact on mood, performance, and health (Caldwell et al., 2019). Furthermore, recent findings suggest that factors associated with shift work such as sleep restriction and mood disturbance could lead to alterations in diet. Results have shown that anxiety and hunger levels were higher following a night shifts and chronic fatigue in shift workers was associated with a higher intake of fat. (Heath et al., 2019). A special risk situation for health is the one when the employee, from day to day, is not properly recovering from work strain (Saksvik-Lehouillier et al., 2013) and suffers from chronic fatigue (Gifkins et al., 2020). Gifkins et al., (2020) state on the basis of systematic review on recovery in nurses that activities at home in leisure between shifts have in important role in recovery. Whereas family and domestic responsibilities increase the level of fatigue, weekly physical activity is related to improved recovery.

The importance of physical activity in recovery from work and maintaining working ability has been noted in several studies (Fransson et al., 2012; Gifkins et al., 2020; Nägel & Sonnentag, 2013). Feuerhahn et al. (2012) found that engagement in exercise activities after work was related to positive effect in the evening. The connection between exercise and positive mood was partly mediated by psychological detachment, sense of belonging and physical self-perceptions.

The connections between physical activity and working nonstandard schedules may be more complicated than has been generally thought. Several studies have found an association between shift work and lower leisure-time physical activity (Arvidson et al., 2013; Loprinzi, 2015; Ma et al., 2011) whereas others have shown no or negative association (Hulsege et al., 2020; Marqueze et al., 2013). It has been suggested that working nonstandard schedules may prevent workers from engaging in regular exercise, hobbies, or refreshing activities because they have difficulty participating in group-based physical activities or other activities in the early evening (Kolbe-Alexander et al., 2019; Mills & Täht, 2010). According to recent systematic reviews, the discrepancy in conclusions of the literature is likely due to use of various methods to monitor the level of physical activities (Monnaatsie et al., 2021) as well as differences in shift schedules, job tasks and variations in definitions of shift work (Gifkins et al., 2020; Monnaatsie et al., 2021).

### **Mobile diary in studying fluctuation in work-related experiences**

Diary studies with repeated measurements enable exploring daily and weekly rhythms in moods, routines and

behaviours (Bartlett & Milligan, 2015; Malinen et al., 2015) and analysing, if the amount of sleep, nutrition and physical activity varies from day to day or remains constant for different individuals. Furthermore, mobile diary is easily integrated into the daily lives of employees working non-standard and often irregular hours, as the tool is portable and with the participant at all times (Malinen et al., 2015). The main limitation of the diary method is that it demands time and dedication on the part of the participants (Bartlett & Milligan, 2015).

The benefit of diary methods (nowadays often called ecological momentary assessments, EMA, for example, Intille, 2012) in working life research is their ability to gain situation-specific information of work-related factors and mechanisms and reveal not only inter-individual differences in work experiences but also intraindividual fluctuation in these experiences (for example, from one situation to another, or from one day to another) (Binnewies et al., 2010; Nägel & Sonnentag, 2013; Ohly et al., 2010). In the case of employees working non-standard hours (often blue-collar workers with unpredictable schedules), diaries have been less utilised than among white-collar, middle-class workers who mostly work standard hours. In some studies, diaries have been used to investigate circadian rhythms in employees working in shifts (Härmä et al., 2002) and recovery from intensive work in nonstandard hours (Drach-Zahary & Marzug, 2012; Gassman-Pines, 2011; Hernandez et al., 2021). For example, previous studies have found that of the various work schedules, night shifts tend to be most burdensome and wellbeing lowest just after a night shift (Gassman-Pines, 2011) but that challenging emotions such as confidence and energy can increase mastery-type recovery experiences among blue-collar workers at an airport hub's station (Michel et al., 2016).

### **Aims of the study**

This study explored the quality of and variation in daily moods (both positive and negative) and health routines, and recovery from work-strain among employees working nonstandard schedules in the retail and services sector. We paralleled structured questions relating to daily moods and health routines with open-ended questions on participants' personal experiences of strain and recovery as the actual experience of recovery may be more important than the activity itself (Feuerhahn et al., 2012). The first research question concerned the quality and variation of daily moods and health routines over the course of a week, and further investigated the daily situations in which employees experience work-related strain. We were not able to pose any hypothesis concerning

variation of moods due to lack of earlier research. We expected that unpredictable work schedules of employees would be reflected in challenges in maintaining health routines (Winkler et al., 2018), as well as in interruption to work-family reconciliation and recovery (Henly & Lambert, 2014; Murtorinne-Lahtinen et al., 2016).

The second research question asked: By what means do employees working in retail and services maintain health routines and recover from work strain in their daily lives? We expected to find that the higher amount of sleep and physical activity along with proper meals would be connected to positive mood (i.e., higher level of energy and satisfaction, and lower level of tiredness and irritability) (Scott & Judge, 2006). Furthermore, we expected that besides to sleep, physical activity and nutrition, employees would use in their daily lives also low-effort activities to recover from strain caused by nonstandard and unpredictable working time (Fransson et al., 2012.)

## METHODS

### Data and sample

This study was part of a research and development project titled “Take care 24/7”, which investigated work performed at nonstandard times from the perspective of employees, managers, and workplaces. The project was conducted in collaboration with SOK (a major Finnish retail cooperative). The participants of the study ( $n = 38$ ) were recruited from three of SOK's regional outlets. Participants worked nonstandard hours in hotels, stores, and service stations with restaurants and shopping facilities.

Handouts explaining the study were distributed electronically among the various target workplaces (hotels, stores etc.) The eligibility criterion was working nonstandard hours full-time and exclusion criterion was those working part time or with hourly contracts. The one-week diary data were gathered between April and May 2013 in three waves. Participants were advised to choose a week representative of a typical working week. In all, 38 individuals participated in the study. All the participants used their own mobile phones as the diary tool.

We used mobile diary approach to collect information on participants' current mood, experiences of strain and recovery, and health routines daily within a one-week window using their own mobile phones. The mobile diary was used to gather situation-specific information about the possible burdensome aspects of working nonstandard schedules and how participants recovered from this mode of working in their daily lives. The software for programming and sending the daily questions was a web-based application adapted for mobile devices. The application

has been developed in cooperation between two local universities and a mobile technology company. Participants' mobile phone numbers were entered into the web-based application so that all participants received a personal response code to guarantee their data security.

### Ethics

Written consent was required of all participants after being informed about the purpose of this study as well as the logistics of collecting data (i.e., an online questionnaire followed by recording diary data the week after). During recruitment, comprehensive oral and written information of the study was given to persons interested in participating in the study. Participation was voluntary. If participants were eligible and willing, they signed an informed consent. All data collected were recorded, stored, and reported anonymously. This study was approved by the Ethics Committee of JAMK University of Applied Sciences.

### Measures

*Demographic characteristics.* We used an online questionnaire to collect participants' background information ( $n = 38$ ). The online questionnaire included information on work hours, education, and family background (e.g., marital status, number of children). The majority of the diary participants ( $n = 29$ ) answered this online questionnaire. To get a more detailed picture of actual work hours and possible changes involved, we also asked diary study participants to provide their work schedules and work hours day by day prior to starting their work week. At the end of the diary week, we asked if there had been changes in work schedules during that week.

*Mood and health routines.* We used structured questions to assess participants' daily mood and health routines, with order of the questions varying on a daily basis to maintain motivation. We also varied the timing of the questions so that the participants would receive the questions between 1 p.m. and 5 p.m. The participants had 4 h in which to answer the questions with a reminder sent one hour before the end of the response period. After successfully answering all the questions, the participants received a thank you message. In line with earlier mobile diary studies (e.g., Malinen et al., 2015; Rönkä et al., 2010), current mood was measured with five questions, of which three dealt with negative mood (i.e., irritation, feeling of strain, tiredness) and two with positive mood (i.e., happiness, energy). The mood questions were expressed in the form: How tired do you feel at this moment? The responses were given on a seven-point Likert scale, from



1 = not at all tired to 7 = very tired, following previous research to capture sufficient variation in mood (Rönkä et al., 2010). Amount of sleep was measured by the question: How many hours have you slept during the last 24 h? Physical activity was measured by the question: How much time in minutes did you spend engaged in physical activity that caused you to sweat or become breathless (state number of minutes of activity)? (Helldán & Helakorpi, 2015). Furthermore, the participants were also asked whether they had eaten proper meals (lunch, dinner) that day. This question was included as nutritional guidelines (Nordic Nutrition Recommendations, 2014) highlight the importance of maintaining regular and healthy dietary habits, including daily main meals.

*Qualitative narratives of work strain and recovery.* The structured mobile diary questions were supplemented by either one or two open questions daily. These questions included a question of one's experiences of work-related strain ("Please describe one situation during the last few days when you felt that work-related issues caused stress after work?", asked once during the week) and recovery from it ("Please describe one situation during the last few days when you felt you had succeeded well in recovering from the strain of work, asked on two occasions during the week). Furthermore, following previous research on recovery on subjective experience (Feuerhahn et al., 2012), we asked participants to describe situations where they felt energetic or relaxed as a way to gain insight on their subjective recovery experience as both relaxed and energetic feelings are often a sign of recovery ("Please mention one situation today when you felt energetic/relaxed. Where were you and what happened?"). These questions related to recovery were formulated in such a way that participants could answer these questions at the moment of working or during leisure time. Participants received a total of 11–12 questions per day, with most of the questions being structured. These questions took about 10 min of participants' time per day. The response rate was 92%.

## Analysis of data

Qualitative diary answers, that is, participants' experiences and short narratives about their experiences of work strain, recovery, relaxation, and energy were analysed with data driven, conventional content analysis (Hsieh & Shannon, 2005) sensitive to activities and health practices individuals use in their daily lives. The analysis was conducted separately for the answers of the four diary questions. The responses were grouped into subcategories according to the specific type of activity (e.g., sleep, rest, nap) and combined into main categories indicating the purpose and nature of activity

(e.g., sleep and rest). The main categories are shown in Table 3.

The quantitative data were analysed by using both SPSS and MPlus. SPSS version IBM SPSS Statistics V22.0 was used for the descriptive statistics of the background information. MPlus version 7 was used to calculate the intraclass and within correlations of the daily variables, that is, mood and health routine variables. Intraclass correlations were used to examine the extent to which there is between-person versus within-person (i.e., day-to-day) variation in mood and health routines. Within-level correlations, in turn, were used to examine the extent to which daily variation in mood variables would be associated with daily variation in health routines.

## RESULTS

### Descriptive picture

As shown in Table 1, most of the participants were women with a mean age of 35, and 41% of the participants had children (typically two children). Due to inclusion criteria, all participants had a nonstandard work schedule such as work at early mornings, evenings and nights, and/or week-ends. The majority of the participants worked in shifts, the form varying from three-shift work to two-shift work with or without the night shift. A few participants did regular night work. We asked the participants to report their work schedules for the diary week. On the basis of their reports, over half worked in two different shifts and 42% in one shift (morning, evening or night). One fourth (26%) had at least one night shift during the week (1–4 nights). All participants except one had 2 days off; these were consecutive days in almost all cases (80%). We asked afterwards whether there had been changes in work schedules during the diary week. Half of the participants (N =16) reported no changes, but for others (N =13), there had been some changes, which typically were changes in start or ending times, unplanned overtime, or one or more extra work shifts. Furthermore, two participants said that they had more free time than usually (less work) and one had herself wanted a change in her schedule.

### Quality and fluctuation of daily moods and health routines

Our first research question addressed the quality of and fluctuation in daily wellbeing evaluated in terms of positive and negative moods and health routines (sleep, physical activity, and having a meal). The weekly mean values shown in Table 2 indicate that participants felt, on

**TABLE 1** Background information on the study participants.

Variable	N = 29
Age, years, mean (SD)	35 (SD=11)
Gender, women, N (%)	26 (90 %)
Marital status N (%)	
married	10 (34 %)
cohabiting	11 (38 %)
unmarried	6 (21 %)
separated or divorced	2 (7 %)
Participants with children living at home N (%)	
no children	17 (59 %)
one child	1 (3 %)
two children	10 (35 %)
three children	1 (3 %)
Education N (%)	
basic education	1 (3 %)
matriculation, basic vocational degree	21 (73 %)
specialist vocational qualification	3 (10 %)
bachelor-/master degree	2 (7 %)
other	2 (7 %)
Form of working time N (%)	
daytime work (6–18)	1 (3 %)
regular night work	3 (10%)
two-shift work (no night work)	6 (21%)
two-shift work (including night work)	3 (10 %)
three-shift work	12 (42%)
other form of working time	4 (14 %)
Actual working time, h, mean	N = 32
daily	7 h
weekly	31 h

the whole, rather satisfied ( $M = 5.2$ ) and quite energetic ( $M = 4.5$ ). Although they might feel somewhat tired ( $M = 3.2$ ) and strained ( $M = 2.6$ ), the level of irritation ( $M = 2.1$ ) was low. The intraclass correlations as shown in Table 2 revealed strong daily fluctuation in individual participants' moods and behaviours. In general, participants' mood varied widely from day to day over the course of the week (69%–89% of the variation being due to the within- rather than between-persons effect), as shown by the rather low intraclass correlations ( $ICC = 0.11$ – $0.31$ ). Of the five moods, feelings of energy showed the highest intraclass correlation ( $ICC = 0.31$ ), indicating some individual consistency in the ratings of energy. Irritability, in turn, varied substantially from day to day, from the variation 88% was due

to the within-level effect, whereas only 12% was due to the between-level effect.

The participants slept, on average, 7.6 h and exercised 28 min per day. They enjoyed a proper meal, on average, on 4.6 days during the week. Health routines varied from day to day, as indicated by the relatively low intraclass correlations, especially in the amount of sleep ( $ICC = 0.14$ ) and physical activity ( $ICC = 0.11$ ), (86%–89% of the variation being due to the within-rather than between-persons effect).

We supplemented the structured mood questions with open-ended questions to gain a deeper understanding of the participants' daily experiences of work-related strain. Three individuals reported not feeling strained from work during the week, while most participants reported at least one experience of strain stemming from work.

On the basis of a systematic content analysis, there were three typical situations in the participants' daily lives when they felt strained due to work. First, as sources of strained feelings, they mentioned situations when hectic work and family demands were conflicting or compounded. Participants described, for example, situations during the week when despite an exhausting and busy workday they had to undertake household duties, parenting responsibilities or childcare tasks after the workday.

*“My shift started at 6 in the morning, so I had to wake up at 4.45, and after work, I had to find the energy to run various errands. Actually, I was too tired to do them all”.*

*“Yesterday, I was wondering how I'd manage to stay awake during the night shift since I had woken up early and had had a lot of domestic work and not any naps.”*

Secondly, in their narratives of the experiences of strain causing irritation in their off work hours, the participants described hectic days when they had to work at a more rapid pace than usual due to short-staffing on a given shift, and this led to difficulties in concentrating on other matters or relaxing after the shift.

*“On Thursday I was in such a hurry at work that I wasn't able to settle down at all after coming home.”*

*“The hectic tempo of a busy day stayed in my mind and came to my dream”.*

Thirdly, illustrating moments of strain, the participants described situations when they had been given short notice of changes in work schedules. Rapid changes in work schedules tended to set in motion difficulties also in family life and free time.

*“Due to a rush at work, I was called to come (to work) earlier and I had to forget my free time.”*

*“I had to continue my shift due to unexpected pressure at work, and I had to cancel my plans for the evening”.*

## Links between daily health routines and mood

As part of our second research question, we were interested in whether health routines (i.e., physical activity, sleep, having a meal) were associated with mood at the daily level. Due to low sample size at the between-level (38 participants), we focused on only the within-level correlations. The within-level correlations shown in Table 2 indicated that from health routine variables, daily physical activity and sleep were statistically significantly ( $p < 0.05$ ) related to quality of mood. Importantly, as a general trend, the more the participant had exercised and slept during the last 24 h, the more satisfied and less tired and strained s/he felt that day. The amount of sleep was significantly associated with all the moods examined here except for irritation (the connection between sleep and energy and satisfaction being positive and between tiredness negative). The within-level correlations between the amount of physical activity and the mood variables (except satisfaction) were also statistically significant but somewhat weaker. Having a meal was not statistically significantly correlated to the mood variables on the daily level.

## Narratives on the experiences of recovery

We were further interested in the various means and activities participants had used in their daily life in recovering from work related strain. Table 3 shows the results of the content analysis of the narratives concerning the

moments of recovery, and moments when participants felt relaxed and energetic, also signs of recovery. On the basis of a content analysis, activities mentioned by the participants helping them recover from work strain

**TABLE 3** Content analysis of open-ended answers in mobile diary (number of answers in parenthesis).

Situations where employees succeeded well in recovering from work	Situations where employees felt relaxed	Situations where employees felt energetic
1. Having enough sleep and rest after shift (N=12)	1. Peaceful and unhurried mornings (N=10)	During leisure 1. After physical activity (N=16)
2. Spending time with friends and family members (N6)	2. Being at home and watching TV (N9)	2. After meeting and being with friends and family members (N10)
3. Physical activity (N=5)	3. Gathering around outside/in the garden (N=6)	3. After having slept enough (N=7)
4. Lapse of sufficient time since last shift (N=3)	4. Spending time with family and friends (N4)	At work 1. Feelings of success at work (N10) 2. Good atmosphere at work and good relations with colleagues (N=9) 3. Positive feedback from customers (N9)

**TABLE 2** Positive and negative moods and health routines according to the diary data.

	1.	2.	3.	4.	5.	6.	7.	8.	M	Var	ICC
1. Satisfaction	1.000								5.185	0.396	0.198
2. Energy	0.480 <sup>a</sup>	1.000							4.454	0.802	0.309
3. Irritability	-0.471 <sup>a</sup>	-0.332 <sup>a</sup>	1.000						2.145	0.212	0.115
4. Tiredness	-0.342 <sup>a</sup>	-0.588 <sup>a</sup>	0.379 <sup>a</sup>	1.000					3.158	0.384	0.131
5. Feeling of strain	-0.469 <sup>a</sup>	-0.492 <sup>a</sup>	0.487 <sup>a</sup>	0.474 <sup>a</sup>	1.000				2.572	0.442	0.220
6. Physical activity	0.066	0.140 <sup>c</sup>	-0.106 <sup>c</sup>	-0.165 <sup>b</sup>	-0.090	1.000			28.210	140.758	0.111
7. Sleep	0.164 <sup>c</sup>	0.241 <sup>b</sup>	-0.121	-0.359 <sup>a</sup>	-0.238 <sup>b</sup>	0.086	1.000		7.571	0.576	0.135
8. Having a meal	0.032	0.011	-0.086	-0.089	-0.068	-0.009	0.035	1.000	1.697	0.046	0.219
Var	1.608	1.797	1.634	2.522	1.570	1127.402	3.676	0.164			

Note: Intraclass correlations (ICC), means (M) and variances (Var) of study variables, and correlations in the within  $N = 255$  days data level.

<sup>a</sup> $p < 0.001$ ,

<sup>b</sup> $p < 0.01$ ,

<sup>c</sup> $p < 0.05$ .



included, first of all, having sufficient sleep or rest following their shift or even only a nap after a hectic workday.

*“I was able to sleep as long as I wanted, I didn’t need to wake up with the alarm clock”.*

*“Yesterday after a tremendously hectic day I had a nap and that helps me to recover from that day.”*

Secondly, as situations enhancing recovery the participants wrote about relaxing time with low-effort activities spent at home alone or with family members. These activities included, for example, lying on the sofa, watching tv, going to sauna, gardening, doing household duties, *“having lunch with the husband”* and *“bustling around with the kids”*.

Spending leisure time with friends was also mentioned as an activity enhancing recovery. *“Long time since playing soccer with friends, really enjoyable.”*

Thirdly, participants had succeeded in getting their minds off work through physical activity (e.g., jogging, kickboxing, cycling). Jogging or other type of sports helped participants to forget their work, as the following excerpt describes:

*“When I’m jogging, I can empty my mind. Alone in the forest, just listening to the sounds of nature.”*

For some others simply a longer period of time off from work was needed for replenishing the resources. *“When I had 2 days off in a row, I was able to do all kinds of enjoyable things.”*

It was typical to mention more than one strategy, as this narration shows:

*“Yesterday after a very hectic workday I took a nap, went jogging, did some household work and helped my child with homework. After all this, I woke up at 04.00 refreshed and ready to go to work. Quite successful recovery indeed”.*

Two individuals reported that they had not recovered from work that week.

Moments and situations when participants had felt relaxed took place mostly at home, either in the morning, after having slept, when there was no hurry or when lying on the sofa and watching TV. The other situation in which the participants typically reported feeling most relaxed was gardening or just spending time outside or in the garden.

*“In the morning after waking up, without any hurry, I had my morning coffee in peace.”*

*“On my own terrace while the sun was shining.”*

Feelings of energy and vigour denote that an individual has replenished his/her resources. The content analysis of the narratives showed that the participants typically had felt energetic in their leisure time after physical activity, meeting and being with friends and family members for meals or social activities, or after sufficient sleep and rest. Participants described moments and sources of the feelings of vigour as follows:

*“At home, the whole family gathered together for dinner...”.*

*“Got as much sleep as I needed.”*

The physical activities the participants mentioned in enhancing vigour included working in the garden, walking, jogging, playing ball games, and going to a spa.

*“In the morning, after jogging, I was sitting on the terrace in the sun drinking coffee.”*

The situations in which the participants felt most energetic at work were most often moments when they had successfully performed their work in time and received positive feedback. Participants also reported that a good atmosphere in the workplace and positive interactions with colleagues had contributed to their feelings of energy. Positive interactions with customers were also mentioned as a source for energetic feelings:

*“The team was nice. Agreeable co-workers always cheer you up and make time fly.”*

*“Customers and successful interactions bring energy. Today in the middle of a busy period I got many smiles and thanks. Also a hectic atmosphere may keep you active.”*

Even a rush caused by an unexpected crowd of customers (e.g., a bus full of travelers) if successfully managed - was experienced positively, as boosting energetic feelings.

*“Yesterday evening when there were a lot of customers and a terrible rush, almost everything about to explode, caused panic on the one hand but at the same time a huge rush of energy...”.*

*“My level of energy was at its peak while serving one hundred ice hockey fans by myself”.*

Six participants reported not feeling energetic at work on any day.

## DISCUSSION

The main contribution of the study was to shed light on the daily mood and health routines of employees working in retail and services, an employee segment with unpredictable working schedules only seldom studied (Casper & Swanberg, 2011). Unpredictability and variability were shown in their daily lives in several ways: their working time pattern did not usually follow any specific pattern, and there were often changes: unplanned work overtime, calls to work on short notice and changes in working time. Moods and health routines varied also a lot from day-to-day. We found that such changes together with hectic work were experienced as causing strain and interrupting recovery, but that employees had developed routines and means to tackle these irregularities in their daily lives and find ways to recover. It was novel in this study to parallel

quantitative measures with qualitative narratives. Both our quantitative and qualitative findings indicated that more sleep and rest as well as physical activity were associated with positive mood and better recovery (e.g., Nägel & Sonnentag, 2013), supporting our expectations. Furthermore, qualitative narratives indicated, in line with our expectations, the importance of low effort and social activities in recovery. We also found that work itself sometimes offered mastery experiences associated with recovery. Our findings clarify that irregularity of working time can pose a challenge to keeping regular health routines and recovery as at times changes in work schedule interrupt psychological detachment from work and the feeling of control (Sonnentag & Fritz, 2007).

### **Maintaining regularity and replenishment within irregularity**

Although the structured diary questions gave a relatively positive picture of average daily moods among the employees working in retail and services sector, we also found that the moods varied a lot day by day. Similarly, we found a wide daily variation in health routines: sleep, nutrition and physical exercise, with little intra-individual consistency. Qualitative findings illustrated that hectic working days including deadlines and unpredictable changes in work schedules were often experienced as particular causes of strain (Henly et al., 2006; Henly & Lambert, 2014), especially when combined with household and parenting responsibilities (Butler et al., 2005; Gifkins et al., 2020). Such short time changes in working time may further exacerbate already atypical working hours, thus creating more unpredictability in employee work schedules which can easily translate into fluctuation of moods and unstable and erratic family routines and challenges in childcare arrangements (Henly et al., 2006; Tammelin et al., 2019). In our study, 41% had an average of two children, posing challenges for parents to maintain regular family routines. For others, unpredictable changes in working time interfered with leisure time and hobbies.

Our findings suggest that in order to maintain a positive mood in the context of nonstandard working hours, it is important to perform the basic routines that are associated with wellbeing—such as, having adequate amounts of sleep and physical activity. Namely, there was a clear logic in the findings: the more sleep and exercise the person had, the better one's mood was on that day (Feuerhahn et al., 2012; Rook & Zijlstra, 2006). Having proper meals did not have any statistically significant association to daily mood variables. Adequate sleep and physical activity may therefore play a central role in the creation and maintenance of regularity and

replenishment of resources in the context of an irregular daily life, at least based on our sampled participants (Nägel & Sonnentag, 2013). It should also be noted that the link between positive mood, sleep and physical activity may be reciprocal. However, we found that employees working nonstandard hours may not be able to find time to fulfil these basic needs, as their leisure time does not always allow them to rest, control their leisure time and detach from work due to changes in their work schedules (Gitlin et al., 2020).

Of significance, our qualitative results based on narratives of recovery, relaxation and energy confirmed our quantitative findings on the association between sleep and physical activity on daily wellbeing and recovery from work. Both were experienced as good ways to shed work-related strain and also as sources of vigour. Employees mentioned proper meal or eating only seldom when writing of their moments of recovery and vigour which is also in line with our quantitative findings. Further, our qualitative results shed light on the importance of social activities – spending time with family and friends – in recovery, in line with earlier findings (e.g., Rook & Zijlstra, 2006). However, we noticed that, time spent with family can be both a source of recovery (spending time with spouse and children) as well as fatigue (heavy load of family responsibilities) in the context of nonstandard working time (see Gifkins et al., 2020). Furthermore, we found in accordance with de Jonge et al., (2018) that passive, low-effort activities (e.g., watching TV, gardening), in terms of unhurried leisure time, were also crucial for relaxation. Such passive activities may be important in recovery processes in the context of nonstandard working time with very unpredictable schedules. Rook and Zijlstra (2006) suggest that low-effort activities may be especially beneficial for recovery from physical fatigue as compared to psychological fatigue, which may be induced by other types of activities (e.g., sport).

On the basis of qualitative narratives, we found that energetic feelings may also stem from the workplace, via a good working atmosphere, good relations with colleagues, and positive feedback from customers. These activities may evoke experiences of mastery, which typically accompany recovery (Feuerhahn et al., 2012; Michel et al., 2016); this result warrants further investigation as previous studies have not focused on such activities to help recovery from work strain.

### **Limitations**

This small local study is bound to have limitations. Firstly, since the number of participants in this study was small with a convenience sampling, our results could

only provide a limited understanding of how people with nonstandard work schedules may experience work strain as well as find ways to recover from such a strain. It is possible that the participants in the study were exposed to self-selection bias, for example, have a personal interest in taking care of their health or have especially challenging work hours. The latter may be correct. When compared to the national register data on workers in the retail and services (Statistics Finland, 2014) industries, our study group seemed to work night shifts more often (e.g., 62% vs. 28% in the hospitality industry). According to the SOK 2013 staff report, the mean age of our participants was similar to the mean age of all SOK employees. Of the SOK staff directly employed in retail and services, 75% were women, whereas in our sample the corresponding proportion was 90%, possibly indicating a greater interest by women than their male colleagues in maintaining their wellbeing. So, our study population differed from the official statistics on workers in the services and retail industries in having a higher proportion of female and night shift workers. It should be noted that we included in our diary study only full-time workers who worked five days per week. This criterion was used to gain good quality, comparable data from the small sample data. Part-time workers would have had several days off, and we would have not gotten enough data in a one-week diary. To be able to gain reliable results the sample size should have been much larger. It would be important to study this group of employees in future studies.

The findings further indicated that although moods and experiences varied and there were moments of strain, the moods, based on our quantitative results were on a general level rather positive, which contracted the findings from other studies (Henly & Lambert, 2014). One reason for this might be that Finland is among Nordic countries where employment arrangements are regulated to a certain extent and employees protected, furthermore nonstandard working time is compensated for financially (Ropponen et al., 2017).

Secondly, our small sample did not allow us to conduct more sophisticated, statistical analyses with MPlus. A larger sample size could have allowed us to test if the daily fluctuation in positive and negative moods and health routines, or the associations between daily moods and health routines (physical activity, sleep, eating habits), would vary from one person to another considering personal characteristics such as family structure or number of children (i.e., multilevel random regression coefficient model). Thus, we restricted our analysis to within-level connections. Thirdly, the mobile diary method limited the number of questions that could be included per day (see also Rönkä et al., 2010). Although the selected seven-point Likert scales measuring daily moods have proved to be good indicators of daily

wellbeing and capture variation (Malinen et al., 2015), more items would have made it possible to form sum indices with an improved reliability and validity. Lastly, the data was collected almost 10 years ago, and despite some global changes in daily lives of people (e.g., increase of digitalization and social media) the strains and means of recovery of participants working nonstandard hours have not remarkably changed.

## Implications

In retail and service sector, unpredictability of work schedules cannot be avoided as staffing needs vary according to the fluctuation of consumer needs. Employees working nonstandard hours can do many things to maintain their daily wellbeing. Our findings indicate that adequate amounts of sleep and physical activity enhance daily wellbeing suggesting that engagement in routines promoting healthy lifestyle may be especially important for employees working nonstandard schedules in order to decrease the risk of health problems in long term. We also found that enough free time and social activities with family and friends – but without too heavy a workload in family duties – is needed to recover from work strain. Thus, maintaining regularity in everyday health routines as well as balancing work and home responsibilities, and relaxing family time may be key factors to promote recovery from the demands of nonstandard work schedules. Spending time with family members and friends is also an important source for recovery, not only an obligation.

Managers in the 24/7 workplaces have the responsibility to create, more predictable working times and facilitate more autonomy over working time allowing the possibility to balance work and family (Rönkä et al., 2018). We also noticed that the participants' possibilities to exert control over their work schedules were rather limited. It is important for managers to guarantee that workloads are relatively stable and that enough personnel are present during rush hours. All possible measures should be taken to avoid unexpected changes and interruptions and enhance predictability.

## ACKNOWLEDGMENTS

We thank Ulla Teppo, Project Specialist, for assistance with the data collection and her comments to an earlier version of the manuscript.

This research was supported by The Finnish Work Environment Fund (Grant Number 112313).

## CONFLICT OF INTEREST

None.

## DATA AVAILABILITY STATEMENT

Data available on request due to privacy/ethical restrictions; The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## ORCID

Mari Punna  <https://orcid.org/0000-0002-7671-4291>

Kaisa Aunola  <https://orcid.org/0000-0001-8866-6736>

Anna Rönkä  <https://orcid.org/0000-0002-2889-3264>

## REFERENCES

- Antunes, L. C., Levandovski, R., Dantas, G., Caumo, W., & Hidalgo, M. P. (2010). Obesity and shift work: Chronobiological aspects. *Nutrition Research Reviews*, 23(1), 155–168.
- Arlinghaus, A., Bohle, P., Iskra-Golec, I., Jansen, N., Jay, S., & Rotenberg, L. (2019). Working time society consensus statements: Evidence-based effects of shift work and non-standard working hours on workers, family and community. *Industrial Health*, 57(2), 184–200.
- Arvidson, E., Börjesson, M., Ahlberg, G., Lindegård, A., & Jonsdottir, I. (2013). The level of leisure time physical activity is associated with work ability - a cross sectional and prospective study of health care workers. *BMC Public Health*, 13(1), 855.
- Barnes-Farrell, J. L., Davies-Schriels, K., McGonagle, A., Walsh, B., Di Milia, L., Fischer, F. M., Hobbs, B. B., Kaliterna, L., & Tepas, D. (2008). What aspects of shiftwork influence off-shift well-being of healthcare workers? *Applied Ergonomics*, 39, 589–596.
- Bartlett, R., & Milligan, C. (2015). *What is diary method?* Bloomsbury.
- Binnewies, C., Sonnentag, S., & Mojza, E. (2010). Recovery during the weekend and fluctuations in weekly job performance: A week-level study examining intra-individual relationships. *Journal of Occupational and Organizational Psychology*, 83(2), 419–441.
- Boivin, D. B., & Boudreau, P. (2014). Impacts of shift work on sleep and circadian rhythms. *Pathologie Biologie*, 62(5), 292–301.
- Buchvold, H. V., Pallesen, S., Oyane, N. M., & Bjorvatn, B. (2015). Association between night work and BMI, alcohol, smoking, caffeine and exercise—a cross-sectional study. *BMC Public Health*, 15, 1112.
- Butler, A. B., Grzywacz, J. G., Bass, B. L., & Linney, K. D. (2005). Extending the demands-control model: A daily diary study of job characteristics, work-family conflict and work-family facilitation. *Journal of Occupational and Organizational Psychology*, 78(2), 155–169.
- Caldwell, J. A., Caldwell, J. L., Thompson, L. A., & Lieberman, H. R. (2019). Fatigue and its management at the workplace. *Neuroscience and Biobehavioral Reviews*, 96, 272–289.
- Casper, W. J., & Swanberg, J. E. (2011). Career and work concerns of diverse and understudied workers. *Journal of Vocational Behavior*, 79(3), 611–612.
- Campbell, I., & Chalmers, J. (2008). Job quality and part-time work in the retail industry: An Australian case study. *The International Journal of Human Resource Management*, 19(3), 487–500. <https://doi.org/10.1080/09585190801895569>
- Cleveland, J. N., O'Neill, J. W., Himelright, J. L., Harrison, M. M., Crouter, A., & Drago, R. (2007). Work and family issues in the hospitality industry: Perspectives of entrants, managers, and spouses. *Journal of Hospitality & Tourism Research*, 31(3), 275–298.
- Coleman-Jensen, A. (2011). Working for peanuts: Nonstandard work and food insecurity across household structure. *Journal of Family Economic Issues*, 32, 84–97. <https://doi.org/10.1007/s10834-010-9190-7>
- De Jonge, J., Shimazu, A., & Dollard, M. (2018). Short-term and long-term effects of off-job activities on recovery and sleep: A two-wave panel study among health care employees. *International Journal of Environmental Research and Public Health*, 2018(15), 2044. <https://doi.org/10.3390/ijerph15092044>
- Drach-Zahary, A., & Marzug, N. (2012). The weekend matters: Exploring when and how nurses best recover from work stress. *Journal of Advanced Nursing*, 69(3), 578–589.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, 84(2), 377–389.
- Feuerhahn, N., Sonnentag, S., & Woll, A. (2012). Exercise after work, psychological mediators, and affect: A day-level study. *European Journal of Work and Organizational Psychology*, 1, 62–79.
- Fransson, E. I., Heikkilä, K., Nyberg, S. T., Zins, M., Westerlund, H., Westerholm, P., Väänänen, A., Virtanen, M., Vahtera, J., Theorell, T., Suominen, S., Singh-Manoux, A., Siegrist, J., Sabia, S., Rugulies, R., Pentti, J., Oksanen, T., Nordin, M., Nielsen, M. L., ... Kivimäki, M. (2012). Job strain as risk factor for leisure-time physical inactivity: An individual participant meta-analysis of up to 170,000 men and women. *American Journal of Epidemiology*, 176(12), 1078–1089.
- Gassman-Pines, A. (2011). Low-income mothers' nighttime and weekend work: Daily associations with child behavior, mother-child interactions, and mood. *Family Relations*, 60(1), 15–29.
- Gifkins, J., Johnston, A., Loudoun, R., & Troth, A. (2020). Fatigue and recovery in shiftworking nurses: A scoping literature review. *International Journal of Nursing Studies*, 112, 103710.
- Härmä, M., Sallinen, M., Ranta, R., Mutanen, P., & Muller, K. (2002). The effect of irregular shift system on sleepiness at work in train drivers and railway traffic controllers. *The Journal of Sleep Research*, 11(2), 141–151.
- Heath, G., Dorrian, J., & Coates, A. (2019). Associations between shift type, sleep, mood, and diet in a group of shift working nurses. *Scandinavian Journal of Work and Environmental Health*, 45(4), 402–412.
- Helldán, A., & Helakorpi, S. (2015). Health behaviour and health among the Finnish adult population, spring 2014. *National Institute for Health and Welfare. Reports*, 25, 140–141.
- Henly, J., & Lambert, S. (2014). Unpredictable work timing in retail jobs: Implications for employee work-life conflict. *Industrial & Labor Relations Review*, 67(3), 986–1016. <https://doi.org/10.1177/0019793914537458>
- Henly, J. L., Shaefer, H. L., & Waxman, W. (2006). Nonstandard work schedules: Employer- and employee-driven flexibility in retail jobs. *Social Service Review*, 80, 609–634.



- Hernandez, R., Pyatak, E. A., Vigen, C. L. P., Jin, H., Schneider, S., Spruijt-Metz, D., & Roll, S. C. (2021). Understanding worker well-being relative to high-workload and recovery activities across a whole day: Pilot testing an ecological momentary assessment technique. *International Journal of Environmental Research and Public Health*, *18*, 10354. <https://doi.org/10.3390/ijerph181910354>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288.
- Hulsegge, G., van Mechelen, W., Paagman, H., Proper, K. I., & Anema, J. R. (2020). The moderating role of lifestyle, age, and years working in shifts in the relationship between shift work and being overweight. *International Archives of Occupational and Environmental Health*, *93*(6), 697–705.
- Intille, S. S. (2012). Emerging technology for studying daily life. In M. R. Mehl & T. S. Conner (Eds.), *Handbook of research methods for studying daily life* (pp. 267–282). The Guilford Press.
- Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult? *Public Health*, *136*, 109–116.
- Kolbe-Alexander, T. L., Gomersall, S., Clark, B., Torquati, L., Pavey, T., & Brown, W. J. (2019). A hard day's night: Time use in shift workers. *BMC Public Health*, *19*(Suppl 2), 452.
- Loprinzi, P. D. (2015). The effects of shift work on free-living physical activity and sedentary behavior. *Preventive Medicine*, *76*, 43–47.
- Ma, C. C., Burchfiel, C. M., Fekedulegn, D., Andrew, M. E., Charles, L. E., Gu, J. K., Mnatsakanova, A., & Violanti, J. M. (2011). Association of shift work with physical activity among police officers: The Buffalo cardio-metabolic occupational police stress study. *Journal of Occupational and Environmental Medicine*, *53*(9), 1030–1036.
- Malinen, K., Rönkä, A., & Sevon, E. (2015). Mobile diary methods in studying daily family life. In Y. Zheng (Ed.), *Encyclopedia of Mobile phone behavior* (pp. 372–382). IGI Global.
- Marqueze, E. C., Ulhôa, M. A., & Moreno, C. R. (2013). Effects of irregular-shift work and physical activity on cardiovascular risk factors in truck drivers. *Revista de Saude Publica*, *47*(3), 497–505.
- Merkus, S. L., Holte, K. A., Huysmans, M. A., van Mechelen, W., & van der Beek, A. J. (2015). Nonstandard working schedules and health: The systematic search for a comprehensive model. *BMC Public Health*, *15*, 1084.
- Mills, M., & Täht, K. (2010). Non-standard work schedules and partnership quality: Quantitative and qualitative findings. *The Journal of Marriage and Family*, *72*(4), 860–875.
- Michel, A., Turgut, S., Hoppe, A., & Sonntag, K. (2016). Challenge and threat emotions as antecedents of recovery experiences: Findings from a diary study with blue-collar workers. *European Journal of Work and Organizational Psychology*, *25*(5), 674–689. <https://doi.org/10.1080/1359432X.2015.1128414>
- Monnaatsie, M., Biddle, S. J., Khan, S., & Kolbe-Alexander, T. (2021). Physical activity and sedentary behaviour in shift and non-shift workers: A systematic review and meta-analysis. *Preventive Medicine Reports*, *12*(24), 101597.
- Murtorinne-Lahtinen, M., Moilanen, S., Tammelin, M., Rönkä, A., & Laakso, M.-L. (2016). Mothers' non-standard working schedules and family time: Enhancing regularity and togetherness. *International Journal of Sociology and Social Policy*, *36*(1/2), 119–135. <https://doi.org/10.1108/IJSSP-02-2015-0022>
- Nordic Council of Ministers, *Nordic Nutrition Recommendations; Integrating nutrition and physical activity*. (2014). Norden, Narayana Press 2014:2.
- Nägel, I., & Sonnentag, S. (2013). Exercise and sleep predict personal resources in employees' daily lives. *Applied Psychology: Health and Well-Being*, *5*(3), 348–368. <https://doi.org/10.1111/aphw.12014>
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. An introduction and some practical recommendations. *Journal of Personnel Psychology*, *9*(2), 79–93.
- Presser, H. B., Gornick, J. C., & Parashar, S. (2008). Gender and nonstandard work hours in 12 European countries: Nonstandard work schedules, Europe. *Monthly Labor Review*, *131*(2), 83–103.
- Puttonen, S., Härmä, M., & Hublin, C. (2010). Shift work and cardiovascular disease: Pathways from circadian stress to morbidity. *Scandinavian Journal of Work, Environment & Health*, *36*(2), 96–108.
- Ragsdale, J. M., Beehr, T. A., Grebner, S., & Han, K. (2011). An integrated model of weekday stress and weekend recovery of students. *International Journal of Stress Management*, *18*(2), 153–180.
- Rook, J. W., & Zijlstra, F. R. (2006). The contribution of various activities to recovery. *European Journal of Work and Organizational Psychology*, *15*, 218–240.
- Ropponen, A., Vanttola, P., Koskinen, A., Hakola, T., Puttonen, S., & Härmä, M. (2017). Effects of modifications to the health and social sector's collective agreement on the objective characteristics of working hours. *Industrial Health*, *55*, 354–361.
- Rönkä, A., Malinen, K., Kinnunen, U., Tolvanen, A., & Lämsä, T. (2010). Capturing daily family dynamics via text messages: Development of the mobile diary. *Community, Work & Family*, *13*(1), 5–21.
- Rönkä, A., Ekonen, M., Tammelin, M., & Turja, L. (2018). Management in the 24/7-society raises concerns of fairness and social responsibility. *Social Responsibility Journal*, *14*(3), 670–684. <https://doi.org/10.1108/SRJ-06-2017-0100>
- Rönkä, A., Malinen, K., Sevon, E., Metsäpelto, R.-L., & May, V. (2017). Positive parenting and parenting stress among working mothers in Finland, the UK and The Netherlands: Do working time patterns matter? *Journal of Comparative Family Studies*, *2*, 175–196.
- Saksvik-Lehouillier, I., Bjorvatn, B., Hetland, H., Mjeldheim Sandal, G., Moen, B. E., Mageroy, N., Åkerstedt, T., & Pallesen, S. (2013). Individual, situational and lifestyle factors related to shift work tolerance among nurses who are new to and experienced in night work. *Journal of Advanced Nursing*, *69*(5), 1136–1146.
- Scott, J., & Judge, A. (2006). Insomnia, emotions, and job satisfaction: A multilevel study. *Journal of Management*, *32*(5), 622–645.
- Sonnentag, S., & Fritz, C. (2007). The recovery experience questionnaire: Development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology*, *12*(3), 204–221. <https://doi.org/10.1037/1076-8998.12.3.204>



- Sonnentag, S., & Zijlstra, F. (2006). Job characteristics and off-job activities as predictors of need for recovery, well-being, and fatigue. *Journal of Applied Psychology, 91*(2), 330–350.
- Statistics Finland. (2014, October 29). *Workforce research, untypical working times*. Personal information by Liisa Larja.
- Tammelin, M., Malinen, K., Rönkä, A., & Verhoef, M. (2017). Work schedules and work–family conflict among dual earners in Finland, The Netherlands, and the United Kingdom. *Journal of Family Issues, 38*(1), 3–24. <https://doi.org/10.1177/0192513X15585810>
- Tammelin, M., Mykkänen, J., Sevón, E., Murtorinne-Lahtinen, M., & Rönkä, A. (2019). Family time negotiations in the context of non-standard work schedules. *Families, Relationships and Societies, 8*(1), 121–136. <https://doi.org/10.1332/204674317X15034163282768>
- Wang, X., Ji, A., Zhu, Y., Liang, Z., Wu, J., Li, S., & Xie, L. (2015). A meta-analysis including dose-response relationship between night shift work and the risk of colorectal cancer. *Oncotarget, 6*(28), 25046–25060.
- Winkler, M. R., Mason, S., Laska, M. N., Christoph, M. J., & Neumark-Sztainer, D. (2018). Does non-standard work mean non-standard health? Exploring links between non-standard work schedules, health routines, and well-being. *Population Health, 4*, 135–143.

**How to cite this article:** Punna, M., Sihvonen, S., Aunola, K., & Rönkä, A. (2022). Daily moods, health routines and recovery among employees working in the retail and services sector: A diary study. *International Journal of Social Welfare, 1*–13. <https://doi.org/10.1111/ijsw.12564>