
Articles

Time Course of Well-Being after a Three-Week Resort-Based Respite from Occupational and Domestic Demands: Carry-Over, Contrast and Situation Effects

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The duration of improvements in well-being following vacation is an area of current debate. We investigated the time course of daily ratings of the restfulness of sleep, positive mood and physical ill-being following a three-week stay at a health resort. 133 female and 165 male Austrians with a mean age of 59.1 (range 31 to 75) years participated in the study. Mood and the quality of sleep improved during the stay. Following the stay, the restfulness of sleep showed a gradual decline during the 4-week observation period without reaching pre-*respite* levels. The level of positive mood dropped suddenly after coming home without showing any further changes. Ill-being showed a marked increase in the first week home followed by a decrease to an intermediate level. These response patterns are discussed in terms of carry-over, contrast and situation effects of well-being.

KEYWORDS: *Respite, well-being, health resort, adaptation, vacation, spa-therapy.*

Introduction

Vacation, a planned respite from work typically of 1 to 3 week duration, has been found to improve several aspects of well-being and quality of life. In one of the first studies on this issue, Lounsbury and Hoops (1986) found vacation to improve life satisfaction and some aspects of work satisfaction. A more recent study (Westman & Eden, 1997) showed that the removal of work stress for clerical employees was associated with a decrease of burnout during and after vacation. Strauss-Blasche, Ekmekcioglu, and Marktl (2000) found an improvement of several aspects of quality of life such as mood, quality of sleep and physical well-being for a two-week vacation. Improvements of well-being and quality of life are also predominant for resort-based respites such as spa-therapy (Constant, Guillemin, Collin, & Boulange, 1998; Strauss-Blasche, Ekmekcioglu, Klammer, & Marktl, 2000).

Several factors contributing to the beneficial effects of vacation have been identified. The decrease of burnout found by Westman and Eden (1997) was paralleled by a decrease of perceived occupational stress, indicating that the decrease of burnout is a reaction to the relief from these stressors. Correspondingly, Strauss-Blasche, Ekmekcioglu, and Marktl (2000) found vacationers engaged in domestic work during vacation to report less recuperation at the end of vacation than those resting. Also, the number of days spent away from home and the time individuals felt to have for themselves was positively associated with perceived recuperation. In leisure research, it has been proposed that leisure is associated with more social support and an enhanced perception of freedom and control, factors known to positively affect well-being, health and stress-coping (Coleman & Iso-Ahola, 1993; Iwasaki, Mannell, Smale, & Butcher, 2002). In addition, leisure can improve stress coping by distracting the individual from stress and by enhancing mood (Iwasaki & Mannell, 2000). Leisure also may buffer the impact of negative life events by aiding in the reconstruction of life stories and being a vehicle for personal transformation (Kleiber, Hutchinson, & Williams, 2002). Undoubtedly, these factors explain some of the positive effects of vacation on well-being and health. Furthermore, vacation satisfaction has been shown to moderate the effect of vacation, higher vacation satisfaction leading to greater post-vacation well-being (Lounsbury & Hoops, 1986; Westman & Eden, 1997). According to Lounsbury and Hoops (1985), global vacation satisfaction predominately is determined by satisfaction with sub-components of vacation, such as "relaxation and leisure" and "escape", but is also related to marriage and family satisfaction.

The duration of vacation effects is a current area of debate (Westman & Eden, 1997). The improvement in burnout observed during vacation by Westman and Eden (1997) declined rapidly, burnout levels 3-weeks after vacation being identical to those before vacation. In previous research on a two-week vacation of employees of a hardware manufacturing company, Strauss-Blasche, Ekmekcioglu and Marktl (2000) found that the vacation-related improvements of mood and quality of sleep had disappeared 5-weeks

after vacation, whereas subjects still reported fewer physical complaints compared to before vacation. Longer lasting effects have been found for residential spa-therapy, where several aspects of quality of life remained improved 12 months after a three week stay (Strauss-Blasche, Ekmekcioglu, Klammer, & Marktl., 2000), although there is evidence indicating that these effects may, in part, be the result of the spa-treatments received (Constant et al., 1998).

A crucial aspect of vacation is the necessity to adapt to a new situation. This is characterized by factors such as engagements that are not job-related, a social environment differing from the social environment at work or home, and novel geographical and climatic conditions. After vacation, re-adaptation to the home and work situation is necessary. Adaptation to the vacation situation can be understood in the context of the orientation—habituation paradigm (Stern & Sison, 1990). According to this model, the presentation of a novel stimuli will bring about a specific response in the individual associated among others with increased activation. Habituation is the response of the organism to a repeated exposure to the same stimulus, leading to a gradual decline in the response amplitude. A similar phenomenon is described as “novelty response” in animal research. Novel situations elicit psychophysiological stress reactions in animals (van den Buuse, Van Acker, Flutert, & De Kloet, 2001), but are also observed in humans (Hermida et al., 2002).

The re-adaptation to home can be understood in terms of Helson's (1948, 1964) adaptation-level theory. The model proposes that all judgments are made with respect to a frame of reference which is perpetually modified by present and past experiences. For example, individuals adapt perpetually to the current level of reinforcement. Changes in the level of reinforcement can subsequently be experienced as positive or negative, depending on whether the relative intensity of reinforcement increased or decreased. In this sense, the transition from a vacation environment with its presumably more prevalent positive experiences to one's everyday environment with potentially fewer positive incentives, should lead to a temporary decrease of well-being, until a re-adaptation of the frame of reference has occurred. In an experiment illustrating this hypothesis, Strack, Schwarz and Gschneidinger (1985) found that when reminiscing about past events, the hedonic quality of these events generally affected present well-being in an inverse direction, unless this provoked subjects to retrieve the past affective state. Following this line of argument, one could expect a gradual change of the reinforcement to bring about smaller changes in well-being than a sudden change of incentives, a hypothesis that has found empirical support, for example, in learning experiments (Quinsey, 1970).

Although a systematic investigation of these processes so far has not been conducted, studies indicate that moderate changes in environmental conditions initiated, for example, by travelling to a health resort lead to temporary increases in anxiety, blood pressure and physical complaints, which have been found to decline within a 3-day period (Feyertag, Strauss-

Blasche, Ekmekcioglu, Boettcher, & Marktl, 1999; Hildebrandt & Gutenbrunner, 1998). Similarly, tourists visiting a tropical island have been observed to decrease positive mood and increase physical complaints during the first three days of the stay, indicating an "environmental shock" for the primarily city-dwelling visitors (Pearce, 1981). Reactions to coming home from a several week vacation can be understood as re-adaptation to everyday life conditions. In a study on the interaction between occupational stress and vacation, we found that although prior to vacation occupational stress did not affect well-being, occupational stress did moderate well-being after vacation (Strauss-Blasche, Ekmekcioglu, & Marktl, 2002). After vacation, employees encountering high work-load showed significantly lower levels of well-being than employees experiencing low work-load. The study indicates that high post-vacation work load interferes with the potentially restful vacation effect, resulting in a decrease of well-being not found in employees encountering low workload after vacation. This result is in accordance with the predictions of Helson's (1964) adaptation-level theory.

In the present study, we were interested in furthering our understanding of the adaptation processes following vacation. To achieve this aim, we investigated the course of three well-being variables (positive mood, restfulness of sleep and ill-being) in the period after a three-week stay at a health resort, based on daily diary entries. The rationale for selecting these three variables is that well-being can be regarded as composite construct, based on, for example, positive and negative mood (Chamberlain, 1988). Whereas positive mood has been found to be related more strongly to external events (social participation, leisure), negative mood is affected more by internal factors (e.g. health; Clark & Watson, 1988). This also implies that positive mood should be more responsive to environmental change than negative mood. In this study with single-item variables, we assessed "mood" as measure of positive mood, and "ill-being" as correlate of negative mood. "Quality of sleep" was assessed as it is another correlate of mood and may show a greater sensitivity to long-term changes than mood itself (Pilcher, Ginter, & Sadowsky, 1997; Pilcher & Ott, 1998). The aim was to highlight the time course of the expected change of well-being and to investigate the response to coming home in terms of the adaptation-concept. Theoretically, three patterns of adaptation can occur.

(a) Carry-over Effect. A carry-over effect is present when improvements of well-being developed during the respite from everyday demands continue to persist after the end of the respite, but show a tendency to shift back to the initial level, as has been found in vacation and spa research (Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000; Strauss-Blasche, Ekmekcioglu, & Marktl, 2000; Westman & Eden, 1997). In vacation research, the gradual shifting back after the initial improvement and temporary persistence is an eminent part of the carry-over effect, as vacation is not assumed to lead to irreversible changes like, for example, surgery. Nevertheless, a carry-over effect can only be explained when presuming that the initial situation causes changes in some internal variables which continue over time, although not

irreversibly. In vacation, these changes could be a reframing of one's life aims leading to an increased sense of control and freedom (Coleman & Iso-Ahola, 1993), an elevated sense of social support and companionship (Coleman & Iso-Ahola, 1993; Iwasaki & Mannell, 2000) and an improvement of physiological homeostasis (Ekmekcioglu, Strauss-Blasche, Feyertag, Klammer, & Marktl, 2000; Hildebrandt & Gutenbrunner, 1998).

(b) Contrast Effect. We consider a contrast effect to be present, when the transition from vacation to everyday life is accompanied by a transient but marked change of well-being. A change of environment, assuming it is associated with a change of reference, should initially lead to an amplified reaction in that variable (e.g. well-being) that is dependent on the frame of reference. When the frame of reference has adapted, in relation to vacation, to the "novel" every-day situation at a later time-point, the magnitude of the variable will shift back to a level somewhere in-between the initial level and the amplified reaction. Assuming that vacation is appraised as a more desirable situation, this process should lead to an initial decrease of well-being following vacation when every-day life is cognitively contrasted with vacation (e.g. "compared to vacation, being home is less satisfying"), followed by a recovery on an intermediate level when the frame of reference has adapted to every-day life (e.g. "being home is okay and I enjoy thinking of my past vacation"). Although such an effect has not been measured previously, our study on the post-vacation reactions to stress suggests the possibility of a contrast effect (Strauss-Blasche, Ekmekcioglu, & Marktl, 2002).

(c) Situation Effect. A situation effect is present, when the level of well-being essentially reflects present situational characteristics without carry-over or contrast, as has been described in well-being research with discontinuous sampling (Chamberlain & Zika, 1992; Suh, Diener, & Fujita, 1996). The close association between perceived stress and burnout is also an example of a situation effect, the decrease of work-stress during vacation leading to an improvement of burnout, which is reversed back at work (Westman & Eden, 1997).

We hypothesize that the response of well-being can be described by one or more of the three models and that different aspects of well-being will follow different response-patterns. Responses may be superimposed upon each other, smaller short-term changes (such as a contrast effect) being superimposed on larger long-term changes (such as a situation effect). Therefore, two different time-frames (weekly versus three-day averages) were analyzed separately.

Those aspects of well-being which are more strongly related to situational characteristics such as positive mood (Chamberlain, 1988) are expected to show a situation effect, whereas more stable aspects of well-being such as perceived health (DeLongis, Folkman, & Lazarus, 1988) are expected to show a carry-over effect. A variable known both to reflect and affect well-being is the quality of sleep (Jean-Louis, Kripke, & Ancoli-Israel, 2000; Pilcher & Ott, 1998). Pilcher and Ott (1998) found average quality of sleep and well-being to be closely related in a longitudinal study—both average

quality of sleep and perceived health showed changes over-time, but mood did not. Therefore, we expect quality of sleep as a third correlate of well-being to have a response pattern intermediate between mood and perceived health. The occurrence of the contrast effect is presumed to depend on the time frame of observation. Mood, as the doubtlessly most responsive variable, is expected to show a contrast effect in a short term perspective, whereas ill-being and sleep are expected to show a contrast effect in the macro-perspective.

An understanding of these processes can be crucial for vacation providers if their intention is to prolong positive vacation effects for the individual in the post-vacation period. Specifically, the aim of vacation providers could be to avoid contrast effects and promote carry-over effects, thereby ensuring that positive effects of vacation on health and mood continue after the end of vacation.

Method

Subjects

Subjects were Austrians visiting a public health resort in Austria for the duration of three weeks. During their stay, they received spa therapy with the primary aim of sustaining their health. As spa therapy is paid for by public health insurance in Austria, all income groups are represented. Most subjects had minor to moderate musculoskeletal pain. 330 subjects participated in the study. Subjects were recruited by the spa-physicians asking all their patients undergoing the initial medical examination to participate in a diary-study on the course of well-being during spa-treatment. 147 were females and 183 males with a mean age of 59.4 ± 10.3 years (range 31 to 75).

Variables and Procedure

Subjects stayed at the health resort of Bad Gleichenberg, Austria, for 3 weeks and received spa therapy consisting of prescribed bathing, inhalations and mineral-water drinking regimes as well as different forms of physical therapy such as therapeutic ultrasound or exercise-therapy. Generally, subjects participating in spa-therapy are not accompanied by family or partner. For details on spa-therapy see Strauss-Blasche, Ekmekcioglu, Vacariu, et al. (2002). After a detailed briefing on the goals and requirements of the study, subjects received a diary to be filled out mornings and evenings assessing several medical and subjective variables such as time to bed, wake time, type of physical complaints, mood, etc. As the diary initially was created for the study of biological rhythms (Muhry, Moser, Lehofer, Hildebrandt, & Kenner, 1994), the selection of variables differs somewhat from the variables usually used in psychological research. Nevertheless, three of these variables reflecting aspects of well-being were used for the present study: a) the *restfulness of sleep* ("Was your sleep restful?"; German: "Fuehlen Sie sich ausgeschlafen?") scaled in the morning using the categories (1) very restful, (2) moderately

restful and (3) not restful; b) *mood* ("How was your mood today?"; German: "Wie war Ihre Stimmung heute?") scaled in the evening using the categories (1) very good, (2) good, (3) average, (4) subdued and (5) bad; and c) *feeling ill* ("Do you feel ill?"; German: "Fuehlen sie sich krank?") scaled in the evening using the categories (1) no, (2) a little (3) badly. The mean, SD and skewness of three variables based on the post adaptation baseline are as follows: sleep: 1.58 ± 0.4 , 0.58; mood: 2.21 ± 0.6 , 0.58; ill-being: 1.3 ± 0.4 , 1.5. Subjects started to fill out the diary on the first day of their stay (day 1, the day after arrival to the spa resort) and were asked to continue the task for 3 months following their stay. The last day of spa therapy (day 20, the day before departure) was omitted because of preparatory stress. The observation period ended on day 104. The time span of the study was 2 years, seasons being equally represented to avoid seasonal effects found previously (Strauss-Blasche, Ekmekcioglu, Leibetseder, Melchart, & Markt, 2002).

Analyses

For variance analysis three groups of subjects were distinguished in regard to the day of the week they came home from the health resort: individuals arriving Monday through Wednesday ($n=145$), individuals arriving Thursday through Saturday ($n=73$) and individuals arriving Sunday ($n=112$). The reason for this distinction is the known effect of the day of the week on mood, mood tending to be better at the end of the week (Reid, Towell, & Golding, 2000). The construction of these categories is based on the unequal distribution of departure from the health resort, percentages of departure being Monday (10.1%), Tuesday (6.7%), Wednesday (27.2%), Thursday (19.5%), Friday (3%), Saturday (0.3%) and Sunday (33.2%). For the analysis on a macro-perspective level, consecutive weekly averages of the daily measures were calculated. Week 1 was the first week of resort life. A "post-adaptation baseline" was defined as the average of the 4 last week of the observation period (9-12 weeks after return from the health resort). For the analysis of the micro-perspective, consecutive averages over three-day periods were calculated. The one before last three day period of resort life was numbered "1", the last three day period of resort life "2", the first three day period home "3" etc. To analyze differences between weeks, MANOVAS for repeated measures were calculated for the three dependent variables. To analyze the differences between the 3-day periods, MANOVAS for repeated measures with the time of week individuals returned home as factor were calculated for the three dependent variables.

Table 1 illustrates the criteria for the three hypothesized adaptation process patterns. We assume a carry-over effect to be present when the variable mirroring the adaptation process does not show an immediate significant change from the health resort to the home situation, but rather shows a gradual change operationalized as a significant change to a later time point, the post adaptation baseline, a time when the adaptation process is considered to have terminated. A contrast effect is operationalized as a sig-

TABLE 1
Criteria Operationalizing Adaptation Process Patterns

	Statistical Comparisons		
	Pre-post1	Post1-post2	Pre-post2
carry-over effect	non significant	significant	significant
contrast-effect	significant	significant	not a criterion
situation-effect	significant	non significant	significant

“Pre” refers to the last week (macro-perspective) or days (micro-perspective) of the respite, “post1” refers to the week (macro-perspective) or days (micro-perspective) immediately following the respite and “post 2” to the post-adaptation period (average of weeks 9-12 after the stay). “Significant” and “non significant” refer to the statistical difference between the well-being measures at the times indicated.

nificant initial change when confronted with the novel situation followed by a significant shift back towards the initial level (“rebound”). The situation effect is characterized by an immediate significant change which is sustained, a latter change not being apparent. These adaptation process patterns are tested for successive weeks (“macro-perspective”) and for successive 3-day intervals (“micro-perspective”).

Results

Macro-Perspective

The weekly averages of the three outcome measures are illustrated in Figure 1. The differences between weeks were analyzed by MANOVA for

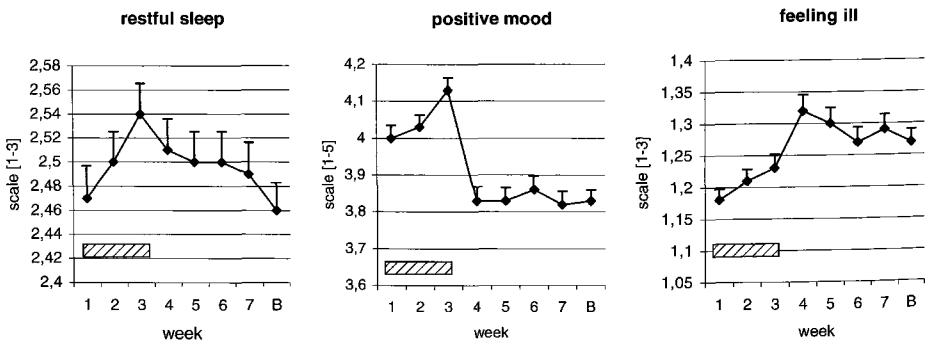


Figure 1. (macro analysis): Weekly averages (and SEM) of well-being during (weeks 1-3) and after the stay at a health resort. “B” refers to the post-adaptation baseline (average of weeks 9-12 after the stay). The hatched bar indicates the weeks at the health resort.

repeated measures (Table 2 & 3). Prior to testing for adaptation patterns, the change of the three well-being variables during residential spa-therapy was analyzed. Positive mood and the restfulness of sleep increased during the stay at the health resort (Table 2 & Figure 1). In addition, illness complaints also showed a slight increase.

In regard to the adaptation process initiated by coming home, positive mood decreased significantly in the first week after resort life and did not show any further changes, the average of the first week home being essentially the same as the post adaptation baseline (Table 2 & Figure 1). This pattern can be understood as situation effect. The restfulness of sleep, on the other hand, was not significantly different in the first week at home versus in the last week at the health resort, but showed a gradual decrease over time, illustrated by the significant difference between the first week

TABLE 2
MANOVA Statistics for Comparison of Weeks (Macro Perspective)

Comparison Weeks	1-3		Pre-post 3-4		Post1-post2 4-base		Pre-post2 3-base	
	F(1;329)	P	F(1;329)	P	F(1;329)	P	F(1;329)	P
Mood	13.4	.001	60.0	.001	0.1	N.s.	61.1	.001
Sleep	7.4	.007	3.6	N.s.	4.3	.04	15.0	.001
Feeling ill	4.6	.03	21.4	.001	5.7	.02	4.3	.04

Week 1 refers to the first week of spa-therapy, week 3 to the last week of the stay, week 4 to the first week home and "base" to the average of weeks 9-12 after the stay.

TABLE 3
MANOVA Statistics for Comparison of 3-day Averages (Micro Perspective)

Comparison 3-day averages	Pre-post1a 2-3		Post1a-post1b 3-4		Post1b-post2 4-base	
	F(1;326)	p	F(1;326)	p	F(1;326)	p
mood	30.5	.001	5.9	.02	0.8	n.s.
sleep	1.7	n.s.	1.8	n.s.	3.0	n.s.
feeling ill	11.6	.001	1.0	n.s.	6.3	.01
time*weekday	F(2;326)	p	F(2;326)	p	F(2;326)	p
mood	3.9	.02	5.4	.005	1.7	n.s.
sleep	0.2	n.s.	0.5	n.s.	0.3	n.s.
feeling ill	2.1	n.s.	1.1	n.s.	0.2	n.s.

"Time" refers to the main effect of time, "time*weekday" to the interaction between time and the day of the week of arrival. Day₂ is the last three-day period at the resort, day₂3 the first 3-day period at home, days₃4 the second 3-day period at home and base the the average of weeks 9-12 after the stay.

home and the post adaptation baseline and the significant difference between the last week of resort life and post adaptation baseline (Table 2 & Figure 1). Therefore, the time course of the restfulness of sleep can be said to represent a carry-over effect. A different pattern is apparent for feeling ill. Feeling ill increased significantly in the first week coming home, but decreased again to the post adaptation baseline, thereby resembling a contrast effect.

Micro-Perspective

To study the short-term variations of well-being immediately following the end of resort life, differences between three successive 3-day averages as well as between the second 3-day post resort period and the post adaptation baseline were analyzed by MANOVA for repeated measures (Table 3). In addition, the effect of the day of the week subjects returned home was analyzed. The short term changes are illustrated in Figure 2. The three day averages are numbered consecutively, starting with day₃1.

Subjects showed a marked decrease of positive mood from day₃2 to day₃3 (Table 3 & Figure 2). This decrease continued to day₃4 and then leveled off, failing to show any further changes. The decrease of positive mood was moderated by the day of the week subjects returned home, both from day₃2 to day₃3 and from day₃3 to day₃4, as illustrated in Figure 2. Between day₃2 and day₃3 the greatest decrease occurred for subjects returning home on Monday to Wednesday, subjects returning Thursday through Saturday showing an attenuated decrease. Sunday returnees showed an intermediate decrease of positive mood. Between day₃3 and day₃4, mood decrease continued for Thursday through Sunday returnees, but not for Monday through Wednesday returnees, whose mood improved again.

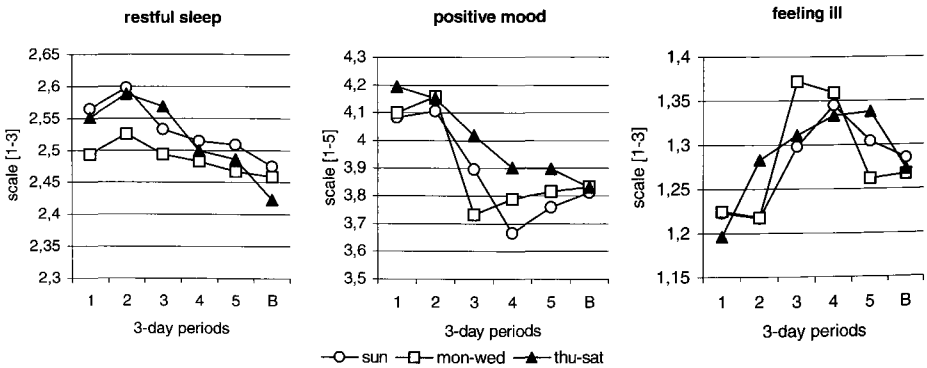


Figure 2. (micro analysis): 3-day averages of well-being at the end (day 1 and 2) and after the stay at the health resort (day 3-5 and B) for subjects returning home at different days of the week. "B" refers to the post-adaptation baseline (average of weeks 9-12 after the stay). The hatched bar indicates the time at the health resort.

The restfulness of sleep did not change during the observed 3-day periods, nor did the time of week or age affect changes (Table 3 & Figure 2). Feeling ill increased from day₂ to day₃, remained at the same level for the next 3 days and then decreased to post adaptation baseline. These changes were not moderated by the time of week subjects returned home.

Discussion

Vacation, especially stays at a health resort, are found to have a beneficial effect on measures of well-being and quality of life (Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000; Strauss-Blasche, Ekmekcioglu, & Marktl, 2000; Westman & Eden, 1997). The aim of the present study was to investigate the expected decline-pattern of these improvements in the time after the end of the respite. The change of well-being after vacation is understood as a result of re-adapting to everyday life. Knowledge of these patterns not only highlight the process of psychological adaptation to minor changes in the every-day environment but may also enable vacationers and vacation providers to minimize potential stress when coming home from holidays. A way to do this would be, for example, to plan a gradual rather than a sudden increase of work-load after vacation, as supported by the findings of the present study.

It is important to point out that the daily ratings used in the present study do not necessarily assess the same aspect of well-being as aggregated scales (Diener, 1991). Daily measures are more sensitive to short term changes than aggregate measures, which will tap a more global perspective, thereby possibly being more sensitive to long-term effects.

We chose to study the course of well-being after a three week stay at a health resort, where individuals received various forms of balneotherapy (that is therapy using natural remedies such as mud baths, CO₂-baths, or thermal water baths for healing proposes) as the effects of this kind of "vacation", officially regarded as sick-leave in most European countries, have been found to improve well-being on a long term scale (Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000). In the present study, mood and the restfulness of sleep improved during the three week stay at the resort, a finding which is in agreement with prior research (Hildebrandt & Gutenbrunner, 1998; Hildebrandt & Lammert, 1986; Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000). In addition, unexpectedly, the extent of feeling ill also slightly increased during the stay. This result is in contrast to the usually found decrease of physical complaints during spa-therapy and vacation (Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000; Strauss-Blasche, Ekmekcioglu, & Marktl, 2000), but may be explained by the temporarily increased susceptibility for infectious diseases such as the common cold, a known reaction to balneotherapy (Muhry, Hildebrandt, Moser, Lehofer & Kenner, 1994).

In the time following the stay at the health resort, all three hypothesized patterns of well-being change were observed. The restfulness of sleep showed

a carry-over effect, the improvement gained during the stay persisting in the weeks following the respite, although a slow decline was apparent. The improvement of sleep during the respite and the gradual deterioration implies that the stay at the health resort led to some enduring change within the individuals which slowly decayed over time. The pattern is similar to the decrease pattern found for other physical and mental well-being variables after spa therapy and therefore may reflect a treatment specific effect (Constant et al., 1998; Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000). Several studies have found the quality of sleep to be related to pain, so the slow deterioration of the quality of sleep may reflect a gradual renewed increase of pain after initial pain improvement (Haythornthwaite, Hegel, & Kerns, 1991; Widerstrom-Noga, Felipe-Cuervo, & Yezierski, 2001), although pain intensity has not been found to be related to day-time sleepiness, a variable similar to the one measured in the present study (Menefee et al., 2000). An alternative explanation is that the gradual deterioration of the restfulness of sleep reflects a gradual shifting back of negative mood to pre-resort levels which has been observed in the post-vacation period (Strauss-Blasche, Ekmekcioglu, & Marktl, 2000). The improvement of negative mood is possibly less sensitive to situational change than for example positive mood and therefore will be more enduring (Clark & Watson, 1988; Diener, Larsen, & Emmons, 1984; Frijda, 1988).

Feeling ill, on the other hand, showed a clear contrast effect. After the respite, ill-being showed an abrupt increase followed by a renewed decrease. This kind of pattern would be expected on the basis of Helson's adaptation-level theory (1964). Subjects adapted to the enjoyable environment of the health resort initially should react strongly to the relative deprivation of reinforcement presumably experienced at home. Helson's theory, though, does not explain why the shift from a presumably enjoyable environment to a presumably less enjoyable environment should affect physical health. One explanation is that the higher levels of feeling ill are brought about by negative mood, which has been suggested to predispose one to experiencing and reporting more physical complaints (Clark & Watson, 1988; Watson & Pennebaker, 1989; Zillmann, de Wied, King-Jablonski, & Jenzowsky, 1996). An alternative explanation is that the increase of feeling ill is a delayed effect of the spa-treatment received at the resort (Hildebrandt & Gutenbrunner, 1998).

The third studied aspect of well-being was mood. On a macro-perspective, the change of mood resembled a situation effect. Mood levels were higher during the stay at the health resort than at home, without further changes in the weeks following the respite. This result is in agreement with the result of Westman and Eden (1997) showing that burnout essentially reflected the level of perceived work-stress before, during and after vacation. The situational determination of mood is well known, positive events such as vacation or social interaction increasing happiness, whereas negative, stressful situations inversely affecting subjective well-being (Chamberlain & Zika, 1992; Clark & Watson, 1988; DeLongis et al., 1988). On the other hand,

carry-over effects of vacation on mood also have been observed, the improvement of mood continuing for some time after the termination of vacation or spa-therapy (Strauss-Blasche, Ekmekcioglu, Klammer et al., 2000; Strauss-Blasche, Ekmekcioglu, & Marktl, 2000). The apparent contradiction between these and the present results presumably is due to the different types of mood-measure used, the present study using a single-item daily rating, whereas the studies finding a carry-over effect used multi-item scale measures of mood possibly being more sensitive to long-term change.

On a micro-perspective, on the other hand, the change of mood resembled a contrast effect, as the first days at home were associated with the worst mood, mood improving again slightly in the following days. The effect was more pronounced in Sunday returnees than in Monday through Wednesday returnees and was not apparent in Thursday through Saturday returnees. This finding suggests that the mood dipping following the respite was greatest for individuals who had a full working week ahead of them, whereas it was smallest for individuals anticipating a weekend. This pattern corresponds to the weekly mood variations found in some (Larsen & Kasimatis, 1990; Reid, Towell, & Golding, 2000; Stone, Hedges, Neale, & Satin, 1985), but not all studies (Clark & Watson, 1988). In these studies, mood is reported to be better during the end of the week and worse at the beginning, indicating a similar anticipatory effect of positive events on mood.

The three different measures of well-being used in this study obviously follow contrary response patterns, indicating that they may reflect basically different aspects of well-being. For example, a distinction between positive and negative aspects of well-being is widely acknowledged, negative affect being associated more with poor mental and physical health, whereas positive affect with social support and social activities (Chamberlain, 1988; Diener, 1984). Mood and the quality of sleep follow the most discrepant pattern in this study. Although these variables have been found to be closely interrelated (Pilcher et al., 1997; Pilcher & Ott, 1998), long term changes in sleep also have been observed to be unrelated to mood (Pilcher & Ott, 1998), indicating that the quality of sleep may indeed reflect a distinct aspect of well-being. An unexpected fact is that health complaints in terms of feeling ill, rather than mood, showed the strongest and most enduring reaction to coming home from the resort. A similar result has been found for the occurrence of daily hassles. DeLongis et al. (1988) found that daily hassles affected physical well-being both the same day and the day following the hassle, while mood only showed a reaction on the same day, increasing to a level above average the day after the hassle. This indicates that mood oscillations are psychologically regulated more tightly than oscillations of physical well-being, which is in accordance with the adaptation-theory of well-being (Allison, Locker, & Feine, 1997; Helson, 1964; Heyink, 1993). It states that severe changes of subjective well-being are counteracted by a shifting of the frame of reference, for example, by not comparing one's present situation with one's past situation, but rather with other people in similar circumstances, thereby reevaluating one's situation and normalizing one's well-

being. This cognitive strategy is known as social or downward comparison (Lyubomirsky, 2001).

The present study has some limitations that require comment. Even though the variables were chosen to tap different aspects of well-being, an additional assessment of measures such as physical complaints or negative mood may have helped to further the understanding of the observed response patterns. Additional measures of well-being will have to be monitored in future studies to clearly describe the different response patterns of well-being. Another limitation is the skewed distribution of the well-being measures, all tending toward the positive side of the scale, which, although still within the statistically acceptable boundaries (<2; Miles & Shevlin, 2001), may have reduced the sensitivity of the measures to change. In future studies, composite measures or measures with a greater scale range (e.g. 1-10) should be used.

In conclusion, the change of well-being following a three week resort-based respite corresponded to three distinct patterns: the quality of sleep showed a gradual decline illustrating a carry-over effect, whereas feeling-ill showed an initial increase followed by a recovery at an intermediate level illustrating a contrast-effect. Daily mood was essentially determined by the situation, being more positive during the respite and worse back home, although a small short term contrast-effect, mediated by the day of the week subjects returned, was apparent.

The implications for vacationers and vacation-providers, although tentative, are the following: (1) well-being generally improves during resort-based vacation; (2) to avoid a transient decrease of well-being after longer vacations, vacationers should have the prospect of a weekend at home following their stay. Coming home to a high workload situation may negatively interfere with the positive vacation effects; (3) vacation "feels good"; mood is generally better during vacation than at home; (4) improvements of some aspects of subjective health such as quality of sleep achieved during vacation are likely to persist after vacation for at least several weeks. This may be the basis for the reported health benefits of vacation.

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