

Stress management through workplace coaching: The impact of learning experiences

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Abstract

The purpose of the present study is to investigate how learning experiences acquired through workplace coaching may affect stress. I identify two main learning experiences in the coaching process, insight and planning skills, and propose that these affect stress directly and also indirectly through mediators' job demand, job control, and social support. A within-subject, longitudinal design is applied, with 56 persons receiving coaching from professional, external coaches. Data was collected at three points in time: baseline (before coaching), after a three-month period of coaching, and a follow-up nine months later. The results show that planning skills acquired through coaching reduce stress in the short term, and that the effect is mediated through a decrease in job demand. The decrease in job demand is further shown to reduce stress in the long term. Insight as a coaching outcome is not directly related to stress; however, insight affects social support, which in turn is associated with reduced stress in the long term.

Key words: workplace coaching, stress management, self-regulation, learning experiences

Introduction

Workplace stress has for a long time been considered as a major work environment problem in organizations (Cox et al., 2000). Many scholars point to the fact that modern work-life, with frequent organizational restructurings, technological changes, and stronger competition, places increasing challenges on employees that may cause stress (Avey et al., 2009). Furthermore, the development of new values in management, such as empowerment and self-management, is a sign of increased decentralization and more freedom, but also more responsibilities on employees for the work environment as well as for managing their career life (Frayse and Geringer, 2000; Frese and Fay, 2001; Raabe et al., 2007; Hall, 2004). Thus, stressful work environments together with increased demands for self-management on employees may promote a stronger need for individual self-management and coping tools. Workplace coaching is a method for learning and development that may respond to these needs. The purpose of workplace coaching is to help individuals to set job-related goals, identify and implement adequate behavioural strategies to accomplish these goals, and provide feed-back and evaluation of the progress towards the goals (Grant, 2006). This may include the development of skills to respond adequately to stressful work environments, and to reduce work-related stress.

The objective of the present study is to investigate whether workplace coaching provided by external coaches may enhance individual stress management abilities, and reduce perceived stress. Drawing on the transactional theory of stress (Lazarus and Folkman, 1984), stress is modelled as the psychological outcome of an interactive process between the individual and the work environment. In the following, I describe how workplace coaching may have impact on the stress process, through learning experiences and self-regulation (Cameron and Leventhal, 2003; Vancouver and Day, 2005). I

further develop and test hypotheses on how the learning experiences may affect stress, both directly and indirectly through specific work environment variables. The paper concludes with a discussion of the theoretical and practical implications of the findings, with a particular focus on the potential usefulness of workplace coaching as a tool for learning and development of individual stress management abilities.

Theory

The transactional model of stress

There is a significant amount of research into stress and coping (e.g. Avey et al., 2009; Shimazu et al., 2005). The transactional model of stress and coping addresses the stress process as an ongoing relationship between the individual and the environment, where individual perceptions and interpretations of the immediate environments play a central role in creating psychological stress (Edwards, 1992; Lazarus and Folkman, 1984). Stress occurs when the perceived demands in the work environment (stressors) exceed the person's perceived resources over time (Lazarus, 1990). According to transactional theory, the consequences of work stressors will differ between individuals, as they are mediated by two subjective elements: appraisals and coping. First, the work environments are interpreted and evaluated by the individual, based on own values and beliefs. This is called primary appraisal, and the results of the appraisal will differ between individuals, as some will interpret the work environments as more demanding and negative than others. Second, individuals will search for and evaluate personal resources and strengths to cope with the stressful environments; this is called the secondary appraisal. Subsequently, based on these appraisals, the individual will choose a strategy for coping. A central assumption in transactional theory is that the process is recursive, such that the coping activities and the resulting psychological stress will feed back to the appraisal processes, and change the perceptions of both the environments and the individual resources. Consequently, time is an important factor in the theory, as perceptions and evaluations of the work environment – and thereby stress – may change as a result of coping efforts over time (Edwards, 1992; Lazarus, 1990).

The transactional model of how stress occurs may also be applied to explore how stress can be managed and reduced. Workplace coaching may have impact on all three elements in the stress process, as the aim of coaching is to raise the coachee's personal awareness of the current situation (primary appraisal), facilitate the identification of personal resources that can be utilized to move towards goals (secondary appraisal), and develop action plans, evaluation and feed-back mechanisms to enhance goal attainment (coping strategies) (Green et al., 2007).

Coaching and stress

In this paper, I draw on self-regulation theory to explore how coaching may have impact on stress, through a learning process (Raabe et al., 2007; Vancouver and Day, 2005). Several scholars have used self-regulation theory as the underlying model for the learning process in coaching (Grant et al., 2009; Green et al., 2007; Spence et al., 2008). Raabe and colleagues model the learning process as consisting of three factors: goal commitment, plan quality, and self-knowledge, the latter labelled insight (Raabe et al., 2007, p. 299). Self-regulation is proposed to be promoted through monitoring action, evaluating progress, and modifying action steps, goals or plans (Grant et al., 2009).

Self-knowledge, insight and awareness are reported to be central learning experiences in the coaching process in several recent studies (Grant et al., 2009; Green et al., 2007; Spence et al., 2008). I propose that in workplace coaching, awareness and insight gained through coaching will be related to perceptions of the immediate work environment as well as to own resources and strengths. Further, the continuing process of action planning, monitoring, evaluation and modifying action steps in

coaching (Grant, et al., 2009) are proposed to increase the coachee's planning skills as a learning experience for goal attainment.

Thus, the learning outcomes from coaching that are addressed here are insight and planning skills. These are proposed to affect the stress process directly, as better insight and planning skills may lower the discrepancy between perceived demands in the work environments and perceived resources (Lazarus, 2000). There is some empirical evidence of how workplace coaching may affect work-related stress. For example, in a study of 15 managers who received coaching for one year, participants reported that the coaching had increased their stress management abilities, improved work-life balance, and reduced psychological stress (Wales, 2003). However, other findings are mixed. Gyllensten and Palmer (2005) found that there were no significant differences in stress level between the coaching group and the control group after coaching, although the participants who received coaching reported lower levels of stress in a qualitative follow-up study. A similar finding was reported by Grant and colleagues (2009) in a study of executive coaching, where one group had lower levels of stress after coaching while another had not. Self-reported effects are, however, reported in quite a number of studies (e.g. Wales, 2003). One explanation for the inconsistent findings regarding stress may be that there are individual differences in learning experiences from coaching, and this is the assumption underlying the present study. Thus, I propose that individuals with strong learning experiences from the coaching process will benefit more from stress reduction. Hence the following hypothesis:

Hypothesis 1

Learning experiences from workplace coaching, insight and planning skills, are associated with a decrease in psychological stress, such that the stronger the learning experiences an individual perceives from the coaching, the larger the reduction in stress.

Coaching and the work environment

The learning experiences from coaching may also affect stressors in the work environment, and thereby reduce stress. It is suggested that increased insight and planning skills from coaching will alter the subjective appraisals of stressors and coping resources. This means that the coachee will perceive the work environment as less demanding after coaching, have more awareness of own strengths to cope with stress, and be more able to act effectively to reduce the negative impact of stressors in the environment. The aspects of the work environment that is included in the present study are three variables that have shown to affect stress, namely job demand, job control and social support.

Within the literature on stress, job demand is a stressor that has been shown to persistently affect psychological stress across theoretical perspectives (Häusser et al., 2010). Job demand is conceptualized mostly as perceived work overload, which causes stress, e.g., through constant time pressure and deadlines (Cooper et al., 2001). The learning outcomes from coaching may affect the subjective appraisal of job demand, and there is some empirical evidence that supports a similar relationship. For example, it has been found that executive coaching enhanced performance psychology variables, such as self-efficacy and self-determination (Moen and Allgood, 2009; Moen and Skaalvik, 2009). Similar reported outcomes of cognitive processes are increased self-confidence (Leedham, 2005) and assertiveness (Wales, 2003). Furthermore, Hall et al. (1999) reported that managers felt able to accomplish things after coaching that they could not do before, both as a result of increased self-confidence and the acquisition of new skills. These results indicate that a coaching outcome may be that the job is appraised as less demanding compared to own coping by the coachee. Hence the following hypothesis:

Hypothesis 2

Insight and planning skills as learning experiences from coaching will be associated with lower perceived job demand, such that individuals with strong learning experiences from coaching will have a greater decrease in job demand after a period of coaching than those with weak learning experiences.

Two variables indicating personal resources that are appraised in the second stage of the stress process are job control and social support. There is substantial empirical support that stress is reduced when job control and social support increases (Bakker et al., 2004; Karasek, 1979; Van der Doef and Maes, 1999). Job control is considered as a resource in the transactional model of stress, where individual coping efforts include attempts to increase job control or to better utilize the actual possibilities of control. The processes of gaining more self-confidence, defining own goals, and the direction to reach them allow an employee to gain more control over his or her immediate job conditions. Wales (2003) reported in her study that coachees had stronger feelings of choice and were able to be more assertive and had more conviction in discussions, which are feelings of greater control and ability to gain influence. Hence, the following hypothesis:

Hypothesis 3

Insight and planning skills as learning experiences from coaching are associated with perceived job control, such that individuals with strong learning experiences from coaching have a larger increase in perceived job control after a period of coaching than those with weak learning experiences.

Social support is also considered to be a major coping resource in transactional theory (Lazarus, 1990, p. 4). Social support from supervisors and colleagues is frequently reported to be negatively associated with stress (Bakker et al., 2004; Beehr et al., 2000; Peterson et al., 2008; Scheck and Kinicki, 2000; Searle et al., 1999). Thus, we may expect that not only will individuals with strong social support be better able to cope with stressful work environments, but effective coping strategies may also result in increased social support from supervisors and colleagues. Several authors have found effects of coaching on social support. In a study of 12 managers who completed a coaching programme, the participants reported that they more actively engaged their colleagues in giving feedback, discussing ideas for improvements, and increasingly included others in teamwork (Bush, 2004). Moen and Skaalvik (2009) found that coaching increased the participants' relatedness, defined as the connectedness and attachment to other people. This gives rise to the following hypothesis:

Hypothesis 4

Insight and planning skills as learning experiences from coaching are associated with perceived social support, such that individuals with strong learning experiences from coaching have a larger increase in perceived social support after a period of coaching than those with weak learning experiences.

All the above hypotheses concern the effects of insight and planning skills on work environment variables that are supposed to be related to stress. Thus, if coaching does affect perceived job demand, job control and social support, we should expect stress to decrease as a consequence of the changes in the work environment. Hence, the following hypothesis:

Hypothesis 5

The changes in job demand, job control, and social support after a period of coaching will be associated with a change in stress level, such that individuals with a large decrease in job demand, and increases in job control and social support, will have a larger decrease in stress level than those who do not experience these changes.

To sum up, hypothesis 2-5 suggest that insight and planning skills affect stress indirectly through affecting specific aspects of the work environments that have shown to be related to stress. Consequently, job demand, job control, and social support are also hypothesized to mediate the effects of learning outcomes on stress. Hence, the following hypothesis:

Hypothesis 6

The effects of learning experiences from coaching on stress are mediated by the work environment variables job demand, job control, and social support.

Method

Intervention design

The study took place in Norway and was funded by the Norwegian University of Life Sciences. Both the coaches and the coachees were Norwegian. The coaches were recruited from among coaches certified by the International Coaching Federation to ensure a minimum level and area of expertise and similar coaching approaches (Irwin and Morrow, 2005; Whitworth et al., 1998). All respondents received coaching over the same three-month period. Each coaching session lasted for about 45 minutes and each participant received between eight and 10 sessions.

A coaching agency recruited respondents using the following procedure. The agency contacted employers and offered 10 coaching hours over a three-month period for a number of employees at a very low price (625 Euros per person). A general offer for a three-month coaching programme that could help individuals manage work-related stress was announced. Participants volunteered for coaching and were free to define their own goals. The employers paid for the coaching sessions. I collected data at three points in time: at baseline (T1), after the three-months period of coaching (T2), and nine months after the last coaching session (T3)—i.e., one year after baseline.

Sample and procedure

Initially, 112 individuals volunteered to participate, and all 112 received a web-based questionnaire a week before the coaching sessions were due to start. This initial sample spanned 39 different firms from a variety of industries (e.g., tourism, health, transport, and education). All variables were measured at all three points in time, except for the two independent variables (insight and planning skills) that were measured only at T2, i.e., immediately after the coaching ended. At baseline, I received 107 completed questionnaires. At T2, after coaching, 98 completed questionnaires were returned. After deleting questionnaires that were missing from T1, the matched sample from T1 and T2 comprised 93 respondents. At T3, 64 individuals returned completed questionnaires, eight of whom did not answer at T1 and T2, resulting in 56 completed, matched questionnaires from all three periods. Based on the initial sample at baseline, this is a response rate of 50%.

Measures

All variables in the model were measured using established measurement instruments, and tested for validity and reliability in several earlier studies, except for insight and planning skills. These two variables were measured by items developed specifically for this study, by three statements each, with a response format ranging from 1 (not at all) to 10 (to a very large degree). All the six statements were formed in the following way: “Through coaching, I increased my ability to/insight into...” in order to explicitly ask for the learning experiences gained from coaching.

Insight was composed of three statements, based on earlier work on self-regulation (Raabe et al., 2007), where self-knowledge is defined as the source of insight. The three items comprised i)

insight into strengths and weaknesses, ii) self-esteem, and iii) insight into personal conditions for continuing own working life. The Chronbach's alpha reliability score for insight was .81.

Planning skills were also measured based on the theory of self-regulation, where plan quality is defined as a core element in the self-regulation process (Raabe et al., 2007). The three items included i) ability to plan my workdays, ii) creating new ways of organizing and planning, and iii) control over my life.

Job demand, job control, and social support were measured by using the QPS-Nordic instrument, designed to measure a wide range of job-related psychological and social factors (Dallner et al., 2000; Elo et al., 2001). A five-point Likert-type scale anchored at 1 (very seldom) to 5 (very often) was used for all the three work environment variables. *Job demand* was measured by four items that indicated aspects of quantitative workload. Chronbach's alpha was .75. *Job control* was measured by four items that indicated decision latitude, and the Chronbach's alpha was .85. *Social support* was measured with indicators of support from the supervisor (two items) and colleagues (three items), and the Chronbach's alpha was .70.

Stress was measured using the Bergen burnout indicator, an index of 25 statements (e.g., "I often sleep badly because of my work circumstances") based on the work of Maslach and Jackson (1981) and collapsed to form a unidimensional concept as an indicator of stress (Matthiesen, 2002; Matthiesen and Dyregrov, 1992; Nurmi et al., 2008). The response format was a seven-point Likert-type scale ranging from 1 ("completely disagree") to 7 ("completely agree"). The index had one item that was similar to one of the items in the job demand index, so I removed it. The resulting stress index included 24 items, and the Chronbach's alpha was .89.

Results

Sample characteristics

In the matched sample from all three periods, 33% of respondents were female and 67% male. In terms of working hours per week, 55% of respondents worked between 30 and 39 hours, 38% worked between 40 and 49 hours, and 7% worked more than 50 hours. The following analyses are based on the matched sample from all three periods (N = 56).

Dropout analysis

To investigate the effects of dropout of respondents between the periods, I did two analyses. I first compared the initial level of stress between participants who dropped out from T1 to T3 (N = 51) and those included in the final sample from all three periods (N = 56). A one-way ANOVA shows that the mean stress level is only slightly higher in the final sample (3.12, SD = .72) than in the baseline sample (3.35, SD = .75), and the difference is not significant. I further compared the mean change in level of stress between T1 and T2 between those who participated in all three periods (the final sample, N = 56) and those who only participated in the two first periods (N = 93), i.e., the dropouts between T2 and T3. The results from the ANOVA revealed no significant differences between these two groups regarding change in stress level. Thus, the dropout rate should not affect the subsequent analyses.

Table 1: Means, standard deviations and correlations

	Mean (SD)	Insight	Planning skills	JD T1	JD T2	JD T3	JC T1	JC T2	JC T3	SS T1	SS T2	SS T3	Stress T1	Stress T2
Insight	6.97 (1.75)													
Planning skills	6.64 (1.92)	.49**												
JD T1	3.67 (.80)	-.04	.21											
JD T2	3.46 (.65)	-.06	.02	.69**										
JD T3	3.50 (.72)	-.21	.17	-.41**	.48**									
JC T1	2.97 (1.00)	.01	-.00	.34*	.17	.14								
JC T2	3.10 (.98)	.14	.18	.08	-.14	.16	.70**							
JC T3	3.16 (.99)	.22†	.22	.20	-.08	-.11	.62**	.76**						
SS T1	3.49 (.87)	.06	.15	.30*	.03	.03	.40**	.12	.22					
SS T2	3.57 (.81)	.23†	.16	.12	-.01	-.09	.32*	.20	.37**	.65**				
SS T3	3.49 (.81)	.20	.21	.16	-.05	-.07	.23†	.36**	.47**	.37*	.61**			
Stress T1	3.35 (.75)	.23	.33*	.26†	.01	-.09	-.18	.02	.18	-.38**	-.23†	.06		
Stress T2	2.92 (.63)	.04	-.12	.06	.33*	.09	-.14	-.20	-.12	-.43**	-.49**	-.29*	.37**	
Stress T3	2.93 (.67)	-.16	-.12	-.07	.20	.28*	-.07	-.22†	-.42**	-.23†	-.42**	-.60**	-.06	.40**

† p<=.10 ** p < .05. *** p< .01.

JD=job demand, JC=job control, SS=social support

Analysis

The descriptives and correlation matrix of all measured variables at all three points of time are shown in Table 1. The table shows that the correlation between insight and planning skills is .49 ($p < .05$), which is quite strong, although not sufficiently strong to indicate multicollinearity. Nevertheless, the regression analysis will include multicollinearity diagnostics. All the other variables show satisfactory properties for regression analysis to be conducted.

The analyses started with a t test of the changes in the mean levels of stress. The mean level of stress (Stress 1) in the sample before coaching (T1) was 3.35 ($SD = .75$). After three months of coaching, the mean level of stress (Stress 2) was reduced to 2.92 ($SD = .63$). A paired samples t test of the differences in means between the two periods shows that the change in level of stress from T1 to T2 was significant, $p < 0.01$, $t(55) = 4.05$. I also conducted t tests of the differences in stress between T2 and T3, as well as between T1 and T3. The analysis showed that the mean level of stress nine months after the coaching had ended (Stress 3) was still significantly lower than before coaching (Stress 1), $p < 0.01$, $t(55) = 2.99$. However, there was no significant difference in stress level between T2 and T3. The result of this analysis is shown in Table 2.

Table 2: Means and paired sample t -tests of differences in levels of stress between times T1, T2, and T3 (N = 56)

Mean (SD) level T1, T2, and T3	Paired samples	t	p
Stress T1: 3.35 (.75)	T1–T2	4.06	.00
Stress T2: 2.92 (.63)	T1–T3	2.99	.00
Stress T3: 2.93 (.67)	T2–T3	-.11	.91

The results in Table 2 indicate that the mean level of stress in the sample decreased significantly after the period of coaching, and that the effect persisted nine months later. However, there is substantial variation between individuals regarding these effects. The maximum reduction in stress level after coaching was 2.16 points (on a scale from 1 to 7), and some of the respondents actually experienced increases in their stress levels between periods 1 and 2. The further analyses will investigate this variation through within-subject regression analysis.

Variable properties

The hypotheses suggest that changes in stress should occur between baseline (T1) and after three months of coaching (T2). I also test whether the reduced levels of stress persisted at T3. Because of the small sample size, path analysis with standardized variables was considered suitable for hypothesis testing (Alwin and Hauser, 1975). To prepare the data for analysis, I first created new variables as expressions of the change in individual scores on the variables job demand, job control, social support, and stress in the three periods. Thus, change in job demand (ChJD 1–2), change in job control (ChJC 1–2), change in social support (ChSS 1–2), and change in stress (ChStress 1–2) indicate the individual scores at T2 minus T1. This implies that a negative value on the difference score on stress implies a reduction in stress between period 1 and 2. I further created one variable indicating

the long-term change in stress, between T1 and T3 (ChStress 1–3). All these five variables were standardized before the analysis.

Direct effects of learning outcomes on stress

In this first step, I conducted a regression analysis of stress, both immediately after the three month-period of coaching had ended (T2) as well as nine months later (T3), on the learning experiences insight and planning skills. The results are shown in Table 3.

Table 3: Regression of learning experiences on stress

	ChStress T1–T2	ChStress T1–T3	
	β	β	VIF
Planning skills	–.39*	–.21	1.31
Insight	–.05	–.22	1.31
F	4.61**	3.54*	
Adj. R²	.14	.10	

* $p \leq .05$ ** $p \leq .01$

The results show that planning skills are significantly related to reduced stress after coaching (T2), but this effect is no longer significant at T3. Insight is not significantly related to change in stress in any of the two periods. However, Table 3 shows that insight is more strongly related to long-term changes than to short-term changes, because the coefficient increases and is closer to significant ($p = 0.17$) at T3. The table also shows that both models are significant, and that the models are weaker after nine months. Thus, hypothesis 1 is partly supported, i.e., it is supported for planning skills as a learning experience but not insight. The VIF scores for multicollinearity are 1.31, which are sufficiently low to not represent a threat to the results.

Learning outcomes and work environment

The next step was a regression analysis of the effects of insight and planning skills on changes in the three work environment variables, job demand, job control, and social support. I conducted three separate analyses, one for each dependent variable. The results are shown in Table 4.

Table 4 shows that increased planning skills are related to a significant reduction in job demand, but not to the other variables. Insight on the other hand, is (weakly) related to an increase in social support, but not to the other variables. Thus, hypotheses 2 and 4 are partly supported, while hypothesis 3 about increased job control is not supported. It is interesting that planning skills and insight are associated with different variables: planning skills affect job demand, while insight affects social support. In the regression analysis on the direct effects on stress (see Table 3), insight and planning skills also appeared to have different time perspectives in their effects, which further indicates that although these two learning experiences are strongly correlated, they do have different consequences.

Table 4: Regression of learning experiences on changes in work environment variables

	Change in job demand T1-T2	Change in job control T1-T2	Change in social support T1-T2
	. β	. β	. β
Planning skills	-.36*	.18	-.13
Insight	.19	.06	.27 [†]
F	2.43 [†]	1.03	1.30
Adj. R²	.06	.00	.01

[†] p <= .10 * p <= .05 ** p <= .01

Effects on stress from changes in the work environment

The third step in the analysis is to investigate how changes in job demand, job control, and social support are related to changes in stress after coaching. I conducted a regression analysis in two steps. Step 1 includes changes in stress from T1 to T2, and step 2 the changes in stress from T1 to T3. The results are shown in Table 5.

Table 5: Regression of changes in work environment variables on stress

	ChStress T1-T2	ChStress T1-T3
	. β	. β
ChJobdemand	.61**	.45**
ChJobcontrol	-.24*	-.29**
ChSocialsupport	-.35**	-.37**
F	16.80**	11.35**
Adj. R²	.47	.36

* p <= .05 ** p <= .01

The results in Table 5 show that the changes in the work environment variables after coaching are significantly related to changes in the stress level, both at T2 and nine months later (T3). This is supportive of hypothesis 5. Because job demand, job control, and social support in earlier studies have shown strong effects on stress, these relationships are not very surprising. However, as the present analysis does not include the absolute levels of job demand, job control and social support but only *changes* in these variables after coaching, this is an indication that insight and planning skills may affect stress indirectly, through variables in the work environment.

Job environment variables as mediators between coaching and stress

To further test whether the effects of learning experiences from coaching on stress are mediated by the changes in the work environment (hypothesis 6), I conducted a test for mediation, in line with the recommendations of Baron and Kenny (1986). According to these authors, three

conditions should be met to support a mediating relationship. First, the independent variable(s) must be associated significantly with the dependent variable. This was tested in the first regression analysis, and the results are shown in Table 3. The conclusion was that planning skills are related significantly and directly to changes in stress after coaching. Insight, however, was not directly related to stress level in any of the two periods. Second, the independent variable must be associated significantly with the mediating variable(s). The results from this test are displayed in Table 4, and show that planning skills are related to a decrease in job demand, and insight is related to increased social support. Thus, the second condition for mediation is supported partly. Finally, after the mediators are included in the analysis, the relationship between the independent and dependent variables should either disappear (full mediation) or significantly diminish (partial mediation). This third condition was tested in a regression analysis, where planning skills and insight, as well as the three moderators, were entered as independent variables, and changes in stress during both periods were the dependent variables. The analysis was conducted in two steps, one for each time period. The results are shown in Table 6.

Table 6: Regression analysis of mediating effects of job environment variables

	ChStress T1–T2	ChStress T1–T3	ChStress T1–T2	ChStress T1–T3
	. β	. β	β	. β
Direct effects:				
Planning skills	–.39*	–.21		
Insight	–.05	–.22		
Mediating effects:				
Planning skills			–.18	–.04
Insight			–.05	–.20
ChJobdemand T1–T2			.64**	.46
ChJobcontrol T1–T2			–.21†	–.28
ChSocialsupport T1–T2			–.41**	–.35
F	4.61**	3.54*	10.77**	6.14**
Adj. R ²	.14	.14	.52	.36

† $p \leq .10$ * $p \leq .05$ ** $p \leq .01$

We see from the table that the direct effect of planning skills on stress decreases when the mediators are entered into the analysis, and it is no longer significant. This indicates that the work environment variables are mediating the effects of planning skills on stress in the short term (T2), but not in the long term (T3). The effects of insight have not changed. This indicates partial support for hypothesis 6, as planning skills do have a significant association with stress after coaching, and this effect is mediated by reduced job demand and increased job control and social support. However, insight is not significantly associated with stress in this analysis.

Discussion

The purpose of this study was to investigate the impact of learning experiences acquired through coaching on stress and the processes through which stress occurs. The main proposition was that insight and planning skills will reduce stress, both directly and indirectly, by altering individual perceptions of job demand and job resources. The results indicate partial support for the hypotheses.

First, the mean level of stress was significantly reduced after coaching, although the change was small. Furthermore, the effect appeared to be persistent nine months later. There are many factors that may have impact on these individual variations in coaching outcomes, but learning experiences appear to be of some importance. Specifically, increased planning skills are significantly related to a short-term reduction in stress, and this relationship is mediated by decreased job demand. Insight, on the other hand, is not directly related to a reduction in stress, but indirectly related through an increase in social support. However, social support is not a mediator between insight and stress.

The results regarding the work environment variables also show that insight and planning skills are associated with different outcomes, as planning skills, but not insight, appear to be quite strongly associated with a reduction in job demand, and job demand is a moderator between planning skills and stress. This is a specifically interesting result, as job demand is found to be one of the most forceful stressors in stress research (Cox et al., 2000; Van der Doef and Maes, 1999; Van Vegchel et al., 2005).

Regarding insight, however, the results indicate that insight is related to increased social support after coaching, and the change in social support is associated with reduced stress, both in the short term and the long term. Although the results show no mediating effects, there may be additive effects. If increased insight into own strengths and weaknesses makes individuals better able to utilize social resources in their daily work, these resources may contribute to better stress management on a long-term basis. This illustrates the importance of having longitudinal data when investigating coaching outcomes. It is plausible to suggest that the primary outcomes of the learning processes in coaching are individual cognitive changes, and these changes have to be manifested in behavioural changes that must also be manifested in the immediate work environment if they are to be effective on a long-term basis. Thus, although the analysis did not indicate multicollinearity between insight and planning skills, the strong correlation between them (.49) may indicate that some of the effect from increased insight may work through increased planning skills, and that insight thus has indirect effects in the long term.

The lack of support for the hypotheses regarding the effects of insight may also have methodological explanations. First, the sample size is quite small and only sufficient to detect medium to large effect sizes (Cohen, 1977). As the effects of insight were weak, a large sample size may have shown different results. Further, the measurement of insight may be subject to discussion. As there are no established measures for this important learning experience from coaching, the measurement here was based on the theory of self-regulation (Raabe et al., 2007), and has not been cross-validated in other studies. Thus, further research on this concept should be conducted, as insight and awareness are core concepts in self-regulation theory. Specifically, the possible difference between self-knowledge and insight could be useful to explore.

In future studies, it would also be interesting to have more information about antecedents to individual differences in learning experiences through coaching. Anecdotal evidence through conversations with some of the coachees after the project had ended indicated that some of them did not get along very well with their coach. Although the coaches had similar education and a similar approach to coaching, there are certainly personal differences that will affect the coaching process. Furthermore, other individual differences between the individual coachees may be of importance. For example, Raabe et al. (2007) found that goal commitment plays a significant role in the self-regulation process, and commitment to learning is no doubt an important antecedent to learning outcomes.

When researching stress and coping, the question of initial levels of stress before interventions are introduced is important. Stress management interventions may be designed for clinical levels of stress, but coaching is directed at non-clinical populations. The respondents in this

study had quite high levels of stress, but they were not considered as clinical. We do not know if the findings here would apply for populations with other initial levels of stress.

Implications for theory and practice

Considering the magnitude of the stress problem in work organizations, it is important to gather evidence on the effectiveness of different stress management tools. Recent research on coaching and well-being shows promising results for the effects of coaching (Grant et al., 2009). It has long been argued that job redesign is a core issue for better stress management (Karasek, 1979; Landsbergis and Vivona-Vaughan, 1995), and coaching is a method that specifically focuses on the interaction between the individual and the work environment, and may therefore be a tool for long-term, sustainable changes at the individual level. The results presented here also indicate that workplace coaching may be effective in reducing stress, specifically for individuals that are able to acquire increased work planning skills through coaching. It further indicates that coaching produces changes in specific work characteristics that affect stress over a longer time perspective. This underscores the importance of individual job design in stress management, and suggests that coaching interventions may be designed with this specific objective in mind.

As several scholars are investigating the relationship between coaching and well-being, a closer look at antecedents to stress may be fruitful. The present study is a contribution to this research, as it combines the rich empirical evidence within stress research with coaching. A further pursuit of the learning and self-regulation processes in coaching, combined with stress theory, may give additional evidence for effective stress management strategies in the future.

The present results are also useful for managers seeking effective stress management tools for their organisation. As workplace coaching is a rather expensive intervention, empirical evidence for the effects is important, and this research shows that coaching indeed may be effective to reduce stress, also in the long term. Further, it shows that there are effects on stress across individuals, despite that each individual was free to define their own goals for coaching. Thus, outcomes of coaching that benefit the individual employee may also benefit the organisation.

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