The handle http://hdl.handle.net/1887/20890 holds various files of this Leiden University dissertation.

**Author:** Koelewijn, Hennie  
**Title:** Quality of work and well-being of health care employees : towards a problem solving intervention approach  
**Issue Date:** 2013-05-15
CHAPTER 7

General discussion
7.1 Introduction
The main goal of this thesis was to gain more insight into the wellness effects of worksite health promotion programs for health care employees. A variety of theoretical models has added to our general knowledge about the effectiveness of worksite interventions, directed at improvement of e.g. work conditions, organizational risk factors, job satisfaction (Karasek, 1979; Johnson et al., 1995; Häusser et al., 2010; Wagenaar et al., 1994; 1997; Lavoie-Tremblay, 2004; Bourbonnais et al., 2006; D’Zurilla & Goldfried, 1971; Watson & Tharp, 2006). While these models have improved our understanding of effective components of worksite health promotion programs for health care employees, most of these programs did not use a participatory implementation approach to improve quality of work and well-being of health care employees.

The aim of this general discussion is to reflect on the main results of this thesis and put them into a broader perspective. Therefore, this chapter starts with a summary of the main results, followed by an attempt to integrate these findings from a theoretical and methodological perspective. Finally, practical implications and recommendations for future research are made.

Summary of the main results
In Chapter 2, interventions to improve quality of work and well-being of health care employees were reviewed. The findings of this review indicated that the most consistent favorable intervention effects were found for job demands, social support, psychological distress, job satisfaction and emotional exhaustion. Moreover a participatory implementation approach of a worksite health promotion program might be more effective to improve quality of work of health care employees. A problem solving perspective however, which shares similarities with the participatory approach, showed an emphasis on the goal directed, pro-active and monitoring aspects of employee functioning and could guide the implementation of future interventions.

In Chapter 3 of this thesis, some of the well-known theories in the field of worksite interventions were discussed. Next to a work conditions and organizational perspective, which formed together the content of the intervention program, a problem solving perspective to implement a theoretically based intervention program at the worksite was introduced. This perspective appeared to be a suitable implementation framework for improving quality of work of health care employees. Practical implications for an intervention program were derived from these three perspectives.

Chapter 4 described a work conditions, organizational risk factors and well-being screening of health care employees in six Dutch health care centers for disabled people. Three health care centers were randomly selected as intervention group (W1,
W2 and W3), each health care center was screened separately and compared to a reference group (the other 5 centers). T-test results showed that each of the six health care centers differed significantly from the reference group on specific work conditions and organizational risk factors. Furthermore, the results regarding the outcome variables indicated that these health care centers also showed significant differences in comparison to the reference group on several well-being outcomes. In addition, advise was given to the intervention group on which factors they could improve the quality of work of the health care employees, the intervention targets were set and intervention plans were made in order to improve the quality of work factors.

Chapter 5 described the effects of a problem solving intervention program on improving quality of work of health care employees and employees’ well-being. The intervention study was conducted in six health care centers including 707 health care employees. The employees completed a questionnaire at T1 and three years later (T2). Results partly support the hypotheses: some work conditions and organizational risk factors improved significantly at T2 for the intervention group compared to the control group. Whereas positive effects were found for several work conditions and organizational risk factors of the health care employees, no significant main effects were found on well-being outcome variables.

In a longitudinal study (Chapter 6) it was examined whether (changes in) work conditions and higher order goals affect wellness outcomes among health care employees. Hierarchical regression analyses, controlling for baseline levels, showed that changes in work conditions were a significant predictor of higher order goal facilitation. In addition, changes in work conditions and higher order goal facilitation predicted employee well-being outcomes. Most variance was explained in job satisfaction and emotional exhaustion. The inclusion of higher order goal facilitation at work, next to work conditions, could provide additional insights into the improvement of well-being outcomes of health care employees.

General conclusion
Overall, the results of this thesis indicated that work conditions and organizational risk factors appeared to be important intervention targets, while a problem solving approach might be a fruitful addition to existing interventions for health care employees. The studies in this thesis showed that quality of work of health care employees improved significantly after such a problem solving intervention. Moreover, (changes in) work conditions and higher order goal facilitation were related to well-being outcomes of these health care employees.
7.2 Reflections from a theoretical perspective

This thesis clearly shows the advantage of screening instruments, that are based on theoretical models of job and organizational characteristics. First of all because the different subscales refer directly to these models and thus allow to analyze the determinants of possible adverse consequences, such as psychological distress, somatic complaints or burnout. Secondly, because this allows for comparison with other studies and finally because in view of interventions, it is important to understand why rather than that things change.

This thesis also shows that work conditions and organizational characteristics that are theoretically grounded can be influenced or changed by means of an intervention, and that such an intervention can indeed have beneficial effects. However, it is harder to understand from a theoretical perspective that (some) work conditions and organizational factors seemed to change, but that this had no effect on well-being outcomes such as job satisfaction, higher order goal facilitation, emotional exhaustion, depersonalization and personal competence. The core tenet of the job and environmental conditions models is indeed that these models define determinants that directly affect these well-being outcomes. While we have offered several explanations for this lack of effect on well-being outcomes, such as the fact that the intervention also had a negative effect on communication, the fact that the effect on determinants may not have been sufficient and that the content of the intervention program may not have been optimal, this remains puzzling. Future research should further look into this missing link.

Finally, this is one of the first studies to relate self-regulation constructs, such as personal goal facilitation, to theoretically grounded job and environmental characteristics. This study shows that personal goal facilitation is an important goal construct, that can explain additional variance in various outcomes. Future studies should however explore the possible moderating or mediating role of personal goal facilitation in the relationship between job and environmental characteristics with different outcomes.

7.3 Is problem solving an effective intervention approach?

The surplus value of a problem solving approach in explaining and influencing quality of work and well-being of health care employees has been proven in many different areas (Nezu, Palmatier & Nezu, 2004). Problem solving theory provides a solid theoretical framework from which practical implications for interventions can be derived. Problem solving theory also proved to be effective in explaining and predicting determinants of quality of work in worksite health promotion projects. The importance of key elements in problem solving theory, such as ‘goal setting’, ‘feedback’, ‘control processes’ and reformulation of ‘realistic goals’ (Watson & Tharp,
General discussion

2006) had not yet been extensively researched in the context of worksite interventions for health care employees (chapter 2). The added value of a problem solving approach in worksite health promotion for health care employees is confirmed by the longitudinal study (chapter 6) that indicated that changes in work conditions and higher order goal facilitation are predictors of their well-being. Worksite interventions implemented by a problem solving approach generated more favorable determinants of quality of work than interventions without a systematic or another theoretical implementation approach. These findings led to the conclusion that problem solving interventions might be more effective for well-being too, besides for increasing quality of work than general well-being interventions. However, the results of the problem solving intervention study (chapter 5) indicated that no differences in well-being were found between health care employees in the problem solving intervention group and employees from the control group. Within the longitudinal study (chapter 6), changes in work conditions and higher order goal facilitation explained differences in well-being outcomes. The results of the longitudinal study and the evaluation study on problem solving interventions suggest several theoretical considerations.

Firstly, as was found in the review, problem solving interventions that proved to be effective in improving well-being outcomes in health care employees (Jones & Johnston, 2000; Mikkelsen et al., 2000), specifically focused on health care employees who received short stress management interventions. These health care employees are most likely to differ attitudinally from our sample consisting of health care employees that had been working in the health care sector since many years. Many health care employees reported to have lost their faith in promises of the management to improve their quality of work and well-being. The cycle of attitudinal actions, relapse and new attempts to improve well-being had taken place several times between these employees started to work and our intervention, years later. By then, many health care employees had entered a phase in which striving for improving well-being was no active goal anymore. In conclusion, one might say that expecting to improve quality of work and well-being outcomes of health care employees that have been working in the health care sector a long time ago might have been too optimistic. The results of the intervention as well as our experiences with this group of health care employees taught us more about the complexity of their working environment both from a quality of work and a well-being perspective. These findings are confirmed by Maslach, Schaufeli & Leiter’s (2001) descriptive review of the literature on well-being interventions in a general and a health care employees population. In the review, Maslach and her colleagues conclude that improving well-being in health care employees might be an unrealistic intervention goal. They suggest that intervention goals for this health care population should be formulated in terms of engagement instead of burnout. Maslach further suggests that ‘a focus on the positive goal of engagement may be necessary but not
sufficient to motivate people to change their behaviour at the workplace’ (Maslach, 2011, p. 50). Putting together these suggestions with the notion that work engagement in health care employees working in our research setting in general is considered to be problematically low (Geurts et al., 1998), helps to realize that interventions to improve well-being of these health care employees is extremely challenging.

A second core aspect of a problem solving approach is that specific personal intervention goals are relevant for the study of quality of work and well-being of employees in worksite health promotion programs. Since the studies showed promising results in this respect, a logical next step in future research would be to study the linkages between employees higher order goals and more concrete, midlevel goals. According to problem solving theory, improving quality of work and well-being will be significant to a group of employees (a) if they experience the intervention targets as an important problem, (b) if the employees receive clear feedback from their managers on the intervention process, and (c) if implementation process is controlled by a support and project group, whether the interventions are going according to the intervention plan.

7.4 Strengths and limitations

Strengths: what is the surplus value of this thesis?
The review in chapter two is one of the first reviews that examined effective intervention studies for health care employees from a theoretical perspective. An intervention based review within the context of worksite health promotion for health care employees has not been published before. Other reviews have attempted to distil important working mechanisms in worksite interventions, but were not based on solid theoretical frameworks, such as the JDCS model and a problem solving approach. Furthermore, our review did not only point at the possible importance of problem solving mechanisms, but also distinguished other intervention characteristics, such as the inclusion of participation of all levels of the health care organization in interventions, that moderate the effects of worksite interventions on quality of work and well-being outcomes of health care employees.

Secondly, to the best of our knowledge, the intervention described in this thesis is one of the first interventions that systematically applied a problem solving approach (D’Zurilla & Goldfield, 1971; Watson & Tharp, 2006). Other problem solving based interventions have been conducted in the context of worksite health promotion. These interventions, however, did not systematically take into account the various problem solving principles that are believed to facilitate goal achievement in all four phases of problem solving. Albeit an intervention, our problem solving intervention was the first to implement these theoretical implications into a practical worksite health
promotion intervention. Future studies could build on the results and experiences from this problem solving intervention and take into account the limitations that might have partly explained the lack of effect of our intervention.

A third strength of this study concerns the choice to develop an intervention for this challenging population (Michie & Williams, 2003; Leiter & Maslach, 2009). Having tried to improve quality of work and well-being for many years, many health care employees had given up hope on improvement of their working situation. Even though our intervention did not (yet) generate the results we expected or hoped for, the relevance of the problem solving intervention for this specific population was reflected in highly positive evaluations of the intervention by health care employees. Health care employees, but also managers and coordinating employees expressed great appreciation for the intervention and many health care employees indicated to have changed their work conditions and training possibilities, because of the intervention.

**Limitations**

The first limitation concerns the limited participation to the screening at T1 (chapter 4 and 5). The database of health care employees in the participating health care centers consisted of 3680 health care employees of which 1673 took part in the screening (T1, chapter 4). This 45.5% was considerable, but the difference between the response of the intervention group (N=1034, 55.3%) and the control group (N=639, 35.5%) was significant, as the response of the control group was significantly lower (Chi-square = 81.65 (1); p-value < 0.000). This situation might have created a selection bias in the results of the screening. Because the participating employees in the control group might be more motivated and committed towards their work than the non-participating employees, they might be more positive about their work environment and feel healthier, which creates a positive selection bias on quality of work and well-being. Having in mind the response of the total research group, this relatively small sample of control health care employees clearly is an important methodological limitation of the screening study described in this thesis.

A second limitation concerned the high number of health care employees that dropped out of the study. Well-being interventions in general are known for their high drop-out rates and our study was no exception to this rule (Mikkelsen, Saksvik & Landsbergis, 2000). The evaluation article in chapter five and the longitudinal study in chapter 6 demonstrated a 3 year drop-out rate of 57.4%. Of the 1673 participants from T1, 707 completed the questionnaire on the T2 (42.6%). Reasons for study drop-out were: turnover, absence of work, shift related reasons, personally related reasons or not feeling comfortable to belong to the control group. It may be obvious that the high turnover levels in the three year intervention period (about 15-20% of the participants of the original sample could not be invited for T2) may
have influenced the effect of the intervention study. The large study power at baseline decreased and limited at least the possibility of detecting several organizational and well-being differences between intervention and control groups.

Thirdly, although the review is an important part and strength of this thesis, the small intervention groups that were used in the studies that are included in the review (chapter 2) are an important limitation. Only three studies, namely Bourbonnais et al. (2006), Heaney (1991), LeBlanc et al. (2007) included research groups with more than 100 respondents in the intervention and the control group. The analytic power of most of the studies in our review is therefore not strong enough. Having a relatively small sample of health care employees in many intervention studies clearly is an important methodological limitation of the studies described in our review. Besides the small intervention samples, ergonomic interventions were not included in our review, although these interventions might improve quality of work and well-being outcomes, e.g. somatic complaints.

A fourth limitation, with respect to generalizability of the results concerns the fact that men are underrepresented in the study sample (20% male vs. 80% female). Although equal representation of female and male health care employees would not be in line with epidemiological facts, the results of this thesis are predominantly based on female health care employees and results can not be generalized to other organizations or employee groups. In future research is would be advisable to study health and well-being of employees in other organizations and for men and women separately, since research suggests that gender differences are relevant in this respect (Bambra et al., 2007).

A final limitation of the studies in this thesis concerns the extensive use of self-report measures. Apart from the socio-demographics, such as age, years in health care sector, kind of shift and education, the studies in this thesis were predominantly based on self-report outcome measures. Critics of self-report measures point at the danger of response bias and decreased reliability and validity when assessing outcomes with self-report measures (Adams, Soumerai, Lomas and Ross-Degnan, 1999). Although not all the methodological downsides of self-report measures can be avoided, the use of questionnaires with sound psychometric properties helps to minimize chances of decreased reliability and validity. Most of the questionnaires used in this study were reliable and validated instruments that had been evaluated and tested in previous research.

7.5 Suggestions for future research
This thesis provided interesting data on the effects and relevance of a problem solving based intervention for worksite health promotion of health care employees, as well as ideas for future research. With respect to problem solving implications in worksite
interventions, further exploration of a problem solving approach for improving quality of work and well-being of health care employees is recommended. The results of the evaluation study indicate that a problem solving approach in improving quality of work of health care employees is worth the investigation. However, more research on a problem solving intervention for health care employees is needed to demonstrate its effect in practice. The problem solving intervention in this thesis was conducted as a evaluation study to explore and learn about practical implications on problem solving in quality of work of health care employees. Future studies could build on the results and experiences described in this thesis and deal with the limitations that might have influenced our results. The highly positive evaluation of the problem solving intervention for improving determinants of quality of work of health care employees indicated, that the application of problem solving theory in worksite interventions for health care employees is appreciated and should be further investigated. Besides, an exploration of problem solving interventions in other health care employee groups would be interesting. One might explore the role of a problem solving approach in younger or more recently started health care employees and compare the monitoring or characteristic components of problem solving aspects in different groups of health care employees or stages of life.

Secondly, the screening of health care employees’ problem solving skills prior to an intervention should also be further investigated. Screening health care employees on problem solving skills might identify a group of health care employees that is not likely to benefit from a problem solving intervention. Maybe these health care employees would profit more from a stress management intervention or more externally regulated interventions than from problem solving interventions. Screening health care employees’ problem solving skills prior to an intervention could therefore help to match health care employees to suitable interventions. The possibilities and effects of screening health care employees’ problem solving skills should therefore be further examined.

In addition, it is advisable to use in the future national norms as a basis for this screening. The absence of an external reference or norm group may lead to over- or underestimation of problems within a specific health care center, department or unit. Although this norm group currently exists, these data were not available at the moment that the project was carried out.

Differences in target and approach between the three intervention centers could be better understood by means of process evaluation. As the necessary data for such an evaluation were not collected, it was impossible to explain if, how and why the process differed between the intervention centers. This is an important issue for further research.
Another issue concerns drop-out. While drop-out both in terms of turnover as well as in terms of non-participation was substantial, it would have been important to know more about the sources of or reasons for drop-out. As these data were lacking, it was not possible to carry out such an analysis. As a consequence, we think that this is an important issue for future research.

In addition, while analyses could only be carried out with subjects that remained in the study, it would have been important to compare at least at an institutional level the whole group of employees at T1 with the whole group at T2, including new personnel. So, in future longitudinal studies, new personnel should also be assessed.

Finally, personal goal facilitation at work is an important construct that should be further explored. Especially the mediating and/or moderating role between job characteristics, organizational and environmental characteristics on the one hand and distant outcomes such as turnover, absenteeism and burnout should be explored in future studies.

7.6 Conclusion
This thesis described the role of problem solving interventions in improving quality of work and well-being of health care employees. The promising results of a problem solving intervention as well as the strengths and limitations of it, point at the possible importance of problem solving research within the field of health care employees interventions. The study limitations that are described in the general discussion, however, also point at the need for careful interpretation of our study results. Therefore, more extensive research is needed to further understand the interventional and theory based mechanisms that underlie health care employees problem solving behaviors (Pomaki & Maes, 2002). There is still much more to know about the role of specific problem solving mechanisms in health care employees interventions. Implementing the results of this thesis in future problem solving studies in health care employees might bring the application of problem solving theory in the field of worksite health promotion up to a next level.