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Determinants of Individual and Organizational Health in Human Service Professions

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Abstract

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The psychosocial work environment in human service organizations is in many respects rewarding from the aspect of human interaction. However, it has also been described in several research reports as demanding and stressful both physically and mentally, resulting in a negative impact on employee health and a high degree of sickness absence. From a public health perspective it is important to focus on determinants of health in occupational groups that are characterized by caring and human relations. This thesis aims at identifying determinants of individual and organizational health in human service professions from a multifactorial perspective.

Based on both cross-sectional and longitudinal data, four studies of various aspects of psychosocial work exposures are carried out. Study I, an explorative and qualitative study, examines determinants of the psychosocial work environment in the Church of Sweden. Study II consists of a retrospective, randomized study assessing effects of goal clarity work on organizational well-being in the Church. Study III examines exposures resulting in stress-related sick leave among elderly care employees. Study IV is a longitudinal study that assesses effects of organizational change on health and sickness absence among elderly care employees.

The results show some positive experiences, despite overall demanding work conditions within both of the studied professions. In the Church (Paper I), experiences of freedom and influence at work and the Christian values tend to be factors with modifying effect on health. Four patterns are identified for negative health impact; these include unclear organization, a sense of being different, stressful work and destructive communication style. Effects of goal clarity work (Paper II) indicate an overall positive impact on organizational well-being. In elderly care (Paper III), the results suggest, in general, a positive work climate and high effectiveness. Work related exhaustion was significantly higher among employees with stress related sickness absence. Factors of risk for being absent due to stress are approximately three times higher among employees dissatisfied with both their work and their social situations. Finally, measuring effects of organizational change (Paper IV), the results reveal evidence of unchanged self-rated health (SRH), work satisfaction and work exhaustion after reorganization. However, sickness absence increased across time and there is an indication of impaired levels of the anabolic hormone DHEA-S among those individuals affected by the reorganization.

The results point to a challenge for further research on the interplay between perceived stressors, resources available, biological stress markers and health in order to find adequate measures for improvements in psychosocial work environment in human service professions.

Keywords: Psychosocial work environment, health, human service profession

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...”vi måste förstå hälsa som någonting utöver hälsa, som livet självt”.

Katie Eriksson

To my dear family

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals:

- I Hansson, Ann-Sophie.
Psychosocial work environment in the Church of Sweden. An explorative study. *Nonprofit Management & Leadership*, 2006 16(3), 329-343.

- II Hansson, Ann-Sophie, Anderzén, Ingrid.
Goal clarity work as an instrument of improved organizational well-being in the Church of Sweden. *Accepted for publication in Work*.

- III Hansson, Ann-Sophie, Arnetz, B.B., Anderzén, Ingrid.
Risk factors for stress-related absence among health care employees: A bio-psychosocial perspective – associations between self-rated health, working conditions and biological stress hormones. *Italian Journal of Public Health*, 2006 3(3-4), 53-61.

- IV Hansson, Ann-Sophie, Vingård, Eva, Arnetz, B.B., Anderzén, Ingrid.
Organizational change, health and sick leave among health care employees: A longitudinal study measuring stress markers, individual and work site factors. *Work & Stress*, 2008 22(1), 69-80
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Abbreviations

ANOVA	Analysis of Variance
CATS	Cognitive Activation Theory of Stress
CI	Confidence Interval
CO	Church Ordinance
DHEA-S	Dehydroepiandrosterone Sulphate
NS	Non Significant
NSI	National Swedish Social Insurance Board
OSHA	The Swedish Occupational Safety and Health Act
OR	Odds Ratio
QWC	Quality Work Competence
S.A	Sickness Absence
SBU	Statens Beredning för Medicinsk Utvärdering (Swedish Council on Technology Assessment in Health Care)
SD	Standard Deviation
SLI	Swedish Labour Inspectorate
SPSS	Statistical Package for Social Science
SRH	Self-Rated Health
VAS	Visual Analogue Scale
WHO	World Health Organization
Terms used in this thesis	Definitions
Human service professions	Occupations with work characterized by social interactions and human relations
Multifactorial perspective	Factors representing different areas or disciplines used in order to gain a wider perspective on an issue
Salutogenic perspective	A theory of the individual's resistance to stress, developed by Antonovsky and used as a measure of the individual's sense of coherence (SOC)
The disestablishment	In year 2000 the relations between the Church of Sweden and the State was changed

Preface

The seeds of this thesis were probably sown as early as the mid-1990s, when I started working as a behavioral scientist in an occupational health service. From surveys of psychosocial work environments in different organizations it was evident that many of the employees suffered from high demands and low control at work. Their job satisfaction was too often insufficient, and the co-operation and management within the organizations lacking.

From my earlier working life during the 1980s, when I experienced different workplaces in the Church of Sweden, I could identify a lot of undesirable circumstances in the Church's work environment. There were the same kinds of stressors as in other workplaces, but these stressors differed from those in other workplaces because of the nature of the work, with its "taking care of people" tasks. Based on this knowledge, I began an investigation of the psychosocial work environment in the Church of Sweden. The results of this study are presented in the first article in this thesis.

My experiences from a municipality, as head of personnel development with special responsibility for "the good working place", aroused my interest in questions about health. This included how to prevent negative work stressors and why some people have the ability to cope with stressful work conditions and others do not. A project was started in 2003, in a collaboration, between the municipality and the Department of Public Health and Caring Sciences at Uppsala University, to identify causes of the work-related stress among employees in the elder care sector. This was the starting point of my postgraduate studies. The results of this project, used in my third and fourth articles, are also related to the psychosocial work environment, with focus on stressful work conditions.

My work with this thesis has thus developed over a period of at least six or seven years. At the beginning it was only as an interest in why some experience poor health and some quite good health even though they appear to have a similar work situation. This eventually developed into my research question: What are the determinants of individual and organizational health in the complex psychosocial work environment of those working in human service organizations?

1. Introduction

“High-level wellness can never be achieved in fragments, ignoring the unity of the whole”.
Dunn (51) p.789

The importance of satisfactory psychosocial work environment for individual health have been reported on in several studies and in different policy documents during recent decades. In the revised Swedish Occupational Safety and Health Act (4), the psychosocial work conditions were accentuated and it was established that the work should be organized in a safe way, both physically and mentally, making employees' well-being and professional development possible and preventing ill health.

In the Work and Health report (5), the "good work" concept was developed, and this has become important in the Swedish debate about work environment during recent years. The purpose of the concept is improvement of the work organization on a local level at every workplace. The employer has to facilitate employee participation and influence at work for increased work satisfaction and well-being.

The psychosocial work environment in the human service sector (e.g. healthcare professions, lay welfare workers, psychologists, deacons and priests) has been reported since the mid-1990s to be demanding and stressful, both physically and mentally (138). These professions are characteristically full of tensions (41). They involve a lot of demands, both externally from the world around and internally from their own organizations. These demands have resulted in ill health, work exhaustion, and at the turn of the millennium in a comparative high rate of sickness absence (10, 18, 35, 127, 133, 154, 165).

It is stated that healthcare employees have a more exposed position at work and limited possibilities to influence their work (26, 53, 138), compared with employees in other occupations. Some studies also suggest that the rate of ill health is worse among those working in the healthcare sector (19, 115).

As early as the 1970s, Bradley (33) mentioned burnout as a psychological phenomenon that occurred in professions with "helping" characteristics. Christina Maslach (108) pointed out that the risk for burnout (characterized by feelings of emotional exhaustion and loss of energy), is large in organizations

where the character of the work is “doing people-work”, where social interaction involving intensive human relations is the main work. The risk for burn-out or work-related exhaustion is found in different studies to be associated with emotional demands such as a too-high degree of involvement at work (empathy), employees’ enthusiasm for their work and their difficulties in separating work and private life, and insufficient recovery, which in a long-term perspective have negative impacts on health (32, 41, 60, 80, 109, 132). Some studies have also suggested that personal characteristics such as a “helping personality” (in this context defined as the individual’s enthusiasm for, and motivation in helping others, resulting in giving the individual personal rewards), is more conspicuous in determining personnel well-being in occupations where the task is characterized by caring (52, 61, 111, 132, 135, 146).

There are different explanations for the decreased levels of mental health and sickness absence among these professions. In healthcare there were extensive structural changes based on economic decline in the mid-1980s, resulting in streamlining of the workplaces and changes in the roles of healthcare employees. As a result, there have been new demands on both quantity and quality in patient care. These changes have had negative effects on employees, both physical and mental, including job insecurity, role conflicts, work dissatisfaction, and lack of belief in the future (20, 39, 71, 93, 133, 147, 157). In church professions, unclear management and guiding systems together with changed and demanding work conditions during recent decades have resulted in lack of recovery, stress, and mental ill health (16, 35, 65, 68). Furthermore, it is emphasized that church employees are under the pressure of expectations from society or members with regard to special behaviors or accessibility (65). This is parallel to the situations of healthcare workers, where the employees are also under pressure, with expectations from patients and relatives to fulfill goals of quality in care (154).

The associations between factors that affect individual as well as organizational health are complex. Exposures and our reactions to these are different at different times, in different occupations, and between different individuals. Research on psychosocial work environment and sickness absence is carried on in different disciplines with different models to explain causes of stressful work conditions (physical, psychological, and social) and sickness absence. Depending on the theoretical perspective, the research has focused on an individual, organizational or national/societal level (23, 87, 133, 137). However, health and sickness absence are influenced by the interplay of factors on different structural levels.

Furthermore research on determinants of psychosocial work conditions related to different occupational groups is limited (5). This issue needs further investigation for i) knowledge about needs for specific occupational improvements, and ii) knowledge from a public health perspective to minimize

sick leave and promote health. Regardless of decreased sickness absence rates and improved public health in general in Sweden during the past two to three years (143), a revised public health policy points to the importance of reducing the number of individuals, and especially young people, who are isolated from working life in order to minimize future ill health and costs for sick leave (2).

Research in this field needs to be done from a multifactorial perspective (32, 94), involving factors from different disciplines and from different structural levels (individual, occupational, and societal) in order to capture the complex relationship between psychosocial work environment, health, and sickness absence (137).

Why this subject?

It may seem difficult to understand the idea of using professions as different as healthcare and church for this study. However, these are both professions that are highly exposed to tensions in the sense that they do “people-work”. These professions involve demands of empathy and closeness towards clients, which in a long-term perspective may result in emotional stress (110, 135) and ill health. From a public health perspective, that makes them important to study. It also makes it important to find improvements on different levels for prevention of stress and ill health.

There was evidence of generally unsatisfying and stressful work conditions within the healthcare sector as well as within Church organizations in the end of the 1990s and in the early part of the new millennium (14, 64, 138). Moreover, the incidence of sickness absence had in general increased in Sweden and especially among those working in the public sector (137, 165). Reports on comparative high incidence of ill health and sickness absence in the Church and, respectively, in elderly care were the bases of two of the studies (Papers I and III), while the burden of sick leave (longer absence), was the focus of the study of consequences of organizational change (Paper IV).

Despite reports of unsatisfying work environments within these occupational groups, there is in general a high degree of job satisfaction and enthusiasm at work reported for healthcare as well as for church professionals (10, 18, 28, 38, 82). This, on the other hand, should contribute to modifying the impact of work exposures and result in less exhaustion. Still, the work-related ill health is regarded as high in these professions (16, 125), which makes research on health determinants important.

There are also reasons for studying psychosocial determinants from the perspectives of effects on the employees’ health as well as those of effects on organizational health. Cox (47) and also Arnetz (23), have suggested that work dissatisfaction among employees is associated to poor organizational health.

This thesis comprises four different studies of various aspects of psychosocial work exposures. The first examines determinant factors of psychosocial work environment in the Church of Sweden from a top-down perspective. The second assesses effects of goal clarity work on organizational well-being in the Church. The third examines exposures resulting in stress-related sick leave among healthcare employees. The fourth is a longitudinal study assessing effects of organizational change on health and sickness absence, also among healthcare employees.

1. 1 Aims of the thesis

The overall aim of this thesis is to identify determinants of individual and organizational health among employees in human service professions from a multifactorial perspective.

Specific aims:

- To identify factors of relevance for the psychosocial working life in the Church of Sweden, in order to get a better understanding of factors within the organization, that either interferes with or promotes a good psychosocial work environment (Paper I).
- To assess effects of efforts toward goal clarity on organizational well-being (psychosocial work environment and parish development) within the Church of Sweden (Paper II).
- To identify risk factors for sickness absence due to self-reported stress among elderly care employees (Paper III).
- To investigate effects of organizational change on employees' self-reported health, work satisfaction, work-related exhaustion, biological stress markers, and sick leave (Paper IV).

2. Theoretical framework

Psychosocial work environment is a complex phenomenon that includes associations not only between perceived work exposures and reactions and consequences to them, but also between factors associated with exposures in society and private life, as well as properties of the individual and of the individual's work and social situation.

This thesis will focus on the importance of taking into account a number of perspectives, such as individual, organizational, and environmental ones, when discussing determinants of individual and organizational health. This relationship is visualized in Figure 1, in a modified transactional model by Kahn and Byosiere (87), and is used as the theoretical framework for this thesis.

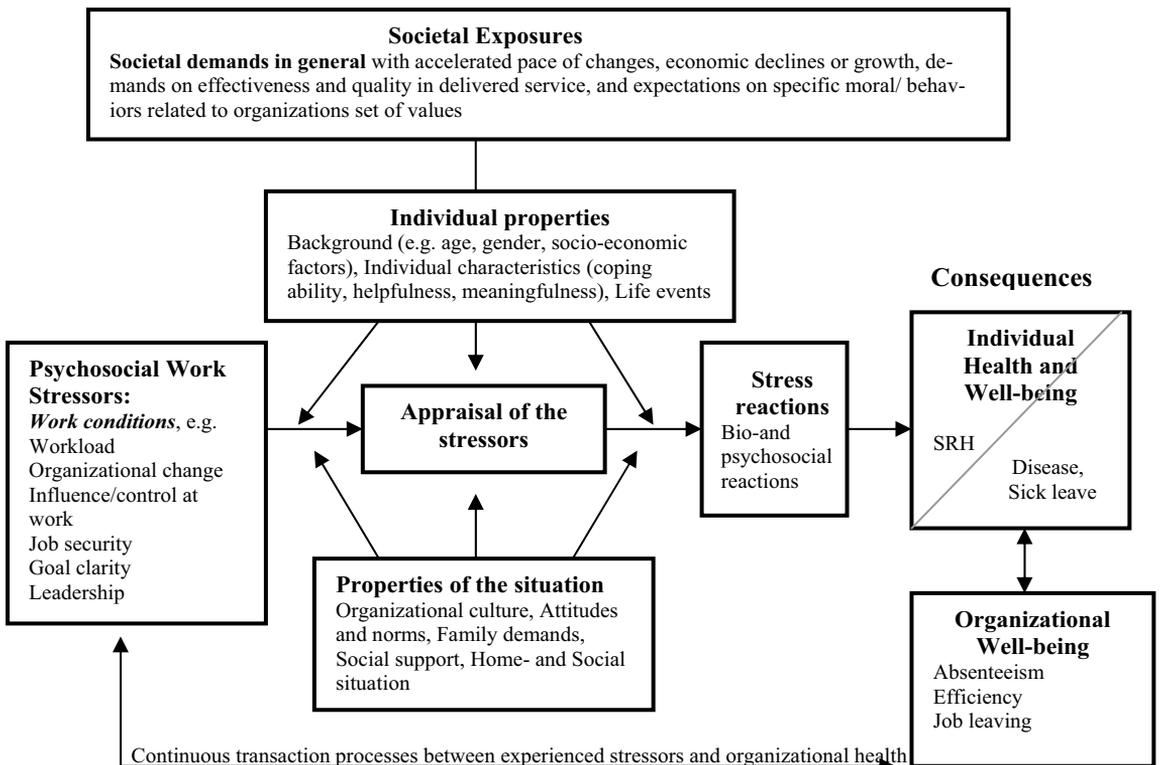


Figure 1: Theoretical model developed and modified from Kahn and Byosiere (1992).

Determinants in this thesis are defined from: (1) identified exposures within the individual's work environment, and (2) establishment of the individual's resources or lack of resources for treatment of experienced demands.

In the following paragraphs the theoretical model used in this thesis will be described step by step after a general review of the psychosocial work environment concept.

2.1 Psychosocial work environment

In Sweden there was an increased interest in questions of psychosocial work environment during an expansive period of working life research in the 1970s. In the Swedish Occupational Safety and Health Act from 1977 (3), psychosocial factors are defined as:

"Psychosocial factors appear when the work environment is regarded from psychological and sociological perspectives, which means a perspective including physical, organizational, and social work environmental factors".

In the paraphrased Act (4), it is stated that:

"...proceedings should be taken not only to minimize the risks, but rather to attain conditions promoting well-being, work satisfaction, and development".

The Act suggests a comprehensive view where the interplay between physical, mental, organizational and social conditions accentuates. This means an interdisciplinary perspective on work environment and its effects on health.

A short introduction to the complexity of psychosocial work environment

The concept of "psychosocial work environment" is difficult to capture and although it is defined in many different ways in the literature, it is still indistinct and ambiguous. From a historical perspective the concept is believed to emanate from Erik H. Erikson (161), who emphasized the view of the human being as developed and guided by an interaction of the individual's environment and especially by the social environment.

There have been a great number of models presented from different perspectives but all have had the aim of explaining the interaction between environmental, social, and psychological factors, and their relationship to health. The most frequently used models describing psychosocial work-related factors are those developed by Kagan and Levi (86), Karasek and Theorell (89)

and Siegrist (141). These models identify psychosocial work-related exposures that are trying and stressful and have negative health effects, both physical and mental.

Karasek and Theorell's job strain model comprises psychological exposures (amount of work, complexity of work, and internal and external demands at work), and decision latitude (level of influence at work, the capacity to use one's qualifications and to develop new skills). Job strain is suggested to result from a combination of increased psychological exposures/demands and low decision latitude at work, which in turn might cause ill health. The model also involves social support as a modifying factor, (e.g. co-operation, assistance from colleagues and supervisors). Earlier in the 1970s Cobb (43) had found that social support could protect people from negative effects of morbidity during different kind of life crises.

Siegrist's effort-reward imbalance model is based on the hypothesis that a high level of expended effort at work and little reward received (appreciation, skills development, career, salary) may result in stress and impaired health. Other factors of relevance for psychosocial work and health mentioned by Eriksson (56), Kristensen (95) and Sverke (148) are meaningful work and security about future work.

Stress perspectives

The concept of 'stress' emanates from Selye, and was defined in his early studies as:

... *"an acute and nonspecific physiological response of the body, to any demand, whether it is caused by or results in pleasant, or unpleasant conditions"*, The General Adaptation Syndrome (GAS) (140).

This theory reflects the acute stress response process, which demonstrates a system of balance between energy mobilization (catabolism), and restoration of the organism (anabolism). Current research on stress was developed during the 1970s and based on theories from the psychosocial field. This means a wider and more comprehensive perspective, involving interdisciplinary research based on medicine, biology, psychology, and sociology.

Stress research in general focuses on the complex interplay between exposures in the environment, the individual's interpretation, and reactions to the stressor. However, these interpretations differ from individual to individual and also between different situations. The interpretation results in different kind of reactions, which in turn may have long-term effects on health (86, 99).

There is no uniform definition of stress; depending on the theoretical approach, the definitions vary somewhat. From a work-related perspective, stress is defined as:

“ an imbalance between a person’s experienced demands and his/her possibility or resources to correspond to them” (89).

According to this approach stress occurs when the individual appraises a situation as trying without the ability or resources to deal with it (99). Stress is viewed from this “balance model” as a result of a disturbance in the interplay between perceived demands and available resources.

A model developed by Ursin and Eriksen (156), the cognitive activation theory of stress (CATS), deals with the idea that stress occurs depending on our expectations of an event. If the individual believes he or she is in control of an action or has the necessary resources and the outcomes are desired and predictable, there is no need for activation of the alarm system (physical reactions). On the other hand, if the future is unpredictable and the individual does not have the resources to deal with expected demands, there is a need to enhance capacity for this activation. In the short term such activation is healthy and necessary, but in the long term it may increase the risk for disease and ill health (21). Lazarus and Folkman (98) focused on explaining what happens in the individual when he or she experiences a stressor. They emphasize the importance of an interaction of the individual’s cognitive function in the process from exposure to ill health. This means that the individual’s appraisal of the demands depends on, and adjusts to, his or her individual and social resources like the processes of coping and social support (46, 97).

The transactional model, developed from earlier studies by Kahn and Byosiere (87), is a model for organizational stress that synthesizes the classic physiological stress view, a cognitive perspective and theories emphasizing interactions between modifying/moderating factors as well as individual characteristics. In most of the research associated with this theory, four key areas are included: stressors, responses, modifying factors, characteristics of the individual and the situation, and consequences for individual and organizational health.

Stressors

A stressor (stimulus) is defined as a factor that contributes to producing certain undesirable effects, such as adverse physiological changes (described by Selye in 1976), psychosocial demands, emotional tensions, and physical symptoms in the population concerned (87). In other words, to determine stressors in a population there is a need to compare the responses to those of a normal, representative population. However, more often exposures are referred to in previous research, where a cumulative effect of evidence for certain responses is demonstrated (87).

Stressors can be categorized by physical environment (e.g. noise, light, vibration), psychosocial effects (e.g. workload, degree of demands and control

at work, conflicts, lack of goal clarity, balance of efforts-rewards) or as related to the individual (e.g. socioeconomic, emotional, psychological, and life events) (87, 169).

There are basically three different approaches concerning work-related stressors. Some researchers have focused on the individual/employee and his/her characteristics, such as coping ability, skills, stress resiliency, background factors, previous experiences, and the specific work tasks to be carried out. Others have focused more on the work environment and organizational characteristics as the major source of work-related stressors. A third group suggests a transactional theory, where the environment might be a source but the individual's interpretation or appraisal of the situation together with properties of the organization and of the individual, as well as potential modifying factors, determine the stress response and long-term health consequences (87).

In this thesis, stressors/exposures are used in conformity with the definition by Kahn (87):

“..external conditions or events (stimuli) that evoke responses indicative of stress – adverse physiological changes, physical symptoms, psychological tensions, and the like”.

Stressors identified in this thesis are described both from previous research and from results of the studies included in this thesis.

Stress reactions

If stress reactions become chronic, they will lead in the long term to adverse health implications (24). Reactions to stressors can be divided into physiological, psychological, and behavioral outcomes (87).

Physiological reactions or symptoms are related to an imbalance in psychobiological hormonal systems. These systems regulate the energy balance, the catabolic (breakdown), and the anabolic (build-up) hormones. Situations characterized by threat or challenge, induce a mobilization of energy, or catabolism. From the stress research it is suggested that stress reactions tended to activate secretion of certain hormones such as serum cortisol, prolactin, testosterone, and DHEA-S, although the results are not entirely consistent (22, 122, 152, 153). Even though there is limited knowledge about the relationship between stress hormones and psychosocial exposures, there are some studies that have found associations with perceived exposures (11, 22, 69).

One indicator that is used to measure catabolic processes is cortisol (59), which is a steroid hormone produced by the adrenal cortex. Cortisol seems most relevant in studies of distress, helplessness, and depression (121). An increase in serum cortisol level usually signals a state of energy mobilization and enhanced acute stress (112). However, during prolonged stress, distress, or post-traumatic stress disorder, the concentration of cortisol decreases (42).

These latter conditions are found in patients with chronic fatigue and severe burnout/exhaustion (72). Another stress marker is serum prolactin. Levels of serum prolactin have been found in different studies to increase during acute stress, such as situations of loss of power or crisis (22, 50, 152). Situations associated with passive coping, e.g. lack of power to act, are also found to be accompanied by increased prolactin levels, whereas challenges handled by active and successful coping are associated with unchanged or even reduced levels of prolactin (22). Studies on correlations between burnout and physiological measurements show lower levels of prolactin among those reporting high levels of burnout (63).

The hormone testosterone has been shown in some studies to have associations with anabolic functions (153, 164). Levels of testosterone decreased in response to long-lasting psychosocial stress, such as low decision latitude at work (153). Finally, serum dehydroepiandrosterone sulphate (DHEA-S) is an adrenal hormone that also is found in some studies to have anabolic as well as neuroprotective effects (25). Good psychosocial work environment are found to generate an increase in this hormone (25), while a decrease in DHEA-S levels has been associated with prolonged stress and a tendency toward inability to recover (22, 69, 122).

Psychological reactions include a variety of reactions such as degrees of work dissatisfaction, cognitive and mental impairments (e.g. concentration problems, different emotional reactions, anxiety, exhaustion, fatigue, depression, apathy and helplessness), and also somatic complaints (87, 126, 139). Work satisfaction includes general feelings about one's job or about job factors (154). This concept has been investigated by Herzberg (76) in his two-factor theory. He pointed out that positive feelings related to work, including being successful at work and having possibilities for skills development (motivating factors), were associated to feelings of work satisfaction. Negative feelings related to conditions in the work environment, such as interpersonal relations, physical conditions, supervision, etc. (hygiene factors), were found to be associated to dissatisfaction at work.

Another theory of satisfaction, the "expectancy theory", proposes that "the individual's assessment of job satisfaction is a function of the discrepancy between what an individual expects from the job and what the individual receives" (83).

Mediating factors

In the model in Figure 1, the box labeled "appraisal of the stressors" refers to the idea of cognitive appraisal (81), and can be regarded as a "mediator" in this model since it is hypothesized to explain the relationship between stressors and reactions to them. With reference to Lazarus and Folkman above, this stage consists of both primary and secondary appraisal. In pri-

mary appraisal the individual perceives the stressor as positive, negative, or irrelevant, and secondary appraisal includes a decision of what to do about the stressor the individual faces. However, this stage is not measured in this thesis.

Modifying factors

When analyzing stress reactions and effects of stress it is necessary to take into consideration factors that interact in the stress process. A modifying factor has, according to James and Brett (81), the function of modifying a relationship between two (or more) other variables (labeled “individual properties” and “properties of the situation” in the model in Figure 1). Factors that are found to modify negative effects of stressors include self-esteem, locus of control, coping ability, and social support. In this thesis individual and situational properties are regarded as modifiers, in accordance with James and Brett’s definition.

Individual properties used and measured in this thesis are – aside from background factors such as age, gender, and socio-economic factors e.g. coping ability, which refer to the individual’s ability to treat a demanding situation either at work or in private life. Among researchers in the transactional school, coping is described as a cognitive process, where the individual’s appraisal of the actual situation is of importance for his or her ability to handle stressful situations. In turn this treatment of stressors has consequences on health (98). Different studies have emphasized that active coping strategies (ability to cope or treat stressful conditions) minimize negative effects of stressful conditions and protect health (97, 103, 105, 146, 169). High coping capacity has, for example, been found to lower risks for recurrence of heart diseases among women (123). In another theory about coping, the five-factor model (146) suggests that coping strategies are linked not only to appraisal of situations, but also to personality traits such as wishful thinking or self-recrimination. Furthermore, meaningfulness was found in previous studies to modify the effects of exhaustion and burnout, and to have associations with lower sickness absence rates (32, 57, 133). In that sense meaningfulness tends to be an individual property, as a resource, that has preventive effects against ill health and sickness absence.

Situational properties such as social support are found in different studies to have buffering effects on health (44, 48, 124). Social support is defined as:

“resources that are supplied by others”. (44)

Caplan (40), found a range of studies where social support was suggested to have positive protective effects against illness associated with high stress. His suggestion was that:

“...high levels of social support protect against increased vulnerability to illness of various kinds associated with high stress”.

The degree of social support does not just have an impact on risks for physiological stress, but also for morbidity and illness (169). Another situational property is existing attitudes within the organization. Cox (47), has pointed out that properties of the organizational culture are associated with individual and organizational health.

According to this theoretical framework, it is evident that psychosocial work environment consists of a complex interplay between factors at different levels. To what extent individual and organizational health is affected by this interplay has to do with a balance between experienced exposures and resources available. In addition, to what extent one or another factor is of more or less importance varies from individual to individual and from time to time, which makes assessment of work environment complex.

2.2 Health and well-being

With regard to the theoretical model shown in Figure 1, consequences of stressors for health are included in a multifactorial perspective. These consequences need to be viewed subjectively as well as objectively.

Health concepts

Why do some people report good health and others not, despite well-known risk factors at work and/or in their private lives? This eternal question was posed by the ancient philosophers. The ancient Greek ideal of health included the total individual and was defined from a comprehensive ontological view. For example, Galenos (129-199 BC) developed a “balance theory” in which four qualities of the body were reflected by four elements (heat, cold, wet, and dry). Health was then a reflection of the balance between these elements (118).

Throughout history, health has been regarded as something natural and a part of human life, while ill health and diseases were considered obstacles in life (56). Historian Karin Johannisson (84) has emphasized that the demands on human beings in modern times (e.g. expectations of adaptability, changeability, flexibility, and future prospects) are circumstances that were identified at the turns of both the 20th and 21st centuries. The effects of these demands

had a close connection to fatigue and stress, and were at the turn of the 19th century regarded as reactions to changes in social life. At this time fatigue was in the main regarded only from a physiological view despite of important sociologists such as Durkheim and Weber, who pointed out that the fatigue had to do with the insecurity the individual faces in times of social changes, when old ways of life and values are replaced by new ones (84).

In the beginning of the 1900s, modernism led to belief in the future with new achievements in almost all areas. Increased possibilities to cure diseases through new medical and technological findings accentuated a paradigm where health was viewed as absence of disease. During the second half of the 20th century, health was discussed in order to find new definitions. Two different perspectives were now distinguished; the first was a biomedical perspective, represented by such philosophers as Boorse (31), based on the assumption that health was the opposite of disease. The second identified perspective emanated from a humanistic and social view, represented by Nordenfelt (120). He defines health as:

“... a person’s ability, given standard circumstances, to achieve his vital goals and thus realize minimal happiness”.

Nordenfelt’s definition, developed in the late 1970s, was viewed from a holistic perspective, characterized by an extended multifactorial view with focus on the whole individual, where the individual’s ability to act is essential. Evang (58) emphasized that the concept of health has undergone a development from an individualistic, disease-focused, biological-physical view towards a social-medicine view and is not as associated with the notion of disease as earlier. This approach is also salient in our days in current political aims of public health in Sweden (6).

The World Health Organization (WHO) manifested the holistic view of health in the following definition:

“Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.” (162).

This definition includes both “...mental and social well-being”, and shows a developed view, in which health was regarded as something more than the individual’s biology. A human being is thus not only a biological person, but also a mental and social person. However, this definition has been criticized since health is viewed as *a state* and also with a possible *final aim*, which point to a too-optimistic, utopian view (114). There is obviously a lack of dynamism in this perspective, which has been emphasized by Nordenfelt (120), in the following statement:

“...health is not a dichotomy, an ‘either or’, but has different degrees”.

Even though the WHO definition has been criticized for being unrealistic and unattainable, it is the most-used definition of health. It represents a broadened view on health with scope for the individual's own subjective perception in addition to physical and mental diseases. Thus, this view represented a new paradigm.

In 1986 the WHO concept was changed (163), from the idea of being an aim itself to the idea of being a resource in daily life, including the individual's strategies for attaining good health (114). This change expresses a development, where the dynamic aspects of health are accentuated in contrast to the previous view, where health was viewed as a state.

From a multidimensional and holistic view, Eriksson (56) suggests that health is relative and comprises all aspects of life – physical, mental, and social. Health is not a static state, but rather a dynamic process, and varies from time to time and from individual to individual.

The concept of well-being is not just related to a holistic perspective, but even more to an ontological perspective (57), which also includes the individual's feelings of internal harmony and balance. In a pilot study, Eriksson (57) found that happiness, meaning of life, and meaningful work, as well as faith and caring, were declared to be most important for health. Health is, according to Eriksson, individual and personal, which means that the individual is his/her own reference, and his or her experiences of well-being are the measure of health.

As early as the 1950s, the idea of a comprehensive view on health was expressed by Dunn (51). He pointed out that the individual is:

“...a physical, mental and spiritual unity – a unity which is constantly undergoing a process of growth and adjustment within a continually changing physical, biological, social, and cultural environment”.

Based on this concept, Dunn (51) developed a model that he used to explain the degrees and levels of wellness. It was further developed by Eriksson (56), in order to explain the relationship between different perspectives of health (see Figure 2).

It is known that people experience good health despite chronic disease or psychosocial strains, and vice versa. Consequently, there are reasons for separating the concepts of diseased – healthy (the biomedical view) from positive respective negative feelings of well-being (the holistic, humanistic view). Disease is then defined as a deviation from normal functions (31), with focus on a medical, objective view, while health is an experience of well-being and the ability to act despite eventual diseases or disturbances (119).

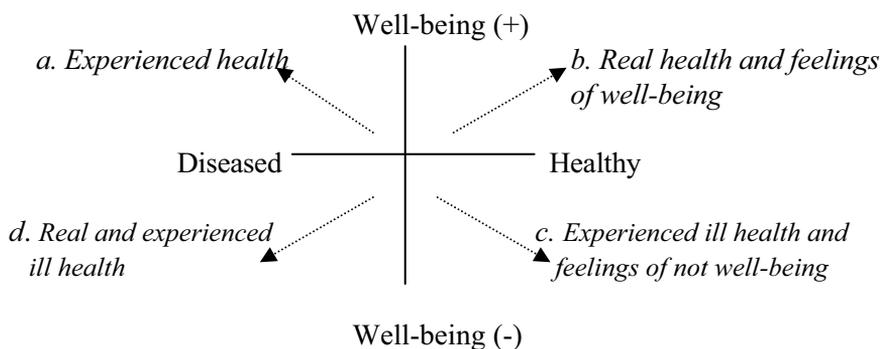


Figure 2: Model of health positions of the individual developed by Eriksson (56) (p. 46).

A question of vital importance from a salutogenic perspective (13) has been why some people experience health and others not, independently of their demanding conditions and illness. When discussing “what does health mean for the individual”, studies have indicated that there are significant associations between experienced health, sickness absence, and personality traits such as quality of life, meaning of life, attitudes, coping strategies, and health (13, 57, 88, 104, 134, 150).

Measuring health

Self-rated health (SRH), is according to Bjorner (30):

“...the individual’s perception and evaluation of his or her health, including perceptions of symptoms, well-being, general health, and vulnerability”.

This is a useful way of measuring different aspects of health, which can be either measured as a global measure, or by an index constructed of different questions (30). Nordenfelt (119) has suggested that measurement of health should primarily be based on self-ratings. Furthermore Levi (101) suggested that only subjective assessment is valid for assessment of individual health. This perspective reflects the importance of the individual as reference for measurement of health. The way the individuals perceive their health is valid as a health measure since several studies have emphasized that SRH predicts morbidity and mortality (30). Other variables measuring health are linked to certain types of psychosocial factors that have been found to affect the individuals’ health, such as workload, perception of control at work, role conflicts, ambiguity, and job insecurity (45, 90, 148).

Sickness absence and work ability

Sickness absence is a useful measure of health (91, 159). It is mainly regarded as an indicator of impaired health and can be associated with present illness or prolonged stressful conditions in private life or in working life (8). From a global view, sickness absence is related to human suffering and loss of welfare, and can have national economic consequences (107). In a long-term perspective, it has consequences not only for the individual's health but also for the employer, the social insurance system, and the nation (149). From a public health perspective, it is essential not only to find the causes of sickness absence and morbidity but also to reach a better understanding of preventive interventions, and particularly to evaluate such interventions (7, 106).

Overall, the risk of having a sickness absence varies with socioeconomic status, gender, occupation, and age (49, 143). Stress and demands at work as well as in private life, higher average age in the workforce in general, personal factors, and circumstances in society have been suggested as contributing factors to reduced work ability and sickness absence (77, 93, 102, 150, 158, 166, 167). Analyses from the National Swedish Social Insurance Board (NSI), (130), showed that disturbances in the psychosocial work environment had increased since the mid-1990s and especially among occupations with a predominance of women (142). Furthermore, it was emphasized in these reports as well as in the SBU report (137), that occupations with high degrees of psychological demands at work increased the risk for long-term sickness absence.

An increase in sick leave indicates impaired working ability, with negative impact on health, but does not indicate the underlying mechanisms for the increase (85, 137). Numerous empirical studies demonstrate associations between sickness absence and factors related to different structural levels: individual, occupational, and national (8, 73, 93, 94, 159, 160). Research has also suggested that absence from work is related to a range of factors that explain employees' motivation to be at work rather than to diagnosis and working ability (9).

Thus, sickness absence is a complex phenomenon and not necessarily the same as the health status of the individual, sickness in a society, or sickness in an occupational group (9). When discussing health and ill health, the general concepts of illness, disease, and sickness are used (7). These concepts and their relation to sickness absence are presented in Figure 3.

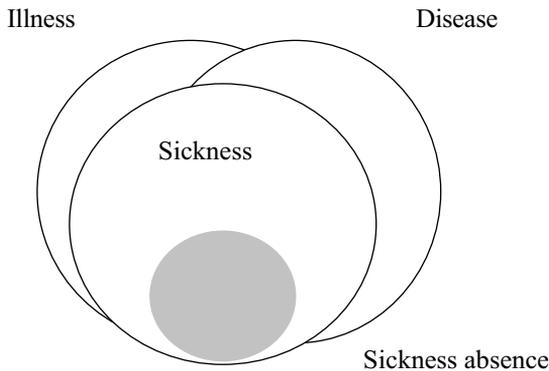


Figure 3: The relationship between illness, disease, and sickness adapted from SBU (137).

Since sickness absence is found in different studies to be a predictor of future absence (160), and SRH is found to have good agreement with register data on sickness absence (168), there are reasons for using sickness absence as a measure of individuals' health. Depending on the aim of the measurement, alternative measurements such as incidence, the burden of sick leave, and the duration of sick leave have been proposed in order to reflect different dimensions of sickness absence (74).

2.3 Organizational health

A modern definition of organizational health or well-being includes two critical components, performance of the organization and health of the employees. Sauter et al. (136) have defined a healthy workplace as:

“...any organization that maximizes the integration of worker goals for well-being and company objectives for profitability and productivity”.

The dual focus in this definition represents a shift in the notion of what constitutes health within an organization. Traditionally, the health of an organization was evaluated from the goal of avoidance of poor health, as opposed to optimizing health (62). The guiding principles for organizational health of today are reflected by a multidisciplinary perspective, focusing on a continuous transactional process that occurs between the individuals and the work environment. Well-being at the workplace requires understanding of the way in which health is affected by organizational exposures as well as by promoting practices (62).

What constitutes organizational health in organizations is apparently related not only to potentially injurious factors at work, but also to the employ-

ers' understanding of the employees' needs and to their interests in promoting activities. Organizational health in caring organizations is reflected both by the quality of delivered services and by the employees' health. Inversely, organizational health enhances the health and commitment of the employees, who in turn have an impact on the quality of service delivery (47).

Exhaustion is a sensitive indicator of individual as well as organizational health (47), and a high degree of exhaustion among the employees indicates an overall accumulated stress within the organization (21). Factors that have a close association with organizational health include factors like the congruence between espoused organizational values and their actual practice (17), the employees' possibilities for personal development (47), and the employees' experience of occupational stress, which has to do with the balance between existing resources and experienced demands (98). Furthermore, Arnetz (21) has pointed out that goal clarity is an important predictor of employees' mental energy and health. Poorly defined goals are linked to uncertainty for the future and results in higher levels of stress. Factors that are found to cause organizational stress include structural changes, lack of participation, ineffectiveness, unsatisfactory leadership, no benefits received, and unclear objectives (24, 157).

In the present thesis, organizational health is regarded either as a reflection of the rate of sickness absence, the employees' experiences of work exposure and work exhaustion (Paper I, III, IV), or as experiences of effects of goal clarity work on organizational well-being (Paper II).

2.4 Settings

The Church of Sweden

The Church of Sweden¹ was disestablished from the State in 2000 and given the same status as other churches. The consequences are mostly organizational. The Church's role in society has gone through extensive changes during the 20th century. From its earlier role of being responsible for all the social tasks in the society until 1862, to becoming more specialized in the "religious part" (37, 54), the Church still has a significant function in society. Almost all Swedes have some relationship with the Church during their lifetimes, and the most evident instance in which the Church provides interpretation for the population may be in relation to grieving and death (144). The Church of Sweden's tasks have, for many people, a connection to situa-

¹ The Church of Sweden is an evangelical Lutheran church and in 2006 about 70% of those residing in Sweden belonged to the Church.

tions that have a relation to the meaning of life. From this point of view, it is not surprising that there are special demands and expectations of the Church as a place of work.

The Church of Sweden has about 2500 parishes, grouped into about 900 independent employers in 13 dioceses. After the separation, the Church has been regulated by a Church Ordinance (CO), which serves more as a guideline than as legislation for the employer. Employers are expected to work out goals and guiding principles for their local activities as well as for their work environment.

Working life in the Church of Sweden has changed over the past several decades. The number of employees has doubled and the parish activities have become more extensive and complex. Activities varied from very limited and mostly clerical work such as worship and occasional rites where everyone worked individually, to extensive projects with work teams consisting of many different professions (37, 67). Furthermore, the vicars have gradually obtained new responsibilities as managers of all the other employees, which is also stated in the new Church Ordinance (96).

The management and governing of the parishes was (and still is) divided between the vicar and the Church Council, often with little clarity of their respective roles. This system results in many cases in poor management, which in turn leads to conflicts (16, 66, 145).

The statistics from the Swedish National Board of Occupational Safety and Health showed in 1997 that the number of reported occupational injuries in work within the Church of Sweden was larger, relative to the number of employed, than in any other occupational groups regarding psychosocial and organizational work environmental causes (1). Furthermore, the Swedish Labour Inspection reported that it was more common for clergy to report psychosocial injuries from their work than any other occupational group in Sweden (15).

After the disestablishment in 2000, the Church Ordinance stated that all parishes within the Church had to produce a document that defined their goals and activities.

Elderly care

In 1992, the Elderly Reform Bill (ÄDEL) transferred the responsibility for nursing homes and other institutions for long-term medical care from the county councils to the municipalities (155).

This reform involved a real change for the approximately 55,000 employees (131) who were transferred to the municipalities. The changes introduced different kinds of requirements of the staff. It was necessary to improve both social and medical knowledge, and the role of the relatives to the elderly recipients changed in the sense that they also were expected to take on an important role in ensuring proper care of the elderly (71). Furthermore, new

requirements of quality and effectiveness in the elder care, as well as organizational changes during the 1990s, contributed to both physical and mental strain with increased ill health and sick leave toward the end of the 1990s (14, 20, 71, 157). However, the absence due to sickness among elder care employees is still high compared with the average sick leave rates in Sweden.

Reports of high degrees of workload and incidences of comparably high sick leave among elderly care employees in a municipality resulted in a project with the aim of identifying causes for stress-related sickness absence in the area of elderly care (presented in Paper III).

At the time this project started in elderly care, an organizational change was planned within the organization. Thus, the employer supported an evaluation of the change and its effects on employee health and sickness absence rate. A follow-up measurement was carried out one year after the reorganization had started (presented in Paper IV).

3. Materials and Methods

The four papers included in this thesis are based on three separate research projects done over a period of six years, between 1998 and 2004. Both qualitative and quantitative methods are used. In two of the studies (Papers III and IV) bio-psychosocial measures are used in order to capture the multi-factorial perspective concerning effects of exposures on health.

3.1 Qualitative and quantitative methods

The aim of a quantitative method is to support or disprove a hypothesis or to answer a question, whereas a qualitative analysis aims for a deeper understanding of a phenomenon. Research on work- and health-related problems, as well as effects of interventions, are presumed to profit from an integrated use of both methods (117). The suggestion is to not only separate the use of the two methods in parallel processes of a study, but also to integrate the use of them in the same study. Five different methods of integration are proposed: 1) a qualitative approach as foundation for the design of a quantitative study, 2) qualitative studies to gain deeper insight and better analyses of the results from a quantitative study, 3) quantitative research to study frequencies and distributions of phenomena discovered by qualitative approaches, 4) parallel and integrated use of qualitative and quantitative approaches, and 5) quantifying qualitative data (116, 117).

Here, the fourth model, parallel integration of qualitative and quantitative data, is used (Figure 4).

The qualitative research interview is a quintessential method for data collection in qualitative studies. It is a method preferred by qualitative researchers, probably due to its ability to generate texts about experiences of people who do not themselves produce such texts on their own (78). This method has several strengths, including degree of control of the researcher and possibilities for a positive dialogue and relationship between researcher and interviewee. However, there are a lot of circumstances required for good-quality results. They concern the entire interview situation as well as the quality of received data (78). The requirements are dependent on what kind of analysis is chosen for the study. For qualitative studies these methods are not as well

formulated as are those for quantitative studies (116), which make it more complicated for the researcher to interpret the results.

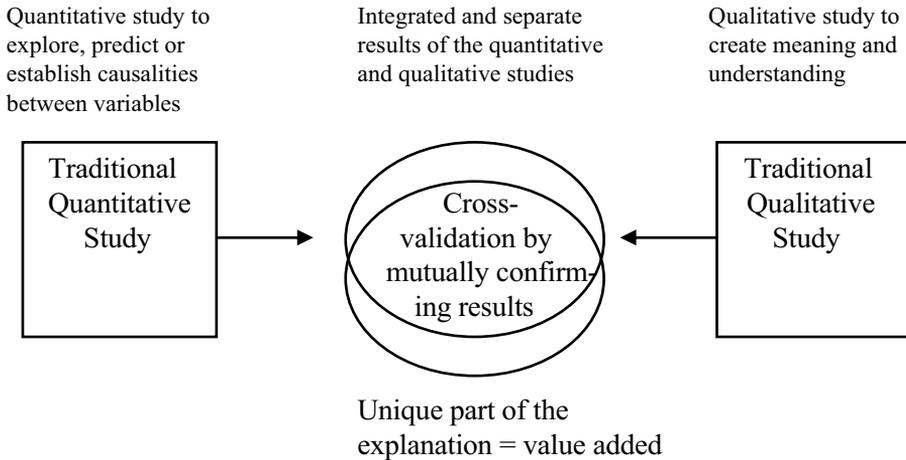


Figure 4: Model describing parallel integration of qualitative and quantitative data (117).

3.2 Designs, subjects and data collection

Paper I

This paper was based on a cross-sectional study with a qualitative approach that was carried out in two steps between October 1998 and April 1999. The first step was a document study, and the second step consisted of an interview study.

Firstly, injunctions from the Swedish Labour Inspectorate (SLI) concerning the psychosocial work environment in the Church of Sweden were collected. A total of nine SLI districts were addressed by letter in order to get copies of reports from inspections about psychosocial work environment in the Church. There were two types of reports, from announced and unannounced inspections. The purpose of the latter was to survey the work environment in compliance with the Swedish Occupational Safety and Health Act (OSHA). Announced work place visits often had the purpose of solving workplace conflicts. In total, 201 documents were collected.

Second, to capture a wider and deeper perspective on significant patterns that characterize the work environment, 31 interviews were conducted, which included all 20 of the personnel officers in the 13 dioceses. The personnel

officers were chosen because of their responsibility for parish supervision and their overall knowledge of the parishes in the respective dioceses. Because no hypotheses were formulated, the interviews were built up from four comprehensive open-ended questions. These were “Describe your experiences of the Church as a place of work”; “Describe what types of problems you have experienced?”; “What kind of patterns have you identified?” and “What kind of improvements for the future are required?” From this interview guide the respondents were free to answer the questions in their own ways. Questions outside these overall questions could be addressed to the respondent if necessary to catch his or her opinions in a better way. The interviews were conducted one-on-one at the respective workplaces of the interviewees; they were recorded and lasted between one to two hours.

Paper II

Based on a stratified random sample of about 20% of the parishes in the Church of Sweden (501), this study was carried out as an evaluation study in order to assess effects of the parishes’ goal clarity work on work environment and parish development. The participants consisted of vicars or priests in charge and chairpersons in the Parish Councils, chosen because of their responsibility for complying with the Parish Instruction according to the Church Ordinance. A structured questionnaire with one reminder was sent out by post in October 2000, to vicars (or priests in charge) and chairpersons in the parishes, making a total of 1002. Of the vicars or priests in charge, 68% responded and of the chairpersons 56% responded, making an overall response rate of 62% (n=624). After excluding 68 answers due to the respondents not having started their work with Parish Instruction at the time of the data collection, 556 persons remained for the analyses.

Paper III

This study was a cross-sectional, bio-psychosocial study, based on data from questionnaires and blood samples with the aim to investigate causes to stress-related sickness absence. A total of 278 employees in six units in an elderly care facility were invited to participate in the study. The six units represented all types of activities in the division (home-help service; elderly homes, and individual assistance) and were chosen in order to reflect these circumstances. Questionnaires were distributed by the superior of each group to the employees with instructions for sending the questionnaire anonymously back to the leader of the research project. The response rate was 81%. Blood samples were collected in the morning after overnight fasting, between 07.30 to 09.30, to check for circadian variation in blood hormone levels. A nurse from the Occupational Health Care office in the municipality was responsible for blood samples. All individuals received per-

sonal feedback in the form of written reports with interpretations and recommendations based on their own biological results. They were also provided with contact information to a physician if they requested more detailed information.

Paper IV

The fourth paper was a controlled, longitudinal, prospective study, based on data from questionnaires and blood samples at baseline and at one-year follow-up. The study involved 156 participants that could be identified both at baseline and at the one-year follow-up assessment, of which 112 in the study group (directly concerned by the reorganization), and 44 in the reference group (not directly concerned). Data collection was used in the same way as in Study III, with questionnaires and blood samples, and for this study also collected at the follow-up measurement.

An overview of aims, design and participants in the papers is presented in Table 1.

Table 1: An overview of aims, designs, and participants in Papers I-IV.

<i>Paper</i>	<i>Aim</i>	<i>Design</i>	<i>Participants</i>
Paper I 1998-1999	Examination of psychosocial factors within the work environment of the Church of Sweden	Cross-sectional, with a qualitative approach in two steps and from a top-down perspective	1. Documents (201) 2. Interviews, n=31 (personnel officers, SLI inspectors, representatives from other churches and federated representatives)
Paper II 2000	Effects of goal clarity work on organizational well-being	Cross-sectional, retrospective, random study	Vicars and chairpersons in parishes n= 556
Paper III 2003	Causes of stress-related sickness absence	Cross-sectional, bio-psychosocial study	Employees in elderly care n= 225
Paper IV 2004	Effects of organizational change on health and sick leave	Longitudinal, controlled prospective, bio-psychosocial study	Employees in elderly care n= 226, of which 160 in the study group and 66 in the control group

3.3 Measurements

In Paper II, a questionnaire was specially designed for this study in order to measure experiences of the effects of goal clarity on work environment and experiences of work processes. The questionnaire was divided into background questions (occupation, age, gender, parish size, and former experience of goal work) all presented as multiple-choice questions and questions on organizational well-being and work process. All were presented with Likert scales, and converted into a range of 1-5, where 1 represented “disagree totally” and 5 represented “agree totally”. Factor analyses were used in order to reduce the number of variables and to identify clusters of items assessing organizational well-being and work process. These analyses resulted in two key indices for measuring organizational well-being (Work Environment and Parish Development) and two indices measuring the work process (Disagreement and Engagement). The indices were based on two to five single items with the same Likert scales. The questionnaire also contained one single item measuring influence at the work process and one open-ended question, valid for remaining experiences of the work. For validating the questionnaire, we used the managing directors of the 13 dioceses. The descriptions of the items are presented in Table 2.

In Papers III–IV, questionnaires and blood samples were used. The questionnaires were based on earlier studies of healthcare personnel’s work environments (18, 26, 70, 128). Blood samples were taken for hormones, sensitive for measurement of effects of work-related stressors; this method has been used in a number of studies (12, 22, 72, 112, 121, 153).

The questionnaires included the following questions and indices:

Background questions

- Consisted of age, gender, educational levels, civil status, workplace, and the terms of employment, children living at home, and reports of sick leave. These questions were presented as multiple-choice questions.

Organizational, individual-related and modifying factors

- Scales from the Quality Work Competence questionnaire (QWC), developed at the Center for Environmental Disorders and Stress at Uppsala Academic Hospital and Uppsala University (70), were used for assessment of factors within the organization that are hypothesized to have impact on health. The OWC questionnaire is a validated and published questionnaire designed for assessment of *organizational and employee well-being* (22). Each scale consists of three to five items with standard Likert 4- or 5-point check-off scales. All indices were converted into

percent scores, ranged from a possible low of 0% to a high of 100%. The QWC assessment areas are presented in Table 2, below.

- Measurement of *individual-related factors* such as meaning of life, home situation, and social situation, single items, were used, all measured by the Visual Analogue Scale (VAS) and presented as a percentage from 0-100%, with 0 as the lowest possible value (“very poor”) and 100 as the highest (“very good”). Furthermore, an index measuring the individual’s coping ability was constructed in order to assess how the individuals rate their abilities to recover from and cope with life stressors. A VAS scale was also used for this index with the same range of 0-100%, (see Table 2).
- Measurement of *work satisfaction*, defined as the individual’s reaction to work stressors; a single item, measured by the same VAS scale, again with 0 as the lowest possible value (“very bad”) and 100 as the highest (“very good”).

Health consequences

- *Self-reported health* (SRH), was used as a measure of consequences of stress-related exposures (Papers III and IV), measured by one self-reported global health item using the same VAS scale (69), where 0 represented the lowest possible value (“very poor”) and 100 the highest (“very good”).
- *Sickness absence* was measured as self-rated sickness absence related to stress, and consisted of one multiple choice question; “*Have you, during the last year, been on the sick-list for something you feel is related to stress?*”, with response alternatives of “yes” or “no” (Paper III). In addition the total number of registered days of sick leave was collected from the employer’s centralized database before and after reorganization (Paper IV) in order to get an objective measure of sickness absence status.
- *Blood samples* were obtained in Papers III-IV, in order to assess serum concentrations of the hormones serum cortisol, serum prolactin, serum testosterone (Paper III) and dehydroepiandrosterone-sulphate (DHEA-S). Venous blood samples were taken in the morning between 07.30 – 09.30 after overnight fasting, in order to control for circadian variations in blood hormone levels, and sent directly to the hospital laboratory. The laboratory had an approved laboratory quality/security program (QC/QA), certified by the Swedish Accreditation Body (SWEDAC), as specified in European norms (SS-EN ISO/IEC 17025 and EN/ISO 15189). Blood samples for hormone analyses were taken at the same time as/or a few days before answering the questionnaires.
- In this thesis *organizational health* is measured partly from self-reported sickness absence, partly from employers’ registration of sickness ab-

sence, and partly by self-reported single items and indices from the QWC questionnaire (Papers III-IV). In Paper II, goal clarity has been measured with regard to its effect on work environment and parish development in the Church.

Table 2: Scales used in Papers II-IV. Descriptions of indices, response ranges, internal consistency of scales (Cronbach's alpha) and references.

Scale	Description	No. of items	Range	Alpha	Paper	Reference
<i>Work Environment</i>	Goal clarity has contributed to: (improved co-operation; positive discussions; dealing with disagreements; understanding of diversities; improved relations)	5	5-25	.77	II	Developed in Study II
<i>Parish Development</i>	The goal work has contributed to: (development of parish work and parish activities; and value for future)	3	3-15	.76	II	Developed in Study II
<i>Disagreements</i>	The work has involved: (disagreements; different opinions about goals)	2	2-10	.65	II	Developed in Study II
<i>Engagement</i>	Characteristics of the work process: (passiveness; a single person's work; engagement)	3	3-15	.79	II	Developed in Study II
<i>Influence</i>	My own influence at the work has been great	1	1-5	---	II	Developed in Study II
<i>Work climate</i>	Positive atmosphere at work, cohesion and supportive atmosphere among co-workers	3	3-12	.82	III	(22)
<i>Work tempo</i>	Sufficient time for: preparing and finishing the work, for reflecting about the work and on how to improve it	4	4-16	.77	III	(22)
<i>Work-related exhaustion</i>	Feelings of emptiness and exhaustion after work, and fatigue when thinking of work	3	3-15	.85	III, IV	(22)
<i>Participatory management</i>	Latitude for deciding what tasks should be done and how to do them, sufficient influence related to responsibilities, influence on workplace decisions	5	5-20	.63	III	(22)

Scale	Description	No. of items	Range	Alpha	Paper	Reference
<i>Employeeeship</i>	Open for changes and development of working routines, responsibility for competence and professional development, and for adequate information	4	4-16	.67	III	(22)
<i>Skills devel- opment</i>	Opportunities for professional development and use of expertise at work, current job tasks offer profes- sional development	4	4-16	.75	III	(22)
<i>Goal clarity</i>	Workplace goals are well-defined, realistic, influence able, and assess- able	4	4-16	.90	III	(22)
<i>Efficiency</i>	Planning of work, striving towards common goals, well-functioning decision-making processes, opti- mally used resources	4	4-16	.75	III	(22)
<i>Leadership</i>	Immediate supervisor: (communi- cates clearly, acts consistently, is visionary and flexible and creates possibilities for a good job)	5	5-20	.88	III	(22)
<i>Work satisfac- tion</i>	“How do you feel about your pre- sent work situation?”	1	0-100	---	III, IV	Developed in Study III
<i>Meaning of life</i>	“Do you experience your life as meaningful at present?”	1	0-100	---	III	Developed in Study III
<i>Social situa- tion</i>	“How do you experience your present social situation?”	1	0-100	---	III	Developed in Study III
<i>Home situa- tion</i>	“How do you experience your present home situation?”	1	0-100	---	III	Developed in Study III
<i>Coping/ Recovery</i>	Abilities to recover from and cope with life stressors (sleeping, possi- bility to relax and make necessary efforts)	5	0-100	.62	III	Developed in Study III
<i>Self-rated health (SRH)</i>	“How is your general health at the moment?”	1	0-100	---	III, IV	(69)

3.4 Qualitative analyses

The analyses in Paper I aimed at identifying patterns (themes) in the documents and interviews. In the first step, documents were analyzed and categorized in terms that corresponded to the Systematic Work Environment method of the Swedish Labour Inspectorate, and in accordance with the work environment act (OSHA). In the second step the recorded interviews were transcribed, read, analyzed, and categorized in order to describe what factors characterized the psychosocial work environment at Church workplaces. The criteria for categorization were factors that were linked to the definitions of the psychosocial work environment.

3.5 Statistical analyses

All data in Papers II-IV were analyzed using SPSS statistical software for Windows XP (versions 12.0.1. 2004 and 12.0.1. 2005). In these papers data was first assessed for means and standard deviations for each respective group. To test group differences, T-tests or one-way ANOVA analyses were used. Pearson correlation was used in Papers II and III to examine the relationship between outcome and background variables. Logistic regression analysis was performed in Paper III to calculate possible risks for sickness absence among those with stress-related sickness leave. Multiple regression analysis was used in Paper III to find predictors for work satisfaction and work-related exhaustion.

In Paper IV, a two-way ANOVA analysis for repeated measurement was used to compare possible differences between groups and cross-time effects.

4. Results

4.1 Psychosocial work environment – Paper I

The overall aim for this study was to identify determinant factors of psychosocial work environment in the Church of Sweden in order to get a better understanding of the ill health within the organization. The results indicate that the Church of Sweden is a complex workplace, where different types of conditions contribute to stressful exposures in working life. There were four significant patterns identified that characterized the psychosocial work environment in the Church; these were unclear organizational structure, a sense of being different, stressful work conditions, and destructive communication style. The analysis indicates only small differences in opinions about the work environment among the interviewees themselves, and between the interviews and the content in the reports from the SLI

Unclear organizational structure was characterized by indistinct governing and management with role uncertainty, lack of goal clarity, and poor leadership. Furthermore, a sense of “being different” included no tradition and a lack of knowledge of how to handle workplace and environmental problems, as well as expectations from the society and church members of “goodness” and well-being at church workplaces. These expectations often lead to disappointment from the society and also to feelings of failure within the Church itself when one cannot manage the problems in accordance with their espoused values.

Stressful work conditions consist of elements like emotionally straining work, long work hours, working alone, and a complex organizational culture, such as avoiding attitudes of conflict and feelings of always being accessible, resulting in an unsatisfying psychosocial work environment. In addition, the communication style was found to be destructive in the sense that employees tended to avoid conflicts and strive for good relations. Conflicts were considered unacceptable to the Church, where the basic values are related to charitable behavior.

On the other hand, factors that were found to have modifying effects on individuals' health were the employees' experiences of influence and freedom of action at work. At the same time, these factors were found to be health risks because of the employees' boundless enthusiasm in their work.

Conclusion: this study indicates, as stated by one of the interviewees: “.. *the Church is not worse, but it is getting worse because people do not accept the reality they are facing.*” Furthermore, the four patterns identified in this study, and lack of recovery, mentioned by the SLI, are the most prominent determinants of the psychosocial work environment in the Church.

4.2 Goal clarity work – Paper II

The main objective of this study was to assess effects of goal clarity work on organizational well-being, with special regard to the psychosocial work environment and parish development.

The findings show overall positive experiences of effects of goal clarity work on organizational well-being in the parishes. However, there was a significant difference between the parishes; those with former experience of goal clarity work and those representing larger and medium-sized parishes were significantly more positive toward the effects of the work and its value for the psychosocial work environment and parish development. About 66% of the respondents had former experience of goal clarity work, an experience that was more common in larger parishes.

Experiences of the work process showed higher degrees of involvement among older respondents, while younger respondents tended to experience higher degrees of their own influence at work. Influence at work was also found to be rated significantly higher among vicars and priests in charge compared with chairpersons. Furthermore, respondents from medium-sized and large parishes tended to rate their own influence at work as higher than those from small parishes.

Conclusion: goal clarity work is, from this study, suggested to have a positive impact on organizational well-being, mainly among larger parishes and parishes with former experiences of that kind of work.

4.3 Risk factors for stress-related sickness absence – Paper III

The purpose of this study was to assess factors increasing risk for sickness absence due to stress between employees in elderly care. The results showed that non-married employees and employees with part-time employment were overrepresented among those with stress-related sickness absence. There were no significant differences regarding age, gender, and education.

Employees with stress-related sickness absence experienced significantly worse health (SRH) compared with those not reporting stress-related absence. Furthermore, they tended to experience their work satisfaction, their social

and home situations, as well as feelings of meaningfulness, as significantly lower than those employees without stress-related sick leave ($p < .001$).

The findings did not reveal any significant differences for stress hormones between the groups. However, a correlation analysis showed significant connections between the coping/recovery potential and the hormone DHEA-S.

The results for organizational factors (work climate, work tempo, participation, skills development, and leadership) showed significant differences between the groups for most of these factors. However, for work-related exhaustion there was not only strong significance, but also the largest absolute differences between those employees with and without stress-related sickness absence ($F_{(1,196)} = 24.46$, $p < .001$). There were no significant differences for goal clarity, efficiency, and employee ship.

Testing risks for absenteeism due to stress, the results showed significantly higher risk, OR 2.8 (95% CI 1.3 - 5.9), for employees with unsatisfying work situations. For employees with unsatisfying social situations the risk for sickness absenteeism due to stress was somewhat higher, OR 3.2 (CI 1.2 - 8.6).

Furthermore, to find predictors for the overall highly rated work-related exhaustion in both of the groups, a multiple stepwise regression analysis showed that coping/recovery potential significantly predicts work-related exhaustion among the employees ($p = .001$). The lower the coping/recovery potential, the higher the work-related exhaustion.

Conclusion: work-related exhaustion was found to be the most significant reaction to experienced work exposures among elderly care employees, and was significantly associated to their self-reported sick leave due to stress. In this cross-sectional study there was no support for biological stress markers as criteria for explaining group differences of absence due to stress.

4.4 Effects of organizational change – Paper IV

The overall aim of this longitudinal study was to assess effects of an organizational change on health and sickness absence. The results showed neither significant difference between groups nor time effects for SRH, work satisfaction, and work-related exhaustion. On the other hand, for the hormones there were to some extent significant differences; the hormone DHEA-S had changed over time ($p < .05$), and between groups. The level of DHEA-S decreased in the study group, and increased somewhat in the reference group ($p < .001$). The level of cortisol had significantly decreased over time to a lower level ($p < .01$), but did not show significant difference between groups. For prolactin, we did not find any statistically significant differences over time or between groups.

Days of sick leave calculated for the actual population (study and reference groups) had increased during the year of reorganization, by +4.8 days per

person in the study group, compared with +1 day per person in the reference group.

Conclusion: Our findings revealed a significant decrease in the hormone DHEA-S in the study group, which was in line with our expectations. The decreased levels of DHEA-S for those involved in the reorganization may point to insufficient recovery, which can possibly be a consequence of their experiences of long-term stress during the year of reorganization. This result was to some extent confirmed by a change in days of sick leave. Still, there were no significant changes over time or between the groups regarding their experiences of SRH, work satisfaction and exhaustion.

5. Discussion

This section contains the findings and their relevance to the research question, “*What are the determinants of individual and organizational health in human service professions?*” discussed from the theoretical model (shown in Figure 1). Four studies were carried out. They were aimed at examining psychosocial work environment factors, investigating effects of goal clarity work on organizational well-being, identifying exposures resulting in stress-related sickness, and also investigating effects of organizational change on health and sickness absence in a longitudinal study.

The overall results show that both organizational and individual factors had impacts on health in the studied professions. Positively experienced factors at workplaces in the Church (Paper I) included a high degree of control at work, freedom to work out tasks individually, and possibilities of having influence at work. These circumstances are suggested to have modifying effects and to minimize employee stress (90, 151). Regarding the effects of goal clarity work (Paper II), the results indicated an overall positive view on its impact on organizational well-being, mainly among larger parishes and parishes with former experiences of that work. Contrary to these positively experienced conditions at church workplaces, there were four significant patterns identified for the psychosocial work environment that had negative impacts on individual as well as organizational health. These were unclear organizational structure, a sense of being different, stressful work conditions, and a destructive communication style.

Among elderly care employees the results showed in general (Paper III) experiences of efficiency at work and positive work climate, which are suggested to be factors having positive effects on individual health as well as on organizational well-being (154). However, influence at work was not experienced as positive within the elderly care; on the contrary they experienced high degrees of insufficient possibilities for influence at work as compared with recommended targeted levels. In an earlier longitudinal study, perceived employability was found to be a significant predictor of health and well-being among employees (29). With reference to the results in Paper III, work conditions were rated generally lower among those with self-reported sickness absence due to stress, compared with those without absence due to stress. How-

ever, work-related exhaustion was found to be the most significant factor explaining differences in self-reported sickness absence due to stress in this profession.

In Paper IV, we expected that being involved in an organizational change such as the reorganization would increase levels of stress among employees, and that this would be evident both in measured levels of self-reported psychosocial factors and in effects on stress hormones. Studies on organizational changes have emphasized that prolonged strained work conditions, such as an organizational change, present risks for employees' health and sickness absence (93, 157). Insecurity about employment or changes in work conditions are shown to contribute to work dissatisfaction, stress, and increased risks of sick leave (147).

The findings revealed no significant changes for SRH, work satisfaction, or work exhaustion over time or between groups, which was an unexpected result. However, there was a significant decrease in the hormone DHEA-S for the study group, which was, on the other hand, in line with our expectations. Despite the relationship's complexity between stress markers and perceived health, the results indicated a decreased ability to recover from stress in the study group, which might have long-term health implications.

This result was, to some extent, confirmed by changes in days of sick leave, which had increased by 7% for those directly concerned by the change, compared with 2% for those not involved in the change.

5.1 Perceived stressors

Stressful work conditions are found among the employees in both of the studied professions. These conditions included high work tempo, lack of leadership, lack of goal clarity, and extrinsic and intrinsic demands at work, where the employees tended to experience an imbalance between demands and resources available. These findings are also in conformity with prior studies on stress and strained conditions (16, 35, 41, 46, 113, 127, 154).

Moreover, the reality of high work tempo and, among church employees, long work hours, leaves too little time for recovery. In several studies, possibility for recovery is found to be a necessary resource, physically as well as mentally, for prevention of ill health (11, 122). For the Church, the SLI pointed out that lack of recovery was one of the most serious causes for the stressful work conditions in the Church of Sweden.

Among work exposures, unsatisfying leadership appears to be another phenomenon common to both of the professions. This exposure is significantly related by employees in elderly care to an unsatisfying work situation and stress-related sickness absence, which also has been suggested as a cause of impaired health in prior studies (23, 93, 167). In the Church, many problems in the parishes are referred to as a function of ineffective governing and

management (35, 66, 67). In particular, “the double responsibility” (the vicar and the Church Council are both responsible) seem to cause difficulties and confusion about who is responsible for what. This in turn leads to insecurity and stress reactions.

Lack of goal clarity is found in this thesis to be a stressor with adverse effects on employee health in the Church, but with minor negative effects in the elderly care. Research on organizational health has emphasized that goal clarity has an important role in attaining security about work expectations, which in turn promote individual as well as organizational health (21, 47, 55, 148).

Lundberg (104) shows how expectations such as effectiveness, competition, and staff cuts cause emotional demands among the employees, resulting in ill health within the organization. In the Church, external expectations (from the society and members) are described as stressful, with negative effects on health. There are expectations that the Church will stand as an example for goodness in a working life without stressful conditions (129) and also that the employees’ behavior will set good examples in ethics and morality. There are also internal expectations, meaning that the clergy has internal demands to satisfy external expectations. There are obviously experiences of an imbalance, or according to Argyris, a gap between espoused values and values in practice (17), between vision and realism. In the 1970s, Argyris found an association between health and the gap of espoused values and values in practice. When the employees look at the gap they feel personal failure, which in turn contributes to feelings of inadequacy and exhaustion. Regarding elderly care, studies have emphasized that expectations of quality in care from society or relatives often affect employees’ health negatively (20, 46, 71, 75, 154). However, external expectations within the elderly care were not measured in this thesis.

5.2 Perceived reactions to stressors in the work environment

Physiological reactions

Psychobiological measures of such hormones as prolactin, cortisol, testosterone, and DHEA-S were used in this thesis (Papers III-IV) for assessment of associations between psychosocial work exposures and hormonal stress reactions. However, in Study III, which was cross-sectional, it was not possible to relate changes in the hormone levels to different individuals. In Study IV it was evident that levels of DHEA-S decreased among those directly concerned in the organizational change, which might reflect decreased ability to recover from stress. The impaired levels of DHEA-S could have been a consequence of their experiences of long-term stress during the or-

ganizational change. Studies have also shown that long-term psychological stress without recovery possibilities for the individual tended to affect DHEA-S negatively with decreased serum levels (36, 69).

Another finding was decreased levels of cortisol over time, which implies a possibly flattened cortisol curve and may indicate a disturbance in the regulation of cortisol levels that developed during the year of reorganization. A possible interpretation, though an uncertain one, is that the change has to do with a period of insecurity and turbulence in the work environment for all of the employees in the organization, and not only for those directly concerned by the change. Low levels of cortisol are found to be characteristics of chronic fatigue and burnout (72).

Psychological reactions

The main psychological responses or reactions found in this thesis to the overall stressful work conditions were low *work satisfaction* (in the elderly care) and high degree of *work-related exhaustion* (both for church and elderly care employees). These reactions were in conformity with prior studies and add evidence that work satisfaction and work-related exhaustion are reliable indicators of individual and organizational health (32, 47).

5.3 Individual and situational properties as modifying factors (resources)

Kahn and Byosiere's stress theory (87) states that properties of the individual and of the situation are determinants of adjustment to stressors.

Among individual properties, coping/recovery ability was found to be lacking among elderly care employees with self-reported absence due to stress (Paper III). From results in Paper I, coping ability as a concept is not mentioned, however, difficulties among the employees in drawing lines between work and private life, and tendencies of not being able to handle all of the demanding conditions at work, indicate a reduced coping ability.

In the Church, work satisfaction is found to be related to the employees' strong enthusiasm and the meaningfulness they tend to experience at work. In healthcare employees, there was significantly higher rated SRH as well as work satisfaction for those who rated high degrees of meaning at work. These results were expected and in line with results from prior studies (13, 34, 35, 57, 103). On the other hand, feelings of meaninglessness, which have a close connection to exhaustion and feelings of emptiness, have been suggested to contribute to ill health among church employees (34). In concordance with previous research, these symptoms of exhaustion and burnout, and sickness absence rates tended to be correlated with low meaningfulness at work (32,

57, 133). These results point to a tendency for meaningfulness as a modifier for individual health.

Furthermore, feelings of helpfulness and attitudes of “taking care of” are described as the prime motivator for work in human service professions and sometimes related to a “helping personality” (16, 35, 47, 52, 132, 135, 146). In that sense this property can be regarded as a modifying factor to health as well. Among church employees, these feelings have a great deal to do with individual demands on the obligation to be readily accessible, which is based in fundamental values and a part of the Christian mission (65). However, the results may indicate a risk for exhaustion for those who experience stressful work in non-profit professions, which is in line with previous findings (16, 65, 80).

A hypothesis is that individual characteristics, such as the “helping personality” trait, where there is a strong enthusiasm, personal and emotional investment in the work, can turn negative and contribute to exhaustion, burnout, and sickness absence instead of having modifying effects on health. These findings are also reported in previous studies (35, 47, 98). Cox (46) and Cherniss (41) have suggested that experiences of the work as a vocation or calling brings a risk for exhaustion among human service professions. The modifying value of this property tends to turn negative, which is contrary to what is expected from that kind of resources.

Properties such as social support, social situation, and home situation are often described as modifying factors (39, 44, 48) with buffering effects for ill health. In this thesis, we show that these modifying factors differ significantly between those with stress-related absence and those without (Paper III).

In Paper I the analyses show that social support (guidance), from the church council was insufficient and contributed to role conflicts and insecurity about managerial tasks for the vicars. This result was also in line with previous findings where social support from colleagues and managers was reported as lacking (35, 64). In Paper III self-reported home situations and social situations were measured, and the results show support for these factors being unsatisfying among those who reported stress-related sickness absence. In the literature, there are suggestions of different aspects of social support, in terms that include the individual’s entire social network (79), to which both home and social situation belong. However, to state that this result is related to established definitions of social support is possibly a risky interpretation. Still, there is no reason to entirely disregard the fact that experience of one’s social situation or home situation possibly can be included in the concept of social support. However, to what extent one circumstance has an impact on the other is not demonstrated in the study, since the results are based on cross-sectional data.

Regardless of that, results of the effects of home situation and social situation, demonstrated in Paper III, show significant correlation to perceived SRH

and self-reported absence due to stress. That means that those who reported stress-related sickness absence tended to experience their home and social situations as more unsatisfying compared with those not absent for stress. A likely interpretation is that home and social situations may have modifying effects on the individual's health.

Furthermore, cultural aspects such as communication style (Paper I), showed deep problems for Church professions. Attitudes of "avoiding" conflicts are more common than interest in dealing with them. These attitudes were also found to be a significant determinant factor in the study of Bruhn (35) as well as in the report from The Department of Work Environment (16). Unspoken norms on special behaviors cause poor work environment and a destructive work climate. The work culture in the Church is characterized by a striving for "good relations", which instead tends to worsen the work environment (16, 35, 64).

5.4 Consequences of stressors for individual and organizational health

Consequences of experienced stressors differ between individuals, between organizations, and over time, depending on several circumstances such as current norms in society, attitudes to work, individual properties, and coping strategies. These factors differentiate individuals' interpretation of the stressors as well as for perceived health (13, 57, 84, 98, 100). In this thesis health/well-being have been regarded from a comprehensive view of health (51, 56, 99, 120) where health is regarded subjectively, from the individual's own interpretation of his/her health.

Among elderly care employees, poor SRH was associated with a high degree of work-related exhaustion, which in turn was found to have associations with work dissatisfaction, low influence and control at work, low meaning of life, low home and social situation, as well as with low perceived coping ability. These results were expected and were also in line with previous research (26, 27, 89, 127, 151, 154).

Among church employees, demanding and unsatisfying work environments resulted in negative consequences for the individuals' health, despite high degrees of freedom and possibilities for influence and control at work.

When discussing stressors in the work environment and its consequences for individual health, the question of why some experience poor health and some quite good health even though they appear to be exposed to the same work stressors is still unanswered. The results (Paper III) indicate that those employees who tended to experience good SRH, mean 70.2(SD 27.6), also

rated meaningfulness, work satisfaction, social and home situations and recovery potential significantly better than those who reported poor SRH, mean 39.7 (SD 28.5). However, in Paper IV, where effects of organizational change on health were measured, the results suggest no difference in experienced SRH between groups or over time. Moreover, at the same time levels of the anabolic hormone (DHEA-S) decreased significantly both over time and between groups. In accordance with the theoretical model (Figure 3), a possible assumption is that consequences of long-lasting stress are shown in biological reactions in a first step and as impaired health in a second step.

Organizational health is mainly a reflection of the employees' health. To identify the extent of the employees' experiences of occupational stress might be of great importance in order to find interventions for health improvements. Cox and Leiter (47), and also Cherniss (41) have emphasized that occupational stress has been a long-standing concern of healthcare professionals. The overall working conditions, including factors like long work hours and emotional demands, as well as the culture itself with its values and expectations of quality in care are contributing factors to occupational stress and ill health with adverse effects on organizational health.

However, in Paper III, regardless of the fact that most of the perceived work conditions were rated significantly lower among those with stress-related sickness absence compared to those not reporting absence due to stress, efficiency was rated overall quite high and was not significantly different between the groups. According to previous studies perceived efficiency is an indicator of organizational health (47). That appears contradictory, but a possible interpretation is that the high degree of efficiency could be a sign of a high degree of workload, which is in turn manifested in a high degree of experienced work exhaustion.

These conditions are parallel to those in the Church, where stress and exhaustion is found to be related to demands from society with often unrealistic expectations, but also to internal demands such as unclear organizational structure, uncertainty as regards the goals and role conflicts (35, 65), which in turn are mirrored in poor organizational health.

Based on the theoretical model used in this thesis, sickness absence is discussed as a consequence of experienced stressors for health. In the Church (Paper I), sickness absence rate was not measured, but was at the time of the investigation, and still is considered as comparable high with serious effects on individual as well as organizational health (16, 35).

In the elderly care (Paper III), there were increased days of sick leave reported. From the results this was found to have a correlation to the employees' experiences of high work tempo, unsatisfying skills development, work dissatisfaction, and work exhaustion. Consequences of the organizational change (Paper IV) showed that total days of sick leave increased in the population

during the year of reorganization (7% in the study group and 2% in the reference group). Yet we could not identify whether the increase was related to those employees participating either at baseline and follow-up measurement or only at one of the measurements, which makes a comparison over time non-measurable. However, it is a likely interpretation that an organization undergoing change has an impact on its entire staff in different ways, regardless of which of them are affected. In general, organizational changes tended to have palpable negative influence on individual and organizational health over time, although there is limited knowledge about the mechanisms behind this (157).

In summary, the results did not reveal sickness absence as a stable indicator for effects of organizational change on self-reported health and job satisfaction, contrary to results from previous studies (92, 157, 159). The reason for this result might depend on group-related measurement of sickness absence instead of individual-related. Still, I consider sickness absence to be a valid measure for both individual and organizational health consequences. A study by Voss et al. (168) suggests good agreement between SRH and registered sickness absence.

5.5 Methodological considerations

This thesis consists of four different studies with different designs and methods, all done to investigate work exposures and health effects from different perspectives. Both quantitative and qualitative methods are used.

Traditionally there has been a controversy between qualitative and quantitative approaches to studying workplace exposures and employee health (117). There have been statements from the defenders of quantitative research, where doubt is cast on the relevance and quality of qualitative research methods. However, it is also suggested that the two approaches should be viewed as complementary. The idea of an integration of quantitative and qualitative paradigms is based on the belief that the strength of each of the two paradigms can add value to the final lessons learned from a study (117).

Disregarding the defenders of using only quantitative approaches for studies of work environment and health, the idea of integrating qualitative and quantitative methods in this thesis was a matter of course. Still, there are some methodological considerations that are necessary.

In Paper I, the qualitative approach was used. Data were collected by documents and interviews. Analyzing the documents was done with a model of the Swedish Labour Inspectorate's (SLI) control system. Analysis of the interviews was done by inductive categorization of the open-ended questions. It is a likely interpretation that the researcher's prior knowledge and understanding from the analyses of the documents in the first step might have influ-

enced the interpretation of the interviews, as the SLI model includes psychosocial work environment factors as well. However, the texts are processed in order to capture the significance of statements in the interviews. Furthermore, reliability of qualitative studies sometimes requires a co-investigator, meaning that it is desirable if there are two researchers with independent interpretations in order to reach higher reliability in the analyses. The fact that there was only one researcher involved in the interpretation of the documents and interviews in this study may have affected the results.

In Paper II, the external dropout was nearly 38% and the response rate from small parishes and from chairpersons of the Parish Council was proportionately low. With such a low response rate from small parishes compared to medium-sized and large parishes, a bias may have been introduced, as those parishes are the most common in the Church of Sweden. Furthermore, some of the parishes had only one respondent, and we received an answer from either the vicar/priest in charge or the chairperson, but mainly answers from vicars/priests in charge. A possible explanation is that some of the chairpersons refrained from answering if the vicar or his/her substitute had answered. It should also be pointed out that the population consists of individuals with leading positions in the parishes. The result obviously does not reflect opinions from the staff. That might affect the results. On the other hand, there is a need before processes of organizational changes for those responsible for the changes and for activities to be in line with, and support the work with an intervention such as, for example, the present goal work.

When measuring stress-responsive hormones (Papers III-IV), it is of value to perform a series of assessments in order to achieve as high a degree of validity as possibly. However, these studies were performed among healthcare employees in working life, and in different work places, and therefore an experimental design for blood samples was not plausible. Paper III was a cross-sectional study with only one assessment of the hormones, which make the results unstable for interpretation of differences between groups. In the fourth study (Paper IV) we were not able to assess hormone levels more than twice. Our findings showed that levels of DHEA-S changed significantly between groups and between the two assessments. It is possible that a more frequent sampling could have provided a better (more precise) estimate of the values for these hormones.

We would also like to point out that there was a lack of control for wake-up time for the determination of cortisol (Paper III-IV), which might be a bias for the cortisol results (112). In our study the blood samples were obtained between 07:30-09:30, which means that the individuals could have been, or probably were, in different phases of their cortisol awakening response. These circumstances involve an inter-individual variability in hormonal levels and

might have affected the results. On the other hand, there is no indication of a systematic error for the time for blood measurements. Furthermore, we did not control for confounders such as taking medicines, smoking, or other lifestyle variations, which could have interfered with the results.

The measurement of sickness absence in Paper IV was based on employers' register data on an aggregate group level. We were not able to collect individual data, which implies the doubtfulness of an entirely reliable link to the change in sick leave for SRH and stress hormones, based on those that participated both at baseline and follow-up measurements. The significance of this difference is thus not statistically tested. Still, we have not omitted the results of sickness absence since there is a possibility that the increases in days of sick leave to some extent reflect an overall impaired individual as well as organizational health. Therefore, a suggestion is that health effects of organizational changes should be measured by, for example, longitudinal studies with more than two measurements, comprising control groups from different organizations.

6. Conclusions

In this thesis determinants of individual and organizational health in human service professions are investigated, based on a multifactorial model.

The main results show, despite many positive experienced conditions, an imbalance in the interplay between employees' perceived exposures and their resources for responding to them, which causes high work-related exhaustion, poor self-rated health, and comparably high sickness absence rates. Most of these exposures are related to organizational characteristics.

The findings indicate that individual and situational properties have impact on health consequences in the studied professions. Recover ability, meaningfulness and social support or social situation tend to have influence on the experiences of self-rated health and sickness absence. However, inner demands on fulfillment and lack of limitation at work may in a long-term perspective, result in exhaustion, burnout, and sickness absence.

In Church professions, health-promoting determinants are related to the individual's feelings of freedom and control at work as well as the Church's basic values. However, these factors tend to turn negative and pose risks for ill health because of sometimes too strong enthusiasm, lack of limitation, and feelings of helpfulness among the employees. On the negative side, except high levels of work exhaustion, four patterns are identified. These include unclear organizational structure, a sense of being different, stressful work conditions, and a destructive communication style.

At an organizational level, goal clarity work is suggested to promote organizational health.

Determinants for self-rated health and self-reported absence due to stress in the elderly care profession include poor work satisfaction, strained domesticity and social situations, and a low degree of recover ability and meaningfulness in life. Despite this, positive experiences at work are in general work climate and effectiveness.

In this study there are no indications of negative health effects or impairments in job satisfaction reported after organizational change, contrary to our expectations and previous findings. However, despite the use of biological stress markers as a complex matter, there is an indication of hormonal influ-

ence, in the sense that the anabolic hormone DHEA-S levels decreased after the reorganization among those directly concerned by the change. Our results may indicate impaired health in a long-term perspective.

6.1 Implications for future research

The results of this thesis add knowledge about the complexity of relationships between factors in the psychosocial work environment, psychobiological measures, and their consequences for individual and organizational health. The results also point to the importance of looking at these relationships from a multifactorial perspective, including both subjective and objective data, to get a more complete picture concerning effects of exposures on health.

We have limited knowledge about the process from exposure to illness and sickness absence and about periods of latency between studied outcomes, which should be taken into account when measuring the consequences of exposures. The suggestions for future research are therefore:

- i) To study the impact of interventions for determinants revealed in this study, like for example goal clarity work.
- ii) To increase knowledge of other promoting factors at work and explore in more detail elements like the effects on health of enthusiasm and vocation for the work.
- iii) To focus more on the role of individual differences (such as personality traits) in predicting and determining health consequences.
- iv) Assessing stress in work environment studies with the use of psychobiological indicators, demonstrates a complexity and uncertainty of interpretations of results. The role of psychobiological indicators (stress hormones) therefore needs further research. To find reliable and valid biomarkers of stressors at work is a challenge.

The significance of further knowledge about determinants of individual and organizational health within this sector is not just important for the professions themselves, but for other occupational groups as well.

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