Social status – a state of mind?

Subjective and objective measures of social position and associations with psychosocial factors, emotions and health

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This thesis is concerned with social stratification of psychosocial factors and social
position measurement in population samples collected in mid-Sweden 2000-2006.
Traditional resource-based measures of social position (occupation, education) and so
far less explored prestige-based measures (subjective status, status incongruence) are
tested with respect to their associations with psychosocial factors, emotions, and self-
rated health. Three papers in this thesis are based on data from the Life Conditions,
Stress, and Health (LSH) study, using a randomly selected population sample. Data for
the fourth paper is a regional sample drawn from the health-related survey “Liv och
Hälsa 2000”. Statistical methods range from correlation analysis to logistic regression
and repeated measures analyses. Results from studies I and IV show that psychosocial
factors are unequally distributed within the population in a linear manner, so that the
lower the socioeconomic position (SEP), the more unfavourable levels. This is
independent of whether we study this in a highly unequal setting such as Russia, or in
a more egalitarian society such as Sweden. The stability of psychometric instruments
over two years tend to be lower for all instruments among low SEP groups, and differ
significantly for self-esteem and perceived control among groups with high and low
education, and for cynicism among groups with high and low occupational status.
Results from studies II and III point to the relevance of individuals’ own thoughts
about themselves, and the potential impact on the self by normative judgements of
social position in a certain hierarchical setting. In paper II, the prestige-based measure
of subjective status was influenced by resource-based measures, such as self-rated
economy and education, but also by life satisfaction and psychosocial factors.
The importance of self-evaluation was especially obvious from the study on status
incongruence (study III) where the traditionally protective effects of a high education
seem to disappear when combined with a low-status occupation. Shaming experiences
may play an important role here for our understanding of self-perception.
LIST OF PAPERS

I. **Adverse health effects of low levels of perceived control in Swedish and Russian community samples**
   Johanna Lundberg, Martin Bobak, Sofia Malyutina, Margareta Kristenson, Hynek Pikhart

   *Published in BMC Public Health 2007, 7:314*

II. **Is subjective status influenced by psychosocial factors?**
    Johanna Lundberg, Margareta Kristenson

    *Published in Social Indicators Research 2008, 89:3*

III. **Status incongruence revisited - associations with shame and mental well-being (GHQ)**
    Johanna Lundberg, Margareta Kristenson, Bengt Starrin

    *Sociology of Health and Illness 2009 (in press)*

IV. **Does 2-year stability of psychosocial factors differ by socioeconomic position? Test-retest correlations of self-esteem, mastery, perceived control, sense of coherence, cynicism, hopelessness, vital exhaustion and depression in a middle-aged Swedish normal population.**
    Johanna Lundberg, Nadine Karlsson, Margareta Kristenson

    *Submitted*
PREFACE

This thesis is concerned with social stratification of psychosocial factors and social position measurement in population samples collected in mid-Sweden 2000-2006.

My research has a multi-disciplinary approach towards social inequalities in health - although it is founded in social epidemiology and social medicine, I also embrace social psychology. This combination of approaches has meant a constant navigation among sometimes opposites with regards to theory and methods. Social epidemiology is concerned with the stratification of health in populations, and research is carried out on an aggregated level, over and above the subjective experiences of the individual. However, there also exist strong influences within the social epidemiological field which emphasize social and subjective aspects of social stratification, in addition to the objective conditions. Although I have worked with measurement on an aggregated level, much of the analysis is influenced by social psychology to try to get at the experience of “social status”. Studies emphasizing the perceiving agent are joined in this thesis by more structure-oriented approaches. I have found two quotes that I think illustrate the in-between position of this thesis quite well:

”Medically oriented researchers employ information on social background as controls in order to accentuate the links from stressors to stress reactivity, while sociologically oriented researchers focus on how the distribution of stressors depends on people’s location within social structures.” (Elstad 1998)

“In general, sociologists are concerned with explaining the generation and reproduction of social stratification. Social epidemiologists, on the other hand, have been concerned with explaining its health consequences.” (Bartley 2004)
As a product of two multi-disciplinary Master programs (in Science Journalism and Public Health Science) and a multi-disciplinary PhD program on top of that, I have learnt that opposites often do attract, and that the most fruitful research might be that which is open to influences that sometimes stray from the beaten track. And although multi-disciplinary research is sometimes accused of being “blurry” or lacking in-depth analysis, I think that these misinterpretations will soon become stalled as researchers today are encouraged by funding organisations to team up in order to receive the larger research grants. It is my belief - and sincere hope - that multi-disciplinary research will become a more common phenomenon in the future.

I would like to emphasize that the title of this thesis, “Social status – a state of mind?” does not aim at reducing social position to solely comprising subjective experiences of rank, so that social status is presented as something that is “all in the heads of people”. Rather, I wish to complement some prevailing views on social position as merely objectively measurable material or structural facts that are not open to subjective experience or interpretation, by presenting some studies that operationalize social status through measures that are open to subjective assessments.

As for the relevance of this thesis, to my knowing, there are no previous studies that have assessed that many psychosocial factors in relation to social position at one and the same occasion, as is the case with papers II and IV in this thesis. Adding to this, there are very few Swedish studies that have used subjective measures of social status or measures of status incongruence in research related to social inequalities in health (papers II and III). Hence, my aim is to contribute to a – so far – rather small body of research, which I believe has the potential of expanding further.

Johanna Lundberg, 2008-10-12
1. Aims and objectives

1.1 Overall aim

In this thesis, traditional measures of social position (occupation and education) as well as less explored measures (subjective status and status incongruence) are tested with respect to their associations with psychosocial factors, emotions, and self-assessed health outcomes. The focus is primarily on the social stratification of psychosocial resources and emotions – do all of these four measures of social position relate to psychosocial factors and emotions in a way that matters to health?

The overall aims are:

- to investigate levels in the perception of life control among men and women in community samples of Swedish and a Russian population, and to assess whether these measures are associated with self-rated health (Paper I)

- to study whether subjective social status is influenced by psychosocial factors, and to explore potential predictors for subjective status ratings (Paper II)

- to study whether there are any differences in the risk for shaming experiences, pessimism, anxiety, depressive feelings, and poor mental well-being (GHQ) in status incongruent and status congruent categories. (Paper III)

- to study the stability of psychosocial factors over time and their social stratification in a normal population sample (Paper IV)
1.2 Specific aims

• to investigate levels in the perception of life control among men and women in Swedish and Russian community samples, and to assess whether these measures are associated with self-rated health in each of the studied communities. A second aim is to identify socio-demographic differences related to perceived control, within and between the populations, and to explore differences in answer patterns of perceived control items.

• to test whether subjective status is influenced by psychosocial factors: First, by assessing the influence of psychosocial factors on the association between subjective and objective indicators of socioeconomic status and self-rated health, with the aim of seeing whether psychosocial factors seem to be uniquely confounded with subjective status compared to objective measures of socioeconomic status. Secondly, by testing which factors that may predict subjective status, using four variable categories: expanded traditional SES measures (also including parents’ and partner’s occupation and education), self-rated economy, psychosocial factors, and life satisfaction.

• to study whether there are any differences in the risk for shaming experiences, pessimism, anxiety, depressive feelings, and poor mental well-being (GHQ) in four different status categories: negatively and positively incongruent individuals, and low-status and high-status congruent individuals. A special focus will be assigned shame and associations with status categories and GHQ.

• to assess the stability of eight psychometric instruments (self-esteem, mastery, perceived control, sense of coherence, cynicism, hopelessness, vital exhaustion and depression) over a 2-year period (Paper IV). A second aim was to analyze whether the stability of each psychometric instrument differ by socioeconomic position (SEP).
How the four papers relate to the psychosocial hypothesis on social inequalities in health (model inspired by Adler, 1999, and Gallo & Matthews 2003)
2. Theoretical framework

2.1 Introduction

Within populations in developed countries, health and mortality have been seen to follow a gradient, where lower social position is associated with adverse health effects and higher social position is associated with better health. In short: the higher the education, income or occupational position, the better the health outcome and life expectancy. This relation holds true for both all-cause mortality and for most diseases. For an overview, see [1, 2]. These associations have been found for a number of different indicators of social position. Although the Scandinavian countries are often showed off as prime examples of societies with small absolute differences in health between classes, large differences in life expectancy between social classes in Finland have been noted, and these differentials are greater than in Denmark, Norway or Sweden [3]. As for Sweden, Erikson [4] found a clear social gradient in educational level, where men with a PhD have lower mortality than those with a master’s degree, who in turn have lower mortality than Bachelor’s degree candidates.

The primary question within the research field of social inequalities in health has been what exactly it is about social position that affects health in such a detrimental way. A wide variety of social factors have been connected to adverse health conditions - for an overview see [5, 6]. Of the more commonly suggested factors are that those better off in terms of social position enjoy better working conditions and higher material standard, such as better housing and transportation; that they benefit from healthier lifestyle patterns; that they have better social networks and that they have better coping abilities and psychological resources as defence against stressful life challenges [1, 2, 7-16]. However, while smoking, alcohol intake, poor diet and poor exercise habits are more prevalent among people with low social position, socioeconomic differences in health have shown to only partly be explained by lifestyle and material factors [13, 17, 18].
Also, studies of community socioeconomic status at the ecological level have pointed to adverse health effects from living in deprived neighbourhoods [2, 10, 19]. These effects indicate the presence of contextual effects that may go above and beyond individual social position indicators [5, 18, 20, 21]. A full review of all plausible pathways between social position and health is beyond the scope of this paper, but for an extensive review of the research field, see [5, 6, 22-25].

**The psychosocial perspective on social inequalities in health**

My focus mainly set out from the psychosocial hypothesis, which, in short, states that people’s experiences of their own position in society and their perceptions of the level of control they have over life matters to health, as do their resources to cope with stressors. The psychosocial hypothesis acknowledges the impact of material factors, but views health mainly as a result of an uneven distribution of social stress, and of perceptions of relative position in a setting characterized by an unequal distribution of resources [6, 11, 12, 26, 27].

A pivotal study here is the Whitehall study [28] where white-collar workers’ health was studied with regard to their position and rank. The results showed that the lower the position or rank of the clerk, the higher the mortality. Even though the pay levels at Whitehall excluded the richest and the poorest in society, the relation between social rank and poor health was still evident, leading the researchers to believe that relative position was related to health beyond absolute levels of material resources, and that psychosocial factors and “status stress” could be of equal importance here.

The main argument for the psychosocial hypothesis has been that as the social gradient in health affects also people who are well-off in a society, material conditions could not be the sole agent in determining health outcomes [6, 18]. The main argument against the psychosocial hypothesis concerns the suggested psychoneuroendochrine pathways through which (stressful) perceptions of status are thought to impact health, where critics claim evidence is still scarce [29, 30]. Elstad [31] describes this conflict in the following way:
"The question is not whether some health-related bodily changes may follow from mental appreciations of external circumstances. […] The problem is… to demonstrate that such changes are large enough and longterm enough to affect health in a significant way. In other words: is the onset of somatic disease, its course, and recovery from it, influenced by psychological stress in a way that it makes a difference?” (p. 601)

Whichever importance one ascribes the psychoneuroendochrine perspective, a broad range of studies has demonstrated that psychosocial factors have an impact on health. The balance between demand/control [32] and effort/reward at work have shown to be important for health [33-36] and recent studies by Toivanen [37] found that a strong sense of coherence may moderate the adverse effect of high physical demands in working life on psychological distress incidence. Poor social support and social integration have further shown to be predictors of CHD mortality [38] and there is extensive research pointing out the importance of social support as a resource for buffering against psychological strain [39-42]. Further, scale scores of coping (mastery), self-esteem [43] and sense of coherence [44, 45] have proved to be significantly related to reduced risk of all-cause mortality and morbidity [42], while scale scores of cynicism, hostile affect [46], hopelessness [47, 48], vital exhaustion [49] and depression [50] have shown to predict morbidity and death also after control for effects of traditional risk factors.

Thus, the importance of psychosocial factors for health has been showed in numerous studies, and the psychosocial perspective on social inequalities in health is also the theoretical framework within which I will now present the central concepts relevant to my research; different measures of social position, psychosocial factors and emotions, and health. Due to the composite character of the thesis – the papers are independent from one another and do not always adhere to the same research tradition – I will try to introduce a consistent terminology before moving on to exploring associations between measures of social position, psychosocial factors and emotions, and health.
2.2 Psychosocial factors, emotions, and health

Defining psychosocial factors and emotions
In its shortest form, psychosocial factors are “psychological factors that are influenced by the social environment” [11]. Siegrist and Marmot define the psychosocial environment as "a concept that bridges the social opportunity structure with the individual’s strong need of favourable self-efficacy and self-esteem.” [12]. A further division could be made between psychosocial risk factors and psychosocial resources, where the latter are “…the personality characteristics that people draw upon to help them withstand threats posed by events and objects in their environment.” [43]

As for the concept of emotion, I will use a definition as proposed by Susan Shott: “[Emotion is] a state of physiological arousal defined by the actor as emotionally induced. Hence, two elements – physiological arousal and cognitive labelling as affect – are necessary components of the actor’s experience of emotion.” [51] I will use the term “affect” as a semantic equivalent to emotion.

Psychosocial factors and emotions often tend to end up in the same category when studying social inequalities in health. When we measure the prevalence of factors such as perceived control or cynicism in a population, the assumed aetiology is that these factors are associated with emotions, which will influence health either directly through psychoneuroimmunological responses in the body, or indirectly through the behaviours they generate (such as smoking or drinking to relieve emotional tension). To facilitate our understanding of the psychosocial-emotional bond even further, we can either talk about states or traits, or affect and cognition, where states or affect are temporary emotional states brought on by a specific incident, while traits or cognitions are more stable dispositions (“personality traits”) towards experiencing particular emotions [52, 53]. As an example, we can take the once popular research on “Type A personalities” - persons characterized by high competitiveness, low tolerance towards others and a sense of time-urgency [54].
These predispositions or traits will make it more likely that a person will experience hostile affect and anger than a non-competitive personality type - and both hostility and anger are emotions that have shown to be detrimental to health [46].

**Figure 1.** Pathways between social context and disease with emotions as mediators. (Model adapted from Kubzansky and Kawachi [5])

So, to conclude – psychosocial factors are best regarded as predispositions for the experience of emotions. Psychosocial factors are not detrimental to health themselves, but should rather be thought of as indicators of a heightened risk for experiencing (negative) emotion, which is stressful for the body [43]. A primary reason for using a division between psychosocial factors and emotions is that emotions are thought of as
having a more direct link to psychobiology (see Figure I) but the social-psychological assumptions of their original induction remain the same for both categories. Also, a view on psychosocial factors as dispositions for emotions opens up for the potential of change and empowerment: We may not be able to change our emotions as such, but we may be able to change our dispositions and triggers for experiencing these emotions.

**Defining health**
The psychosocial perspective on social inequalities in health is often criticized because it has yet to prove how subjective experiences of social status “get under the skin” and become clinically measurable diseases. This sort of critique, one could argue, implies a view on health as primarily “the absence of disease” and a devaluation of subjective experiences of health and illness. It also reflects the multidimensional character of the research field, where there seems to be a divide between researchers based in the medical research tradition, where disease is regarded as the main outcome, and sociologically based researchers who more often focus on illness and dimensions of well-being. Hofmann [55] briefly recaptures the concepts of illness and disease: “Disease is negative bodily occurrences as conceived of by the medical profession. Illness is negative bodily occurrences as conceived of by the person himself. Correspondingly, sickness is negative bodily occurrences as conceived of by the society and/or its institutions.” (p. 7).

In this thesis, self-rated measures of general health and mental well-being are used as outcomes. Self-rated health [56] has shown to predict morbidity as well as mortality [57] and takes into account both mental and physical aspects of health, while the General Health Questionnaire [58] is mainly screening for general psychiatric morbidity. Traditionally, medicine and biomedicine encompass a view on health as the absence of disease: “A disease is a type of internal state which is either an impairment of normal functional ability, i.e. a reduction of one or more functional abilities below typical efficiency, or a limitation on functional ability caused by environmental agents.” [59].
In contrast to this perspective, Nordenfeldt [60] proposes a holistic theory of health, where “A is completely healthy if, and only if, A has the ability, given standard circumstances, to reach all his or her vital goals.” This definition, although based in philosophy, is also in line with classical sociological views on humans as social actors, where health is primarily regarded as a precondition for taking social action [22]. While health within the biostatistical theory is exclusively a function of internal processes in the human body or mind, i.e. the human as a passive container for organ function, Nordenfelt’s definition recognizes health as a function of a person’s ability to act and achieve goals, i.e. an active subject or an agent with intentions. Another holistic definition is the WHO definition which states that health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” [61] There are also suggestions that disease should perhaps not be seen as an endpoint or a final outcome, but rather as a step on the way from stressful circumstances to illness [31].

The tension between medicine and social theory is also reflected in the current health debate. Evidence-based medicine (EBM) is a widely used term within health care today, with the aim of providing care of patients through decisions based on the “best available evidence” where individual clinical expertise is integrated with the external clinical evidence from systematic research, founded on RCT (randomized controlled trials). In the most influential journal for Swedish medical doctors, Läkartidningen (2008-03-11), authors Nordemar, Bullington and Hagerstam write a call for what they name “evidence-based medicine with an ethical profile” (EBM-E): “How people interpret their situation, what life experiences that lay behind, what existential values they carry and what psychosocial factors that may relate to their disease is not acknowledged as “knowledge” within this [the EBM] view. As soon as we open up to subjective, individual aspects of health and illness, we are accused of being “non-scientific” according to the positivistic tradition. There are ways of investigating people’s subjective experiences, but these methods or qualitative studies belong to another tradition within the theory of science, namely the humanistic tradition which is not appreciated within biomedicine.” (author’s own translation)
When studying social inequalities in health, what aspects of health are we really interested in measuring - the subjective experience of illness, or more clinical parameters as representing qualities of “normality” (i.e disease)? Measuring disease seems more highly regarded within the scientific community than measuring subjective parameters of well-being or illness, as illustrated by Morin [26]: “Perceptions and their first-person subjective character, and all those aspects of experience that are directly knowable only through introspection are thought not to be capable of being analysed in terms of causal relations and, thus, are often marginalized by the objectifying approach of science. Hence, first-person or subjective experiences and people’s way of presenting and explaining their difficulties do not receive enough attention in current literature.” (p 26).

2.3 Social position: socioeconomic position and social status

Measures of “socioeconomic status” are perhaps the most commonly used indicators of social position in a certain social setting within health inequality research today. There are many existing definitions of socioeconomic status, and the aim with this thesis is to study how some of these various measures relate to psychosocial factors, emotions and health in a certain population.

Lynch and Kaplan summarize the crucial point of choosing the right measure of social stratification: “In theory, the choice of measure of socioeconomic position should depend on how you believe socioeconomic position is linked to health damaging exposures and health protective resources and ultimately to health. Is it exploitation, few tangible resources, or lack of prestige that causes poor health, or some combination of these?” [62] (p 19).

Further, Bartley [23] emphasizes that although the social gradient has been established repeatedly in health inequality research over the years, we still do not know exactly what is it about any of the measurements used that actually produces poor health.
Are we measuring socioeconomic position or social status?

A review of the history of the various measures of social position used in sociological studies has been made by Liberatos [63] with a more recent update for studies on health inequality made by Krieger et al [64]. The general concept of “social position” should be regarded here as a summative term, comprising all class-based, resource-based and rank-based measures: i.e. any category that reflects a certain position in a certain social (hierarchical) structure. “Socioeconomic status” is probably the most commonly used concept within health inequality research today, but Krieger et al [64] do not approve of this term as they claim it to blur the distinction between what they call resource-based measures (income, education, occupation) and prestige-based measures (rank or subjective status). They suggest “socioeconomic position” (comprising the two sub-divisions above) as a more appropriate label, and they separate this from measures of social class.

The concept of social class is defined as “…a social category referring to social groups forged by interdependent economic and legal relationships, premised upon people’s structural location within the economy – as employers, employees, self-employed, and unemployed, and as owners, or not, of capital […]” [64] (p 345). Although measures of social class will not be the focus for this dissertation, it is important to acknowledge structural factors as potential determinants of power relations that will exist between various groups in society [25]. This can be said without diminishing the potential effects of perceived social status or rank, as these could exist side by side.

I have worked with two sub-divisions of social position as suggested by Krieger et al [64]:

- resource-based measures: classifications based on income (indicating material wealth or deprivation), education (reflecting skill) or occupation (normally reflecting both of the above). The term used in this thesis is ”socioeconomic position”.
• prestige-based measures: reputational measures of occupational prestige, or rank in society based on access to and consumption of goods, services, and knowledge. The term used in this thesis is "social status".

In this thesis, socioeconomic position is represented by measures of occupation and education which are resource-based measures, while social status is represented by measures of subjective status and status incongruence. Unlike social class, which is based on structural (material and political) factors, and unlike social position based on access to resources and assets, the idea of “social status” builds on a presumed hierarchy or ranking list within a society [23]. Measures of social status could be said to belong to the prestige-based category above, since the underlying theory for prestige-based measures is that perceptions or classifications are mainly based on collective norms about what is valued within a certain society, or assumptions of the same.

**Measuring education and occupation**

Education is a popular measure of socioeconomic position because of its apparent ease of measurement and applicability to persons that are currently not employed (for instance the unemployed and retired, and housewives). It is also stable across the lifespan, regardless of later changes in health status, and it has been associated with numerous health outcomes [1, 8, 15, 65-68]. Education is often used as an ordinal variable, but there could be differences in what the variable is thought to represent, depending on context. Some authors have pointed out the need for treating educational credentials as the primary measure, instead of just counting the number of years acquired: “Educational level does not differ between the quality of the acquired education, nor between the status or prestige implications gained from that particular education, if measured traditionally (in terms of educational level or number of years in school). As an American, would you rather have a general university degree or an Ivy League-degree - which would give you the best opportunities in life (and why)?” [69]. Braveman et al [70] also warn against using too few categories when measuring education as an ordinal variable.
The division of education into only two categories, say, “quit school before the age of 15 vs quit school after the age of 15”, could obscure important social gradients in health that apply across the entire socioeconomic spectrum.

Education is further expected to exert a positive main effect on perceived control. “[…] the better educated and the more affluent are able to rely on positive comparisons in dealing with money and job problems; they are able to maintain optimistic outlooks and…they have the further luxury of being able to attribute less value to monetary success.”[43] An education provides individuals with the credentials that enable them to improve their social status. It bolsters feelings of mastery in the process, but also lessens feelings of powerlessness by increasing knowledge, acquisition of skills, and degree of resourcefulness [8, 71]. In short, education is a core element in a person’s social conditions, and the benefits of education could be said to extend beyond economic and occupational gains. [72]

Measures of occupational position generally express a form of general standing in the community, for instance in the form of underlying requirements such as education. The underlying notion seems to be that occupations requiring more skill are regarded as “higher standing”. These measures have a high response rate in general and are considered as non-provocative for respondents in surveys, as with education. One limitation of occupational class measures is that they generally do not include any individuals outside of the workforce, such as the unemployed, the retired and housewives. Occupation is a more commonly used measure in European studies than in US studies, where income or education is used more frequently [70].

**Measuring subjective social status and status incongruence**

As for subjective social status assessment, Singh-Manoux et al [73] aimed at testing whether people use conventional indicators of socioeconomic position (income, education, occupation), measures of wealth, or whether other elements like psychological well-being influence the assessment of subjective status. A total of 16 items were included to test prediction of subjective status, among them life satisfaction
measures, such as feelings of financial security, satisfaction with standard of living, material deprivation and general life satisfaction. Psychological well-being was assessed via seven measures: hopelessness, control at work, general life control, mental health, vigilance, hostility, and optimism. Also, the objective socioeconomic measures were included in the equation. The test of various predictors for subjective status resulted in five items: employment grade, satisfaction with standard of living, household income, feeling of financial security, and education. Taken together, these items explained 48% of the variation associated with subjective status, where employment grade was the single strongest predictor.

The authors conclude that people seem to use averaging of traditional socioeconomic criteria when assigning themselves subjective status, and that subjective status also to some extent seems to be determined by past achievements, considering the fact that education remained significant as a predictor in a population with a mean age of 55.6 years, which means participants quit school some 30 years ago. Future prospects were also relevant, represented by the item “feelings of financial security over the coming 10 years” which the authors discuss as reflecting the age of the participants (45-69 years). The remaining 52% of the variance in subjective status that could not be explained is thought of as possibly encompassing prestige components.

In the case of status incongruence, the social-comparative process is somewhat more complex. The underlying hypothesis for the aetiology of status inconsistency is that an individual’s rank at large controls his expectations of others, his expectations of himself, and other’s expectations of him. These expectations and the degree to which they are fulfilled control, in part, the individual’s image of himself. When a person holds high rank on one status dimension and low rank on another, the expectations (both those held by the individual and by others) deriving from the rank positions will be in conflict. This may create frustration within the individual since he cannot live up to all demands, and it will also result in feelings of uncertainty since neither the individual nor others know what approach is the appropriate one.
Here, feelings of distributive injustice are closely related to perceived relative deprivation [74, 75]. The incongruent individual may also feel like he or she has “missed out” on what life had promised (expectations built on educational attainment, for instance) and a lived discrepancy between investment (education) and reward (occupation). House and Harkins [76] write: “No matter why status inconsistency is stressful, its effects should become more pronounced with age. Younger persons can hope their social situation may change, but by middle age opportunities for social mobility or other means of eliminating inconsistencies diminish, as does the opportunity to believe future rewards will compensate for present stresses.” (p. 402)

Examples of status incongruity are also found in the health inequality literature in the form of reflections from the authors themselves. Ulfsdotter Eriksson [77] describes a case where a woman with a university degree took a temporary job as a cleaner, and how she perceived people talking down to her and ignoring her views because of her occupational position, even though the views discussed were within the woman’s field of (academic) specialization. Morin [24] refers to studies showing that a person’s subjective experiences of his or her social standing could differ strongly from the outside perception of a third person. He exemplifies with a personal experience: “…as a physician immigrating to a new country (the U.S.), unable to work in my original profession and forced to start a new career, I still keep a sense of social rank that is greater than how I experience people seeing me in my new professional environment. In my daily interactions I constantly sense this discrepancy.” [24] (p. 78)

2.4 Social-evaluative aspects of social position

“Rank reflects the psychological interpretation of social conditions as well as the cognitive appraisal of individual powers.” [26]

"The process of assigning oneself social status is likely to involve processes of social comparison (comparison of self to similar others) and reflected appraisals (self-perception is based on the way we see others perceiving us).” [73]
So far, only a handful of studies have tried to evaluate how subjective status measures relate to measures of socioeconomic position or class, and how these types of measures relate to health and psychological factors. As for status inconsistency, this might not be a subjective measure in the typical sense as it is being constructed from two or more objective measures of social position (normally, education and occupation). However, this measure challenges the ordinary occupational measures in that it involves a subjective, socially comparative and evaluative dimension, assumed to cause feelings of frustration. Also, the underlying theories are much the same for subjective status as they are for status inconsistency, and it all revolves around theories on social comparison. Gecas and Seff summarizes the processes that are involved in subjective social status perception and assessment: “The three main processes are reflected appraisals, which refers to our imaginations of how others see us; social comparisons, that is, self-assessments based on our comparison with others; and self-attributions, that is, forming a conception of self from observations of our own behaviour. These processes are, among other things, sources of knowledge about the self that people use in making their self-evaluations.” [78]

Below, I will suggest some ways of looking at the mechanisms behind perceptions of social status, following the strands outlined by the authors above. I will describe the concepts of habitus, doxa and relative deprivation as underlying mechanisms in social comparison processes, and I will describe shaming experiences as a response mechanism representing reflected appraisals.

**Norm cohesion - a ground for subjective assessments**

First of all, to better understand how the subjective dimension of social status could be described as connected to objective measures of social position, I would like to bring up some concepts by French sociologist Pierre Bourdieu (1930-2002) who developed an alternative, and perhaps more dynamic, way of studying the relations between (structural) resources and (individual) actions than his predecessors. Strongly opposing the eternal struggle within sociology between objectivism and subjectivism, he chose to link structure (objective life circumstances) to agency (subjective dispositions)
through the concept of habitus. This relationship was described from a methodological perspective in terms of a circular cause of motion, or “relationism”, where the agent is a result of internalised structures but also someone who continuously evaluates his or her social position: “…‘subjects’ are active and knowing agents endowed with a practical sense …(what is usually called taste), and also a system of durable cognitive structures (which are essentially the product of internalization of objective structures) and of schemes of action which orient the perception of the situation and the appropriate response.” [79] (p 25)

The way in which people approach the world, in their different manners and with different preferences and dislikes, beliefs and attitudes, is all due to their respective habitus, according to Bourdieu. With the concept of habitus, Bourdieu offers a way of recognizing the interplay between agent and structure, as all agents embody unique experiences of the world and will continuously act on the basis of these imprints, hereby reproducing and manifesting their experience in future actions (and most likely also across generations). While habitus is the lived experience of individuals or a practical sense that serves as a map for making one’s way in the world, it is possible to classify individuals into groups or classes of agents by looking for shared understandings or manners, according to Bourdieu. However, individuals should not be classified based on any assumptions of some particular innate quality or specific talent. Bourdieu did not comply with the notion of social class that he found too substantialist and definite: “What exists is a social space, a space of differences, in which classes exist in some sense in a state of virtuality, not as something given but as something to be done.” [79] (p 12)

The concept of social space opens up for a view of the world as basically relational, where individuals and groups will occupy relative positions in a space of social relations which is, at the same time, a resulting structure of differences grounded in the distribution of capital. From Bourdieu’s standpoint that “the real is relational”, groupings of people should rather be based on their access to different resources (capital), as well as on their common cognitive conditioning, taste and ability to make
certain distinctions – a shared language that goes beyond mere verbal expressions but will rather define how to approach worldly phenomena [80]. They will be defined by a social proximity that stands in direct opposition to the forced statistical community of “classes” (which would sometimes be made up of individuals not sharing the same habitus) and are to be seen as subject to constant change, influenced by the fluctuation of power relations in space and time. Bourdieus central concepts of social class as something lived in a shared social space and of similarities in the various forms of capital as a foundation of social position within society, lay the foundation for studying the more general concept of “social status”.

Bourdieu further speaks of a “doxic submission to the established order”, implying that we are all products of a certain set of norms and values at a certain point in time, and that we act based on an “unconscious consciousness” that is really embodied and objective structures. Doxa is the “self-evident”, that which is never questioned or challenged because it is assimilated by everybody belonging to a certain social space or field, such as a state or a subculture: ”Doxa is a particular point of view, the point of view of the dominant, which presents and imposes itself as a universal point of view – the point of view of those who dominate by dominating the state and who have constituted their point of view as universal by constituting the state.” [79]

Doxa is an example of norm cohesion regarding what is valued within a certain society, and this is also the underlying hypothesis for prestige-based measures of social position, where I have chosen to place subjective status and status incongruence. Wegener [81] reviews sociological studies on prestige and concludes that the dominating view on prestige is “a variable representing a hierarchy of individual social positions”. Wegener also brings up the question of what prestige scales really measure and report studies that have shown material aspects of occupations to be correlated with prestige, such as pay levels, as have individual capabilities such as “ability” and “effort”. These notions seem to remain stable over time and across cultures, and prestige judgments do not seem to vary with personal attributes of judges.
The most recent study on occupational prestige was carried out in 2006 by Swedish sociologist Ylva Ulfsdotter Eriksson [77]. In general, positions perceived of as “high status occupations” were characterized by requirements of high education and high income levels. In addition, they were mostly male-dominated and were regarded as more psychologically demanding than the occupations at the lower end, which required low or no education, and were characterised by low salary levels, higher physical demands and “dirtier” work environments. The ranking order found in the Ulfsdotter Eriksson study supports the conclusion from earlier findings that occupational prestige is a stable phenomenon in society, regardless of what group expresses these perceptions: “There seems to be a strong consensus on how occupations are perceived and valued with regards to their occupational prestige, Factors such as gender, social class, age or education [of respondents] do not, however, seem to effect the perceptions of status in any significant way.” [77] (p. 215)

**Social comparison and relative deprivation**

“…by invoking the sociological notion of relative deprivation, one is inevitably confronting difficult questions about how people actually evaluate their own position in society.” [82]

If we want to address the issue of on what grounds people make their comparisons, as described by the quote above, we first need the acquaintance of some basic concepts. Social comparison processes could be carried out both on individual basis and in forms of references to a certain group (the reference group). Two basic types of (reference) group formations are social groups and social categories. A social group is a collection of people with interdependent relations among them, for instance a family, a company, or a sports club. A social category is more loosely defined: here, it is not the physical interdependence that is defining the group, but rather the individuals’ perceptions of belonging or not belonging to a certain group. Examples of social categories are unemployed, men, women, retired and teenagers.
When discussing identity within the scope of social psychology, it is important not to neglect the separation between social groups and social categories as a crucial starting point. An individual could very well think of themselves as a member of a certain social group, and therefore also act as if they were, when in real life there are no real affiliation between them and the group in question. Koch [83] found in his study on income references that a large part of those who identified themselves with "the poor" (defined as having an annual income of 10 000 dollars or less) often had an income of double or even three times the amount defined as "poverty". Although these families were not really poor, they might live in poor neighbourhoods and mainly socialize with low income-takers, thereby identifying themselves with that particular group. This example further works as an illustration of the importance of reference groups, as described in terms of relative deprivation experiences.

Deriving from theories of anomie and alienation and further developed by sociologists, starting with Samuel Stouffer and W G Runciman [84] the concept of relative deprivation can be said to describe an individual's reaction to what he or she perceives as his or her position in society at large, in the workplace or in any other reference area – it is, in short, the discrepancy between "what is" and "what ought to be". Stouffer et al found in their classical study from the 40’s that the Military Police were more satisfied with their situation than were the Air Corps soldiers, despite the fact that the latter had more promotion opportunities and thereby better options of achieving higher rank and status. The explanation, according to the researchers, would be that the Military Police officers compared themselves with other MP's that were not getting promoted, while the Air Corps officers compared themselves with their colleagues who were getting promotions more often, due to the multi-level rank system within the Air Corps.

The four steps involved in social comparison in terms of relative deprivation are:

a) a person is informed about a certain reward system
b) the person does not earn the reward
c) the person compares themselves to the reference group which they believe they belong to (and which has received the reward)

d) the person experiences a sense of injustice and turns on the system that has caused them the pain of “missing out”.

The comparison process is further made up by three different types of groups: the comparative group, which is the group that we compare ourselves to in daily life, based on ideals and expectations created by our normative group. This is all mirrored against our true membership group, the group we actually belong to.

**Upward or downward comparisons?**

If we want to use the concept of relative deprivation in social status terms, and thereby accept the assumption that people do make comparisons that will result in feelings of satisfaction or dissatisfaction, we also have to assign the problem of the direction of the comparisons as such. How do individuals go about when comparing their status to others? Do they look upward or downward when evaluating their own social status?

A brief review of the field of social comparison theory starts with Festinger's theory from 1954, which maintains that the preferred source for social comparison is a person who is similar to the self-evaluator. [85] Comparison with a similar other is suggested to be maximally informative because it provides the person with a more precise, stable evaluation than would comparison with someone who is very different, as suggested by the dissimilarity hypothesis.

Another dominant theory within the field by Schachter [86] states that anxiety leads to affiliation with others, and that this need arises from the need to compare one’s emotional state to that of others in order to determine its appropriateness. Some theorists have also suggested that the original purpose of social comparison, that of self-evaluation against others, and the need for information about others, needs to be complemented with another purpose, that of self-enhancement [85].
Taylor and Lobel [87] found that cancer patients preferably compared themselves to others of worse luck, but were strengthened when encountering healthier people. The authors suggested, much in line with previous studies on downward and upward comparisons, that downward comparisons may meet emotional needs by making people feel fortunate in comparison with others and by raising self-esteem. Upward contacts (or upward comparison) may on the other hand encourage problem-solving and coping needs by providing role models, and meet certain emotional needs by providing hope and inspiration. These two patterns (upward contacts and downward evaluations) may exist simultaneously in the same people without engendering any contradictions.

Ashby Wills [85] suggests that upward comparisons are more common when the subject does not have much personal stake in the outcome of the comparative process, while downward comparison should be more common in situations where the subject feels he or she cannot influence the situation, or rank, at hand. Several studies have shown increased subjective well-being (a change in mood or moderation of depressive feelings, and even a higher stated sense of life satisfaction) in subjects engaging in downward comparison, and this effect was primarily noted for subjects with low self-esteem. Also, evaluative studies of a subject’s own and others personality and ability have shown that persons with high self-esteem tend to value their self as better than others [88].

**Shaming – taking the view of the Other**

“A concept of relative deprivation that is applicable in the context of social evaluation [...] should be concerned also with more latent psychic, psycho-social and (possible) psycho-somatic consequences that might flow from large disparities in the command over economic resources across a population: the conscious and subconscious suffering of relatively deprived individuals, internalized feeling of failure, the potential loss of self-respect, etc. “ [82]
As suggested by the theory of relative deprivation above, perceptions of lower social position will result in an emotional reaction with the individual, whether conscious or sub-conscious. Perceiving oneself as inferior to others has been suggested as a form of status-bound sense of shame in modern society [89]. Shame may be said to be a feeling of inferiority arising from a sense of personal failure. It is a result of seeing oneself negatively in the eyes of the other, such as feeling rejected, unworthy or inadequate [90-92]. The impact of shaming experiences has also been noted by Kawachi, Kennedy, and Wilkinson: “The effects of relative poverty or low rank and the affronts to one’s dignity it represents may result in violence. The feelings of shame and humiliation that ensue from it are believed to be psychological pathways that are subject to social anxiety and stress. In conclusion, processes of harmful social comparisons and psychological perceptions triggered by relative deprivation explain the importance of social status in its effect on health.” [93]

Several studies have shown that being subjected to shaming in the form of humiliation, ridicule and other forms of insult, relates to poor health. For example, studies show that shaming co-varies with mental ill health among social benefit recipients [94] and among those with financial difficulties and the unemployed [95, 96]. Eales [97] found that the experience of shame was associated with depression and anxiety. Studies also show that shame and humiliation such as being rejected by someone close, publicly snubbed, personal failure, and similar things which all are shame indicators can cause depression [92, 98, 99].

Dickerson [100-102] suggests that conditions characterised by social evaluation or rejection will elicit a specific or coordinated psychobiological response. This was also supported by their findings of increased pro-inflammatory cytokine activity in association with feelings of shame. Feelings of shame are, according to Wilkinson (2002), plausibly one of the most powerful and recurrent sources of the kind of chronic stress, and might be the kind of stress that influence the association between social status and health in general, and psychiatric ill-health in particular.
Pathways between social position and health - the psychosocial hypothesis (model inspired by Adler, 1999, and Gallo & Matthews 2003)
2.5 Summing up: Social position, psychosocial factors, and health

Let us return to the main research field of social inequalities in health for a moment: Regardless of which measurement of social position one wants to use, there are two main approaches to the aetiology of social position and health, i.e. how one thinks that social position and health are related in a way that will result in poor health. The social drift or social mobility hypothesis states (a bit simplified) that because of their illness or disposition from the start, people with poorer health will naturally end up in a lower stratum in society [103-105]. It is important to note that this “selection” is not always due to poor health with the individual, but is also dependent on the social structure of a particular society: the opportunities for employment or welfare support; the risks for discrimination, and socio-political structures supporting certain family structures.

The social causation hypothesis, on the other hand, states that the different strata in society will be exposed to different stressors or environments and hence develop different health profiles, so that for instance low-status people will be exposed to stressful circumstances or polluted areas to a larger extent than high-status people [53, 106, 107]. The social causation hypothesis also leaves room for the possibility of an added (negative) impact from perceiving yourself as lower-rank, although it fails to explain exactly how conditions connected with the different social positions will cause poor health. While social mobility is assumed to play some part in this process, there is as of today no agreement on how big an impact social drift really should be assigned.

In summary: The underlying hypothesis or aetiology for studies embracing the psychosocial perspective is that people in relatively worse positions may experience increased psychosocial strain due to a higher stress load that is connected with their position and environment (structural, discriminating, and material circumstances) while lacking in psychological resources to cope with these stressors [7, 9, 10, 14, 31, 53, 108-111]. The imbalance between stressors and coping resources could potentially increase the risk of engaging in unhealthy behaviour, such as drinking, smoking and overeating (see the model above).
Following from this, questions have been raised as to why low-status individuals would want to engage in unhealthy behaviour, with patterns of socialisation and expectations of having low prospects for the future being one suggested answer [68]. Another explanatory model connecting to the above suggests that inherited and/or learnt coping strategies such as learned helplessness in childhood could result in feelings of hopelessness and lack of control in adult life, which could be of importance for the known vulnerability of individuals of low social position [112-114].

Some support has been found for the social causation hypothesis in that a mediation effect of psychosocial factors in the relationship between measures of socioeconomic position and health have been presented in several studies [107, 108, 115, 116]. Gallo et al. [117] concluded in a recent study that individuals with lower SES described their social worlds as more hostile and less friendly compared to individuals with higher SES. Measures of hostility also explained the inverse association between SES and some aspects of perceived health. Haukkala [110, 118] found that the cynical component of hostility was related to lower SES, while tendencies to report anger were related to higher SES. Kristenson et al. [14] showed in an attempt to explain the high CHD mortality rates in Lithuania among middle-aged men, that Lithuanian men had lower availability of psychosocial resources, higher levels of hostility, vital exhaustion and depression than Swedish middle-aged men. Furthermore, Kristenson et al. [9] found that these negative characteristics were more common among people in low socioeconomic groups within both populations. Low levels of perceived control have been shown to be related to low self-rated health as an independent factor by Bobak et al [17, 119] who suggest control to be an important mediating factor in the relation between social circumstances and health in Russia. Cohen et al [108] studied US and Finnish samples and found positive psychological factors (greater social support, less anger, less depression, and less perceived stress) to be related to both higher socioeconomic status and better health. Ross and Wu [8] found support for higher psychological well-being in people with high socioeconomic status (measured by education) in their study of US households, and this was mainly accounted for by higher levels of control and higher levels of social support.
The relevance of my studies

If we want to find an all-encompassing model for how to best understand the relationship between social position and health, we might also need to include a view of the individual as a socially responsive being who will continuously evaluate her context (that is, the political, material and cultural structure which will determine her living conditions). Rather than just studying socioeconomic status from a (materialistic) deterministic class perspective, where “objective” social position (resource-based and class measures) are supposedly the best measures, the research field of today has opened up for an understanding that acknowledges social position as neither solely determined by individual experiences nor by structure alone, but rather as a product of both.

This is further encouraged by the introduction of subjective measures of status into more studies on health inequalities. If health was determined by class only, we would not need to bother about perceptions. But material factors alone cannot explain the social gradient in health, and aside from the results presented in this thesis, many previous studies using validated measures have demonstrated a relationship between health and psychosocial factors, including measures of subjective status. This cannot be overlooked. However, it is important to acknowledge that both material and psychosocial factors are part of a reciprocal relationship that cannot be detached from political and structural circumstances.

Let us again look at the model presented above, where the suggested aetiology which follows from the social causation hypothesis suggests the following: Material, social and environmental conditions (as measured here by socioeconomic position) will impact an individual’s psychosocial resources in a positive or negative direction (coping successfully or not), resulting in emotions which in turn may affect psychoneuroimmunological responses and result in illness or disease. As for the social-evaluative measures, these are mainly derived from a social environment where collective consciousness (norm cohesion / doxa) will induce social stress when the individual is measured by the “eye of the Other”.
This will put the individual’s psychological resources to the test (coping successfully or not) and result in emotions which will have health-promoting or detrimental effects. So, while the psychobiological pathways may be the same, the difference is the emphasis on where the “toxic” stress emanates from – is it from material conditions or from subjective evaluations of the social self?
3. Material and methods

3.1 Data

LSH

Paper I, II and IV in this thesis are based on data from the Life Conditions, Stress and Health (LSH) study. This is a longitudinal study targeting social differences in the incidence of coronary heart disease in a normal population. The main aim is to test whether psycho-physiological pathways mediate the association between socio-economic status and incident cardiovascular disease. Details on the randomisation process have been described elsewhere [120].

Selection criteria

Participants were men and women (non-patients) drawn from the normal population in a region in the southeast of Sweden. Baseline data were collected during 2003–2004 with a follow-up in 2006. Baseline participants were 1007 men and women aged 45–69 years (in 2003), stratified by 5-year age groups and belonging to any of the catchments areas of 10 primary health care centres in the southeast of Sweden (response rate 62%). Participants fulfilling these requirements were randomly selected via the National Population Register. Exclusion criteria were serious disease and difficulties in understanding the language.

Data collection at baseline included self-reported data via postal questionnaires, and measures of blood pressure, anthropometrics and blood sampling during a visit to a primary health care centre. Follow-up data were collected by a questionnaire in 2006 from a total of 795 men and women (response rate 80%) of which 300 were randomly selected to go to a primary health care centre for clinical measures. Comparison with national data [121] suggests that the respondents recruited at baseline were reasonably representative for the Swedish population in terms of age, sex, civil status and education.
Non-response analysis for data in LSH II

A non-response analysis of data from the first survey (LSH I) revealed that non-respondents in LSH II had, compared to respondents, higher BMI, higher heart rate and lower levels of daily physical exercise, and were more often regular smokers. Other factors that were found to be related to a higher attrition were unemployment in the last year before the first survey, and having parents that were born in another country than Sweden [122].

HAPIEE

The Russian data in Paper I came from the baseline phase of the Russian part of the HAPIEE study (Health, Alcohol and Psychosocial Factors in Eastern Europe) in 2002-2005 [123]. A sample of men and women 45-69 years old, stratified by gender and 5-year age groups, was randomly chosen from a local population register of Novosibirsk city, and selected individuals were invited to participate in the study. Data were collected by a structured questionnaire and by an examination at local clinics; 9231 men and women aged 45-69 years participated in the baseline examination (response rate 61%). The study population is representative for a Russian urban population in terms of age, sex and educational level.

Questionnaires

The structured questionnaires in LSH and HAPIEE contained a common set of identical core parameters that cover a broad amount of topics, such as data on sociodemographics, psychosocial measures, health behaviours, self-rated health and diagnosed illnesses. All questionnaires were administered by mail in Sweden, while in Russia participants needed to visit the clinic in order to fill in the questionnaires. Correct wording was checked by translating both Swedish and Russian questionnaires back into English.

CDUST

Data used in paper III were a regional sample of 33 834 individuals drawn from a health-related survey (Liv och Hälsa 2000) which was distributed in mid-Sweden
in 2000 to randomly selected men and women, 18-79 years old [124]. After the coding of the four status categories that were central to our analyses (which led to exclusion of farmers, self-employed, and secondary school) 14,854 individuals remained in the dataset. Questions in the survey encompassed various aspects of health, lifestyle, finances, living conditions, social trust, shaming experiences, and mental and emotional well-being.

3.2 Measurements

Occupation

All coding of occupational status in papers II and IV was made according to the Swedish SEI coding system [125]. This system is mainly based on educational requirements for a certain occupation. It separates between manual and non-manual workers and it also has a category for the self-employed, students and retired people. To classify someone according to the SEI system basically requires information on occupational status (what sort, union affiliation of occupation, and main job tasks) and on employment (employed or self-employed). It is also possible to go more into detail and separate between the different groups based on company size, number of employees and how many percent of time one is working. Codes for student status, working in the home, being retired, unemployed, in military service or on sick leave are also available.

However, for the employed the most commonly used model is the aggregated version with five categories (see Figure II below). The system from 1982 is still in use, but Statistics Sweden is continuously working on updates of the different occupational categories, as new positions enter working life (and our vocabulary). The aggregated version with five categories was used: unqualified manual, qualified manual, unqualified non-manual, qualified non-manual, and farmers and self-employed.
Figure II. The short version of the Swedish SEI-coding system.

<table>
<thead>
<tr>
<th>Socioeconomic group</th>
<th>Educational requirements after primary school</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manual workers</strong></td>
<td></td>
</tr>
<tr>
<td>11 Unskilled, production</td>
<td>Less than 2 years</td>
</tr>
<tr>
<td>12 Unskilled, services</td>
<td>Less than 2 years</td>
</tr>
<tr>
<td>21 Skilled, production</td>
<td>At least 2 years</td>
</tr>
<tr>
<td>22 Skilled, services</td>
<td>At least 2 years</td>
</tr>
<tr>
<td><strong>Non-manual workers</strong></td>
<td></td>
</tr>
<tr>
<td>33 Lower non-manual</td>
<td>Less than 2 years</td>
</tr>
<tr>
<td>36 Lower non-manuals II</td>
<td>2 but not 3 years</td>
</tr>
<tr>
<td>46 Medium non-manuals</td>
<td>3 but not 6 years</td>
</tr>
<tr>
<td>56/57 Higher non-manuals/managerial</td>
<td>At least 6 years</td>
</tr>
<tr>
<td><strong>The self-employed:</strong></td>
<td></td>
</tr>
<tr>
<td>60 Academics</td>
<td>At least 6 years</td>
</tr>
<tr>
<td>79 Self-employed excl. farmers</td>
<td>-</td>
</tr>
<tr>
<td>89 Farmers</td>
<td>-</td>
</tr>
</tbody>
</table>

(Ref Statistics Sweden)
Education

In papers II and IV, education was classified into four levels: primary (9 years or less), vocational (10 or 11 years), secondary (12 or 13 years) and university (14 years or more). In paper I, three categories were used with the vocational and secondary levels merged into one category. This was done in order to enable comparison with the Russian categories. In paper III, secondary level education was excluded due to the special categorizations of status incongruence.

Subjective social status

A measure of subjective social status was re-introduced in health studies by Adler (2000) and has been derived from Cantril’s self-anchoring ladder (originally measuring quality of life) [126]. Participants were given a drawing of a ladder with 10 rungs which was described with the following words: “Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are best off, those who have the most money, most education, and the best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and the worst jobs.” Respondents were asked to place an X on the rung that best represented where they think they stand on the ladder.

Status incongruence

Status incongruence was measured as a combined measure of education and occupation, where negative incongruents were coded as university education in combination with any manual worker occupational status, or unqualified non-manual occupational status, while positive incongruents were coded as primary or vocational education in combination with qualified non-manual status. A university level education and qualified non-manual occupational status were coded as high-status congruents, while primary or vocational education with any type of worker occupational status were coded as low-status congruents. Secondary level education (which is theoretical, as compared to the more practically oriented vocational education), the self-employed and the farmers were not included in the coding of
incongruents or congruents due to difficulties in determining the appropriate occupational and educational requirements for these categories.

**Health**

Health was measured in papers I and II by the general question from SF-36 [56] which is a measure of self-rated health, assessed by a standard single question with answers on a 5-point scale. The question is: “In general, would you say your health is…” (1 = excellent; 2 = very good; 3 = good; 4 = less than good; 5 = poor). For the analysis in paper I, the dichotomized outcome was defined as the top two categories representing good health, while poor health was defined as the bottom three categories. In paper II, self-rated health was used as a continuous scale from 1-5.

In paper III, health was measured by the General Health Questionnaire (GHQ) which is a state measure of current mental health and concentrates on broader components of psychiatric morbidity (but does not make clinical diagnoses) [58]. The questionnaire was originally developed as a 60-item instrument but several shortened versions of the questionnaire are available. In this study, the GHQ-12 is used. The scale asks whether the respondent has experienced a particular symptom or behaviour recently. Each item is rated on a four-point scale (0-3) and will result in a maximum score of 36 for the GHQ-12. In paper III, a dichotomized measure was used, with a cut-off rate at 19 (due to the data distribution).

**Psychosocial factors and emotions**

For exact wording of items of each instrument, see appendix. A factor analysis showed how the psychometric instruments in this thesis were grouped in the follow-up of the LSH study (2006):
Perceived control

A score of perceived control was based on agreement or disagreement with eleven statements adapted from the Whitehall II Study, MacArthur Foundation programme on Midlife development and the New Barometer studies [127]. Use of this instrument in Russia and in six other post-communist countries was validated by Bobak et al [17, 119]. Items 2, 3 and 4 are generally seen as representing “control over health” while the other items represent “control over life”. The subjects were asked to what extent they agree or disagree with the statements. The final score ranged between 0 (no control) and 55 (maximum control). Internal consistency as assessed by Cronbach’s alpha was 0.66 and 0.71 for Swedish men and women, and 0.64 and 0.63 for Russian men and women.
Self-esteem and mastery (coping)

Self-esteem is usually regarded as a personality trait [128] and measures the positiveness of one’s attitude towards oneself. The self-esteem subscale from Pearlin and Schooler [43] was used. Mastery addresses the extent to which one regards one’s life chances as being under one’s own control in contrast to being fatalistically ruled, also known as “coping ability”. The mastery scale by Pearlin and Schooler [43] was used. Cronbach’s alpha for coping was 0.76 in LSH and for self-esteem 0.86.

Sense of coherence

The SOC scale [129, 130] measures the concept defined by Antonowsky [129] which in short describes that the way in which people view their life has a positive influence on their health. Sense of coherence explains why people in stressful situations stay well and even are able to improve their health. The measurement construct is somewhat different from an ordinary Likert scale, in that only an answer at each extreme counts (“often” – “never”) with the other options on an assumed continuum, resulting in an ordinal score scale with a range of 13-91. Alpha in LSH was 0.82-0.84.

Trust

Social trust [20] was measured by 5 questions with answers on a 5-point scale (always - never) with a score range between 0 (no trust) – 20 (high trust). Internal consistency of scores was assessed by Cronbach’s alpha to 0.79.

Cynicism

“Hostility is a broad psychological domain encompassing various cognitive, emotional, and behavioural aspects of an individual’s negative orientation toward interpersonal transactions. Traits in the hostility domain include cynicism, anger, mistrust, and aggression.” [46] (p. 46).

Cynicism items reflect a generally negative view of humankind depicting others as unworthy, deceitful, and selfish. They are statements about the respondent’s interpretation of others’ behaviour in general. Cronbach’s alpha was 0.86-0.89 in LSH.
Response alternatives were on a 5-step Likert scale (“not at all” – “to a major extent”) with a score range of 12-60.

**Hopelessness**
Hopelessness is defined as having negative expectancies about oneself and the future. The 2-item questionnaire by Everson et al was used [47]. Response alternatives were on a 5-step Likert-scale (“absolutely agree” – “absolutely disagree”) with a score range of 0-8. Cronbach’s alpha was 0.68-0.70 in LSH data.

**Vital exhaustion**
Vital exhaustion is in its original form a questionnaire with 21 items developed by Appels et al [49] from the original 58-item Maastricht questionnaire. The LSH study used a 19-item version that has been validated by Koertge et al [131]. Response alternatives were on a 3-step Likert scale (“never” – “often”) with a range of 19-57. Cronbach’s alpha was 0.94 in LSH.

**External shaming** was measured by five items with response alternatives on a 3-step Likert scale (“never” - “several times”) [95, 96]. Examples of items were: (During the past three months, have you felt…) “that anyone treated you in a condescending way?” and “that anyone talked disparaging about you?”.

**Depression** was measured with the Centre for Epidemiological Studies Depression Scale [132] aiming at measuring depressive states, not identifying clinical depression. Response alternatives were on a 4-step Likert scale (“less than 1 day” - “5-7 days”) with a score range of 0-60. Cronbach’s alpha was 0.87 in LSH data.

**Pessimism**
A measure of pessimism was derived from a 5-item Likert scale following the question “What do you think the future will hold for you?” where the bottom two (negative) items were coded as 1.
Anxiety, feeling low

Questions regarding anxiety and feeling low were formulated as “During the past three months, have you experienced feelings of anxiety / feeling low?” where any positive response were coded as 1.

3.3 Statistical methods

Paper I

The distributions of background factors and self-rated health were calculated for both the Swedish and the Russian populations, and these were also stratified by sex and education within the two countries. For comparative purposes, means and distributions of perceived control were calculated for each country separately. Logistic regression was used to analyse the associations between psychosocial factors and self-rated health, firstly controlling for age only, and secondly controlling for age, education, civil status, obesity (in terms of BMI), blood pressure, cholesterol levels, and smoking. All analyses were conducted separately for men and women for each of the study populations.

Paper II

For the first part of the analysis, testing associations between indicators of socioeconomic status, psychosocial factors, and self-rated health, partial correlations with control for age and sex were used to identify significant associations between all variables in relation to the SES measures before the regression analysis. Linear regression was used to examine effects of psychosocial factors on associations of occupation and subjective status with self-rated health. Each psychosocial factor was separately entered as the final step in the model. This was done in order to calculate the change in variance ($\Delta R^2$) between each step of the analysis. In the first model, control variables (age, sex) were entered, followed by the SES indicator. Second, control variables (age, sex) and a psychosocial factor were entered, then the SES indicator. Finally, control variables (age, sex), a psychosocial factor, and the alternative SES indicator were entered, followed by the SES indicator (i.e. for
subjective status as indicator, occupation was entered as control; for occupation as indicator, subjective status was entered as control). Standardized beta coefficients for each predictor are reported together with $\Delta R^2$ which is calculated as a difference in explained variance between step II and step I of the model.

The second part of the analysis included a test of potential predictors or covariates of subjective status. We used four different sets of predictors: an expanded set of traditional socioeconomic factors (respondent’s occupation and education, mother’s and fathers and partner’s education and occupation), self-rated economy, psychosocial factors, and life satisfaction measures (current life satisfaction and optimism). Partial correlations with control for effect of age and sex were used to identify significant relations between potential predictors and subjective status. This was followed by a stepwise multiple linear regression analysis with the purpose of seeing how much of the total variance of subjective status that was accounted for by relevant variables.

**Paper III**

The data were presented as crude frequencies and as a correlation matrix of partial correlations with control for sex and age. A Kruskal-Wallis test for the categorical variables and a one-way ANOVA for the continuous variables were used to test if the distribution of each characteristic differed in the four groups of status position (STATUS). Shaming experience (SHAME) was dichotomised in two levels (“0” = no shame, “1-5” = shame). Logistic regression was then used to explore the relative risk, presented as odds ratios (OR) for five outcomes: poor mental well-being (GHQ), shaming experiences, anxiety, having a pessimistic outlook, and feeling low, in relation to the different status positions, with positive incongruents as reference category. Adjustment was made in two steps: for age and sex in a first step, and for age, sex, financial difficulty and longstanding illness in a second step.

Further, as we had a special focus on shaming in our study, potential effects on GHQ from shaming experiences within the various status positions were tested by coding a matrix SHAME x STATUS that combined the four status categories within the two
levels of shaming experiences. Frequencies of poor mental well-being (GHQ) within each category were calculated and all categories were then included in a logistic regression model with control for age, sex, financial difficulty and longstanding illness in two steps, with GHQ as outcome, and positive incongruents without shaming experiences as the reference category.

**Paper IV**
The statistical analysis was performed separately for each of the eight psychometric instruments. All analyses were based exclusively on those participants that answered the questionnaire on both occasions (LSH I and LSH II). For descriptive purposes, mean values, standard deviations (SD) and mean changes over time (delta change) with 95% confidence intervals (CI) were calculated. The reliability of the eight psychosocial instruments was assessed by estimating the internal consistency of the instruments (Cronbach’s α) both at baseline and at the 2-year follow-up.

The stability of the psychological instruments over a 2-year period was estimated by test-retest Pearson product moment correlation coefficients. In order to test the significance of the difference between correlation coefficients in low vs high SEP, the correlation coefficients were converted using Fisher’s r-to-z transformation. For each psychometric instrument, a two-way repeated measures analysis of variance was conducted to examine whether there were any mean changes between the two SEP groups under study between the two time points. This 2 (group) x 2 (time) analysis used SEP as a between-group variable and time as a repeated measure, enabling the investigation of (a) differences in mean levels of the psychosocial factors between low and high SEP groups (b) mean changes in psychosocial factors between the two time points and (c) the interaction of these effects.

For all analyses (paper I-IV), a p-value of <0.05 was considered significant.
Table 3. Distribution of the statistical methods used in each of the four papers:

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4. Overview of the studies

4.1 Study I

“Adverse health effects of low levels of perceived control in Swedish and Russian community samples”
Johanna Lundberg, Martin Bobak, Sofia Malyutina, Margareta Kristenson, Hynek Pikhart

**Study purpose:** This cross-sectional study of two middle-aged community samples from Sweden and Russia examined the distribution of perceived control scores in the two populations, investigated differences in individual control items between the populations, and assessed the association between perceived control and self-rated health.

**Method:** The samples consisted of men and women aged 45-69 years, randomly selected from national and local population registers in southeast Sweden (n = 1007) and in Novosibirsk, Russia (n = 9231). Data were collected by structured questionnaires and clinical measures at a visit to a clinic. The questionnaire covered socioeconomic and lifestyle factors, societal circumstances, and psychosocial measures. Self-rated health was assessed by standard single question with five possible answers, with a cut-off point at the top two alternatives.

**Results:** A total share of 32.2% of Swedish men and women reported good health, compared to 10.3% of Russian men and women. Levels of perceived control were also significantly lower in Russia than in Sweden, and varied by education and sex in both populations. Sub-item analysis of the control questionnaire revealed substantial differences between the populations both in the perception of control over life and over health. Logistic regression analysis revealed that the odds ratios (OR) of poor
self-rated health were significantly increased in men and women with low perceived control in both countries (OR between 2.61 and 4.26).

**Conclusion:** Although the cross-sectional design does not allow for causal inference, these results support the view that perceived control influences health, and that it may mediate the link between socioeconomic hardship and health.

### 4.2 Study II

**“Is subjective status influenced by psychosocial factors?”**

Johanna Lundberg, Margareta Kristenson

**Study purpose:** Associations between subjective social status and health are still relatively unexplored. This study aimed at testing whether subjective status is uniquely confounded by psychosocial factors compared to objective status, and what factors that may predict subjective social status.

**Method:** Cross-sectional analysis of a population-based, random sample of 795 middle-aged men and women from the southeast of Sweden. Questionnaires included subjective social status, objective measures of socioeconomic status, life satisfaction, and a battery of psychosocial factors. Associations were controlled for effects of age and sex.

**Results:** Both subjective status and occupation were significantly associated with self-rated health also after control for psychosocial factors. Stepwise regression showed that subjective status was significantly influenced by self-rated economy, education, life satisfaction, self-esteem, trust, perceived control, and mastery.

**Conclusion:** The association between subjective status and self-rated health does not seem to be uniquely confounded by psychosocial factors. Both resource-based measures and psychological dimensions seem to influence subjective status ratings.
4.3 Study III

"Status incongruence revisited - associations with shame and mental well-being (GHQ)"
Johanna Lundberg, Margareta Kristenson, Bengt Starrin

Study purpose: Status incongruence has been related to poor health and all-cause mortality, and could be a growing public health problem due to changes in the labour market in later decades. Shaming experiences have been suggested as playing a part in the aetiology. Our aim was to study the risk for shaming experiences, pessimism, anxiety, depressive feelings, and poor mental well-being (GHQ) with a special focus on shame, in four status categories: negatively and positively incongruent individuals, and low-status and high-status congruent individuals.

Method: Data comprised 14 854 working men and women from a regional sample of randomly selected respondents, 18-79 years. Logistic regression was used to study differences in risk for negative emotional outcomes.

Results: The negative incongruent category persisted as the group most at risk for all negative emotional outcomes (OR 1.5-1.9; p<0.05-<0.001). When testing the risk for poor mental well-being among the status categories with and without shaming experiences, OR for all groups with shaming experiences were elevated. Among groups without shame, only the negative incongruent category remained at risk (OR 2.7; p<0.05) after adjustment.

Conclusion: Negative incongruent status is associated with adverse emotional outcomes, among them shame, which is a previously unappreciated aspect of status incongruence.
4.4 Study IV

“Does 2-year stability of psychosocial factors differ by socioeconomic status? Test-retest correlations of self-esteem, mastery, perceived control, sense of coherence, cynicism, hopelessness, vital exhaustion and depression in a middle-aged Swedish normal population”

Johanna Lundberg, Margareta Kristenson, Bengt Starrin

**Study purpose:** The main aim of this study was to assess the stability of eight psychometric instruments over a 2-year period. A second aim was to analyze whether the stability of each psychometric instrument differ by socioeconomic position (SEP).

**Method:** Self-reported data from eight previously validated instruments were used: self-esteem, mastery, perceived control, sense of coherence, cynicism, hopelessness, vital exhaustion and depression were collected from a population based sample of 1007 men and women aged 45–69, drawn from a region in the southeast of Sweden. Baseline data were collected during 2003–2004 with a follow-up in 2006.

**Results:** The test-retest correlation coefficients ranged between 0.52 – 0.74 with the highest values noted for self-esteem, sense of coherence and vital exhaustion, which were all over 0.70. The lowest values were noted for hopelessness and perceived control; 0.52 and 0.58 respectively. Test-retest coefficients tended to be lower in low SES groups. Significant differences in test-retest coefficients were found between groups with high and low education for self-esteem and perceived control, and between occupational groups for cynicism.

**Conclusion:** Stability for psychosocial factors over 2 years were moderate and tended to be lower in low SES groups. Data suggest that correction of attenuation bias in longitudinal studies is relevant also for psychosocial factors.
5. Discussion

The aims with this thesis was to study associations between different indicators of social position - two resource-based and two prestige-based measures - and explore their associations to psychosocial factors, emotions, and health in normal population samples, and also to study the stability of psychosocial factors over time and their social stratification in a normal population sample. The focus has primarily been on the social stratification of psychosocial resources and emotions – did all of these four measures of social position relate to psychosocial factors and emotions in a way that matters to health? The four papers all discuss parts of the association between social position, psychosocial factors and health, as illustrated by the figure on page 71. I will now address different aspects of this association with reference to each of the papers.

5.1 Social position, psychosocial factors, emotions and health

Several studies have shown that people in lower socioeconomic positions may experience psychosocial strain to a higher extent than those better off while lacking in resources to cope with stressors [133-135]. As for Paper I, our findings of lower perceived control among the lower educated in both populations were in line with previous reports on associations between social position and psychosocial factors. This underlines the importance of both contextual and individual characteristics of the social environment. Furthermore, the lowest levels of perceived control scores were seen for men and women with the lowest level of education in Russia, and the highest levels were seen among people with high education in Sweden, lending some support to assumptions of a social gradient also across the continent.

In Paper II, we found that subjective social status was not only positively correlated with education and occupation, but also to all of the psychosocial resources tested (perceived control, sense of coherence, trust, mastery, self-esteem and optimism) and inversely correlated with all measures tested on psychosocial risk factors (cynicism, shame, vital exhaustion, depression, hopelessness).
Also in line with previous studies, subjective status showed stronger associations with all psychosocial factors than did occupation and education [69, 73, 136] and was positively related to self-rated health.

Another unique contribution of Paper II was our measure of shaming experiences. Results showed that this emotion did not have any impact on the association between subjective status and self-rated health, nor on the association between occupation and self-rated health. However this is most likely a consequence of the outcome measure at hand. In a study by Starrin et al. [94] shaming experiences co-varied strongly with mental ill-health among social benefit recipients, and the same pattern was found among the unemployed, while Eales [97] found an association between shame, depression and anxiety. We now used self-rated health in our paper for comparative purposes, but had we instead used depression or psychiatric diagnoses as outcome, the impact of the shame variable would most likely have turned out differently (analyses in Paper III later confirmed a strong association between shame and mental well-being as measured by GHQ, although in another population).

Our main aim in Paper III was to study whether there were any differences in the risk for shaming experiences, pessimism, anxiety, depressive feelings, and poor mental well-being (GHQ) in four different status categories: negatively and positively incongruent individuals, and low-status and high-status congruent individuals. A special focus was assigned shaming and its associations with the four status categories and GHQ, which no other studies have tried before. Our results showed that the negative incongruent category had a higher frequency of negative emotional outcomes and was the group most at risk for experiencing adverse levels of all of the five outcomes. However, when we introduced shaming experiences in the equation, shaming experiences seemed to be the primary producer of poor mental well-being more than the social status position as such, since also the positive incongruent category with shaming experiences noted an increased risk for poor mental well-being. However, as for the categories without any shaming experiences, an increased risk for
poor mental well-being (OR 2.7; p<0.05) remained only for one category after full adjustment, and this was the group comprising the negative incongruent respondents. Overall, the negative incongruent category persisted as the group most at risk for our measure of negative status incongruence was ranked first on all negative emotional outcomes (feeling low, anxiety, pessimism, shame) although the socio-demographic data were similar for the negatively incongruent and the low-status congruent category: both were less likely to be cohabiting with another adult and had larger proportions of respondents with a longstanding illness and respondents experiencing financial difficulty and poor mental well-being. Despite obvious problems with measurement, such as the substitution effect and problems with separating the experienced effect from that of the objective measures involved, measures of status incongruence seem important for furthering the understanding of social-evaluative aspects of status position, and of associations between negative affect and health.

In paper IV, a primary aim was to estimate the stability of eight psychometric instruments over two years and to assess whether these measures differed according to socioeconomic position (SEP) as measured by education and occupation. No other study has tested this many instruments in relation to socioeconomic position at one and the same occasion before. The observed test-retest correlations coefficients ranged between 0.58-0.74 with tendencies for all instruments to have higher stability among high SEP groups. These coefficients were all in line with previous research, although no previous test-retest studies of coping, cynicism, hopelessness, perceived control or vital exhaustion were found. As for internal consistency of the instruments, this was generally high for all instruments with Cronbach’s alphas ranging from 0.70-0.94, with the majority of instruments around 0.85. This meets with references to recommended acceptable levels found in the literature [137, 138] and our results corresponded well with results from previous studies. We also wanted to and to assess whether levels of psychometric scale scores and stability over time differed according to socioeconomic position (SEP) as measured by education and occupation. For this purpose, we compared the profiles of the psychological instruments between levels of SEP and we found tendencies for all instruments to have lower stability among low SEP groups.
Coefficients differed significantly for self-esteem and perceived control among high and low status groups of education, and for cynicism among groups of high and low occupation. It is interesting to note that significant differences in stability between high-status and low-status individuals were seen mainly for traits, but also for instruments where people with low SES had poorer baseline levels (i.e. lower levels of self-esteem and sense of coherence, and higher levels of cynicism). This is in line with previous research showing that low-status people in general have poorer resources to cope with stressful challenges, and that these resources are distinguished by their more persistent, cognitive kind [53].

5.2 Exploring social-evaluative dimensions of social status

In this thesis, I have also addressed social-evaluative aspects of social status, that is, the social psychology of perceived rank and its potential consequences for health via psychosocial factors and emotions. A central question around subjective social status has been whether the measure used for this aspect [136] is to be seen as an averaging measure of resource-based indicators of socioeconomic position, or whether it is in fact confounded by psychosocial factors (so that subjective status would not be a stable measure in itself, but rather dependent on current mood states).

As for the associations with resource-based measures, our findings as presented in paper II of subjective status as correlated with both occupation and education are in line with results from a study by Singh-Manoux et al. [73] but differed from a study by Adler et al. [136] where subjective status was significantly correlated with both income and educational degree, but not with occupational status. In the latter study, subjective social status was also more strongly related to a composite measure of SES than to any one objective SES indicator. The authors suggested that this may be because participants take all their (objective) standings into account when they rate themselves on the ladder.
What else differed between our study and another study of associations between subjective and objective SES measures and health, was the influence of life satisfaction. Singh-Manoux et al. [73] controlled for general life satisfaction “to avoid reporting bias” (though without any further explanation of why they considered this particular measure to be relevant). When we included life satisfaction in our analysis, the association between subjective status and self-rated health became completely eliminated, while associations remained borderline significant for both occupation and education (data not shown). We tested two models in our analysis of psychosocial factors as potential confounders in the relation between status and health, one with and one without the inclusion of life satisfaction. This was done because life satisfaction is neither a psychological trait nor a psychosocial factor, but rather a complex, composite measure, and in this aspect a construct similar to subjective social status: “A measure of subjective social status is likely to reflect not only current social circumstances, but also to incorporate an assessment of an individual’s past (socioeconomic, educational, and economic background) along with their future prospects. Subjective social status would be expected to encompass the individual’s family resources, opportunities, and life chances.” [73] (p. 1322)

Moreover, the correlation coefficient between subjective status and life satisfaction was 0.53 in our study, emphasizing that these variables could not be regarded as substitutes for each other despite the similar construction of their respective scales. We further found that the prestige-based measure of subjective status was influenced by resource-based measures, such as self-rated economy and education, but also by life satisfaction and psychosocial resources represented by self-esteem, trust, perceived control, and mastery. In support of early findings on both subjective and objective elements as important predictors for subjective status [139] our study shows that the process of assigning oneself subjective status cannot be explained solely in terms of averaging of conventional socioeconomic measures, as has been suggested in some studies [73, 136, 140].
Further, we found no correlations between subjective status and partner’s education or occupational status, although this has been suggested as an important factor for status ratings, especially among women [141]. Of the traditional (expanded) socioeconomic measures, only mother’s occupational status showed a significant correlation with subjective status. Life satisfaction and self-rated economy were the two single most influential predictors for subjective status in our study, together with psychosocial resources that express various dimensions of trust: social trust; trust in one’s own self-worth as measured by self-esteem; and trust in one’s capabilities or internal locus of control as measured by perceived control and by mastery. Since these instruments are not similar in construct, it is extra interesting that they manage to capture something of a common dimension in relation to subjective status. Following from hypotheses on subjective status as more sensitive to current life circumstances than traditional measures [142] the differences in outcome between our study and the Singh-Manoux et al. [73] study could support this view.

As for aspects of social comparison in terms of the proposed effects in Paper III of status incongruence, the increased health risks in terms of mental well-being that were found in our study for the group of negative incongruents could lend some support to theories of role conflict and of not being at ease in one’s assigned cultural environment [76]. Referring back to Bourdieu [80] status incongruity could be described as a forced change in the individual’s social space, leading to a discrepancy in the agent’s habitus, or a sense that one’s various forms of capital have been devalued or disarmed. Perhaps it is comparable to the situation for the worker in a monotonous job who finds himself in a daily activity that “touches no part of him that is himself” [11]. However, previous studies have suggested that this discomfort might be the case no matter whether the person is moving up or down the ranking scale, but our results did not support this hypothesis. It is possible that the positive incongruents use their higher occupational status as a status shield [143] and therefore manage to escape the proposed negative consequences, while highly educated people are more likely to have built their identity around their educational investments (which will become devaluated in their current discrepant position).
It was further interesting to note that also the high-status congruent category showed an elevated risk of experiencing shaming. A possible explanation for this higher risk and frequency of shaming experiences among the highly educated is, returning to Bourdieu, that their achieved cultural capital (represented by education) might contribute to feelings of shame, should these persons receive inadequate confirmation of their social status from others. Thomas Scheff refers to Goffman’s theories on the ritual definition of the self among others, and the function of embarrassment: “Goffman’s interactants are exquisitely sensitive to the exact nuance of their treatment by others, undergoing agonies of embarrassment or anticipated embarrassment when they receive inadequate deference.” (Scheff, 1992).

Scheff also emphasises that the social order is not static, and that status honor requires continuous affirmation. This might help explain why higher-educated persons are more easily offended: it is because they actually have something to defend, something which is of value in the eyes of others. When their social status and honor is threatened to be taken away from them, the emotional reaction will be one of shame, of not being regarded and respected in the way one thinks one deserves to be. High-status people need to be at the tip of their toes more than low-status people, simply because the former group has a lot more socially desirable assets to defend from the threats of social devaluation. Following Wilkinson [144] who states that shaming experiences are plausibly one of the most powerful and recurrent sources of the kind of stress that influence the association between social status and health in general, and between social status and psychiatric ill-health in particular, while considering our results that the negatively incongruent group was most at risk for both shaming and poor mental well-being, the health risks for this group could not be neglected.

5.3 Sex differences

Research shows that traditional class measures do not produce similar gradients in health for women as for men, and that women's mortality risk instead is more strongly related to the prestige level of the most advantaged member of the household [23].
However, while this may be valid for the U.K. which only has 50% of women working outside of the home, just as many Swedish women as Swedish men are currently included in the Swedish workforce – around 77% of both sexes [125] and it is not uncommon that the "most advantaged member of the household" today is a woman. There have also been discussions on women suffering from lower mental well-being because of the double burden of household work / children and a professional career, and there is literature suggesting men to be more dependent on traditional status indicators (such as occupation) for their social status identity [11]. Because of these identified patterns of importance of sex in health inequality research, we stratified the analyses in paper I, III and IV by sex. Since this thesis does not have a particular gender focus with regards to theory and discussion, I will only comment briefly on the findings related to sex differences in our studies.

In paper I, we noticed differences in control levels between socio-demographic groups within both populations, most visibly so in women who generally reported lower levels of control than men. Control also decreased with age, but there were differences between the populations. There was a linear decrease for both men and women in Russia, but not in Sweden where the decrease for men starts after the age of 60, and in Swedish women after the age of 55. This suggests a faster decline in Russia, which is in line with earlier studies on self-rated health and physical functioning in Russia and Sweden. In general, Russian women stood out as suffering from worse health conditions compared to all other groups in our analysis. Their levels of poor self-rated health were significantly worse than those of any other group. Suggesting that health levels may depend on - or reflect - different reactions to adversities among the sexes in Russia, Andreev et al. [145] imply in their study on health expectancy in Russia, that although the premature male mortality in Russia is the most striking feature of the nation’s health development, there also appears to be a substantial burden of ill-health among women – “men die while women suffer”.

In paper III, we stratified all analyses in the present study by sex although these were not included in the final manuscript (though we commented on this matter in the
discussion chapter of the paper). This was because all outcomes followed a similar pattern, except for negative incongruent men who had a higher risk for pessimism and high GHQ scores than negative incongruent women. But overall, patterns remained the same for both sexes as they did in the non-stratified analysis. We therefore choose to keep categories intact due to the rather small number of participants in some of the categories.

In Paper IV, a repeated measures analysis of variance was conducted for each psychometric instrument to examine whether there were any mean changes between the two SEP groups under study between the two time points. This 2 (group) x 2 (time) analysis used SEP as a between-group variable and time as a repeated measure, enabling the investigation of (a) differences in mean levels of the psychosocial factors between low and high SEP groups (b) mean changes in psychosocial factors between the two time points and (c) the interaction of these effects. These analyses were stratified by sex, but very few differences in the time*sex effect was noted.

Further, unpublished data from the LSH study I and II on mean levels for men and women per educational level in LSH I and LSH II respectively (data not shown) teach us that women in general have somewhat lower scores than men on psychosocial resources, and higher scores on psychosocial risk factors with the exception of cynicism where men have higher means in general (see also [146]). The only factor that seems to be “gender neutral” is sense of coherence. As for psychosocial scores per occupational category, the same pattern remains in principle, but control scores are more even between the sexes, while depression and vital exhaustion scores are higher for women.
6. Methodological issues

6.1 Ordinality of variables measuring socioeconomic position

"From an analytic standpoint, actual resources are, like social class, categorical in nature; they also can be ordinal or interval (e.g. own zero, one, or two or more cars). Prestige- or rank-related characteristics, by contrast, pertain to relative position in social ranked hierarchies and chiefly concern status in relation to access to and consumption of goods, services and knowledge. These characteristics typically are modelled as continuous variables, with cut-points for categorical analysis, if any, usually determined by the structure of the data, rather than a priori reference points." [64] (p.347)

Resource-based measures of socioeconomic position are often treated as ordinal variables. An ordinal variable has a clear ordering, or builds on assumptions of the same. An example is occupational status as categorized according to the Swedish SEI system (Statistics Sweden), which has five categories in its short form, with unqualified manual as the bottom level and qualified non-manual as the top level. However the “spacing” or the size of the difference between the categories is often inconsistent, which makes it difficult to say how much more level 3 is “worth” compared to level 4 (as is the case with an interval variable, where all categories are equally spaced). This has been met with some critique, especially among statisticians within the field of social inequalities in health. Critics often point at two major problems: what does the variable express in terms of unit, and who has made these subjective ratings which underlie the rank of the units within the variable? [147]

If we focus on occupational status according to Statistics Sweden, this measure is mainly based on educational requirements for a certain occupation. It separates between manual and non-manual workers, and it also has a category for the self-employed. Occupational status also includes codes for students and retired people. To classify someone according to the SEI system basically requires information on
occupational status (what sort, union affiliation of occupation, and main job tasks) and on employment (employed or self-employed). Sometimes the five-category divide is merged into two categories: blue collar and white collar workers. If we should address the first criticism above, about measurement, we can argue that it is quite hard to say what is really being measured by these categories. The underlying assumption for an ordinal interpretation of occupational status should be that non-manual workers have ”more and better” of something than manual workers. But what is this ”more and better”? It is clear that the underlying educational requirements are not enough to capture the contents of ”occupational status”. Both of these measures have shown to relate to health independently [15, 148] and although they do overlap to some extent, they contribute in their different ways to health and there is a consensus around the separate use of the two measures. Higher occupational status means evidently something more than mere educational benefits and its positive consequences. For instance, occupational status could be a proxy for the quality of the working environment, or of control at work, or of the chances of working under a beneficial effort-reward balance.

As for the second critical point, on subjective ratings, one might say that this is not highly relevant for occupational status research since the SEI-coding system is an established system without any subjective interference. And as the association between occupational status and health has been assessed multiple times, researchers seem to settle for the argument that ”the ordering is there for all to see”. But another argument could be that the subjectivity issue is not involved when rating occupational status, as it builds on educational requirements and which sector you actually belong to, and not on what category you feel like, or what the researcher might think you look like.

To sum up, the problem with using occupational status as an ordinal variable is not that it cannot be categorized objectively, but rather that we cannot say for sure what the true contents of the underlying parameter really is (that is, what we really measure by occupational status) which might be especially important in relation to health.
In defense of the use of occupational status as an ordinal variable, one could use the following arguments:

- the categorization of occupational status builds on a defined standard with objective prerequisites (= avoidance of the problem with subjective ratings or intersubjectivity)

- there is a general acceptance within the research area to treat occupational status as an ordinal variable (…”for comparative reasons”…)

- studies have showed that health increases with the level of status, no matter the categorization or number of fine-tuned categories.

6.2 Can measures of SEP be used interchangeably?

Lahelma et al [15] tested associations between the three SES indicators education, occupational class, and household income, against health outcomes represented by limiting longstanding illness and self-rated health. They found that each indicator showed a clear gradient in health and that inequalities by occupational class were largely explained by education. Two thirds of inequalities by income were explained by education and occupational class. Part of occupational class inequalities were explained by education. The authors conclude that “Parts of the effects of each socioeconomic indicator on health are either explained by or mediated through other socioeconomic indicators. Analyses of the predictive power of socioeconomic indicators on health run the risk of being fruitless, if interrelations between various indicators are neglected.” [15] (p.327)

This is not to say that socioeconomic indicators are to be seen as interchangeable, but rather partially independent, partially interdependent determinants of health. This, the authors claim, makes the search for “the single best socioeconomic measure” fruitless. However, as different indicators may have different predictability for different outcomes [149] there may be reasons for trying to single out the most powerful
predictor for specific outcomes, as this could help guide interventions and policy making. This was tested in a study by Geyer et al. [148] where income, education and occupation were found to be correlated only in a low to moderate way, and where each measure was found to be outcome specific, that is, yielding different gradients depending on the SEP measure at hand. The authors conclude: “[these measures] cannot be used interchangeably as indicators of a hypothetical latent social dimension. Although correlated, they measure different phenomena and tap into different causal mechanisms.” [148]

6.3 Cross-sectional data and causality

The cross-sectional study is usually considered to be a hypothesis-generating design. In cross-sectional studies, a population of individuals is studied with regard to a disease and potential risk factors at one point in time. Because data on the disease and the exposure are collected at one specific point in time, this approach cannot provide estimates of disease incidence but instead produces an estimate of disease prevalence with regard to the possible risk factors [150].

In Papers I, II and III, temporality of the association between the dependent and the independent variable is hard to establish. The lack of a time dimension makes it difficult to draw any conclusions regarding the temporal relationship between the disease and the exposures. We cannot exclude the possibility that, as in Paper I, low self-rated health could lead to low perceived control instead of the other way around. Prospective studies are needed to further validate these associations and to exclude reverse causation. As for Paper II, we should rather talk about a significant covariance in the second analysis investigating “predictors” of subjective status.

6.4 Confounding or mediation?

An important difference between confounding and mediation effects is that mediation implies that the independent variable causes the mediator, which, in turn, causes the dependent variable (or outcome). A confounder however, need not be causing the
outcome to which it is related. A confounder is a third variable that explains the relationship between an independent and dependent variable [151]. Adjustment for the confounder provides an undistorted estimate of the relationship between the independent and dependent variables. An illustrative example of the difference between mediators and confounders is provided by MacKinnon et al [152]: “[…] age may confound the positive relationship between annual income and cancer incidence in the United States. Older individuals are likely to earn more money than younger individuals who have not spent as much time in the workforce, and older individuals are also more likely to get cancer. Income and cancer incidence are thus related through a common confounder, age. Income does not cause age, which then causes cancer.”

Examples of confounders in the studies of this thesis were chronic disease in Paper I, which could be a possible confounder in the relationship between control and health, because an existing disease can reduce the feeling of control and self-perceived health. To account for this possible effect, we conducted an additional analysis in Paper I excluding people who reported myocardial infarction, angina and stroke in the past. Results from our original analysis and new results were virtually the same. This suggests that chronic disease (although expressed only in terms of cardiovascular disease) was not a major confounding factor in this analysis.

In Paper II, we chose not to control for lifestyle factors and physiological variables in our analyses, because of the risk of these factors being potential mediators between psychosocial factors and health (see figure on next page). We might run the risk of over-controlling if we would include smoking, exercise, diet and alcohol habits [53].

A special case of “confounding” is present in Paper III regarding the construction of the status categories: “The fundamental problem in the analysis of the effects of mobility or status inconsistency on individual behaviour revolves around the issue of distinguishing between the effects of inconsistencies between two or more social positions and the effects of the social positions themselves.” [153]
We adjusted for financial difficulty to ensure that the effects of incongruence and congruence are not due to financial aspects of the position at hand, and while it is beyond the scope of this paper to try to contribute to the debate on how to best measure status incongruence, it has been our intention to construct as well-defined categories as possible, excluding secondary level education, the self-employed and farmers from the coding procedure due to difficulties in determining the appropriate occupational and educational equivalents for these categories.
How the four papers relate to the psychosocial hypothesis on social inequalities in health (model inspired by Adler, 1999, and Gallo & Matthews 2003)
7. Conclusions

Social stratification of psychosocial factors and associations with health
What we can learn from paper I is that psychosocial factors do seem to have an influence on health, independent of whether we study this in a highly unequal setting such as Russia, or in a more egalitarian society such as Sweden. And as for the debate of whether material or psychosocial influences are most important for health [18, 29, 30, 154-156]: Despite Sweden being internationally promoted as the “ideal” society in comparison with many other Western countries, with small (however increasing) absolute differences in material standard and income, psychosocial factors still manage to establish an independent relationship with health.

As seen in paper IV, psychosocial factors are in most cases unequally distributed within the population, although in a linear manner. This means basically “the lower your socioeconomic position, the less psychosocial resources you have”. This pattern of social stratification of psychosocial factors is very much in line with previous research. However, one could argue that the differences noted in the LSH sample in comparison are rather small – and, adding to this – that the differences between the sexes are rather small as well. Still, the conclusion rests on the fact that there actually are statistically significant differences at play here, which at large support the psychosocial hypothesis on social inequalities in health: people in lower positions also have fewer resources to cope with stressors. Adding to this, their resources seem to be less stable over time, which is a critical methodological problem that needs to be addressed in prospective studies.

Social-evaluative aspects of social status
As seen in paper II, the subjective measure of social status shows stronger associations with psychosocial factors and shame than the traditional measures of socioeconomic position do, while being significantly associated with self-rated health also after control for these factors. This points again to the relevance of individuals’ own
thoughts about themselves and the potential impact on the self by normative
g judgements of social position in a certain hierarchical setting. This is also obvious
from the study on status incongruence (Paper III) where the traditionally protective
effects of a high education are suddenly diminished when combined with a low-status
occupation. Shaming experiences may play an important role for our understanding of
self-perception and the consequences of not receiving status attainment as expected.

**Implications for future research**

Let us again look at the model presented above, where the suggested aetiology which
follows from the social causation hypothesis suggests that social, material and
environmental conditions will impact an individual’s psychosocial resources in a
positive or negative direction (coping successfully or not), resulting in emotions which
in turn may affect psychoneuroimmunological responses and result in mental or
physical illness. As for the social-evaluative measures, these will mainly derive from a
social environment where the collective consciousness (norm cohesion / doxa) will
induce social stress when the individual is measured by the eye of the Other. This will
put the individual’s psychological resources to the test (coping successfully or not) and
result in emotions which will have health-promoting or detrimental effects.

So, while the psychobiological pathways may be the same, the difference lies in the
emphasis on where the social stress emanates from. Poor health could have many
reasons, partly due to stress from the social-material (structural) environment, partly
due to stress from the social-comparative (social psychological) environment.
Obviously there are different ways to go about when it comes to prevention in order to
come to terms with the stress derived from these different factors. This is also my main
argument for promoting both objective and subjective measures of social position in
future studies within health inequality research.

From the model above we also learn that all measures of social position used in this
thesis are placed in the same box. However, the measure of subjective social status
may require some further consideration, since we cannot rule out that it is also
influenced by psychosocial factors, so that it may rather be a proxy for psychosocial resources than a measure averaging between resource-based measures. If this is the case, so that the assessment of subjective social status really comes later in the chain and is induced by factors such as pride, self-esteem and control, then subjective social status should rather be regarded as a composite measure - perhaps more inclined towards dimensions of mental well-being - and would thus not be very useful as an indicator of social position or status. However, as several previous studies have shown that subjective social status is not very closely correlated with traditional measures of socioeconomic position, and that confounding from negative affect is not present, we cannot conclude from the study presented in this thesis that subjective status really is an in-between measure found half-way between measures of socioeconomic position and psychosocial resources.

“More research is needed” – the well-known expression does have a place here. I think we need to perform comparative studies in different socio-political settings as well as carry out qualitative studies in order to really come to terms with the impact of subjective social status; what it is and how it best should be measured. As for qualitative studies, the work of Simon Charlesworth [90] is but one example of how one could go about to study the experiences and emotional consequences of status awareness. The same goes for status incongruence – this may be a useful measure when going “behind the scenes” of that which seems obvious at a first glance. That a high educational position equals good health is surrounded by a consensus judging from the masses of studies pointing to this – but the present study shows that even this “absolute” measure is very much a relative phenomenon. Depending on where you come from and what ambitions you may have, a high education may not protect you from the (mental) health-damaging effects of being in an incoherent position, where the eyes of the Other will assess you in a way where you will not achieve status attainment as expected.

I would like to conclude by joining Singh-Manoux et al [73] in their seemingly obvious conclusion, but which I hope may stand out even more in light of what I have
just presented in this thesis: “The fact that health is itself not unidimensional opens up the field to a plethora of models, each testing the relation between a specific outcome and a specific measure of socioeconomic position.” However complex this may sound, we need to remember that different indicators may have different predictability for different outcomes [149]. Hence, there may be reasons for trying to single out the most powerful predictor, as this could help guide interventions and policy making. But what if one of these powerful predictors turns out to be a subjective measure of social status, as actually has been shown by several studies [73, 136, 142, 157]? Should this then be discarded merely because of “problems with measurement”?

Morin [26] agrees with the need for an integrated and interdisciplinary approach due to the complexity of the relationship between social factors and health: “Perceptions and their first-person subjective character, and all those aspects of experience that are directly knowable only through introspection are thought not to be capable of being analysed in terms of causal relations and, thus, are often marginalized by the objectifying approach of science. Hence, first-person or subjective experiences and people’s way of presenting and explaining their difficulties do not receive enough attention in current literature.” (p. 26) We need to remember that measurement problems are present also for “objective” measures and is thus not valid as a unique argument against subjective measures. I would like to see these problems being addressed more as cases indicating needs for future research, rather than as grounds for excluding potential research possibilities.
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APPENDIX

Items from questionnaires used in the LSH I and LSH II studies:

Perceived control

1. At home, I feel I have control over what happens in most situations.
2. Keeping healthy depends on things that I can do.
3. There are certain things I can do for myself to reduce the risk of a heart attack.
4. There are certain things I can do for myself to reduce the risk of getting cancer.
5. I feel that what happens in my life is often determined by factors beyond my control.
6. Over the next 5-10 years, I expect to have many more positive than negative experiences.
7. I often have the feeling that I am being treated unfairly.
8. In the past ten years my life has been full of changes without my knowing what will happen next.
9. I very often have the feeling that there’s little meaning in the things I do in my daily life.
10. I sometimes feel as if I’ve done all there is to do in life.
11. I gave up trying to make big improvements or changes in my life a long time ago.

Mastery

1. I have little control over the things that happen to me.
2. There is really no way I can solve some of the problems I have.
3. There is little I can do to change many of the important things in my life.
4. I often feel helpless in dealing with the problems of life.
5. Sometimes I feel that I’m being pushed around in life.
6. What happens to me in the future mostly depends on me.
7. I can do just about anything I really set my mind to do.

**Self-esteem**

1. I feel that I’m a person of worth, at least on an equal plane with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I’m a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I certainly feel useless at times.
9. I wish I could have more respect for myself.
10. At times I think I am no good at all.

**Sense of coherence**

1. Do you have the feeling that you don’t really care about what goes around on you? [Very seldom or Never] vs. [All the time]
2. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well? [It has never happened] vs. [Many times]
3. Has it happened that people whom you counted on disappointed you? [It has never happened] vs. [Many times]
4. Until now your life has had… [no clear goals or purpose at all] vs. [very clear goals and purposes]
5. Do you have the feeling that you are treated unfairly? [All the time] vs. [Very seldom or Never]
6. Do you have the feeling that you are in an unfamiliar situation and don’t know what to do? [All the time] vs. [Very seldom or Never]
7. Doing the things you do every day is… [A source of deep pleasure and satisfaction] vs. [A source of pain and boredom]
8. Do you have very mixed-up feelings and ideas? [All the time] vs. [Very seldom or Never]
9. Does it happen that you have feelings inside you would rather not feel? [All the time] vs. [Very seldom or Never]
10. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past? [Never] vs. [All the time]
11. When something happened, have you generally found that…? [You overestimated or underestimated its importance] vs. [You saw the things in its right proportions]
12. How often do you have the feeling that there’s little meaning in the things you do in your daily life? [All the time] vs. [Very seldom or Never]
13. How often do you have feelings that you are not sure you can keep under control? [All the time] vs. [Very seldom or Never]

**Trust**

1. Do you feel safe in the area of your residence during the day?
2. Do you feel safe in the area of your residence at night?
3. Would your neighbours help you if you need it?
4. Is there trust among people in your area of residence?
5. Do you think that you can trust people?
Cynicism

“To what extent do you agree with the following statements?”

1. I have often had to take orders from someone who did not know as much as I did.
2. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help from others.
3. It takes a lot of argument to convince most people of the truth.
4. I think most people would lie to get ahead.
5. Most people are honest chiefly through fear of being caught.
6. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.
7. No one cares much what happens to you.
8. It is safer to trust nobody.
9. Most people make friends because friends are likely to be useful to them.
10. Most people inwardly dislike putting themselves out to help other people.
11. I have often met people who were supposed to be experts where no better than I.
12. People generally demand more respect for their own rights than they are willing to allow for others.

Hopelessness

1. I feel that it is impossible to reach the goals I would like to strive for.
2. The future seems to me to be hopeless, and I can’t believe that things are changing for the better.

Vital exhaustion

1. Do you often feel tired?
2. Have you felt less confident lately?
3. Do you have a feeling that you haven’t accomplished much lately?
4. Do you believe that you have come to a “dead end”?
5. Do you feel more listless recently than before?
6. Do you have the feeling that you can’t cope with everyday problems as well as you used to?
7. Do you sometimes feel like your body is like a battery losing its power?
8. Do you feel cast down?
9. Do you feel like you are losing your self-restraint?
10. Have you ever had a feeling lately, like “I do not achieve enough, I could achieve more if only I were healthier, not so weak, not so limp?”
11. Have you noticed lately that it takes a longer time than before to “get going”?
12. Do you lately think more often about acquaintances or relatives that are deceased?
13. Do you have a feeling that nobody can help you with those problems deep inside?
14. Are you becoming less satisfied with yourself?
15. Do you feel less capable of doing something useful these days?
16. Do minor hassles irritate you easily in these days?
17. Would you want to be dead at times?
18. Can you bring yourself less and less to leave the house and go for a visit?
19. Do you have the feeling these days that you don’t have what it takes anymore?

**Shame**

“Have you during the last three months experienced…”

1. ..that anyone has treated you in a condescending way?
2. ..that anyone has ridiculed you in front of others?
3. ..that anyone has insulted you?
4. ..that anyone talked disparaging about you?
5. ..that anyone around you ignored you?
**Depression**

“During the past week…”

1. I was bothered by things that do not usually bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not “get going”.
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