“An equal share, that’s my medicine”

Work, gender relations and mental illness
in a Swedish context

Lisa Harryson
"Health [...] is the rhythm of life, a permanent process in which equilibrium reestablishes itself. This is something known to us all. [...] However, we cannot actually hope to gain full control of these rhythmic functions which take place as an integral part of ourselves. We can observe their mysterious character [...] . This is one of the greatest enigmas we experiences in our lives."

The enigma of health, p.114
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Abstract

**Background:** Women and men in Sweden are in paid work to almost the same extent, but are found in different occupations and positions in the labour market. Still, women perform the bulk of the unpaid domestic work at home. Gendered inequalities in these respects leave women and men exposed to different work environments and responsibilities, which in turn can have gendered health consequences. In public health research there is a lack of studies on domestic work that include women and men, as well as a lack of qualitative studies exploring individuals’ experiences of domestic work and mental health. At the workplace level, few attempts have been made to analyse how several dimensions of gender equality at workplaces are related to health status and there is a lack of studies with a contextual approach combining many different variables that are at play simultaneously. Because of the cross-sectional design of previous studies on paid and domestic work there is a lack of analyses taking possible health-related selection into account, which makes it difficult to ascertain whether gender equality leads to better health or if good health is a prerequisite for gender equality.

**Aim:** The aim of this thesis was to analyse gender relations of work (at workplaces and at home) in relation to mental illness among women and men.

**Methods:** The thesis was based on data from the Northern Swedish Cohort. The baseline survey was conducted in 1981 when the participants were 16 years old (n= 1080, 574 boys and 506 girls), with follow-up at age 18, 21, 30 and 42. The response rate was 94 % throughout the last follow-up in 2007. Data from the Northern Swedish Cohort were supplemented with register data about the employees at the participants’ workplaces. The analysis methods for the questionnaire and register data were logistic regression analysis and cluster analysis. Interviews were performed with four women and four men in the Northern Swedish Cohort and were analysed with a Grounded Theory approach.

**Results:** Women had overall greater responsibility for domestic work. Gender inequality in responsibility for domestic work and perceptions of gender inequality in the couple relationship (after adjustments for background variables and previous psychological distress) were associated with psychological distress among women and men. Among men, having less responsibility for domestic work and a partner with higher socioeconomic position was also associated with psychological distress. The qualitative
analysis showed that gender relations were an important part of how the domestic work was unequally organised and related to experiences of mental illness among women and men. Among women the high burden of domestic work was experienced as an obstacle to experiencing good health. Among men the experience of being trapped in an outmoded masculinity was related to feelings of stress. At the workplace level, patterns of gender inequality were associated with psychological distress among women, but not among men. However, the most gender-equal pattern was related to lower as well as more similar levels of mental illness among women and men, which supports a convergence in health when women’s and men’s work conditions become more similar.

**Conclusion:** Gender equality at home and at work is central for reducing mental illness among both women and men, but also for achieving a good average health status in the population, which is a central public health target. When investigating social inequalities in health, gender perspectives are of great importance for deepening the understanding of how and why gender inequalities in paid and domestic work are related to mental illness. Integrating gender perspectives into public health policy could be a way to acknowledge power relations that hinder good public health.
**Sammanfattning på svenska**

**Bakgrund:** Kvinnor och män i Sverige yrkesarbetar i nästan samma sträckning, men återfinns i olika yrken och positioner på arbetsmarknaden. Samtidigt utför kvinnor merparten av det obetalda arbetet i hemmet. Könade orättvisor i dessa avseenden innebär att kvinnor och män utsätts för olika arbetsmiljöer och ansvarsområden, vilket kan medföra könade hälsokonsekvenser. Dock är det få folkhälsovetenskapliga studier om obetalda arbete och hälsa som inkluderar både kvinnor och män. Det är också en brist på kvalitativa studier som undersöker individers upplevelser av det obetalda arbetet i hemmet och psykisk hälsa. På arbetsplatsnivå har det gjorts få försök att analysera hur olika dimensioner av jämställdhet på arbetsplatser är relaterade till hälsostatus, och det är en brist på studier med en kontextuell metod som tar hänsyn till hur flera olika variabler samspeelar. Tidigare folkhälsovetenskapliga studier som undersökt förvärvsarbete och hemarbete har framförallt använt sig av en tvärsnittsdesign, vilket gjort det svårt att utreda riktningen av samband mellan jämställdhet och psykisk hälsa, det vill säga om jämställdhet leder till bättre hälsa eller om god hälsa är en förutsättning för jämställdhet.

**Syfte:** Syftet med denna avhandling var att analysera genusrelationer i arbete (på arbetsplatser och i hemmet) i förhållande till självskattad psykisk ohälsa bland kvinnor och män.


**Resultat:** Kvinnor hade totalt sett ett större och män ett mindre ansvar för det obetalda arbetet i hemmet. Upplevelse av bristande jämställdhet i ansvar för obetalta arbete i hemmet och i parrelationen hade ett samband med psykisk ohälsa bland kvinnor och män (även efter justering för bakgrundsvariabler och tidigare psykisk ohälsa). Att ha mindre ansvar för det obetalda arbetet i hemmet och en partner med högre socioekonomisk klass hade även ett samband med psykisk ohälsa bland män. Den kvalitativa analysen visade att genusrelationer var en viktig del i en ojämställd

Slutsats: Jämställdhet på arbetsplatser och i hemmet är viktigt för att minska psykisk ohälsa både bland kvinnor och män, men också för att uppnå en god genomsnittlig hälsa i befolkningen, något som är ett centralt folkhälomsål. Vid analyser av social ojämlikhet i hälsa är genusperspektiv av stor betydelse för att fördjupa förståelsen om hur och varför ojämställdhet i på arbetsplatser och i hemmet är relaterat till psykisk ohälsa. Att integrera genusperspektiv i folkhäl opsolicy kan vara ett sätt att ta hänsyn till de maktrelationer som förhindrar en god folkhälsa.
Original papers

This thesis is based on the following papers:

I  Harryson Lisa, Novo Mehmed, Hammarström Anne
   Is gender inequality in the domestic sphere associated with psychological distress among women and men? Results from the Northern Swedish Cohort.

II Harryson Lisa, Strandh Mattias, Hammarström Anne
   Domestic work and psychological distress – what is the importance of relative socioeconomic position and gender inequality in the couple relationship?

III Elwér Sofia*, Harryson Lisa*, Hammarström Anne
   Patterns of gender equality at workplaces and psychological distress.

IV Harryson Lisa, Aléx Lena, Hammarström Anne.
   “An equal share that’s my medicine”: Experiences of domestic work, health and illness from a gender relational perspective.
   *Manuscript.*

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*Contributed equally
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<td>Results</td>
<td>Unequal responsibility for domestic work and perception of gender inequality in the couple relationship was associated with psychological distress among both women and men.</td>
<td>Both more and less responsibility for domestic work, in combination with an unequal couple relationship, was associated with psychological distress. Among men, having a lower socioeconomic position than the partner was also associated with psychological distress.</td>
<td>For women, there was a higher risk of psychological distress at fairly equal workplaces on women’s side of the labour market and at traditionally gender-unequal workplaces. Workplaces with gender equality in parental leave and salary had overall lower levels and a more equal distribution of psychological distress among women and men.</td>
<td>A gendered division of domestic work was related to experiences of mental illness among women and men. Living with the burden of domestic work constituted an obstacle to women’s health and being trapped in an outmoded masculinity was related to feelings of stress among men.</td>
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The work on this thesis has been conducted within the interdisciplinary research field of public health and gender studies. From this it follows that what is sometimes taken for granted in one field of knowledge is not obvious in the other and vice versa. To put these two fields of knowledge together has been a challenge for me, but above all it has been a necessity. In this prologue I will reflect on three topics: gender perspectives, public health and how it came about that I started working on this project.

First, something about gender perspectives. In the research process, the use of gender perspectives was necessary because it made me see things I would not otherwise have been able to notice or to put into words. To see and understand the meanings of gender is something I have learned and still evolving. When I think of how gender perspectives are relevant to how I understand and perceive the world, I often return to a specific situation during my school days. I had a teacher whom I liked very much called Lena. She was quite short and had an earring in just one ear; a ceramic ptarmigan (fjällripa) hanging on a string which I thought was really neat. One day Lena said that she was going to tell us something very important. It was in maths class where we had just learned to calculate percentages. She drew a large circle on the board. Then she reminded us that the whole circle is 100 per cent, the entire thing. She drew a fairly small pie slice and said that the part was as much as the girls in the class talked. I felt puzzled, because my best girlfriend and I talked a lot with each other at our desks, I thought. Then she drew a much bigger slice of pie and said that this was as much space as the guys took in the classroom. Now I was even more surprised. What does she mean? Where will this lead? It was difficult to understand how the guys could talk more than my girlfriends and I, as I experienced that the world revolved around us. Finally Lena told us that the biggest piece of pie was the time she talked. What she then said or how she continued with this I do not remember, but I began to observe in the classroom on the basis of the wedges of per cent. I saw how the pieces got bigger and smaller as different people were talking. Eventually I realised the painful thing that the guys (i.e. some guys) took a lot of space and dominated very much. With the help of the circle which was 100 per cent, the entire thing, I could see and organise things that happened in the room in relation to it. Then I forgot about the circle and had a lot of other things to do, as children and adults often have. But this was my first lesson in getting views on the gender patterns that surrounded me. A way to see and put words on things I had not seen or did not have words to talk about. It is also similar to how the gender perspectives
helped me to see and catch sight of the important questions to ask and the explanations for the results in the thesis.

Now, something about public health. At the beginning of the work on the thesis, I recognised public health as an open, accepting and interdisciplinary field of knowledge. As the research process progressed, I started to realise the structures and knowledge standards that characterise public health as a separate field of knowledge. A major contributor to my changed perspective on public health is my experiences of the research process. Learning to fit into journals and present the results in a “respectable manner”. One of the most important experiences of this was when my first article was accepted in a well-reputed epidemiological journal, provided that I excluded the gender-theoretical perspectives and explanations. Instead, I was asked by the editor to “concentrate on clarifying the methodology and results, rather than conduct a gender-theoretical discussion.” Although I was disappointed that the journal did not recognise the importance of gender perspectives, I blamed myself rather than attributing it to the ontology and epistemology of the field. Perhaps I was unclear in describing the gender perspectives? Maybe I used the wrong references? Maybe I could have described gender perspectives in another much better, clearer and more integrated way? The opposition to gender research was nothing new, but it hadn’t hit me so clearly in public health. After this experience, I felt a great disappointment and dejection, while increasing self-criticism and questions about how I would be able to integrate gender perspectives in clearer and perhaps more relevant ways. Luckily for me, I was surrounded by feminist scholars and friends who inspired and helped me move forward and believe that my research was important and possible.

Finally, something about how I came to start this project. During my bachelor and graduate education in public health, it had become increasingly clear that I missed the gender perspectives on health. When it was time for the essay, I decided to learn more about feminist theories and try to use them to understand the health consequences of women’s paid and unpaid work in Sweden. I sat in the basement of the public library and read Kate Millet’s *Sexual Politics*. I tried to comprehend what Judith Butler wrote between the lines of all the difficult words. I went to the dusty old archives and read the first issues of the journal of women’s studies (*Kvinnovetenskaplig tidskrift*). I followed up a bunch of names and tried to sort out the different views. Among the scholars that I found especially important for the work on the essay were Anne Hammarström, Katarina Hamberg and Gunnel Hensing. They wrote about the importance of gender perspectives on health and helped me with the link between gender studies and public health. They had written texts that gave something to hold on to
when it was stormy and to read again when I did not know whether the essay project was really working out. For the work with my essay Annika Forssén’s and Gunilla Carlstedt’s thesis *Between responsibility and power: a discussion of work, health and ill health from the life-histories of twenty women* was also a very important source of inspiration and a confirmation that unpaid housework could be important for health. After graduation in public health and in the meantime when I read gender studies I had the opportunity to attend a postgraduate course on gender perspectives in public health at the University of Gothenburg. I passed the course and acquired great confidence and strength in that I was not alone. The course was the end of a very confused time in terms of knowledge and it was clear that I wanted to study for a PhD at the intersection of public health and gender studies. A few months later I was contacted by Anne Hammarström and moved to Umeå to work with the data collection for the 2007 follow-up of the Northern Swedish Cohort together with Anna-Karin Waenerlund, who later became my dear PhD colleague. Not until I went into the corridor of Family Medicine and one name after another popped up did I realise that in these corridors there were not only one but several researchers with gender perspectives on health.
Introduction

From a public health perspective, gender relations are important as part of our understanding and expression of who we are, but also as a principle of how society is organised (Schofield, Connell et al. 2000, Connell 2009). One of the well-recognised dimensions of a societal gender pattern is the gendered division of work, meaning that women and men are found at different places and in different positions in the labour market and that the unpaid work at home are unequally divided. Gendered patterns in these aspects shape and reshape women’s and men’s living conditions in terms of possibilities and limitations for developing good health (Messing and Östlin 2006).

In this thesis I have analysed how gender relations of work (at workplaces and at home) are related to mental illness among women and men. I have used quantitative approaches to investigate the associations between gender inequality at workplaces and at home in relation to mental illness among women and men. To further investigate experiences of the unpaid work at home, mental health and illness I have used a qualitative approach.

On the cover of my thesis different areas of the unpaid work at home, indoors as well as outdoors, are visualised. These different areas could also be images of gendered occupations within paid work, such as construction work and home care. In the middle there is a heart that symbolises the health and the rhythms of everyday life. The cover is embroidered, something that historically has been done to decorate everyday objects, but in our time also has become an increasingly common form of expression (Joseph-Lowery 2008). Just like the unpaid work at home, embroidery has long been perceived as strongly linked to constructions of femininity, without full acceptance in the public sphere (Parker 2010). Women’s pleasure in embroidery and the artistic value has therefore long been rejected by intellectuals (Joseph-Lowery 2008). The embroidery on the cover not only visualises the content of the thesis, but also demonstrates that what has been considered feminine and private can actually have an important place in a public intellectual context.
Background

In the first section of the Background chapter my Public health perspectives are outlined which includes a social humanistic approach to health and illness. Thereafter I describe the Gender theoretical perspectives that I have used. In the final section of the Background previous research on Gender relations at work and at home in relation to illness are described.

Public health perspectives

Public health is an interdisciplinary field that emphasises the importance of practice and science as inextricably linked to each other in order to achieve good health in the population. Broadly defined, public health includes the practice and science of preventing disease, promoting population health and extending life (McMichael and Beaglehole 2005). In this thesis I have focused on social inequalities in health and investigated how mental illness is distributed in the population along social power relations of gender and socioeconomic positions.

From previous public health research it is well known that the distribution of material and social inequalities within and between societies creates inequalities in morbidity and mortality (Kawachi, Kennedy et al. 1997, MacIntyre and Hunt 1997, Wilkinson 1997, McMichael and Beaglehole 2005, Marmot, Friel et al. 2008). From a public health perspective it is therefore not only central to achieve a good average health in the population but also crucial to reduce differences in health (Braveman and Gruskin 2003). Thus, identifying political, social and behavioural determinants of social inequalities in health is a central task for public health research (McMichael and Beaglehole 2005). When studying social inequalities in health, I found a social epidemiological approach especially useful in order to understand the aetiology of mental illness and its distribution within a population. Lisa Berkman and Ichiro Kawachi define social epidemiology “as the branch of epidemiology that studies the social distribution and social determinants of states of health” (Berkman and Ichiro Kawachi 2000, p. 6). They describe the focus of social epidemiology as the social and environmental exposures, in contrast to other areas of epidemiology devoted to investigating specific diseases (e.g. cardiovascular or psychiatric epidemiology). The exposures I have analysed in this thesis concern gender relations of work in terms of inequalities at work and at home. Following the social epidemiology research tradition, my focus on social behaviours includes a population perspective rather than an individual perspective on health and risk behaviours. This means that an individual’s health and illness cannot be isolated from the
social context as norms, opportunities and social relations are of great importance for behaviours as well as experiences of health and illness (Lynch, Kaplan et al. 1997). The social context therefore needs to be incorporated in the understanding of why some people are affected by illness while others stay healthy (Berkman and Kawachi 2000).

In the understanding of why health and illness are unevenly distributed, a stronger focus on social structures and social justice in public health has been suggested (Baum 2008), and gender perspectives have been highlighted as particularly important (Bottorff, Oliffe et al. 2011, MacIntyre and Hunt 1997, Hammarström and Ripper 1999, Krieger 2000, Schofield 2007, Schofield 2008, Öhman 2008, Annandale 2009, Elwer 2013). Gendered discrimination has been underlined as a central explanation for social inequalities in health. Discrimination in this context includes the socially structured and sanctioned phenomena among and between individuals and institutions that maintain gendered privileges. Although discrimination by definition is always wrong, regardless of the effects on health, social justice has been outlined as the very foundation of gender perspectives in public health (Krieger 2000). In this research tradition it is well recognised that women live longer despite gendered discrimination against them but that women have worse living conditions and higher morbidity than men. Women and men are also exposed to different health hazards, for instance because of gender segregation of work and the different gender expectations that women and men face in their daily life (Danielsson and Lindberg 2001). In my thesis I follow the relatively new research tradition of using gender perspectives in public health research. The knowledge from my thesis can hopefully be useful for guiding policies and actions to reduce social inequalities in health.

**A social humanistic approach to health and illness**

In this thesis I have a social humanistic perspective on health and illness. From this it follows that all human beings are understood as having an inviolable value in themselves and that all human beings should have the possibility to influence their own life. A social humanistic approach also entails that individuals’ possibilities to act are understood in relation to the context (Medin and Alexanderson 2000). Health and illness are therefore understood as something more than just the presence or absence of diagnosable medical conditions and health care provision, but rather viewed as individuals’ experience in physical, mental and emotional dimensions (Schofield 2010). From the social humanistic perspective it is also important to recognise that experiences of health and illness cannot be characterised as a single product or a static condition, even though researchers most often
investigate health status or symptoms of illness at a specific point in time (Gadamer 1996).

According to Pörn, *health* can be viewed as the ability to act to realise one’s own goal in life. Individuals’ lives are not determined by biological inheritance or social structures, even though the social, cultural and economic circumstances influence the possibilities for action (Pörn 1984). Social relations to other persons are therefore one of the important social processes of everyday life that influence people’s health experiences (Mirowsky and Ross 2003). This means that even though the experiences of health are unique for each individual, they are simulations constructed in relation to the social circumstances of where we are located, how we work and under what conditions we live (Schofield 2010). According to Gadamer, health is a dynamic and constantly continuing process that can be described as a feeling of well-being and equilibrium, as a condition of being involved, being in the world, of active and rewarding engagement in one’s everyday tasks. Even though health sometimes can be necessary to achieve for the possibilities of acting, Gadamer argues that health is above all something we live through rather than towards (Gadamer 1996). In this thesis I interpret health as an integral part of ourselves, as possibilities for action and as a feeling of well-being.

A particular focus in this thesis is experiences of *mental illness*. In contrast to medically defined diseases, I use Gadamer’s description of illness as the self-perceived experiences of being ill (Gadamer 1996). According to this definition, we can have a feeling of illness without having any disease. Just like health, illness is to a high degree related to the individual’s context and affected by psychosocial factors such as social relations, work conditions as well as cultural norms and values (Mirowsky and Ross 2003). In the quantitative papers (I–III) I investigate *psychological distress*, a dimension of mental illness characterised as an unpleasant subjective state (Ross and VanWilligen 1997, Walters, McDonough et al. 2002, Mirowsky and Ross 2003). Like most other measures of mental illness, psychological distress relies on individuals’ subjective feelings in relation to the world we create for ourselves and others (Mirowsky and Ross 2003). Two major components of psychological distress can be outlined as including physical and emotional distress. The physical component includes different states of the body such as tiredness, having trouble sleeping, feelings of exhaustion, bodily pain, lack of energy or heart palpitations. The emotional component includes moods of sadness such as feeling low and sad, but also emotions of anxiety such as feeling worried, restless, irritable and tense. Because the physical and emotional components are highly correlated, they are often combined in studies measuring psychological distress (Ross and VanWilligen 1997,
Mirowsky and Ross 2003). Furthermore, psychological distress is not only an immediate subjective state of mental illness that hurts in itself; poor self-perceived health as well as psychological distress are also strong predictors of later morbidity and mortality (Russ, Stamatakis et al. 2012, Kawachi, Sparrow et al. 1994, Idler and Benyamini 1997, Kubzansky, Kawachi et al. 1998, Benjamins, Hummer et al. 2004, Eaker, Sullivan et al. 2005, Nicholson, Fuhrer et al. 2005, Weitoft and Rosen 2005, Roest, Martens et al. 2010). In a longitudinal follow-up of the Swedish survey of living condition, the psychological distress components anxiety and nervousness have been shown to be strongly related to subsequent risks of psychiatric diseases, all-cause mortality, suicide attempt, inpatient care and ischaemic heart disease (Weitoft and Rosen 2005).

**Gender theoretical perspectives**

**Gender relations**

My understanding of gender derives from a social constructionist perspective (Burr 2007) and I use Raewyn Connell’s theory of gender relations in this thesis. According to Connell, gender can be described as “a pattern of social relations in which the positions of women and men are defined, the cultural meanings of being a man and a woman are negotiated” (Connell 2006, p. 839). From this perspective it follows that gender is not only direct relations between women and men, but also indirect relations through technology, work or symbols. Although the relations between women and men is central, the meaning of being a woman and being a man is constantly negotiated and changing (Connell 2006). I interpret gender as both an individual characteristic as part of our understanding and expression of who we are, and as a dominant principle of how society is organised. In that sense, we are involved in constructing gender as a part of our personality. Yet we are not free to do our own gender however we like, as our gender practices are strongly influenced by gendered expectations of how to act and behave (West and Zimmerman 1987, Schofield, Connell et al. 2000). A relational approach to gender includes the possibility to analyse how different contexts and situations can influence women’s and men’s health and illness (Schofield, Connell et al. 2000). Public health researchers have called for analyses of how gender relations might influence social inequalities in health, as such analyses are still rare (Hammarström and Ripper 1999, Öhman 2008).

Connell’s theory of gender relations includes a description of the gender order as the larger patterns of gender in a society. According to Connell the gender order is recognised as patriarchally divided, meaning that men as a group have advantages in terms of money, authority, respect, emotional
support, control over one’s their life, access to institutional power etc. (Connell 2009). Overall, men as a group hold major privileges and benefits in societies that can be important for their health status (Doyal 2000, Connell and Messerschmidt 2005). However, there are also differences and hierarchies within the group of men. The concept of hegemonic masculinity, understood as the pattern of practice that reproduces men’s dominance over women, can for instance be distinguished from other subordinated masculinities. Furthermore, the reproduction of hegemonic masculinity is powerful not only in relation to other subordinated masculinities, but also in relation to femininities, especially emphasised femininity that accommodating the interests and desires of men. Additionally, the reproduction of hegemonic masculinity is sustained by heteronormative assumptions and practices, i.e. the assumptions and practices of heterosexuality as the norm for human sexuality in that women and men are expected to desire each other and create sexual relationships. The logic of a patriarchal gender system is therefore based on a view that patterns of masculinities are socially defined in contradistinction to norms and practices of femininities (Connell and Messerschmidt 2005).

**Gender relations in four dimensions**
Connell distinguished four dimensions of the gender order: power, production, emotional relations and cultural symbols. **Power** is understood as institutionalised (as for instance a country’s gender policy or work legislation) and as discursive (for example, in norms and beliefs about gender). **Production** means the gendered process of production and consumption, including a gendered division of paid and unpaid work. **Emotional relations** or cathexis (a term from psychoanalysis meaning an emotion tied to a notion or practice) refers to the gendered emotional relations of desire. The main axis of emotional relations in Western societies today is the distinction between heterosexual and homosexual relations, which often constitutes the ground for family and household formations. **Cultural symbols** include the construction of gender identities expressed in language and through symbols, for instance in dressing and gesturing. These four dimensions are theoretically distinguished, although intimately intertwined in practice (Connell 2009). Of particularly importance for this thesis is the dimension of production, including the gendered division of work, which will be described in the following paragraph.

**The gendered division of domestic work**
A gendered division of domestic work is profound in most societies, although shaped by the social, cultural and historical context. This means that certain tasks at home are performed or expected to be performed by women while other tasks are performed or expected to be performed by men. Also, in the
industrial Western society the unpaid domestic work at home has largely been defined as women’s work, regardless of the participation of men in the domestic sphere (Connell 2009). In Sweden women carry out most of the unpaid domestic work in all stages of life, irrespective of civil status or the presence of children at home. Even though the time women and men spend on domestic work has converged during the last 20 years, this development is not explained by equivalent changes of women’s and men’s behaviour. Since the beginning of the 1990s, women in Sweden have decreased the time spent on domestic work while men’s time in unpaid domestic work has remained largely unchanged (Statistics Sweden 2012). The gender division of domestic work is therefore not only related to the idea that women and men are expected to do different tasks at home (i.e. the separation of gender), but also to the idea that work in the domestic sphere overall is supposed to be unpaid and performed by women (i.e. construction of women’s work as lower valued). In this thesis I supplement Connell’s theory of the gendered division of work with Susan Moller Okin’s theory of gender justice in the family. According to Moller Okin, women are expected to prioritise their children and family in order to fulfil their position as good mothers rather than claiming their rights as women in a gender-unequal society. Therefore, gender equality will not be achieved in policy, paid work or any other sphere as long as there are injustices within the family (Moller Okin 1989).

**Intersections of power relations**

The justification of using theories of gender relations is that all of the gendered patterns of social relations described above shape and reshape women’s and men’s living conditions, for example in terms of possibilities and limitations for developing good health (Courtenay 2000, Schofield, Connell et al. 2000, Ng, Weinahall et al. 2007, Connell 2009). However, numerous public health studies of gender inequalities in unpaid work at home have mainly focused on gender, while the importance of interrelations between gender and socioeconomic status has only been studied to a limited extent (Glass and Fujimoto 1994, Lahelema, Arber et al. 2002, Matthews and Power 2002, Artazcoz, Borrell et al. 2004, Artazcoz, Borrell et al. 2007, Staland Nyman, Alexanderson et al. 2008, Evertsson, England et al. 2009). A critical aspect of the strong focus on gender as a single social power relation is the risk of essentialising the categories of women and men; for example assuming that all women regardless of socioeconomic position share the same experiences, and thereby not adequately investigating the interrelations among different determinants of health (Hankivsky and Christoffersen 2008). A consequence of, for example, viewing gender and socioeconomic position as separate social processes is a lack of knowledge about how the intersections between gender and social class influence the health status (MacIntyre and Hunt 1997, Hankivsky and Christoffersen...
To overcome these shortcomings, researchers on social inequalities in health have suggested empirical studies to include a theoretical approach of intersectionality, i.e. to examine how different dimensions of social power relations such as gender, age, ethnicity, sexuality and socioeconomic position interact and influence health status (MacIntyre and Hunt 1997, Hankivsky and Christoffersen 2008, Iyer, Sen et al. 2008, Sen, Iyer et al. 2009). In this thesis domestic work and gender equality in couple relationships are interpreted as expressions and constructions of gender in everyday life (West and Zimmerman 1987, Evertsson and Nermo 2004, Magnusson 2008, Connell 2009) and investigated in relation to socioeconomic patterns and structures that can have consequences for mental health and illness among women and men.

**Gender equality – a multidimensional concept**

The concept of gender equality is highly debated from a variety of political and theoretical perspectives with different visions of what a gender equal society would look like and how we will be able to get there. Despite the sometimes different views of gender equality, challenging gender inequalities is a central issue in feminist research (Moller Okin 1989, Young 1990, MacKinnon 2001, Nentwich 2006), policy debates (Sen, Östlin et al. 2007, Payne and Doyal 2010) and health research (Doyal 2000, Annandale and Hunt 2001, Sen and Östlin 2008, Annandale 2009). An ongoing debate in these fields concerns the dilemma of “sameness” and “difference”, i.e. if women and men should be treated in the same or a different way in order to reduce gender inequalities (Connell 2006).

The sameness perspective draws on liberal feminist thoughts of minimising the differences between women and men in order for women to participate in society on equal terms as men. Promotion of gender equality from this perspective include that women should be given the same resources and abilities as men and that the structural barriers for women have to decrease (Young 1990, Nentwich 2006). From the sameness perspective it follows that women need to adapt male behaviour when it is the norm for inclusion in societies, workplaces and organisations, sometimes concealed under a description of “gender neutrality” (Connell 2006). Another dilemma with the sameness perspective is that the male-dominated cultures and masculinity norms can remain unchallenged. In addition, treating women and men in the same way will only result in equality if they are the same (Nentwich 2006).

The difference perspective draws on standpoint feminism and aims at levelling out the hierarchical differences between women and men. From this perspective it follows that gender differences should not only be
acknowledged but also equally valued. This means that women’s skills, competence and visions should be as valued and utilised in society as men’s skills, competence and visions (Young 1990, Nentwich 2006). Gender equality from this perspective therefore means that different treatment would level out gendered hierarchies. A dilemma with the difference perspective is that different treatment of women and men might reinforce or create new differences if women and men actually are the same (Nentwich 2006).

Even though the sameness and difference perspectives originate from different feminist traditions, they are still interdependent on each other. The difference perspective needs a notion of sameness to define its goal “different but equal”, whereas the sameness perspective needs a notion of difference between women and men to define its objective (Nentwich 2006). In health terms this means that biological and social determinants of health are sometimes acknowledged as the same and sometimes as different for women and men. In situations where women and men have the same needs, equal opportunities can lead to equal health outcomes, whereas in situations where women and men have different needs, targeted strategies are necessary to achieve gender equality in health (Payne and Doyal 2010).

A critique that has been directed towards both the sameness and the difference perspectives includes an interpretation of gender as too simplified, meaning that the complexities of gender identities and practices are not taken into account (Connell 2006). In other words, there is a tendency to homogenise diversity when gender equality focuses on two given genders: women and men. This way of thinking in binary terms overlooks the similarities between women and men as well as the diversity within the groups of women and men (Connell 2012). Intersection of gender with other differences due to race, class, age, sexual orientation, ability and other complex inequalities are concealed behind the two major categories of women and men (Mohanty 1988, Crenshaw 1991, Collins 1998, Dahl 2005, Connell 2012). Such an approach means that women are always seen in oppositions to men, assuming a universal unity among women often based on the generalised notion of subordination (Crenshaw 1991).

Another critical aspect of the concept of gender equality is that it frequently appears as a harmonious concept without a notion of conflict (Magnusson 2008). The political support for gender equality in the Nordic countries seems so unanimous that it is hard to find anybody who would oppose it. This might not be problematic if the political thoughts or visions corresponded to the practical organisation of politics and everyday life. However, this consensus about the importance of gender equality becomes
problematic when it is put into practice, as there is a gap between rhetoric and gender behaviour norms (Holli, Magnusson et al. 2005). Feminist researchers have shown, for instance, that the Nordic gender-equality-friendliness often contradicts the practical solutions of everyday life (Magnusson 2005).

One way of meeting the critical aspects of how gender equality has been conceptualised is to investigate gender equality as *socially constructed*. This means that gender equality is not interpreted with a unanimous or a priori given meaning. Gender equality is not self-evident in a constant or natural way, but rather constantly filled with different meanings related to the contexts followed by different consequences (Holli, Magnusson et al. 2005, Magnusson 2005, Skjeie and Teigen 2005, Verloo and Lombardo 2007, Magnusson 2008). How we interpret and operationalise gender equality therefore creates limitations and possibilities for how we can understand and think of gender (Magnusson 2008). A socially constructed perspective of gender equality means that the dynamics of gender as a social process are included in the analyses, that the context of the analysis is emphasised and that gender equality is acknowledged as a multidimensional concept (Crenshaw 1991, Connell 2006, Connell 2012).

*The convergence in health*

In the work with this thesis, the convergence hypothesis has been central as it explicitly or implicitly is used in much of the public health research concerning gender equality. *The convergence hypothesis* includes the notion of a convergence in health disparities between women and men when work and life circumstances become more similar (Moller Okin 1989, Waldron 2000, Waldron, McCloskey et al. 2005, Månsdotter, Lindholm et al. 2006, Backhans, Lundberg et al. 2007, Sörlin 2011). Initially this notion was called the women’s emancipation hypothesis (Waldron 2000) and the reduction-in-protection hypothesis (Pampel 2001). Overall, the convergence hypothesis suggests that as the gender relations for women and men become more similar, the differences in health behaviour, morbidity and mortality will decrease. For example, as women’s participation in paid work increases and men’s participation in the family life increases, the exposure to health hazards will become more similar and lead to a convergence in health outcome between women and men (Waldron, McCloskey et al. 2005). The underlying notion of the convergence hypothesis suggests that women and men are inherently alike as human beings, but that gendered structures and cultural norms of women and men as different have caused differences in women’s and men’s health behaviour and health outcomes.
Even though the convergence hypothesis has been given support (Backhans, Burström et al. 2009), it does not consider that the development of gender equality over time may have different temporary impact on health status. A complementary hypothesis is therefore the Institutional adjustment hypothesis, which suggests that during the progress of gender equality and changes in gender relations the health implications might vary. This hypothesis argues that changes in gender relations may initially cause increased uncertainty and ambiguity and thus increased stress, leading to a temporary increase in gender differences in health status between women and men. At first, changes in gender relations could mean that women adopt health behaviours that traditionally have been connected to men or masculinities, something that during a delimited time in history can serve as symbols of independence among women (e.g. employment). However, as time passes the institutional and cultural norms will eventually adapt the pressure for change and accept women’s new gender norms. As the new gender relations expand and gain general acceptance, the initial negative health consequences of changes in gender relations will turn positive and in the long run lead to decreased gender differences in health status. According to the institutional adjustment hypothesis, health benefits from gender equality do not necessary occur immediately, but rather over time (Pampel 2001, Waldron, McCloskey et al. 2005). The institutional adjustment hypothesis therefore stresses the importance of including the progression in gender equality in the context where the study is conducted.

**To address gender equality**

Gender equality can be considered in quantitative terms as an equal distribution of women and men in all spheres in society, for example within different occupations, education, leisure activities and power positions. At the workplace level, previous studies have measured gender equality through an equal proportion of women and men in occupations, and found a higher risk of physical and mental ill health among women working in occupations with a majority of men (Evans and Steptoe 2002, Savikko, Lanne et al. 2008), and better health status in the few gender-integrated occupations (Svedberg, Bildt et al. 2009). To understand these relations between gender inequality and illness, it is also important to consider the meaning of gender relations in the context of the studies. For instance, how is women’s work valued in relation to men’s work? Do women have occupations according to their education? Is it possible for women and men to combine their occupation with family life? Gender equality includes many dimensions that cannot always be measured in quantitative terms, such as gender relations in emotions, power and symbolic representations (Connell 2006). It is therefore important also to address qualitative aspects of gender equality, meaning that women’s and men’s knowledge, experiences and values are
utilised and influence the development within all sectors in society. In this thesis, gender equality is measured in quantitative terms of gender relations in various dimensions at workplaces (Paper III), as self-perceived gender equality in the couple relationship, as responsibility for domestic work and childcare as well as in time per week spent on domestic work (Papers I–II). The qualitative aspects of gender equality in terms of domestic work are investigated through individuals lived experiences (Paper IV).

**Gender relations at work and at home in relation to illness**

Research on health and work has in the past mainly focused on paid work, operating on the presumption that the workers are exclusively men. Early medical research tended to use samples of men only and assumed that the results of these studies could be applicable to women as well. The feminist critique of this research raised the question of underlying and taken-for-granted assumptions about women’s and men’s work. This critique included the problematic exclusion of women as workers in research, but was also directed at the concept of work per se as it consistently excluded the importance of unpaid work at home mainly performed by women (Annandale and Hunt 2001). As paid work assumes a certain organisation of domestic life, the concept of work was highlighted as intrinsically linked to gender (Acker 1990). As research integrating gender theoretical perspectives in public health is still rare (Hammarström and Ripper 1999, Öhman 2008), this thesis focuses on some of the research gaps on work, gender relations and mental illness.

**Gendered organisation of paid work**

One of the clearest aspects of the gendered organisation of paid work is gender segregation, meaning that women and men are found in different occupations (horizontal segregation) and hierarchical positions (vertical segregation) and therefore exposed to different work environments and health hazards (Messing and Östlin 2006). Patterns of gender relations can also be recognised within organisations, including inequalities between women and men in relation to opportunities, access to services and allocations of resources or benefits (Sen and Östlin 2008). The organisations of paid work is also a part of the gendered processes where images of men and masculinity pervade the organisational processes, for example by marginalising or discriminating against women and maintaining the gender segregation of work (Acker 1990, Connell 2006). However, previous public health research has not focused on the workplace level, making investigations of gender inequality at workplaces and its possible relation to mental illness particularly important. In this thesis I focus on three aspects
of gender inequality at workplaces: representation of women and men, gendered socioeconomic resources and gendered use of parental leave.

**Previous research**

A majority of the studies investigating the relations between representation of women and men and health status have not concerned workplaces but occupations (Savikko, Lanne et al. 2008, Svedberg, Bildt et al. 2009), which means that the influence of the actual workplaces and environments on health status is not considered (Nielsen, Albertsen et al. 2009). Several of these studies have shown a higher risk of physical and mental illness among women working in occupations with a majority of men (Evans and Steptoe 2002, Savikko, Lanne et al. 2008), and that better health is reported in those few occupations that are gender-integrated (Svedberg, Bildt et al. 2009). One of the few studies with a workplace focus found that the proportion of women and men at the workplace was not related to women’s self-reported health. The results showed that poorer self-rated health among men was more frequent for those working at workplaces with a majority of women (Svedberg, Bildt et al. 2009).

Research on gendered socioeconomic resources at workplaces in relation to experiences of health is rare. However, in public health research it is well known that higher educational level and income are associated with lower risk of morbidity and mortality among women and men (Smith, Hart et al. 1998, Robert and House 2000). Relative higher education and income are also related to better work and economic conditions, psychosocial resources and healthy lifestyles (Ross and Wu 1995). In Sweden, women have higher education than men but earn less (Statistics Sweden 2012). This means that women overall are in a favourable situation due to higher education and that men overall are in a favourable situation due to higher salary. Because of lack of previous studies, there is a need to investigate whether the gendered socioeconomic resources at workplaces are related to mental illness among women and men.

Although the workplace has been acknowledged as an important arena for understanding the gendered division of childcare and parental leave (Bygren and Duvander 2006), previous research has not focused on gender equalities in the distribution of use of parental leave at the workplace and its relation to health status. In spite of the fact that men’s lower levels of parental leave have partly been explained by workplace factors such as organisational culture (Brandth and Kvande 2002, Haas, Allard et al. 2002), the presumptive association with health status has not been investigated. Previous studies have mainly focused on couples and the division of parental leave between parents, showing that fathers taking paternity leave more than
30 days have a decreased risk of all-cause mortality (Månsdotter and Lundin 2010). For mothers it has been shown that the use of fewer days of parental leave, compared to other mothers, is associated with a higher risk of death and sickness (Månsdotter, Lindholm et al. 2006). Another Swedish study has shown that fathers sharing parental leave equally with their partner and living in an equal municipality have lower levels of sick leave, while those who are less equal than their municipality fare worse. This study also showed that mothers taking the larger part of parental leave and living in a gender-equal municipality had lower levels of sick leave (Backhans, Burstrom et al. 2009).

**Rationale for studying gender relations at workplaces and mental illness**
In previous research, few attempts have been made to analyse how several dimensions of gender equality at workplaces are related to health status. One exception is a Swedish study by Sörlin and colleagues (2011) in which an index that summarises several dimensions of gender gaps in organisations was constructed. This study showed that companies with small gender gaps had a more gender-equal distribution of sickness absence. To further understand what constitutes gender-equal workplaces and how they can be related to mental health it is also important to acknowledge that gender inequality can take two directions, for example higher salary for men or higher salary for women. Also, research in the field of occupational health has been criticised for using a risk factor approach and not including the combination of many different variables that are at play simultaneously (Härenstam 2009). In order to include the direction of gender inequality and to explore how different patterns of gender inequality at workplaces could be related to mental illness we used a contextual approach in Paper III. By using the contextual approach we were also able to include several of the different aspects of gender equality simultaneously. Furthermore, because of the cross-sectional study design of previous studies there is a lack of analyses taking possible health-related selection into account; it is suggested that there might be a selection of healthy workers into workplaces with a majority of men and a negative health-related selection into workplaces with a majority of women (Hensing and Alexanderson 2004, Svedberg, Bildt et al. 2009).

**Unpaid work at home**

*How to define unpaid work at home?*
As unpaid work at home has not been a primary focus in public health research, there is no consensus about which concepts to use. These have varied between unpaid work (Fjell, Alexanderson et al. 2008), unpaid household work (Mellner, Krantz et al. 2006), household duties (Krantz,
Berntsson et al. 2005), domestic responsibility (Krantz and Östergren 2001) and domestic work (Hunt and Annandale 1993, Väänänen, Kevin et al. 2004, Staland Nyman, Alexanderson et al. 2008) etc. In one of the few previous public health studies of unpaid work at home Carin Staland Nyman suggested a multidimensional framework of domestic work (Staland Nyman 2008). She stresses the importance of a clearer conceptualisation of domestic work and its typology and introduces two main dimensions of domestic work: domestic gratification and domestic workload. Both these dimension are interpreted as subjective, but with different meanings. Domestic gratification includes the dimension of domestic work that is rewarding, giving energy or satisfaction in different ways. For example, caring for children can take a lot of physical and emotional effort and contribute to an increased amount of domestic work (Evertsson and Nermo 2007), but it can also lead to a meaningful and closer relation to the child and therefore be gratifying. In this thesis I have not focused on domestic gratification, although one aspect of domestic gratification is discussed in relation to Paper I concerning the responsibility for childcare. The other dimension of domestic work, domestic workload, includes factors of domestic work that are perceived as demanding or burdensome (Staland Nyman 2008), which is my focus in this thesis. However, I use the term domestic work when referring to the demanding unpaid work that needs to be done at home (cleaning, washing, cooking etc.) as well as for the home (grocery shopping, shovelling snow, fixing things that are broken etc.).

**How to measure domestic work?**

Because of the multifaceted content of domestic work it is difficult to measure, and measurements for domestic work has not been as well developed as for paid work (Staland Nyman 2008). In previous research, several measures have been used such as domestic work hours, number of children at home, division of domestic work between the partners, childcare and control at home. Furthermore, the instrument for measuring domestic work varies between time diaries, direct questions in surveys and personal interviews (Shelton and John 1996). One further important divide between measurements of domestic work is the different meaning in performing and having responsibility for a specific task. For example, cooking the dinner does not automatically imply a responsibility for planning and scheduling what to eat. A notion of responsibility does not only (or necessary) include the work on a certain task but adds a mental dimension that extends beyond the actual performance of the task. Within gender research a shift from a focus on domestic tasks towards responsibility for domestic work has therefore been advocated (Doucet 2009). I have included measurements of self-perceived responsibility for domestic work and also time spent on domestic work per week (Papers I and II). In order to better understand the
relations between domestic work and mental illness, public health researchers have called for qualitative studies (Staland Nyman 2008). Individuals’ experiences of domestic work, mental health and illness are therefore explored in the qualitative paper (IV).

**On the meaning of multiple roles**

Within the public health field, research on the relations between domestic work and health status has been dominated by theories of multiple roles. According to the *role strain hypothesis*, having many different roles is damaging to health as it creates a stressful conflict. People’s time and energy are limited, and the more roles that are expected to be fulfilled, the greater becomes the need for priorities between the roles and the smaller becomes the chance of fulfilling each of the roles, leading to increased levels of stress (Goode 1960, Krantz and Östergren 2001, Nordenmark 2004, Grönlund 2007, Floderus, Hagman et al. 2009). According to the *role expansion hypothesis*, having many different roles is health-enriching as multiple roles can serve as a buffer against stress (Thoits 1983, Verbrugge 1983, Krantz, Berntsson et al. 2005, Grönlund 2007, Kostiainen, Martelin et al. 2009). However, the overall assessment of multiple roles has been criticised for not considering the content and quality of the different roles (Matthews, Power et al. 2001, Matthews and Power 2002), assuming the roles to be stable and neglecting the importance of dynamic social relations (Pearlin 1989). This means that when using theories of social roles, the multiple patterns of gender are neglected and the differences between women as well as differences between men are made invisible (Connell 2009). Within multiple role theory, little attention has been paid to the importance of socioeconomic status or how socioeconomic status interacts with gender (Artazcoz, Borrell et al. 2007). To overcome the shortcomings of multiple role theory I include different aspects of time in paid work, socioeconomic position and gender theoretical perspectives when investigating the relation between domestic work and mental illness.

**Interrelations between paid and domestic work**

Previous research has shown that a high responsibility for domestic work is associated with mental illness among women (Väähänen, Kevin et al. 2004) and men (Matthews, Power et al. 2001). Previous research has also shown that the time people spend on paid work can be of importance for both how much domestic work they do at home (Evertsson and Nermo 2004) and for their mental health (Bird and Fremont 1991, Glass and Fujimoto 1994). The hours each partner spends on paid work could therefore be a potential confounder for the relation between domestic work and mental illness. However, engagement in paid work has primarily been taken into account as a part of measuring the *total exposure* to both paid work and domestic work.
in relation to health status (Krantz and Östergren 2001, Nordenmark 2004, Väänänen, Kevin et al. 2004, Krantz, Berntsson et al. 2005, Roos, Burstrom et al. 2005, Mellner, Krantz et al. 2006, Fjell, Alexanderson et al. 2008). One Swedish study showed that there is a critical point when the combined time in paid work and domestic work goes from decreased to increased risk of psychological distress among women (Boye 2008), giving some support for adjusting for time in paid work when investigating the health consequences of a gendered division of domestic work. However, as it is well documented that women perform most of the unpaid domestic work irrespective of their amount of paid work (Statistics Sweden 2012, Evertsson, England et al. 2009), the time in paid work can only explain a part of the relation between domestic work and mental illness. In my thesis I have adjusted for time in paid work in the quantitative studies (Papers I and II).

**The importance of socioeconomic position**

Previous research has shown that the partner’s relative resources in income, education and occupational status can be of importance for the division of domestic work (Evertsson and Nermo 2004). In previous research a higher involvement in domestic work has been found to be related to a lower socioeconomic position among women, and a higher socioeconomic position among men (Evertsson, England et al. 2009). It is also shown that when the socioeconomic resources become more equal between the partners, the differences in the amount of domestic work decrease and some of the gender inequality in domestic work may be neutralised or levelled out (Bianchi, Milkie et al. 2000, Evertsson and Nermo 2007, Evertsson, England et al. 2009). It is further known that higher-educated women participate more extensively in the labour force (Artazcoz, Borrell et al. 2007, Evertsson, England et al. 2009), which is generally recognised as beneficial for health status (Roos, Lahelma et al. 2005, Artazcoz, Borrell et al. 2007). As socioeconomic position is related both to the division of domestic work as well as to the mental health status, the socioeconomic position may have a potential modifying effect on the relations between domestic work and mental health status (Artazcoz, Borrell et al. 2007). One of the few studies with a focus on the importance of socioeconomic position showed that women with high responsibility for domestic work and a low socioeconomic position had higher risks of psychological distress (Matthews and Power 2002). In my thesis, individual socioeconomic position is adjusted for in Paper I and the importance of relative socioeconomic position to the partner for the associations between domestic work and psychological distress is explored in Paper II.
Rationale for the studies on domestic work and mental illness

Investigating domestic work includes analyses of one of the most gendered forms of work (West and Zimmerman 1987, Evertsson and Nermo 2004). However, previous public health research on domestic work has tended to not include gender theoretical perspectives. With a few exceptions (Matthews, Power et al. 2001, Väänänen, Kevin et al. 2004, Krantz, Berntsson et al. 2005), most of the previous public health research on domestic work has used samples of women only. As the organisation of domestic work is highly gendered, it is unclear whether the results for women can be applicable to men as well. Another limitation in previous studies on domestic work and mental illness is connected to methodological limitations. Most research has been performed with cross-sectional designs, which makes it difficult to outline the directions of the association between gender inequality in domestic work and mental illness. It is difficult, for example, to ascertain whether gender equality in domestic work leads to better health or if good health is a prerequisite for gender equality (Nordenmark 2004, Artazcoz, Borrell et al. 2007). There is also a lack of qualitative studies exploring individuals’ experiences of domestic work, mental health and illness. With this thesis I hope to fill some of these gaps in previous research. I use gender theoretical perspectives to deepen the understanding of the relations between domestic work and mental illness. Both women and men are included in the analysis as well as previous mental illness (Papers I and II). Also, women’s and men’s experience of domestic work, health and mental illness is investigated in the qualitative paper (IV).
Aim of the thesis

The overall aim of this thesis was to analyse gender relations of work (at workplaces and at home) in relation to mental illness among women and men.

The specific research questions were:

1. How could gender inequality in work and couple relationships be related to mental illness among women? (Papers I–IV)

2. How could gender inequality in work and couple relationships be related to mental illness among men? (Papers I–IV)

3. Is there support for the convergence hypothesis, i.e. a convergence in health disparities between women and men when work and life circumstances become more similar? (Papers I, III and IV)
Methods

All four papers in this thesis were based on analyses of the Northern Swedish Cohort. Data have been collected with questionnaires, registers from Statistics Sweden and interviews (Table 2).

Table 2. Overview of data collection and methods for Papers I–IV.

<table>
<thead>
<tr>
<th>Paper I &amp; Paper II</th>
<th>The Northern Swedish Cohort</th>
<th>Questionnaires</th>
<th>Logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper III</td>
<td>The Northern Swedish Cohort, All employees at the participants’ workplaces</td>
<td>Questionnaires, Register data</td>
<td>Cluster, Logistic regression</td>
</tr>
<tr>
<td>Paper IV</td>
<td>A strategic sample from the Northern Swedish Cohort</td>
<td>Interviews</td>
<td>Grounded theory</td>
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For initial analysis, questionnaire data from the Northern Swedish Cohort were used in multiple logistic regression analysis (Papers I and II). In further analysis, the questionnaire data were supplemented with register data from the participants’ workplaces to perform a cluster analysis (Paper III). For a deeper understanding of the results in Papers I and II, semi-structured interviews were performed with eight participants in the Northern Swedish Cohort and analysed with a Grounded Theory approach (Paper IV).

Setting

Gender equality in a Swedish context

The development of gender equality in Sweden has been characterised by closeness between the women’s movement and the state, a political alliance often referred to as state feminism (Bergqvist, Olsson Blandy et al. 2007). This political alliance was related to women’s citizenship and employment in the public sector with the intention to increase women’s life choices and economic independence (Hedlund and Lindberg 2012). Especially since the seventies and onwards, the promotion of gender equality in the domestic sphere has been considered as a prerequisite for equal opportunities for women and men to participate in the paid labour force (Rönnblom and Hudson 2012).

One important step in the promotion of gender equality was the passing of the Parental Leave Act in 1974, which gave each parent the right to share the paid leave during the time around childbirth. Today in 2013 parents are entitled to 480 days of paid parental leave for each child, of which 60 days
are reserved for each parent, and they have the right to take temporary parental leave to care for sick children under age 12. Another important step was the first act on gender discrimination against women and men in working life adopted in 1979, i.e. implying the right to a six-hour working day for parents with small children. Today the Discrimination Act prohibits discrimination related to gender, gender identity/expression, ethnicity, religion, disability and sexual orientation (Discrimination Act 2008).

In Sweden there is also an official political consensus on the importance of gender equality in society, with joint support from all parliamentary parties for the National plan for Gender Equality. The overarching aim of the national plan is that women and men should have the same power to shape society and their own lives, including an equal distribution of the unpaid domestic work (SOU 2005:06/155). The public strategy to reach these goals is to implement gender mainstreaming, meaning that aspects of gender equality should be considered in all areas of society. In the work towards a more equal society, a special government agency that works against discrimination and for equal rights and opportunities, called the Equality Ombudsman, ensures compliance with the Discrimination Act.

In the light of the extensive public promotion of gender equality, there is a discourse in the equality policy debate today that equality between women and men has already been achieved and therefore is passé as an important issue. This discourse is confirmed through the de-politicisation of the private sphere, i.e. through the focus on people’s free choices rather than on gendered patterns and power relations (Rönnblom and Hudson 2012). However, in official statistics there are still many areas in Swedish society that are gender-unequal. For example, in the public sphere, the labour market is heavily gender-segregated and in the private sphere women use the majority of the parental leave days and perform the larger part of the unpaid domestic work (Statistics Sweden 2012). The ambivalence between already achieved equality on the one hand and actual inequality on the other hand is something that characterises the context of gender equality in the Sweden today.

**Luleå – a town in the Northern Sweden**

In the beginning of the 1980s there was a high unemployment rate among young people in Sweden and a need for research investigating the consequences of youth unemployment. Therefore, a longitudinal study of a cohort of school-leavers was started with the aim of examining the health consequences of youth unemployment. As the highest unemployment was found in Northern Sweden, a setting in this area was considered appropriate and the county capital of Norrbotten, Luleå, was chosen as the setting for the
study. The cohort was named the Northern Swedish Cohort (Hammarström and Janlert 2012).

Like many other Swedish towns, Luleå is characterised by previous workforce immigration from Finland due to the large demand for labour during the economic and industrial growth in the 1960s. Today Luleå is the largest city in the county with a population of approximately 74,000 inhabitants. The largest employee is the steel factory and there is a large number of employees in manufacturing and mineral extraction, as well as at the Luleå University of Technology, the County Council of Norrbotten and the Swedish Armed Forces. As in Sweden overall, the labour market in Luleå is clearly gender-segregated. Women are in the majority in work such as care, social service and education whereas men are in the majority in work such as construction, energy supply and manufacturing. The number of highly educated¹ in Luleå (27%) is somewhat higher than the national level (24%). Women in Norrbotten have an unadjusted income per year² corresponding to 76% of men’s yearly income (Regionfakta 2012), compared to the national proportion of 75%. Compared to Sweden overall, women in Luleå take a slightly lower amount of the total days of parental leave (75% compared to national 76%) whereas men take a slightly higher amount (25% compared to the national 24%) (The Swedish Social Insurance Agency 2012).

Population

The population of this study is the Northern Swedish Cohort, which consist of all pupils (n=1083, 506 girls and 577 boys) who studied (or should have studied but had left school in advance) during their last year of compulsory school in Luleå municipality in 1981 (95% of the participants were born in 1965). The principal investigator of the study visited all pupils at their schools and asked them if they would like to participate in the study. Written information was also given to the pupils as well as to their parents. The pupils who for various reasons had left compulsory school in advance (n=11) were personally contacted by the principal investigator. The information about these pupils was found by comparing class lists from grade eight. Of the total population (n=1083) who were invited to participate in the baseline study, only three were dropouts during the first wave of data collection in 1981. These three pupils were all boys with highly educated fathers. Furthermore, all teachers and school nurses were also part of the population in 1981 (Hammarström and Janlert 2012). In the Northern Swedish Cohort, 14% of the participants had one or both parents born in Finland, 1% had

¹ Post-secondary education more than 3 years, including those with postgraduate education for the ages 25–64. Data from 2011.
² For the population 16 years and older. Data from 2011.
parents from other European countries and 85% had both parents born in Sweden.

The response rate has been extremely high during all waves of data collection. In the latest follow-up in 2007, when the participants were 42 years old, 94% (n=1010) of those still alive (n=1071) in the original cohort participated (Table 3).

Personal interviews were conducted with 8 participants from the Northern Swedish Cohort (4 women and 4 men) in 2012 when the participants were 47 years old. All participants were living in heterosexual couple relationships with one or two children aged 6–18 years. None of the participants were partners with one another. Two women and two men worked with administration, two men worked with building construction and two women worked in the health care sector. Two women worked part-time whereas all the other participants worked full-time. Two women and one man had a university education or equivalent while the others had secondary education.

Data collection for the quantitative analyses
The first and second waves of data collection in 1981 and 1983 were carried out at the pupils’ school. The participants have thereafter subsequently been invited to their former compulsory school in order to answer a similar questionnaire in 1983, 1986, 1995 and 2007 (when the participants were 18, 21, 30 and 42 years old). The questionnaire was extensive and derived from well-known and validated scales (Hammarström and Janlert 2012). Many of the questions have been kept, formulated exactly in the same way during the follow-ups. My thesis includes questions about the following main areas: employment, socioeconomic conditions, family situation, domestic work and mental illness.

In order to reach as many participants as possible and to minimise the non-response rate, extensive work has been carried out during all occasions of data collection (Hammarström 1986, Hammarström, Janlert et al. 1988, Novo, Hammarström et al. 1999, Hammarström and Janlert 2005, Hammarström and Janlert 2012). Structured telephone or personal interviewers have been conducted with those who had difficulties in reading or writing. During the interviews the interviewer read the questions and the response alternative exactly as they were written in the questionnaire. For those who could not attend the occasions at their former compulsory school a questionnaire was sent by mail and two reminders if they did not respond. If they still did not respond they were contacted by telephone and asked if they could possibly send in the questionnaire or participate in a telephone
interview. The information about the participants’ addresses was obtained from the population register. Through the personal number that each individual has in Sweden, it was possible to find the addresses of the majority of the participants living in Sweden. For those who had moved abroad, relatives were contacted and asked if they could share the new address or contact information of the participants. In Sweden, information about individual’s relatives (i.e. husband, wife or registered partner and biological relatives) is public information and available through the population register. In 2007 when the last follow-up was conducted, 58 per cent of the cohort members were living in Luleå or in the area nearby, while 2.5 per cent lived abroad.

For all participants in the cohort belonging to a workplace, data from the Northern Swedish Cohort were supplemented with register data about all employees at the participant’s workplaces. The register data were delivered from Statistics Sweden’s Longitudinal Integration Database for Health Insurance and Labour Market Studies (LISA). Variables that were relevant for gender equality at a workplace were collected for 2007, including information about numbers of women and men, salary, age and educational level. Due to the relative low occurrence of parental leave, these data were collected for the years 2003-2007.

Table 3: Description of data used in the thesis: questionnaire data from the Northern Swedish Cohort, register data from the LISA database and interviews.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the participants</td>
<td>16</td>
<td>18</td>
<td>21</td>
<td>30</td>
<td>42</td>
<td>47</td>
</tr>
<tr>
<td>Questionnaire data</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Register data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>N participants in the cohort</td>
<td>1080</td>
<td>1070</td>
<td>1060</td>
<td>1043</td>
<td>1010</td>
<td></td>
</tr>
<tr>
<td>n women</td>
<td>506</td>
<td>503</td>
<td>500</td>
<td>496</td>
<td>484</td>
<td>4</td>
</tr>
<tr>
<td>n men</td>
<td>574</td>
<td>567</td>
<td>560</td>
<td>547</td>
<td>521</td>
<td>4</td>
</tr>
<tr>
<td>Response rate in % of the original cohort still alive</td>
<td>&gt;99</td>
<td>99</td>
<td>98</td>
<td>96</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>Number of deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Data collection for the qualitative analyses

An open thematic interview guide was created. The interview guide was structured in accordance with five overarching themes: everyday life, domestic work, parenthood, leisure and ideals of gender equality. Each theme also included questions on health and illness.

The principal investigator of the Northern Swedish Cohort contacted the presumptive respondents by telephone. Information was given about the aim
of the study and that the interview concerned everyday life and health. Information was also given that the interview was voluntary and that the participant could say no and still continue to participate in the Northern Swedish Cohort as well as that they could end participation in the interview study whenever he or she wished without motivation. The participants were also assured of confidentiality and secrecy, i.e. that no personal information would be recognisable in the final articles and that no persons outside the research group would have access to the interviews or any information about the respondents. Participants were also told that the interviewer (Lisa Harryson) had no access to data collected from the presumptive respondent’s previous participation in the Northern Swedish Cohort. If they were interested in participating in an interview, they were contacted by the interviewer and a letter of information was sent by mail to the respondent. Six women and one man declined to participate.

The respondents chose the place for the interview that he or she was confident with. One interview was conducted at a hotel in Boden and the other seven interviews in Luleå; one interview in the respondent’s home, two at the respondent’s workplace and four at the municipal library. All interviews were recorded and transcribed word by word.

Sample procedures
The Northern Swedish Cohort was the base for sampling participants for all four papers of my thesis (Figure 1). There were 21 couples in the cohort. In order to avoid paired data, one of each couple was randomly excluded from the sample for Papers I and II. Thereafter a sample was made of all participants that lived part-time or full-time with children (n=723, 371 women and 352 men).

In Paper III, two samples were used. First, a sample was made of all participants from the Northern Swedish Cohort who had a workplace which was registered in Statistics Sweden in 2007 (n=836). The workplaces (n=639) were all situated in Sweden with an establishment linked to an address or location in public or private sector. Second, all employees at these workplaces were selected (n=135,398). As the aim of Paper III was to analyse patterns of gender equality, workplaces with only men or women employees were excluded. This resulted in a sample of 715 participants from the Northern Swedish Cohort and all employees at their workplaces (n=134,450 individuals at 520 workplaces).

In Paper IV, a strategic sample of participants from the Northern Swedish Cohort was made on the basis that the participant had a partner and was living with children in 2007 when he or she was 41 years old. The sample was
thereafter based on as large a variation as possible for the indicators of gender, socioeconomic position and perception of gender equality in the couple relationship.

![Diagram showing the sample procedure for Papers I–IV](image)

**Figure 1. Sample procedure for Papers I–IV.**

**Measures**

**Measures – questionnaire data**

*Exposures and background variables*

*Perception of gender equality in the couple relationship* was measured with the question “How gender-equal do you consider your couple relationship to be?” (Nordenmark and Nyman 2003). The answer alternatives were “totally gender-equal”, “quite gender-equal”, “somewhat gender-equal”, “not especially gender-equal” and “not gender-equal at all”. Because there were few cases, the alternatives “somewhat”, “not especially” and “not gender-equal at all” were all categorised as not gender-equal. Totally gender-equal
was used as reference category compared to “quite gender-equal” and “not gender-equal”.

**Responsibility for domestic work** was measured with the questions “How much of the responsibility for domestic work do you have?” Having half of the responsibility was used as reference category compared to “nothing”, “less than half”, “more than half” and “whole responsibility”.

**Time spent on domestic work** was measured as the number of hours spent on six household tasks during an ordinary week: “domestic work (cooking, washing, cleaning)”, “childcare”, “helping relatives and friends”, “maintenance and repair of the home”, “maintenance of car and motorcycle” and “grocery shopping”. The answer alternatives for each task were “no time”, “less than 1 h”, “1–3 h”, “4–7 h”, “8–14 h”, “15–21 h”, “22–35 h” and “more than 35 hours”. The mean time for each answer was calculated (less than 1 hour was calculated as 0.5 hours and more than 35 hours as 36 hours) and summed up for each participant (3–97.5 hours per week).

**Responsibility for childcare** was measured with the questions “How much of the responsibility for childcare do you have?” Having half the responsibility was used as reference category compared to “nothing”, “less than half”, “more than half” and “whole responsibility”.

**Gender equality and domestic work;** a variable was created by combining the two variables “perceptions of gender equality in the couple relationship” and “responsibility for domestic work”. Half of the responsibility and gender-equal couple relationship was used as reference category (0) compared to: half and not gender-equal (1); less than half and gender-equal (2); less than half and not gender-equal (3); more than half and gender-equal (4); more than half and not gender-equal (5).

**Socioeconomic position** was measured with occupation, which was classified in accordance with the Swedish socioeconomic classification (Statistics Sweden 1983); classified as upper white-collar workers (including self-employed), lower white-collar and blue-collar workers. In Paper II, there was no difference between upper and lower white-collar workers on the level of psychological distress and therefore these variables were merged.

**Relative socioeconomic position** at age 42 was measured by combining the variables “socioeconomic position” and “partner socioeconomic position”, both measured with occupational level on the Swedish socioeconomic classification (Statistics Sweden 1983). Equal socioeconomic position was
used as reference category (0) compared to higher socioeconomic position than the partner (1) and lower socioeconomic position than the partner (2).

**Domestic work and relative socioeconomic position;** a variable was created by combining the variables “responsibility for domestic work” and “relative socioeconomic position”. “Half responsibility and equal socioeconomic position” (0) was used as reference category compared to: half and higher socioeconomic position (1); half and lower socioeconomic position (2); less than half and equal socioeconomic position (3); less than half and higher socioeconomic position (4); less than half and lower socioeconomic position (5); more than half and equal socioeconomic position (6); more than half and lower socioeconomic position (7); more than half and lower socioeconomic position (8).

**Type of work** was measured with three categories of professions based on the Nordic occupational classification: working with people (e.g. health care, education, retail), working with data (e.g. economy, information technology, registration) working with things (e.g. manufacturing, construction, cleaning) (Härenstam, Karlqvist et al. 2003). “Working with data” was used as reference category compared to “working with people” and “working with things”.

**Time in paid work** was measured continuously as the number of hours in paid work (0–82 hours) per week.

The presence of children at home increases the amount of domestic work for both women and men (Evertsson and Nerko 2007) and has been shown to be associated with a higher odds ratio for poor self-rated health and fatigue in employed women (Floderus, Hagman et al. 2009). **Number of children** (age 42) was measured with a question regarding the number of children that the participants lived with (range 1–6).

**Outcome and indicator of health-related selection**

In Papers 1, 2 and 3, **Psychological distress** at age 42 was measured with an index consisting of six symptoms (restlessness, concentration problems, worries/nervousness, palpitations, anxiety and other nervous distress) that the participants had felt during the last 12 months (range 0–6 with higher values corresponding to more psychological distress). Cronbach’s alpha for the measure of psychological distress was 0.77. In a factor analysis all items fell out in one factor. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy showed a score of 8.2 and Bartlett’s test of sphericity was significant.
As the index was not normally distributed it was dichotomised. A cut-off point at the 75th percentile (0= no distress, 1= one or more items of distress) was chosen in accordance with previous research (Reine, Novo et al. 2008) in order to balance the need for power and the need for a highly exposed group. The questions about psychological distress were derived from the Swedish Survey of Living Conditions (Statistics Sweden 1980).

Psychological distress at age 21 was used as an indicator of health-related selection in Papers I–III. Psychological distress at age 21 was chosen as an appropriate age as this was a time before family formation and establishment on the labour market, which also is in accordance with one previous study of domestic work and psychological distress (Matthews and Power 2002). As there are no golden standards for measuring health-related selection, psychological distress at age 16, 18 and 30 was also used in Paper I, but the results overall remained the same irrespective of the adjustments for the different ages of psychological distress. The question and dichotomisation for previous psychological distress (age 16, 18, 21 and 30) was used and dichotomised in the same way as at age 42.

Measures – register data

Gender equality at the workplace was measured with five indicators of gender equality at the participant’s workplace. The indicators were created by aggregating workplace data and calculating the women/men ratio for the following five variables: (1) number of women and men employee at the workplace; (2) mean net salary for women and men at the workplace; (3) mean net educational level for women and men at the workplace; (4) mean net days in parental leave for women and men at the workplace; and (5) mean net days in temporary parental leave for women and men at the workplace. When calculating the women/men ratio of these indicators, a ratio close to 1 represents gender equality between women and men. Data from 2007 were used for the indicators of number of women and men at the workplace, salary and education. As the use of parental leave at a workplace can vary significantly between the years, a longer time period was used for the variables of parental leave and temporary parental leave (data from 2003–2007). This was done to ensure an inclusive and reliable measure of parental leave.

The calculation of women/men ratios resulted in five continuous indicators of gender equality at the workplace. These indicators were used in Paper III, which contains a cluster analysis as described under the sections of statistical analysis. To be suitable for a cluster analysis, the indicators were categorised in a five-item scale (Table 1, Paper III). In the first stage a gender-equal
group for each indicator was selected, which had to include ratio 1 (i.e. totally gender-equal). As the continuous ratios of the indicators were skewed in different directions, the permitted deviation from the ratio 1 had to be defined in relation to the distribution of the ratios in each indicator. This means that the cut-off points for the categorisation varied between the indicators. For example, it is much more common that women take more days in parental leave than men, rather than the reverse. This means that the median for w/m parental leave is clearly higher than 1. Still, a cut-off for gender equality in parental leave is when women and men have the same or close to the same number of days (i.e. a ratio including 1). Also, the gender-equal group had to be sufficient enough to not cause power problems in following analysis. It was also preferable to have at least one group in each direction of inequality (women higher scores and men higher scores). For example, for the indicator of w/m ratio of mean net days in parental leave, a ratio between 0.67 and 1.5 was considered as gender-equal. Expressed as a proportion this ratio is equivalent to 40 to 60 per cent representation of women at the workplace taking parental leave.

When the gender-equal group of all indicators was calculated, the unequal ratios in both directions (women higher scores and men higher scores) were divided into two equal-sized groups. This resulted in a five-item scale for each indicator:

1) gender-unequal ratios with higher scores for men
2) moderately gender-unequal ratios with higher scores for men
3) gender-equal ratios
4) moderately gender-unequal ratios with higher scores for women
5) gender-unequal ratios with higher scores for women

Register data were collected on the age distribution of all employees at the participants’ workplaces presented as proportion of employees younger than 38 years old.

Analysis

Statistical analyses
In Paper I, II and III, bivariate and multivariate logistic regression analyses were used in order to investigate the Odds Ratio (OR) for psychological distress related to exposures of different aspects of gender inequality, taking the most gender-equal option as a reference category. Several background variables, including previous psychological distress, were adjusted for in stepwise logistic regression models. It was then possible to determine
whether the adjustment for each background variable in the bivariate model resulted in a reduction of the OR for psychological distress at age 42. In Paper I and III, the logistic regression analyses were performed separately for women and men. This would also have been preferable in Paper II. However, because of low statistical power due to the combined variables, women and men were analysed together and gender was adjusted for (women were used as reference category). All the regression analyses were performed using SPSS Statistics 17 and 18 with a significance level at 0.05 and 95 per cent confidence intervals.

In Paper III hierarchic agglomerative cluster analysis was used in order to identify patterns of gender equality at workplaces (Bergman and Magnusson 1997). This method is useful for exploring how variables coexist and constitute different situations, such as work situations with different risks of ill-health (Härenstam, Karlqvist et al. 2003). Initially in the cluster analysis all units (i.e. workplaces) started out as separate profiles. Thereafter, the profiles were merged into different clusters based on the most similar characteristics of the units, measured by squared Euclidean distance measure (ESS). A low ESS value (>1) indicates a high degree of homogeneity within the cluster, which means that the workplaces profiles in the cluster are very similar. As the profiles were merged into clusters step by step with a minimal increase of ESS until all workplace profiles were found in the same cluster, the analysis was hierarchical. However, it is not only important to outline the similarities within each cluster, but also the differences between the clusters. Explained ESS is a measure of model fitness that describes to what extent the clusters differ from each other. If explained ESS is 100 per cent, each unit within each cluster in the cluster solution has identical profiles.

In order to find a suitable cluster solution, the recommendations of Bergman et al. were used in Paper III (Bergman, Magnusson et al. 2003). According to these recommendations, the number of clusters should be between five and fifteen and the explained ESS for the chosen cluster solution should not be less than 50 per cent. This will indicate that the cluster solutions are fairly homogeneous, i.e. that the profiles of the workplaces within a cluster are more similar to each other than to workplace profiles in other clusters. When a cluster solution was chosen, a k-means relocation cluster analysis was performed in order to maximise the explained ESS and homogeneity of the clusters. This was carried out with the Relocate module in SLEIPNER software and resulted in more homogeneous clusters and an explained ESS of 52.66 (Table 4). The hierarchical agglomerative cluster analysis was performed with the SLEIPNER 2.1 software, using Ward’s method.
Table 4. Cluster properties before and after relocation cluster analysis

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Before relocation</th>
<th>After relocation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Homogeneity</td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>1.13</td>
</tr>
<tr>
<td>2</td>
<td>153</td>
<td>1.23</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>1.23</td>
</tr>
<tr>
<td>4</td>
<td>146</td>
<td>0.82</td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>0.86</td>
</tr>
<tr>
<td>6</td>
<td>57</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Explain ESS of the solution 49.48 52.66

Qualitative analyses

In Paper IV the analysis was performed with a Grounded Theory approach, a method that consists of systematic yet flexible guidelines for collecting and analysing qualitative data (Strauss and Corbin 1998, Charmaz 2006). In grounded theory analysis it is central that the theoretical analysis is “grounded” in data, i.e. that the theoretical implications are closely related to the data material. The analysis in Paper IV was conducted in four steps. First, memos including reflections, thoughts and ideas were written down directly after each interview. These memos constituted the initial analysis and were also used to adjust the questions for the interview. Through the analysis process the memos were compared with the formulated categories and functioned as a link between data collection and the analytical process of writing about the results. Memo writing was therefore an important link between the interview and the theoretical analysis. The second step in the analysis was the initial coding, which means that lines and segments of data were given codes that were closely related to the data. The initial coding was performed using the software package Open Code. The focus of the initial coding was to grasp the participant’s actions and meaning so that the codes reflected a view from the inside of the respondents (Charmaz 2006). The intention of the initial coding was to capture the respondents’ point of view and come as close as possible to the respondents’ lived experience (Hallberg 2006). Even though the researcher always has prior ideas and skills, it is important to be as open-minded as possible in the initial coding, but without losing the analytical focus. It is also important to be open to new ideas and interpretations that emerge in data during the initial coding (Charmaz 2006). In a third analytical step, the most significant codes were used to find syntheses and to explain larger segments of data, called focused coding. In this step only the codes that were relevant for the aim of the study were selected to create subcategories. In the fourth step, the theoretical coding, the relationship between the subcategories were specified and merged into three categories. In this analytical step the analysis therefore became more
analytical and theoretical. The data collection was ended when theoretical saturation was considered to have been reached, i.e. when data had been worked out in detail, the theoretical codes had been well elaborated and no new theoretical patterns emerged.
Ethical considerations

The studies in this thesis were performed in accordance with prevailing ethical principles approved by The Regional Ethical Review Board in Umeå, Sweden. According to Swedish law, the participants are regarded as giving consent when they send in their questionnaire or are willing to participate in interviews. The participants were always clearly informed that participation was voluntary and that they could withdraw from the study whenever they wished, without giving any explanation. The participants were also given information about confidentiality and secrecy, i.e. that no personal information would be recognisable in the final articles and that no persons outside the research group would have access to any information about the participants. For each follow-up the participants were also informed about which register data were collected.
Results

Quantitative descriptives
The quantitative descriptives for women and men living with children at age 42 are presented in Table 5. There were no significant differences in psychological distress between women and men at age 21. At age 42 significantly more women than men reported psychological distress. Women had overall more responsibility for domestic work, childcare and spent more hours per week on household work compared to men. More men perceived their couple relationship to be gender-equal and men spent more time in paid work compared to women. Regarding socioeconomic position, more women were classified as lower white-collar workers than men.

Table 5. Descriptive of outcome, exposures and background variables for women and men living with children at age 42 (data presented in percentage).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Women (n=371)</th>
<th>Men (n=352)</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological distress (age 42)</td>
<td>38.8</td>
<td>26.5</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Psychological distress (age 21)</td>
<td>32.2</td>
<td>26.1</td>
<td>0.074</td>
</tr>
<tr>
<td>Responsibility for domestic work (age 42)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>0.0</td>
<td>0.3</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Less than half</td>
<td>2.7</td>
<td>34.2</td>
<td></td>
</tr>
<tr>
<td>Half</td>
<td>27.0</td>
<td>46.7</td>
<td></td>
</tr>
<tr>
<td>More than half</td>
<td>56.3</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>Whole</td>
<td>14.0</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Responsibility for childcare (age 42)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>0.0</td>
<td>0.3</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Less than half</td>
<td>2.2</td>
<td>22.1</td>
<td></td>
</tr>
<tr>
<td>Half</td>
<td>43.8</td>
<td>67.3</td>
<td></td>
</tr>
<tr>
<td>More than half</td>
<td>43.0</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Whole</td>
<td>11.0</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>Perception of gender equality in the couple relationship (age 42)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender-equal</td>
<td>34.4</td>
<td>44.3</td>
<td>0.011</td>
</tr>
<tr>
<td>Quite gender-equal</td>
<td>41.7</td>
<td>39.3</td>
<td></td>
</tr>
<tr>
<td>Not gender-equal</td>
<td>23.9</td>
<td>16.4</td>
<td></td>
</tr>
<tr>
<td>Hours/week in domestic work (age 42), mean (std.)</td>
<td>43.7 (19.3)</td>
<td>38.8 (19.0)</td>
<td>0.002</td>
</tr>
<tr>
<td>Hours/week in paid work (age 42), mean (std.)</td>
<td>32.7 (13.0)</td>
<td>40.8 (11.5)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Socioeconomic position (age 42)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper white-collar</td>
<td>51.5</td>
<td>56.7</td>
<td>0.002</td>
</tr>
<tr>
<td>Lower white-collar</td>
<td>18.0</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Blue-collar</td>
<td>30.5</td>
<td>34.2</td>
<td></td>
</tr>
<tr>
<td>Number of children (age 42), mean (std.)</td>
<td>2.3 (0.9)</td>
<td>2.2 (0.9)</td>
<td>0.736</td>
</tr>
</tbody>
</table>

* Significances between women and men tested by $\chi^2$ for categorical variables and $t$-test for continuous variables.
Stratified analysis for socioeconomic positions showed that the skewed distribution of responsibility for domestic work between women and men was also significant within each of the socioeconomic classifications (upper white-collar, lower white-collar and blue-collar). The gendered responsibility for domestic work could therefore not be explained by individual socioeconomic position, and needed to be analysed separately for women and men.

At the workplace level, the cluster analysis resulted in six distinctive clusters with various women/men ratios of number of employees, educational level, salary, parental leave and temporarily parental leave. None of these clusters were gender-equal on all of the indicators, meaning that each cluster represented a workplace pattern of gender inequality. In Paper III, all six clusters are described in detail. In this result section, only the three clusters related to psychological distress will be described (C2, C5 and C6). The characteristics of C2, C5 and C6 are presented in Figure 2.

C5 Equal in divergent spheres, can be considered as having the most gender-equal pattern, as the workplaces in this cluster were gender-equal in the divergent spheres of salary and parental leave. However, this cluster also included aspects of gender inequality as women were in the minority, took moderately more days of temporary parental leave and had a lower educational level than men.

Just like C5, C2 Socioeconomic equality & majority of women was gender-equal in two of the indictors. One distinct difference between these two clusters is that in C2 the gender-equal indicators represent gender equality in socioeconomic factors only (education and salary) while women used more days of both types of parental leave compared to the men at the same workplaces. Another difference is that C2 was the only workplace pattern with a majority of women. This cluster also distinguishes itself from all of the other clusters because it has the highest number of workplaces and therefore represents the most common gender equality pattern in the material.

The workplaces in C6, Traditionally unequal, had a traditional gender-unequal pattern with higher salaries for men whereas women had a higher educational level and took more days of both types of parental leave. The term “traditional” refers to the gender order that can be recognised on the Swedish labour market, meaning that the structures of gender inequality are historically bound but still being reproduced. The workplaces in C6 also had a majority of men.
Figure 2. Characteristics of cluster 2, 5 and 6 (Paper III, Figure 2).
Research question 1: How could gender inequality in work and couple relationships be related to mental illness among women? (Papers I–IV)

The significant results in the quantitative papers (I, II and III) between exposures of gender inequality for psychological distress among women are summarised in Table 6. In this table different measures of gender equality are presented in relation to the crude logistic regression analysis, as well as the fully adjusted logistic regression analysis in each paper.

Table 6. Summary of the main results for Papers I, II and III, presented as four independent sets of logistic regression in relation to psychological distress among women.

<table>
<thead>
<tr>
<th>Measure of gender inequality</th>
<th>Crude OR 95%CI</th>
<th>Adjusted OR 95%CI</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility domestic work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half (ref.)</td>
<td>1.00</td>
<td>1.00</td>
<td>I</td>
</tr>
<tr>
<td>Whole</td>
<td>2.65 1.33–5.27</td>
<td>2.17¹ 1.05–4.48</td>
<td></td>
</tr>
<tr>
<td>Perception of gender equality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender-equal (ref.)</td>
<td>1.00</td>
<td>1.00</td>
<td>I</td>
</tr>
<tr>
<td>Not gender-equal</td>
<td>2.01 1.12–3.62</td>
<td>2.23¹ 1.20–4.18</td>
<td></td>
</tr>
<tr>
<td>Combination of responsibility domestic work and perception of gender equality</td>
<td></td>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Half responsibility &amp; gender-equal (ref.)</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>More than half &amp; not gender-equal</td>
<td>2.39 1.48–3.86</td>
<td>1.69² 0.99–2.89</td>
<td></td>
</tr>
<tr>
<td>Gender equality at work</td>
<td></td>
<td></td>
<td>III</td>
</tr>
<tr>
<td>C5 Gender-equal in divergent spheres (ref.)</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>C2 Socioeconomic equality &amp; majority of women</td>
<td>2.35 0.98–5.62</td>
<td>2.51³ 1.01–6.26</td>
<td></td>
</tr>
<tr>
<td>C6 Traditional gender-unequal</td>
<td>3.18 1.13–8.98</td>
<td>2.72³ 0.93–7.92</td>
<td></td>
</tr>
</tbody>
</table>

¹ Adjusted for psychological distress age 21, time in paid work, SEI and number of children.
² Adjusted for gender, previous psychological distress at age 21 and number of children.
³ Adjusted for SEI, psychological distress age 21, type of work and age distribution at the workplace.

Bivariate logistic regression analysis showed that women with the whole responsibility for domestic work had a higher odds ratio for psychological distress (Table 6). These associations were still significant after adjustments for previous psychological distress (at age 21), time in paid work, socioeconomic position and number of children.

Bivariate and multivariate logistic regression analysis of time spent on domestic work showed no associations with psychological distress among women (data not shown). In the crude analysis, taking the whole responsibility for childcare was associated with a higher odds ratio for psychological distress, but this association turned insignificant in the multivariate analysis after adjustment for previous psychological distress,
time in paid work, socioeconomic position and number of children (Paper I, Table 4).

Perceiving the couple relationship as gender-unequal was associated with psychological distress among women, and the odds ratio increased after adjustments for psychological distress (at age 21), time in paid work, socioeconomic position and number of children (Table 6). The combination of perceiving the couple relationship as gender-unequal and having more than half of the responsibility for domestic work was associated with psychological distress for women in the crude analysis, but turned borderline significant in the multivariate logistic regression analysis (Table 6).

At the workplace level, the most gender-equal cluster, C5 Equal in divergent spheres, was used as reference category in the logistic regression analysis. Compared to this cluster, women belonging to C2 Socioeconomic equality & majority of women had a higher odds ratio for psychological distress after adjustment for socioeconomic position, psychological distress at age 21, type of work and proportion of young employees at the workplace (Table 6). For women in C6 Traditional unequal there was a higher odds ratio for psychological distress in the bivariate analysis. However, after adjustment for socioeconomic position, psychological distress age 21, type of work and age distribution at the workplace, the association between C6 and psychological distress turn insignificant (Table 6).

“Living with the burden of domestic work – as an obstacle to women’s health” emerged as an important category in the qualitative analysis (Paper IV). Women experienced feelings of ambivalence in the satisfaction of having the main responsibility for domestic work. There were also experiences of being financially dependent on their male partner, something that was experienced as a reason for the maintenance of the unequal division of domestic work. Living with the burden of domestic work also included feelings of lacking dignity and self-esteem when women felt forced to do the domestic work against their will. Women also experienced that they were constantly cleaning after others, which caused a constant feeling of stress and worries including mental stress and problems in sleeping. Feelings of believing in oneself and finding social support from friends were experienced as important health resources for women to deal with the unequal situation.

Overall, the results presented under this section showed that there were several aspects of gender inequality in work (at the workplace and at home) that were related to mental illness among women.
Research question 2: How could gender inequality in work and couple relationships be related to mental illness among men? (Papers I–IV)

The significant results in the quantitative papers (I, II and III) between the variables of gender inequality and psychological distress among men are summarised in Table 7. In this table different measures of gender equality are presented in relation to the crude logistic regression analysis as well as the fully adjusted logistic regression analysis in each paper.

Table 7. Summary of the main results for Papers I–II, presented as five independent sets of logistic regression in relation to psychological distress among men.

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Crude OR</th>
<th>95%CI</th>
<th>Adjusted OR</th>
<th>95%CI</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility for domestic work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half (ref.)</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Less than half</td>
<td>2.14</td>
<td>1.26–3.63</td>
<td>2.25¹</td>
<td>1.29–3.91</td>
<td></td>
</tr>
<tr>
<td>Perception of gender equality in the couple relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender-equal (ref)</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Not gender-equal</td>
<td>3.45</td>
<td>1.74–6.86</td>
<td>5.31¹</td>
<td>1.69–7.31</td>
<td></td>
</tr>
<tr>
<td>Combination of responsibility for domestic work and perception of gender equality in the couple relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half responsibility &amp; gender-equal (ref)</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Less than half &amp; not gender-equal</td>
<td>2.16</td>
<td>1.22–3.82</td>
<td>3.05²</td>
<td>1.63–5.70</td>
<td></td>
</tr>
<tr>
<td>Relative SEI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal to partner (ref)</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Lower than partner</td>
<td>1.93</td>
<td>1.07–3.48</td>
<td>1.92³</td>
<td>1.04–3.54</td>
<td></td>
</tr>
<tr>
<td>Combination of responsibility for domestic work and relative SEI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Half responsibility &amp; equal SEI (ref)</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than half &amp; equal SEI</td>
<td>1.70</td>
<td>0.93–3.09</td>
<td>2.26²</td>
<td>1.19–4.29</td>
<td></td>
</tr>
<tr>
<td>Less than half &amp; partner higher SEI</td>
<td>3.19</td>
<td>1.43–7.14</td>
<td>4.87²</td>
<td>2.09–11.35</td>
<td></td>
</tr>
</tbody>
</table>

¹ Adjusted for psychological distress at age 21, time in paid work, SEI and number of children.
² Adjusted for gender, previous psychological distress at age 21 and number of children.
³ Adjusted for responsibility for domestic work, psychological distress at age 21.

Bivariate logistic regression analysis showed that men with less than half of the responsibility for domestic work had a higher odds ratio for psychological distress (Table 7). These associations were significant also after adjustments for previous psychological distress (at age 21), time in paid work, socioeconomic position and number of children. Bivariate and multivariate logistic regression analysis of time spent on household work showed no associations with psychological distress among men (data not shown). In the crude analysis, taking the whole responsibility for childcare was associated with a higher odds ratio for psychological distress, but this association turned insignificant in the multivariate analysis after adjustment.
for previous psychological distress (at age 21), time in paid work, socioeconomic position and number of children (Paper I, Table 4).

Just as among women, the perception of the couple relationship as gender-unequal was associated with a higher odds ratio for psychological distress among men, also after adjustments for previous psychological distress (at age 21), time in paid work, socioeconomic position and number of children (Table 7). Overall, perception of gender inequality in the couple relationship in combination with relative socioeconomic position had a greater impact on the relation between domestic work and psychological distress among men than among women. There was a higher odds ratio for psychological distress for men in a situation with less than half of the responsibility for domestic work and a perception of the couple relationship as gender-unequal, even after adjustments for previous psychological distress at age 21 (Table 7). Additionally, there was a higher odds ratio for psychological distress for men in a situation with less than half of the responsibility for domestic work and equal or lower SEI than the partner, also after adjustment for psychological distress (Table 7).

At the workplace level, there were no significant associations between gender-unequal workplaces and psychological distress among men.

“Being trapped in an outmoded masculinity – a stressful situation” emerged as an important category among men in the qualitative analysis (Paper IV). Men experienced that they were constantly fixing and repairing things for others, which was related to feelings of stress and feelings of passing the limit for what is healthy. One way to reduce stress among men was to set limits for the domestic work. Increased consumption of alcohol was another way to reduce stress. Being trapped in an outmoded masculinity was also experienced as stressful when there was a feeling of inconsistency between the gender equality ideal and the reality. Nevertheless, there were also positive health experiences among men when the partner performed most of the everyday domestic work, as it implied an easier life without domestic duties.

Overall, the results presented under this section showed that there were several aspects of gender inequality in the home that were related to mental illness among men.
Research question 3: Is there support for the convergence hypothesis? (Papers I, III and IV)

In order to investigate whether there was a convergence in health experiences between women and men in gender-equal situations, the results on perception of gender equality in the couple relationship (Paper I, Table 2) are used to visualise the trends between gender equality and psychological distress (Diagram 1). It would have been preferable to also visualise the trends between responsibility for domestic work and psychological distress. However, as the responsibility for domestic work is highly gendered it is critical to compare the different extensions of domestic work between women and men. Thus the OR for psychological distress among women and men are presented in relation to their perception of gender equality in the couple relationship, after adjustment for confounders (Diagram 1). The diagram shows a trend towards a dose-response correlation with a higher odds ratio for psychological distress among both women and men the more gender-unequal the couple relationship was perceived. However, the gender gap in odds ratio increases with increased gender inequality so that the odds ratio for men is higher among men than among women when the couple relationship is perceived as not gender-equal. These results show support for a convergence in health when the couple relationship is perceived as gender-equal.

Diagram 1. Odds Ratio (OR) for psychological distress among women and men by their perception of gender equality in the couple relationship, adjusted for psychological distress at age 21, time in paid work, socioeconomic position and number of children (CI in brackets). Results from Paper I, Table 2.
At the workplace level, the most gender-equal workplace patterns were represented by cluster 5, *Equal in divergent spheres*. An overall characteristic of this cluster was the similarity in the situation for women and men. This cluster was gender-equal in the divergent spheres of economy and parental leave. Also distinctive for this cluster was that women and men are strikingly similar in the distribution of socioeconomic position, type of work, occupational sector and psychological distress. In addition, women and men in this cluster had lower psychological distress compared to the other clusters (Table 8).

In C2 *Socioeconomic equality & majority of women*, women more often worked in the health-care sector whereas men more often worked in scientific and artistic work. However, women and men were similar in terms of type of work as the largest group of both women and men in this cluster were those working with people. The men in this cluster had the highest level of psychological distress while the women had the second highest levels. For women there was also a significant increase in psychological distress of 16 percentage points between age 21 and age 42.

In contrast to cluster 5, there were significant differences in psychological distress between women and men in cluster 6 *Traditional unequal*, indicating that women in this cluster had the highest while men had the lowest prevalence of psychological distress compared to women and men in the other clusters. There were also significant differences between women and men in socioeconomic position, as a majority of women were upper white-collar workers whereas a majority of the men were blue-collar workers. The proportion of men in the manufacturing sector was significantly higher than among women.

In sum, the workplaces with a higher degree of gender equality had overall lower levels of psychological distress and a similar prevalence of psychological distress among men and women. Thus, there was some support for a convergence in health among women and men at workplaces with a pattern of gender equality in income and parental leave.
Table 8. Percentage of women and men in each cluster reporting psychological distress and work characteristics based on data from the Northern Swedish Cohort.

<table>
<thead>
<tr>
<th>Clusters</th>
<th>C2</th>
<th>C5</th>
<th>C6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>w</td>
<td>m</td>
<td>w</td>
<td>m</td>
</tr>
<tr>
<td>N of participants</td>
<td>132</td>
<td>42</td>
<td>32</td>
<td>71</td>
</tr>
<tr>
<td>Psychological distress age 21</td>
<td>28</td>
<td>27</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Psychological distress age 42</td>
<td>44</td>
<td>36</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Change psychological distress</td>
<td>16†</td>
<td>9</td>
<td>2</td>
<td>7†</td>
</tr>
<tr>
<td>Socioeconomic position</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper white-collar</td>
<td>51</td>
<td>64</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>Lower white-collar</td>
<td>20</td>
<td>24</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Blue-collar</td>
<td>29</td>
<td>12</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Type of work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with people</td>
<td>62</td>
<td>50</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Working with data</td>
<td>33</td>
<td>41</td>
<td>53</td>
<td>51</td>
</tr>
<tr>
<td>Working with things</td>
<td>5</td>
<td>9</td>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>Occupational sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science &amp; artistic work</td>
<td>29*</td>
<td>36*</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Health care</td>
<td>28*</td>
<td>10*</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Administration</td>
<td>23*</td>
<td>33*</td>
<td>31</td>
<td>27</td>
</tr>
<tr>
<td>Commercial work</td>
<td>10*</td>
<td>9*</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Transport &amp; communication</td>
<td>2*</td>
<td>0*</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0*</td>
<td>5*</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Service</td>
<td>8*</td>
<td>7*</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>0*</td>
<td>0*</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

C2: Socioeconomic equality & majority of women
C5: Equal in divergent spheres
C6: Traditionally unequal
* Differences between women and men within the clusters were tested by chi-square test, p<0.05
† Differences between age 21 and 42 within the clusters were tested by chi-square test, p<0.05

In the qualitative analysis (Paper IV) both women and men experienced that gender equality could be related to experiences of better health. Among men there was a wish to decrease the constant fixing and repairing of things for others at home by setting limits. Among women there was a wish to reduce the responsibility for their everyday domestic tasks as it was felt to be too burdensome. Both women and men had experiences of avoiding discussion of an equal share of domestic work because it felt too burdensome to discuss as it often resulted in a quarrel. Women and men also described how an equal share of the domestic tasks would enable time to do something on one’s own, meaning increasing the opportunities for recovery and getting energy from activities and practices outside the family. Among men, striving for gender equality implies a notion of being positive about learning feminised work. There were also experiences among men of consistency between the gender equality ideal and the reality, something that resulted in feelings of satisfaction with the division of domestic work. Dismissing unfairness was expressed as an important principle among men that contributed to their experiences of health.
Discussion
Gender inequality in domestic work and couple relationships was related to mental illness among both women and men (Papers I, II and IV), although gender inequality in domestic work was also experienced as favourable for men’s health (Paper IV). Gender inequality at workplaces was related to mental illness among women but not among men (Paper III). The discussion is structured around the three research questions including a model of the findings.

Possible explanations of how gender inequalities can be related to mental illness (Research questions 1 and 2)
People spend a lot of time and effort in paid as well as domestic work. In our everyday life, thoughts, minds and feelings are often occupied with different aspects within these two areas. In accordance with Gadamer (1996), I interpret our daily commitment in these areas as closely intertwined with our experiences of health and illness, as we live through processes of health and illness as an integral part of our selves. Drawing on the results of my thesis, I have outlined a model (Figure 3) to visualise the main findings of research question 1 and 2 as well as some possible explanations of how gender inequality at workplaces and at home can be related to mental illness. In the following paragraphs I will describe the content of the model from the following dimensions: context, exposures and possible explanations.

Context
The context includes gender and socioeconomic power relations in the Swedish society, what theoretically can be called the gender order. The context includes gender policy progress, gendered socioeconomic gradients through the gender segregation at the labour market, discourses on gender and gender equality as well as gendered expectations of women, men and work. There is a constantly intersection between the context and the patterns of gender inequality at workplaces and at home.

Exposures
Patterns of gender inequality at workplaces include representation of women and men at the workplaces, salary, education and use of parental leave and temporary parental leave at the workplaces (Paper III). Gender inequality at home includes the exposures of responsibility for domestic work and perception of gender equality in the couple relationship (Paper I and II).
Possible explanations

I will now use the results from Papers I-IV of my thesis to discuss some possible explanations of how gender inequality at workplaces and at home can be related to mental illness. An important result from Paper III was that patterns of gender inequality at the workplace was to the disadvantages of women, as it was associated to women’s but not to men’s psychological distress. This result could possibly be explained by that women and men have different positions in the gender order: women have more often less power and are more often being discriminated. This result also stresses the importance of consider the direction of gender inequality: in gender-unequal situations women were more often disadvantaged whereas men had advantages that can be beneficial for the health status. For example, the pattern in cluster 6 “Traditional unequal” represents a situation where women’s higher educational level was not economically valued, something that possibly can contribute to stress and harmful effects to the mental health status. In Paper III we also considered the relation between the paid work and the home as an important explanation between gender inequality...
at the workplace and mental illness among women, as women in this cluster (C6) took more days in parental leave and temporary parental leave.

An important result from the qualitative Paper (IV) was the category *Living with the burden of domestic work – an obstacle for women’s health*, which also serves as an overreaching heading for the quantitative results among women (Papers I and II). Overall, more women were having the main responsibility for domestic work, implying that a high workload could be burdensome and therefore related to psychological distress (Paper I). Experiencing the couple relationship as gender-unequal was also related to psychological distress (Paper I). A result from the qualitative Paper (IV) was that women had feelings of ambivalence about the division of domestic work. Women wished for a greater contribution in domestic work from their partners, meanwhile they felt an uncertainty as to whether the division of domestic work could ever be changed and that they therefore had to accept an unequal share. A situation with conflicting gender discourses could imply health compromises that included an alienated self and limited possibility of acting, and therefore possibly be related to mental illness. Another result from Paper (IV) was the constantly cleaning after others. Women felt that is was burdensome and mentally stressful to always clean after others, something that was related to sleep problems and feelings of stress and worries. Being financially dependent on the partner was both experienced as a reason for the maintenance of the unequal division of domestic work as well as to a fear of becoming poor or not having anywhere to live if the relationship should end (Paper IV). Lacking dignity and self-esteem was related to experiences of being forced to do the domestic work against one’s own will, which hindered women to travelling or studying at various locations (Paper IV). According to Pörn (Pörn 1984), the possibility to act is an important aspect of health, meaning that women’s health was compromised. Lacking dignity and self-esteem were also experienced as contributing to lacking energy and feelings of illness. A further obstacle to women’s health was being belittled by a patriarchal partner, meaning that women experienced themselves as less valued than men and that the domestic work they did wasn’t worth anything (Paper IV). Believing in oneself no matter what other would say and finding social support from friends was two strategies that women used to handle the burden of domestic work (Paper IV). Finally, women also experienced that they needed health to manage the burden of domestic work (Paper IV).

*Being trapped in an outmoded masculinity – a stressful situation for men* emerged as an important category in Paper IV and is used as an overreaching heading in the model for the quantitative results among men (Papers I and II). Having a gendered division implied that men were having less than half
of the responsibility for domestic work (Paper I and II), which was related to psychological distress. Just as among women, experiencing the couple relationship as gender-unequal was related to psychological distress (Paper I). In the qualitative Paper (IV) a gendered division of domestic work meant that men did not have the main responsibility for the repetitive everyday domestic work. Men experienced that they did partially different work tasks in the home than women, i.e. having the responsibility for fixing things that were broken and doing the seasonal outdoor work. Being trapped in an outmoded masculinity implied a feeling of constantly fixing things for others, which were experienced as being related to demands from family members and men themselves. Being trapped in an outmoded masculinity also included experiences of passing the limit for what is healthy and included feelings of stress, lack of energy and bad sleep because of work-home pressure. Expectations of men to always fix everything for everyone were experienced as untenable, as it were connected to feelings of running out of oneself. A feeling of inconsistency between gender equality ideal and reality was experienced as stressful as it implied that the domestic work was not organised in a satisfactory way. Sharing tasks equally was outlined as a solution for decreasing the feelings of stress and spreading out the workload over the year. However, some men experienced women as unwilling actors for change in the division of domestic work, leaving the responsibility of gender equality to their female partner (Paper IV). A result from Paper II that can be related to an outmoded masculinity was the situation of having a lower socioeconomic position than the partner. Reducing stress with alcohol and setting limits for domestic work was two strategies that men used to handle the situation of being trapped in an outmoded masculinity (Paper IV).

From a public health perspective, moving on from an outmoded masculinity might be a key issue to overcome the gendered division of domestic work and to reduce its mental illness consequences among men and possibly among women.

**The relations between gender inequality and mental illness among women**

The results of the epidemiological papers (I and II) showed that a situation with all responsibility for domestic work was associated with a higher odds ratio for psychological distress among women, which is in line with previous cross-sectional studies (Bird 1999, Krantz and Östergren 2001, Väänänen, Kevin et al. 2004, Mellner, Krantz et al. 2006, Månsdotter, Lindholm et al. 2006, Boye 2008, Staland Nyman, Alexanderson et al. 2008). Unlike these previous studies, I had the possibility to also include previous psychological
distress, and can therefore ascertain gender inequality in domestic work as an important factor that contributes to mental illness among women.

One explanation for the persistence of women having the main responsible for domestic work could be the constant reconstruction of gender that an unequal division of domestic work implies (Forssén and Carlstedt 2006). From a gender relational perspective, domestic work is one of the everyday social practices in which gender is clearly enacted. Within families and couple relationships the enacting of gender is related to large-scale patterns in society (Connell 2012). The gender division of domestic work is therefore related to gender patterns of work outside the home, but also to constructions of a femininity where women are primarily expected to prioritise care for others and life at home (Moller Okin 1989). The results of my thesis suggest that gender-unequal patterns at workplaces as well as gendered structures and expectations of women as primarily responsible for the everyday domestic work at home are related to mental illness among women (Papers I and III). In previous research it has been shown that women solve structural gender inequalities at workplaces with individual solutions, such as working part-time as a way to manage a stressful everyday life (Elwér, Aléx et al. 2010). In our study we found that irrespective of time in paid work, gendered inequalities in domestic work was related to mental illness among women (Paper I).

The importance of the relational context

The quantitative results showed that perceiving the couple relationship as gender-unequal was associated with psychological distress among women, which is in line with other Swedish studies (Sörlin, Lindholm et al., Staland Nyman 2008, Hammarström and Phillips 2012). The results of the qualitative study also showed that women did not only experience the responsibility for domestic work as too burdensome, but also felt ambivalence in their satisfaction with the division and would like their partner to contribute to a greater extent (Paper IV). Additionally, the quantitative findings from Paper II showed that the relational context in which domestic work is divided is of importance for the relations between responsibility for domestic work and mental illness (Paper II). These findings might be understood in relation to experiences of domestic work as unequal or unfair. To do more than what is experienced as a fair share has been shown by previous research to be related to distress and negative emotions (Lively, Steelman et al. 2010). Previous research has also shown that there is a risk of mental illness when the division of domestic work is expected to be equal although experienced as unequal (Lennon and Rosenfield 1994, Nordenmark and Nyman 2003). However, it is also well known that an unequal division of domestic work can be regarded as fair
(Lennon and Rosenfield 1994, Nordenmark and Nyman 2003, Braun, Lewin-Epstein et al. 2008, Magnusson 2008) and that women and men avoid describing an unequal division of domestic work in terms of gender inequality (Nordenmark and Nyman 2003, Ahlberg, Roman et al. 2008, Magnusson 2008). To be in a subordinate position, as for instance being in financial dependency on a partner, can also contribute to a greater acceptance of inequalities (Lennon and Rosenfield 1994). The qualitative Paper (IV) showed that women’s experiences of financial dependency on a partner were not only related to mental illness, but also to the maintenance of gender inequality in domestic work. When women earned less money they felt a pressure and obligation to perform most of the work at home. The results of my thesis stress the importance of not only investigating domestic workload, but also integrating the importance of the relational context in which the work is performed, for example the perceptions of gender equality in the couple relationship or whether the division of domestic work is perceived as fair.

Conflicting gender discourses and health compromises

In Western societies today, constructions of femininities in heterosexual couple relationships are sometimes characterised by living in a contradiction, meaning that women internalise two contradictory discourses of gender equality: they can find the unequal share of domestic work unjust, while at the same time being satisfied with the partner’s contribution (Holmberg 1993, Kalman 2002, Magnusson 2008). In the qualitative Paper (IV) women experienced the main responsibility for everyday domestic work as too burdensome and wanted their spouses to relieve them of some of the work. Women also experienced a lack of dignity and self-esteem when they felt forced to do the domestic work against their will, which contributed to lack of energy and feelings of illness. Simultaneously, the women expressed satisfaction with the partner’s effort in domestic work as he “at least did something”. Even if women experience gender inequality in the couple relationship, they might tend to present the relationship in a gender-equal manner and thereby maintain respectability for themselves and their partner, in accordance with the norms of gender equality in Swedish society. However, this contradiction may lead to an alienated perception of oneself (Kalman 2002). In addition to the burden of domestic work, the contradiction of gender equality in the couple relationship can constitute a further disadvantageous consequence of gender inequality among women. As Sandra Lee Bartky states: “It is itself psychologically oppressive both to believe and at the same time not believe that one is inferior – in other words to believe in contradiction” (Bartky 1990, p.30). Women’s main responsibility for domestic work can therefore imply an internalised feeling of conflict in the couple relationship, meaning that the supportive and
health-protective function of the relationship is compromised. Such a situation puts women at increased risk of mental illness (Strazdins and Broom 2004). Living in a contradiction might also contribute to limitations of the ability to act to realise one’s own goal in life, something that is important for experiencing health (Pörn 1984). Being in a situation where patterns of gender inequality constitute the conditions of everyday life might therefore result in health compromises for women, including an alienated self, lack of dignity and self-esteem and limited possibility of acting.

The relations between gender inequality and mental illness among men
None of the men in the qualitative Paper (IV) had experiences of having the main responsibility for the repetitive everyday domestic work. The gendered division of domestic work therefore implied that the men in this study did partially different domestic work from women. Men primarily described their domestic work responsibility as including fixing and repairing broken things in the home and having the responsibility for the seasonal outdoor work, such as mowing the lawn and shovelling the snow. Although we cannot know whether these qualitative results are representative of a larger sample of men, they illustrate how gendered processes in the domestic sphere can be linked to experiences of mental illness among men.

Men having high responsibility for domestic work
Some of the few previous quantitative studies in the field including men indicate that a high amount of paid and domestic work can be as harmful for men’s as for women’s health status, although considerably fewer men are in a situation of high amounts or responsibility for everyday domestic work (Emslie, Hunt et al. 2004, Väänänen, Kevin et al. 2004, Krantz, Berntsson et al. 2005). One longitudinal study by Matthews, Power and Stansfeld (2001) showed a crude association between the main responsibility for domestic work and psychological distress among men, but the association turned insignificant after social class and previous psychological distress have been taken into account, indicating a possible selection of men with previous mental illness into a situation of high responsibility for domestic work. Our findings did not confirm these previous results. Although there was a higher odds ratio for psychological distress among men in a situation of having the main responsibility, there were few men in this situation and the association with psychological distress was not significant (Paper I, Table 4). As small samples increase the risks of false negative results (type 2 error), the interpretation of these non-significant results should be done with caution. Men having the main responsibility for domestic work therefore need to be
investigated in a larger population or in a population where men’s and women’s situation in domestic work is more similar.

**The importance of gender norms and policy**
The longitudinal study by Matthews, Power and Stansfeld (2001), demonstrating a crude association between main responsibility for domestic work and psychological distress among men, was performed in a UK setting. The divergent findings compared to our study, i.e. that taking less than half of the responsibility for domestic work was associated with psychological distress among men (Papers I and II), might be related to the contexts of the studies in terms of gender policy arrangement and its relation to individuals’ norms and behaviours. Public gender policies embody norms and values that can influence individuals’ self-identifications with their gender as well as their behaviour (Daily and Rake 2003, Svalfors 2007). Gender policies can therefore affect individuals’ expectations about women’s and men’s rights and responsibilities in paid and domestic work, but also raise awareness of gender inequalities (Öun 2012). Sweden is characterised by a dual-earner model including policies supporting labour force participation for women, provision of public day-care services, and generous provisions of earnings-related parental leave. In contrast, the UK is characterised by a market-oriented model with a low degree of policies supporting dual-earner families, scarce and expensive provision of day care and a minimum EU standard of 13 weeks of unpaid parental leave. In a previous study, the gender policy context has been shown to have a stronger effect among men than among women on the perception of fairness in domestic work (Öun 2012). In combination with relatively strong public support for gender equality in Swedish society, it might be possible that men in Sweden perceive an unequal share in terms of low responsibility for domestic work as unjust or unwanted. This can be visualised in the results of Paper II, showing that perceiving the couple relationship as gender-unequal in combination with having less of the responsibility for domestic work was associated with psychological distress among men. Also, results from the qualitative paper (IV) indicate that gender inequality in domestic work was experienced as undesirable and related to experiences of stress and mental illness among men. Furthermore, we found that the combination of having less than half of the responsibility for domestic work and lower socioeconomic position than the partner was associated with psychological distress among men. One possible explanation for these results could be that men with a lower socioeconomic position than the partner might challenge the gender order, which per se have been shown to be damaging to health in the short run (Backhans, Burstrom et al. 2009). In the qualitative Paper (IV) we also found that the gendered division of domestic work was a part of men’s experience of being trapped in an outmoded masculinity, which constituted a stressful
situation. Although the men in our qualitative study did not have experiences of the main responsibility for the repetitive everyday domestic work, they experienced the sole responsibility for repairing and fixing things in the home. Striving for gender equality in domestic work was therefore outlined as a possible solution for decreasing mental illness and improving health among men.

Is there support for the convergence hypothesis? (Research question 3)
The convergence hypothesis is relevant for understanding the importance of gender inequality at workplaces and at home for mental illness. Previous Swedish studies have shown support for a convergence in sick leave between women and men in gender-equal situations at work (Sörlin, Lindholm et al. 2011) and a convergence in mortality risk in gender-equal situations in the domestic sphere (Månsdotter, Lindholm et al. 2006). From a sameness perspective of gender equality, the results from my thesis support the convergence hypothesis as there were similar levels and odds ratios for mental illness among women and men in gender-equal situations both at work (Diagram 1) and at home (Table 8). These results indicate that similar life situations could possibly lead to more similar prevalence of mental illness between women and men. However, the results of this thesis also show that women and men in these gender-equal situations experience lower levels of mental illness. Gender equality at work and at home might therefore not only be central for reducing differences in mental illness between women and men, but also for achieving a good average health status in the population which is a central target in the public health policy (Braveman and Gruskin 2003).

Reflections on the convergence hypothesis
One aspect of the convergence hypothesis that needs to be discussed is the meaning of the concept. Convergence means an equalisation of differences rather than a general improvement in population health. According to the convergence hypothesis it is therefore possible that some people might improve their health while others might worsen their health in the direction of equalisation. If we agree, for instance, on the well-known description that women live longer than men, the convergence theory would imply that gender equality could lead to men living longer and women living shorter lives. Such an assumption is problematic from a public health perspective as there is strong support for the view that social equality should not only contribute to a more equal distribution of health, but should also improve overall health. From a public health perspective, there is not necessarily a contradiction between improved health status and reduced inequalities in
health. Even though progress in gender equality would mean that men as a group have to lose some of the structural privileges (for instance in hierarchical occupational positions and economic resources), gender equality could also lead to constructions of masculinities that includes improved health by adoption of healthy beliefs and behaviours (Courtenay 2000). In sum, the results of this thesis support the convergence hypothesis at workplaces and at home but call for a further theoretical discussion on its interpretation in public health.

Reflections on non-significant results

It is not always self-evident that non-significant results in a study are discussed, but I believe that even the results that are non-significant can contribute important knowledge and deepen our understanding of the studied phenomena. In the following paragraph, I reflect on some of the most important findings that were non-significant in my thesis.

From previous research it is known that too much time in domestic work can be related to several symptoms of illness (Bird 1999, Väänänen, Kevin et al. 2004, Krantz, Berntsson et al. 2005, Berntsson, Lundberg et al. 2006, Mellner, Krantz et al. 2006, Boye 2008). However, the results of my thesis showed that time in domestic work were not related to with mental illness, although responsibility for domestic work was (Paper I). A possible explanation for these divergent results might be methodological, i.e. that there are no golden standards for how to measures domestic work. In addition, questions about weekly hours spent on domestic work might not capture the emotional and scheduling dimensions that responsibility for domestic work does. Another insignificant association found in my thesis was between responsibility for childcare and psychological distress (Paper I). Previous research has shown that time spent on childcare as well as the number of children living in the household can be harmful (Matthews, Power et al. 2001, Krantz, Berntsson et al. 2005, Floderus, Hagman et al. 2009) as well as beneficial for the health status (Krantz, Berntsson et al. 2005, Månsdotter, Lindholm et al. 2006). However, spending a lot of time on childcare or living together with children does not necessary imply a responsibility. Furthermore, there is a lack of studies that take previous health status into account. In Paper 1 we found a possible selection of men with previous psychological distress into a situation of having the whole responsibility for childcare (Paper 1, Table 4). Among women, there were no equivalent health-related selection but socioeconomic gradients and number of children had a crucial influence on the association between having the whole responsibility for childcare and psychological distress. Finally, it is possible that responsibility for childcare does not only implies burdens but could also be rewarding and gratifying.
Methodological considerations

In this thesis I have used quantitative epidemiological and qualitative interview methods. By combining these different methods it was possible to analyse work, gender relations and mental illness from different perspectives and with a variety of questions. In the following sections I will discuss the scientific rigour of the quantitative studies as well as of the qualitative studies. Finally, I will reflect on the strengths and limitations of my methods.

Scientific rigour of the quantitative studies

The questionnaire used in my thesis is based on well-known and validated questions (Hammarström and Janlert 2012). The health outcome I have used in this thesis is a measure of psychological distress, derived from the Swedish survey of living condition (Statistics Sweden 1980) and previously well used in analyses of the Northern Swedish Cohort (Reine, Novo et al. 2008, Waenerlund, Virtanen et al. 2011, Elwér, Johansson et al. 2013). The measure of psychological distress was not normally distributed. In order both to select an exposed group and to achieve statistical power a cut-off point of the 75th percentile was chosen in accordance with previous research (Reine, Novo et al. 2008). This categorisation means that one symptom is enough to be categorised as distressed. In a longitudinal follow-up of the Swedish survey of living conditions, the psychological distress components anxiety and nervousness were shown to be strongly related to subsequent risks of psychiatric diseases, all-cause mortality, suicide attempt, inpatient care and ischaemic heart disease (Weitoft and Rosen 2005).

Previous psychological distress was used to adjust for health-related selection (Papers I, II and III). Although this is a common way of measuring health-related selection, there are no golden standards. It could also be discussed at what age the previous health status should be measured. At age 30, most of the participants were cohabiting and had already entered the labour market. At age 16 and 18 the participants were still adolescents and in a rapid developing and changing stage of life. In accordance with one previous study in the field (Matthews and Power 2002), adjusting at age 21 before family formation and establishment in the labour market seemed reasonable.

Neither are there any golden standards for measuring gender equality at workplaces or at home. Gender equality at the workplaces was operationalised as five indicators of gender equality from register data from the participants’ workplaces (Paper III). Although important aspects of
gender equality such as working part-time/full-time, hierarchical positions and sexual harassment were not available in the official registers, data from the registers ensure high quality and reliability. The workplace data from the Swedish registers were available at organisational and workplace level. Data at organisational level included information about work organisations that could be situated at many different geographical locations, whereas data at workplace level included information about employees registered in the same organisations as well at the same street adress. As we were interested in workplace environments and gender regimes, we found it reasonable to choose data from the workplace level.

Gender equality at home was operationalized with a self-reported measure of gender equality in the couple relationship (Papers I and II) that previously has been used in public health research (Nordenmark and Nyman 2003, Sörlin, Lindholm et al. 2011). A limitation with this question is the impossibility to outline whom in the couple relationship that is treated unfairly in a gender unequal situation. However, one interpretation is that the question includes a relational aspect that is important for both parts in a couple relationships. During the data collection of the questionnaire several participants chose to respond to the survey through telephone and the majority could easily answer the question of gender equality in the couple relationship. Additionally, gender equality is a debated and topical issue in Sweden, which might contribute to an awareness about gender equality in the own couple relationship.

A shortcoming in several measures of domestic work is its limitation to task distribution rather than focusing on relational aspects (Doucet 2001). I have tried to overcome this problem by measure domestic work with a question on the self-perceived responsibility for domestic work, which previously has been used in similar ways (Krantz and Östergren 2001, Matthews, Power et al. 2001). The intention with the question was to capture the responsibility of everyday domestic work that needs to be done in the home. A strength with this measure is that it might capture both the direct performance of domestic tasks as well as the indirect work of planning and scheduling. Additionally, the personal interviews were a way to ensure that the meaning of responsibility for domestic work and mental illness also could be recognised in people’s experience of everyday life. In future questions about domestic work the results of my interviews can possibly be used for specifying and deepening questions about domestic work in questionnaires. Useful questions could include the self-perceived demands of domestic work, whether the division of domestic work is experienced as fair or not and whether there is a wish to change the division of domestic work.
For generalisations of the results it is important to reflect on how representative the population is for Sweden as a whole. Although the Northern Swedish Cohort can be viewed as a homogeneous population in terms of age and geographical location, it has been shown to be comparable to Sweden as a whole with regard to socioeconomic and sociodemographic factors as well as health behaviours and health status (Hammarström and Janlert 2012). However, important to notice is that the studies concerning responsibility for domestic work (Papers I and II) are made on a sample of participants that at age 42 were living with children. Also, gender relations can vary from different cultures, and the results of this thesis are based on an overwhelming majority of native Swedish-born participants and only a small proportion of labour immigrants from Finland. The Swedish context is characterised by a high participation rate of women in the paid labour force and public support for gender equality in all spheres of life. In sum, the epidemiological results of this thesis (Papers I, II and III) can be generalised to a context with similar structures of gender relations as in the Swedish society.

Scientific rigour of the qualitative study

The trustworthiness and transferability of my qualitative study is achieved through accuracy in the research design, data collection and analysis (Morse, Barrett et al. 2002, Graneheim and Lundman 2004). As qualitative data requires understanding and co-operation between the researcher and the participants, both the researcher and the participants contribute to the construction of data (Graneheim and Lundman 2004, Charmaz 2006). When discussing the trustworthiness of qualitative analysis it is therefore important to recognise that qualitative data can involve multiple meanings and that different interpretations are always possible. As the interviews in this study is a direct conversation between the interviewer and the participant, the participant’s narratives and experiences were constructed in relation to the interviewer and represent a particular point of view under certain circumstances. In such a situation it is possible that variety in status and power between the interviewer and the participants in terms of professional status, gender, age and ideology can have an important influence on what can be said and how things can be communicated (Aléx and Hammarström 2008). The themes of the interviews could also be experienced as sensitive as they concerned experiences of private life and health. In the interviews I therefore tried to make an open atmosphere as possible so that the participants felt comfortable and free to reflect and share their experiences. The participants’ previous participation in the Northern Swedish Cohort might also have contributed to a trusting belief in the importance of sharing their experiences of everyday life in a research project.
One important aspect of trustworthiness is **credibility**, meaning the choice of appropriate data collection and the amount of data to answer the research question (Graneheim and Lundman 2004). The choice of participants in the qualitative study was made with the purpose of including various experiences and thereby increasing the possibility of finding various perspectives on the research question. I had a unique possibility of obtaining a strategic sample of the participants based on data from their questionnaires, meaning they were chosen on the basis of including both women and men, different socioeconomic positions and a variety of experiences of gender equality in the couple relationship. Credibility also includes selecting the most appropriate method for data collection as well as the amount of data. I used a Grounded Theory approach as this is a method that enables an analysis of social processes and simultaneous data collection and analysis, meaning that the analysis could include theoretical analysis early in the research process. One important part of the data collection was that I continuously made memos which functioned as a link between data collection and the analytical process. In the analysis process I returned to the memos and transcripts to confirm the results and interpretations with the participants’ experiences. I also conducted the coding process in discussions with the co-authors to ensure a high level of coding consistency. The interviews were rich and included a lot of different social patterns. The data collection was ended when theoretical saturation was considered to have been reached, i.e. when data had been worked out in detail, the theoretical codes had been well elaborated and no new theoretical patterns emerged.

**Transferability** means to what extent the findings can be transferred to other contexts or groups. For the reader to be able to make a judgement of the transferability, it is important for the researcher to describe the context and culture of the participants as well as the data collection and the analytical process (Graneheim and Lundman 2004). The gender theoretical perspectives used in the interpretation of the results are outlined in the introduction to the study. Together with the co-authors we also chose appropriate quotations to strengthen the presentation of the analytic process and to facilitate the readers’ understanding of the context that the participants are part of.

**Strengths and limitations**

A major strength of my thesis is the high quality of quantitative data with an extremely high response rate through a long period of time. The longitudinal data also made it possible to adjust for indicators of health-related selection, something that has been limited in many previous studies (Månsdotter, Lindholm et al. 2006, Artazcoz, Borrell et al. 2007). Adjusting for previous health status is important for understanding the directions of associations,
i.e. to ascertain whether good health is a prerequisite for gender equality or vice versa. My thesis has also increased the knowledge about the relationship between gender inequality and mental illness among men, which has been limited in previous research with women only sample.

Another strength is the mix of quantitative and qualitative methods. The quantitative methods enabled analysis of distribution and associations of gender inequality and psychological distress among women and men and enable results that can be valid for a larger population than the one studied. The quantitative method also enabled analysis of associations between exposures and outcomes as well as adjustments for possible confounders, making it easier to judge questions about causality. Through the qualitative methods I got the possibility to get a deeper knowledge and understanding of people’s experiences of gender inequality, mental health and illness. The qualitative methods enabled analysis of the individual’s experiences, perceptions and ideas of gender equality and mental health and illness in everyday life. Also, the study design of interviewing both women and men about their everyday life and health experiences with a focus on domestic work is not common in public health research. Qualitative methods can increase our understanding of the social processes behind the associations and contribute to the understanding of how to change gender relations in order to improve health. Also, previous research has highlighted that men’s experiences of mental illness needs further investigation (Staland-Nyman 2008, Riska 2009, Ridge, Emslie et al. 2010). The results of my thesis can therefore contribute to new knowledge about the importance of gender inequality for mental illness especially among men but also among women.

A limitation of the quantitative papers in my thesis was the relatively small sample size, which is the reason why the statistical power was not sufficient for all analyses. Few observations and wide confidence intervals were found, for example, in analyses of men having the whole responsibility for domestic work. The lack of significant results in this group might be due to type 2 errors.

Another possible limitation is that the measures of both exposure (gender inequality) and outcome (psychological distress) are self-reported. However, as self-reported psychological distress has been shown to be an important predictor of future morbidity and mortality (Weitoft and Rosen 2005), it constitutes a valuable measure in public health research. The qualitative results also strengthen the findings from the quantitative studies, indicating that gender equality in the couple relationship and domestic work has to do with people’s perceptions and experiences. The self-reported measures used in my thesis can therefore be considered as important and adequate
measures of gender equality and mental illness. Another possible limitation is that exposure and outcome are measured at the same time, which makes causal interpretations crucial. It could for instance be the case that those with poor mental health experience their partner relationship as more negative than others. In Papers I and II previous psychological distress is adjusted for, and the possible health-related section is therefore minimised. Also, the results from the qualitative study strengthen the interpretation that gender inequality is a determinant of mental illness.
Conclusions

In this thesis I have analysed how gender relations in work (at home and at workplaces) are related to mental illness among women and men. I found that gender inequalities in the domestic sphere were related to mental illness among both women and men and that gender inequalities at workplaces were related to women’s mental illness.

Domestic work was shown to be highly gendered as women had a major and men a minor responsibility for the everyday domestic work. The quantitative analysis showed that gender inequality in domestic work can be an important determinant of mental illness among both women and men (Papers I and II).

The quantitative results also highlight the importance of the relation to a partner, i.e. the importance of perception of gender equality in the couple relationship and relative socioeconomic position to the partner for the association between domestic work and mental illness among women and men. Both having a greater and a smaller responsibility for domestic work in combination with experiencing the couple relationship as gender-unequal were related to mental illness (Paper II).

Gender relations were shown to be an important part of how the domestic work was unequally organised and related to experiences of mental illness among women and men. Gender constructions in the domestic sphere included various dimensions of gender inequality that were constantly negotiated for improving health (Paper IV).

At the workplace level, patterns of gender inequality were associated with psychological distress among women, but not among men (Paper III). However, the most gender-equal pattern was related to lower as well as more similar levels of mental illness among women and men, which supports a convergence in health when women’s and men’s work conditions become more similar.

Gender equality at home and at work is central for reducing mental illness among both women and men, but also for achieving a good average health status in the population, which is a central public health target. When investigating social inequalities in health, gender perspectives can be of great importance for deepening the understanding of how and why gender inequality at work and at home is related to mental illness.
Implications for future research and public health policy
Unpaid work at home and gender relations at workplaces have often been overlooked in previous research as a possible determinant of mental illness. My thesis is therefore a contribution to our knowledge of how unequal gender relations, particularly at home but also at workplaces are related to mental illness among women and men.

Future research needs to acknowledge that domestic work is performed in various social contexts that strongly intersect with constructions of gender identities and how society is structured by gender. As gender relations are intertwined with several other power dimensions, there is a need for a deeper knowledge of how intersections of gender and ethnicity, sexuality, age and nationality might affect the relations between domestic work and mental illness. A challenge for studying the importance of these intersections for health and illness is to develop new and creative methods. Furthermore, there is also a need for research investigating how the “invisible” domestic work (e.g. scheduling and planning) that many women perform on a daily basis is related to experiences of mental health and illness and how women might compromise their own time and needs. There is also a need to further deepen our knowledge of men’s experiences of domestic work, mental health and illness. Additionally, future research needs to include the gratifying dimensions of domestic work and include a salutogenic approach to gender equality in private life as possibly being health-promoting. Public health research on paid work needs to acknowledge patterns of gender quality and include dimensions of private life.

A central task for public health research is to identify political, social and behavioural determinants of social inequalities in health that can be useful for guiding policies and actions. The results of my thesis suggest that gender inequality at workplaces and at home can be important determinants of mental illness in public health policy. The Swedish Public Health Policy – with its focus on structural determinants of health – offers a unique possibility to integrate a gender relational approach. For example, the fourth objective domain, “Health in working life”, could further acknowledge gender relations at workplaces as an important determinant of mental illness. One way is to focus on gender as an organising principle rather than on differences between women and men (Bacchi and Eveline 2003, Hammarström 2005). This means that workplace gender relations should be recognised in terms of structural patterns rather than from individual perspectives in order to improve health.
In the private sphere I found consistent patterns of unequal gender relations in domestic work, which were related to mental illness among both women and men. In public health policy it is therefore important to acknowledge gender equality in the private life in relation to the social context within society, rather than seeing it as a matter of individual choices. It is also important to acknowledge that gender equality concerns power relations between women and men and should therefore not be interpreted as a harmonious or non-conflicting issue (Magnusson 2008). The results of my thesis support a previous suggestion (Hammarström 2005) to include the division of domestic work as an indicator of the first objective domain in the Swedish Public Health Policy, “Participation and influence in society”. An indicator of domestic work division could capture one important dimension of the conditions for active participation in society.

The results of my thesis stress the importance of a structural rather than an individual focus on determinants of social health. Integrating a gender relational approach into Swedish Public Health Policy could be a way to acknowledge power relations that hinder good average and equally distributed health in the population.
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References


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