

## • Specific objectives and goals of the programme

The overall objective of the research programme is to analyse the importance of mental health in adolescence for well-being and health status into adult age. The proposed programme applies data from an outstanding 32-year prospective cohort study of school-leavers with uniquely high continuing participation rate. Our specific goals are:

1. To *develop an ecological life course framework* of mental health by conceptual integration of Bronfenbrenner's ecological theory of human development and life course epidemiology with individual level theories (agency within structures) and to apply this framework in our research.
2. To analyse perinatal (birth weight, small for gestational age, complications) and parental socioeconomic factors as *early predictors for mental health at age 16*.
3. To analyse the prospective *importance of mental health in adolescence* for the social situation (mainly education, labour market position, social relations) and health status in adult age.
4. To study the impact of *settings at specific ecological levels (or systems)*: microlevel settings (family, peers, school, work) and exolevel settings (parental labour market position, neighbourhood) on mental health at various ages as well as the interactions between settings at various ecological levels over the life course, taking changes at macrolevel (trade cycles, gender equality) into account.
5. To study different *life course models* (accumulation, social chain of risks and sensitive period) as possible explanations for the development of mental health up to middle age.
6. To identify *mental health trajectories* over the life course and to examine possible determinants of these trajectories at various ages.
7. To elucidate *individual experiences* of mental health-promoting and deteriorating processes over the life course with special focus on how individuals perceive their capacity to control and/or overcome mental health difficulties at various ages in different social contexts.

## • Overview of the research area and theoretical points of departure

Adolescence is a period of rapid biological, cognitive and psychosocial development. Decision-making and general cognitive abilities are comparable to adults but the paradoxical delay in development of the neurobiological inhibitory system exposes adolescents to engagement in risky behaviours.<sup>1</sup> Possible mechanisms for this increased vulnerability lie at the individual neurodevelopment level, at the microlevel by interference with education, social supports and social skills development and, from an epidemiological perspective, influences from the higher levels of human organization, such as availability of education and health care.<sup>2-4</sup>

Adolescent mental health, while intrinsically important to understand, also predicts mental health in early adulthood.<sup>3-5</sup> However, while this prediction is generally accepted the literature on this topic is surprisingly sparse. Previous research suffers from methodological shortages such as small and unrepresentative samples, limited follow-up time and high attrition rate in longitudinal studies. There is a need for prospective research of representative samples with high retention rate in order to gain knowledge about the impact of mental health in adolescence on how mental health develops (deteriorating, improving, stable) up to adult age, as well as about determinants which may be targets of intervention in adolescence.

Recent research on depression has emphasised the importance of focusing on the episodic versus the chronic nature of mental health symptoms from adolescence into adulthood<sup>6,7</sup>. This research has identified trajectories of changed mental health from adolescence but mostly in small, clinical samples and the follow-up is limited to young adulthood<sup>6-8</sup>. Little is known about how the trajectories develop in community samples as well as up to middle age. The predominantly descriptive focus of the trajectory research needs to be broadened to include both

health promoting and health damaging determinants. Our own research indicates the importance of psychosocial/material living conditions, social relations and labour market position.<sup>9</sup> The few papers highlighting determinants of trajectories are mainly constrained to the individual level or the closest sphere (self-esteem, behaviour, relations to parents, peers, family structure),<sup>6,7</sup> so a structural perspective incorporating the broader social context is needed. As Rutter concludes “Although there are many indications that causes may operate differently at different ages, we lack understanding of why and how developmental moderation operates. Research to find out is urgently needed.”<sup>10</sup>

Mental health in adolescence may also have long-term direct and indirect consequences for physical health in adulthood. The mechanisms may be neuroendocrinological, immunological and behavioural (such as poorer diet, less sleep and exercise, increased smoking and alcohol consumption) affecting the risks of developing adult physical disorders such as obesity, hypertension, diabetes and cardiovascular diseases. However, few studies are available within this field. In addition, early mental health problems may have long-standing social consequences, but these consequences are also poorly understood. While there are indications of negative mental health related selection into adult unemployment<sup>11</sup>, poorer ability to form supportive personal relationships<sup>4</sup>, and poorer educational achievement<sup>12</sup>, little is known about health selection into other forms of labour market career and into other important life circumstances such as pair-bonding. The mechanisms behind negative health selection are scarcely investigated. They could depend on both personal attributes as well as on constraints within social structures, such as discrimination against individuals with poor health, leading to an increased tendency to drift down the social scale.<sup>13</sup>

Life course epidemiology has developed as an interdisciplinary approach for understanding how exposure during earlier life could explain later development of diseases with focus on how biological, behavioural and psychosocial processes operate across the life span.<sup>14,15</sup> The following conceptual models have been proposed: 1. Accumulation of unfavourable environmental exposures during life as the main determinant of adult ill health. 2. Social chain of risk, emphasising the continuity of risk trajectories and circumstances over the life course, eventually affecting health. 3. A critical or sensitive period hypothesis, implying a stage in the individual’s development of increased sensitivity, in which the influence of external agents may have long-term effects on later health independent of later circumstances. For example, poor birth conditions such as preterm delivery, low or high birth weight, small for gestational age, low apgar score (a measure of the health of the newborn) and other neonatal complications increase the risk of health problems in adolescence such as mental health problems (both internalised and externalized) and functional limitations. There is a “preterm behavioural phenotype” characterized by an increased risk for symptoms and disorders associated with inattention, depression/anxiety and social difficulties.<sup>16</sup> Also, the socioeconomic status of parents is a major risk factor for mental health problems in children, but as most studies have been cross-sectional, longitudinal data is needed to evaluate long term prediction.

There are several limitations with the present status of life course research. The prime focus has been on physical disease risk in adulthood, whereas few studies have been performed with mental health as the outcome. A static approach, with health measured at one point of time in adulthood is predominant, rather than a focus on trajectories. Also, life course epidemiology has so far failed to take a contextual approach but has instead mainly dealt with the individual level.<sup>17</sup> Most importantly, while life course epidemiology acknowledges the complexity of individual and social life course processes relevant for health, it lacks a coherent theoretical framework to approach this complexity or to analyse individuals as active agents in their own lives.<sup>18</sup> Attempts

have been made to integrate ecological theory with social epidemiology, such as ‘eco-social theory’,<sup>19</sup> albeit so far neither life course perspectives nor mental health have been the focus in such conceptual developments.

In order to overcome these deficiencies we will contribute to theoretical development by combining life course epidemiology with Bronfenbrenner’s perspectives of the ecology of human development.<sup>20,21</sup> A central proposition in this theory is that young people make choices, act and develop within interacting settings on different ecological levels - microlevel (the immediate settings including the family of origin, the peer group, the work place), mesolevel (the interconnections among several settings at the microlevel) and its extension called exolevel, i.e. social structures which the young person is not actively involved in but which are of major importance for their development, such as the neighbourhood, the labour market. The position that the developing young persons and their family occupy at the macrolevel (the overarching institutional pattern of culture such as the political, economic, legal and social framework) is of key importance for living conditions. Last, the chronolevel encompasses the temporal dimension and the gradual and discrete changes of the context that occur over time, as well as the individual life history. The ecological model however fails to acknowledge the complexity of differential exposure across different life periods.

Incorporating an ecological approach into life course epidemiology can provide a tool to analyze how determinants in various settings and ecological levels can interact and differ in extent, expression and impact across the life span. Determinants at higher ecological levels may follow different pathways of mediation through settings at the microlevel at different life periods.<sup>22,23</sup> For a young person, the family might act as a buffer protecting from much of the hazardous exolevel and macrolevel influences.<sup>22,23</sup> However, these distal influences might operate through exolevel (e.g. parental labour market strain) and microlevel (e.g. parental-adolescent relationships) processes.<sup>24,25</sup> When reaching adulthood, distal and indirect influences stemming from higher ecological levels might prove to have a stronger impact.<sup>23</sup> Therefore, a combined framework is vital in order to analyze the importance of influences (and interactions between them) from various settings and different ecological levels, across time. Determinants in various settings and ecological levels may accumulate across the life course to result in negative adult health effects, they may interact to make a mark on the individual in youth which has effects on later health and social situation (sensitive period); and they may set the individual off on an unfavourable life course (social chain of risk).

Further theoretical development is also needed on *the individual level* in the ecological life course model. Throughout the life course, people pass through different stages or transitions, both developmental and related to significant life events which all can be of major importance for the development of mental health. There is a need for deeper knowledge about individuals’ understanding of their mental health development over the life course and about how people handle life transitions, critical events, adversities and turning points. Central here are understandings of the choices that people consider, their sense of control, individual resources (inner and outer), vital decisions, actions and how they manage challenges over the life course in relation to mental health development. Missing from the literature is empirical research about agency within structures,<sup>26</sup> i.e. how individuals act within (or despite) social settings. Individuals use resilience (successful adaptation or change in the face of adversity), agency (the capacity to influence the outcome of events) and resistance to negotiate, challenge and transform their contexts and the surrounding intersecting power-structures (related to gender, social class and ethnicity). Qualitative research is required for theoretical development on the individual level to further increase our in-depth understanding of mental health-promoting as well as health-

deteriorating processes including how individuals perceive their capacity to control and/or overcome mental health difficulties over the life course in relation to social contexts.

## • Methods

### **Population**

The Northern Swedish Cohort (NoSCo) - a prospective longitudinal cohort study - is the base of the application (see the figure below). The cohort consists of all pupils (n=1083) who in 1981 attended the last year of compulsory school (age 16) in all nine schools in a middle-sized municipality in Northern Sweden. At the 27-year follow-up 94.3% (n =1010, 522 men, 488 women) of those still alive of the original cohort continued to participate. All nine school nurses and 56 form teachers in 1981 as well as all form teachers (or the supervisors for those in youth programmes) in 1983 were also part of the study. None of them refused to participate.

For qualitative analyses, two subsamples from the cohort will be analysed. For the 1<sup>st</sup> subsample a strategic selection (in relation to gender, ethnicity and socioeconomic status) will be made of participants in each of the identified life course trajectories of mental health. The 2<sup>nd</sup> subsample consists of a follow-up of participants from an ongoing prospective qualitative sub-study. The latter sample (with the worst initial mental health of the cohort) consists of everyone (including those leaving school prematurely) who became unemployed directly after compulsory school (n=13 girls, 15 boys) in 1981. All but one of them still participated in the cohort in 2008.

### **Performance**

As shown in the figure, the cohort has so far been followed up five times with extensive questionnaires. The questionnaire (built on well-known and validated scales<sup>9</sup>) covered the broad areas of somatic and mental health, externalising behaviours, other health behaviours, exhaustion, time of puberty, school/work environment (including the demand, control, support model), labour market history and position, education, material and psychosocial life conditions (such as financial strain, social support, life events, gender equality), spare time use etc.<sup>9</sup> An inventory of mental health<sup>9</sup> was added to the questionnaire at age 16 and 21.

The 2<sup>nd</sup> subsample (with early unemployed participants) has been followed with personal interviews since autumn 1981 until age 43. On average, they have been interviewed five times per person with a main focus on experiences of health promoting and health deteriorating mechanisms related to labour market position and social relations across life.

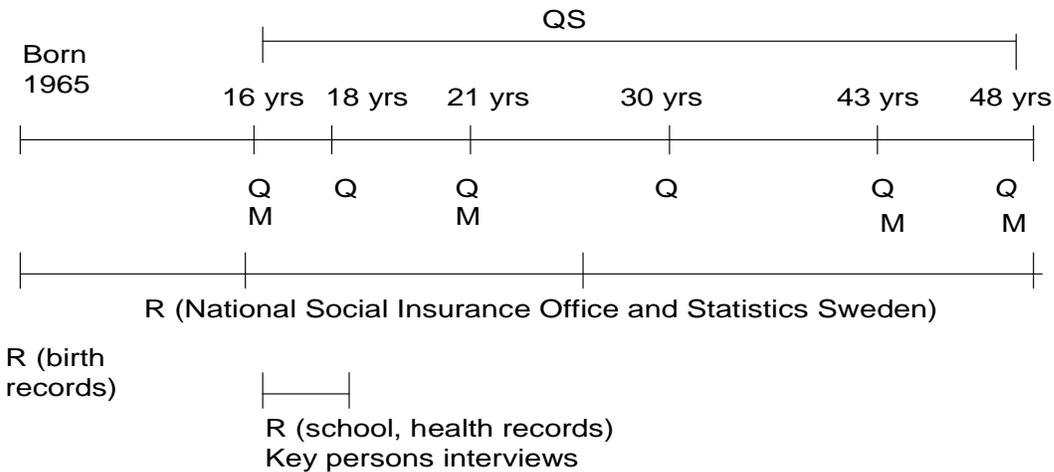
The teacher interviews, inspired by Rutter's Teacher Questionnaire<sup>27</sup>, covered information about the class and about each pupil: intellectual capacity, performance, fine/gross motor ability, problems with reading/ writing/speech, family problems, externalised and internalised behaviour including criminality, alcohol consumption, drug use as well as assessment of tiredness, depressiveness, passivity, silence, aggression, insecurity, isolation and popularity. The school nurses were interviewed about illness or handicap of each pupil including information about taking part in pupils' well-being meeting. All diagnoses from school health visits and referrals during the last three years of compulsory school were collected from the school health records.

#### *Available biomedical measurements*

Blood pressure was measured after rest with standard mercury sphygmomanometer at age 16, 21 and 43. Information on weight and height is available from all follow-ups. The most recent clinical survey at age 43 comprised a health examination (92% participation rate, n=928) with blood samples (drawn after one night's fast), assessed for lipids (total cholesterol, HDL, LDL cholesterol, triglycerides, Apo lipoprotein A1 and B), glucose and high-sensitive C-reactive protein. The participants also completed a one-day saliva collection (four samples) assessed for

salivary cortisol. Serum and plasma samples have been stored at the biobank at Umeå University Hospital, frozen at minus 80 degrees Celsius for future analyses.

Figure. Design of the Northern Swedish Cohort incl. planned data collection



QS= qualitative sample, Q = questionnaire , R = register data, M=measurements

*Available register data (school health record data is described above)*

Register data on the following five items have been added to the cohort:

1. Manual record of data from participants' own birth: height, weight, physical status, gestational age, malformations. Data about the mother: age, parity, diseases, complications during delivery.
2. Manual record of grades, information about the classes, study programmes and schools.
3. From Statistics Sweden from the start of the register in 1991 until the end of 2007: employment, number of days (gross, net) per year in allowances due to parental leave, temporary parental leave (due to care of sick children), sick-leave, rehabilitation, work injury, preventive sick leave, unemployment and labour market measures.
4. From the National Social Insurance Office for all available years between 1981-1990: annual information about civil status, number of days in parental leave and in sick-leave.
5. From Statistics Sweden (2003-07) - information about all employees (n=134 450) at all workplaces (n=639) of each cohort participant: sex, age, income, education, type of workplace, number of days per year in allowances due to parental leave, temporary parental leave and sick-leave.

#### *Planned data collection*

A new follow-up of the cohort is planned in 2013 at age 48, 32 years after the first investigation containing a similar questionnaire as earlier with stronger focus on mental health outcomes including sense of coherence, family and work-life function, health-related quality of life (SF36), stress-related disorders as well as additional information about exposures to severe life events during childhood and parental history of diseases. The clinical investigation will include the same measurements as at age 43 as well as other metabolic risk markers (Haemoglobin A1c, alanine aminotransferase, creatinine, micro-albuminuria, pro-inflammatory cytokines, DHEA-s and IGF-1). We will also include a short, structured diagnostic screening for DSM-IV and ICD-10 (the Mini-International Neuropsychiatric Interview -M.I.N.I.<sup>28</sup>), which covers most psychiatric disorders.

The following *register data* will be added up to age 48:

*Individual level*: Patient register (diagnoses of hospital admissions since birth), pharmaceutical register (available from 2005). Register data on item 3 above (as seen below, corresponding register data on workplace, family and neighbourhood levels are also collected).

*Workplace* (microlevel): For item 5 above, register data will be collected from the start of the register (1991).

*Family* (microlevel): Census data about socioeconomic and material conditions (parental and later own occupation, family composition, housing, immigration) available from 1965, 1970, 1975, 1980, 1985 and 1990 as well as yearly household income variables.

*Neighbourhood* (micro- and exolevel) characteristics will be measured by register data from Statistics Sweden, aggregated by Small-Area Market Statistics from 1965 and onwards for each participant's yearly neighbourhood: income, wealth, educational level, unemployed, public assistance, single parents, socioeconomic status, housing quality, residential crowding, type of residence, proportion of moves last year and population density.

Thus, the programme will (with our various data sources) provide opportunity to analyse the main settings and ecological levels: besides the individual level also the microlevel (family of origin, school class, peer group, own family, work place), the mesolevel (interactions among microlevel settings) and the exolevel including parental, own and partner's labour market position and work sector as well as aggregated characteristics about the schools such as grades and about the neighbourhood. Macrolevel changes over time, which can have stronger negative effects on individuals with previous mental health problems,<sup>29</sup> will be measured with national/regional trends in unemployment and gender equality (measured with an index from Statistics Sweden) and also in relation to alterations of national policies such as social insurances during the study period.

Thematic individual interviews will be performed with the participants of the two subsamples. For the 1<sup>st</sup> subsample, life-history interviews will be performed. For the 2<sup>nd</sup> subsample follow-up interviews will be made with reflections (interviewer and participant together) on earlier interviews in relation to mental health development. The main topic for both subsamples will be experiences of transitions and mental health development over the life course with special focus on individual resources within structures. Data collection, analyses and result presentation will use accepted procedures to ensure trustworthiness and scientific rigour.<sup>30</sup>

### **Measures of mental and physical health at different ages**

Both internalised symptoms and externalised behaviour will be included as measures of mental health. Due to the need to keep statistical power in our quantitative analyses we will mainly analyse symptoms of depression and anxiety as internalised symptoms. Mental health will be measured comprehensively with symptoms (mainly anxiety, depressive symptoms, tiredness, sleeping problems), behaviour (mainly alcohol and drug use, truancy, criminality) and self-report scales<sup>9</sup> (life-satisfaction, self-worth, anxiety, depression, psychosomatics, anomie, GHQ12, SF 36 and emotional exhaustion based on Maslach MBI-GS), a clinical screening interview<sup>28</sup> and register data about medication and hospitalisation. Through the close contact between the PI and the cohort participants, we also have clinical assessments about psychosis and other severe mental disorders. As recommended we included information about adolescence (at age 16 and 18) from different sources (including school health records, interviews with form teachers and school nurses). Physical health will also be measured with data from these informants as well as with questionnaire data and biomedical measures. With qualitative methods we will broaden our view of various expressions of mental health.

## **Work plan**

Theory building (*goal 1*) will be undertaken in a double theorizing process carried out through two different but parallel approaches: analyses of theoretical texts and theoretical development through empirical analyses of our other goals. These two processes will deliver partial knowledge which will be concurrently linked together and finally integrated at key junctures of theorisation. The influence of perinatal factors on adolescent mental health (*goal 2*) will be analysed with multivariate regression analysis and structural equation modelling (SEM). While socio-demographic and perinatal risk factors are often studied separately and in certain age groups, we will be able to analyze combinations of risk factors in youths as well as in adults. The associations between adolescent mental health and adult well-being and health (*goal 3*) will be analysed with mixed models. The analytic strategy for *goal 4* will be multilevel analyses of settings on various ecological levels (distinguishing between independent, combined and cross classified models) based on mixed models, including analyses of interactions between variables on various settings and levels at different points of time. Cross classified models can be used to estimate the independent contribution of each setting at different time points through the life course.

The impact of the life course models (*goal 5*) can be distinguished by analysing binary exposure in a set of nested models which we compare with a saturated model in multivariate regression analyses.<sup>31</sup> Trajectory analysis (based on semi-parametric modelling, estimating polynomial coefficients with parametric methods for developmental trajectories) will be used for studying individual developmental courses over time (*goal 6*). A statistically slightly more advanced approach under structural equation modelling is to capture the within-individual variation by random effects (or by latent factors). This latent growth mixture modelling provides means to examine the conjoint trajectories of various mental disorders, their connections to various determinants and their interactions over time. In more traditional SEM it is also possible to define and test the relations of latent factors arising from different insights of mental health theories. The main *determinants* of interest are psychosocial and material conditions, social relations and labour market position. Agency will be measured quantitatively with self-perceived control over life (including work), job-seeking activities and socially supportive networks of relationships

*Goal 7* will be analysed with well-established qualitative methods, mainly qualitative content analyses,<sup>30</sup> commonly used in health research and developed by the applicant Berit Lundman. Content analysis is a method for analyzing written or verbal communication in a systematic way.<sup>32</sup> The method is useful in analyses of individual experiences and reflections over the life span.

## **Methodological considerations**

A mixed method approach, combining qualitative and quantitative methods, will expand the theoretical understanding of mental health development over the life course. Mixed methods have been chosen in order to expand knowledge about individuals' capabilities and experiences within structures during their lives, as well as to generate generalised knowledge about mental health development to a wider population.

The main strengths of the NoSCo are that it is a long-term prospective school leaver study with very low overall dropout rate, and rich data from multiple sources on health and social circumstances in adolescence. The long follow-up of 32 years, also including register data from birth until adult age as well as repeated interviews provides unique methodological advantages. Even though it is never possible to know about the participation rate in advance, we see no reason

why it would decrease drastically at the planned follow-up. In addition, the sample has been shown to be approximately representative of the inhabitants born in Sweden in 1965.<sup>9</sup> These strengths confer a number of advantages of particular value for the study of the development of mental health from adolescence into middle age. Chief among these advantages is that we are able to examine a group of people who are notoriously difficult to study in both epidemiological and clinical studies, namely those whose mental health interferes with their everyday functioning, including their ability or willingness to answer questionnaires, yet for one reason or other have no recorded health care utilisation related to mental health. In the NoSCo, relentless work to track participants and visit them also in settings such as prisons, hospitals and shelters for the homeless, means that health and social circumstances in this gray zone can be captured.

Another major strength is that since the cohort is based on the entire population of school leavers in one year in a medium sized Swedish city, there are good possibilities to match persons who later are impacted by poor mental health with others exposed to very similar ecological circumstances. Among other things, this gives researchers unique possibilities to study factors which might enhance individual resilience - why some people do well even though many of their peers in similar circumstances are doing badly.

A further strength is that the data from adolescence comes from different, independent sources such as the participants themselves, their teachers and school nurses as well as clinical observations from the PI. This means that also relatively hidden mental health problems are likely to be detected. Together with the extensive data on psychosocial circumstances in adolescence, this means that the importance of adolescent mental health for adult adjustment and health can be studied in an unusually reliable way.

A prerequisite for the high quality of our data (including the low attrition rate) was that the cohort had to be limited in size which will reduce the statistical power. We are aware that the given sample size restricts the degree of complexity of our analyses. However, our planned models will be restricted in relation to the number of variables as they will be based on factor and cluster analyses. Also, interaction analyses will be performed with mixed models which decrease the impact of missing values. Thus, we expect to minimise the type 2 errors and capture the most important relationships.

A problem which always has to be addressed is related to analyses of determinants and causality. However, the NoSCo includes unique information about possible moderators and determinants throughout the life course, which makes it possible to take cohort- and period effects as well as selection mechanisms into account.

#### • Ethical considerations

All earlier research within the NoSCo has received ethical approval. A new application will be sent to the Regional Ethics Vetting Board in Umeå for the planned data collection. Our research fulfils the ethical rules. The demand for openness is provided for by information to all participants about each step of the study. The demand for self-determination is provided for through guaranteeing that no dependent relation exists between the participants and the researcher as well as through providing each participant with oral and written information about the project and the voluntary nature of participation. The demand for confidentiality is provided for by strict professional secrecy while working with personal information. The demand for autonomy is provided for by only using personal information for this research purpose. When publishing the results, the participants cannot be recognised. Popular science reports in plain language have regularly been sent to the participants.



## The societal value of the research

In a society where the future to an essential extent is formed by the young individuals of today, it is of utmost importance to identify those determinants that will affect their health, from adolescents to adulthood. Mental health is one of the most significant health problems worldwide and an improvement will substantially lower the burden of disease in society. Research with a focus on determinants of mental health could give us potential tools to guide health promoting work in different settings (school, workplace, and neighbourhood) and on various ecological levels throughout the life course by identifying circumstances that will affect the development of mental health in both positive and negative ways. By providing detailed knowledge about the relation between the determinants and mental health, taking different types of interaction into account, it would be possible to tailor interventions that with high precision will target especially vulnerable groups and thereby possibly also diminish the health divide in society.

### • Plan for communication with stakeholders/end users

The target audience for communication of results outside academia is policy makers on various levels, professionals who work with young people, nongovernmental organizations (such as the Swedish National Association for Social and Mental Health and student organisations) and the general public. The key policy makers are the Ministry of Health and Social Affairs, the National Board of Health and Welfare, the National Institute of Public Health, the Swedish National Board for Youth Affairs, Swedish Association of Local Authorities and Regions.

These stakeholders will be reached through various strategies. From Year 3 of our programme we will invite representatives to open seminars during our workshops coupled with oral presentations at key authorities and non-profit organizations. From then, our web page will also be a quick and efficient way to disseminate summaries of our publications as well as information about various activities such as seminars. The webpage will in addition to presenting research results also function as a platform providing access to information on youth and mental health for both researchers and professionals. This will occur through recorded lectures on different topics relating to youth and mental health as well as through a collection of resources and links to current national and international research within the field. In addition, professionals will be reached through press-releases to branch-specific magazines for teachers, social workers, medical doctors, nurses, psychologists, the legal profession. The research group has extensive and successful experience of the third task of the university, i.e. to disseminate our research findings in various ways to stakeholders.

### • A brief description of collaboration with foreign researchers/research groups

The research group has extensive national and international collaboration in relation to important topics of this programme, including mental health at young ages (Charles E Cunningham) and at working age (Jussi Vahtera, Mariana Virtanen, Archana Singh-Manoux), social determinants of mental and somatic health in a life course perspective (Michael Marmot, Robert Karasek, Lisa Berkman, Jeffrey J Johnsson, Mika Kivimäki), and genetic epidemiology (Paul Franks, Nicholas Wareham). Helen Winefield is engaged in longitudinal research on several Australian cohorts of school-leavers with good possibilities of comparisons with the NoSCo. Comparison with a cohort of the same age from the Finnish HeSSup Study will also be possible through our co-applicants Pekka Virtanen and Tapio Nummi with collaborators.

### • Gender aspects

There are well-known gender- and age-related differences in mental health, with higher prevalence of internalised symptoms among girls/women and externalised behaviour among

boys/men. Boys tend to have more mental health problems in younger ages, while girls' problems dominate from adolescence throughout adult life. From our own research we know that expressions and understandings of mental health are both gendered and contextualised.<sup>33</sup> Since the beginning of the 1990's, there seems to be an increase in mental illness (except psychosis) in Sweden, especially among young women which needs to be better understood. The research group has a leading competence in gender research, for example being awarded a program grant for developing gender theories, and will use these theories –mainly about gender order and intersectionality - in interpretations of our qualitative analyses in particular.

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