

Final report for the Stockholm Stress Center Graduate School



Stockholm Stress Center

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1 Organization of the Graduate School

The Graduate school was a part of the Stockholm Stress Center (SSC), an interdisciplinary “Centre of Excellence” for research on work, stress and health that started in 2009. With its interdisciplinary approach, the SSC brought together senior and junior researchers with a variety of backgrounds, different perspectives and research approaches. In 2012, we successfully applied for the formation of a Graduate school that enabled us to develop a PhD-program in order to bridge the gap between disciplines, and foster a new generation of researchers in the area of work, stress and health, making use of the unique possibility to form an interdisciplinary learning environment.

The FORTE-financed Graduate school on work, stress and health and performance was formed in close cooperation with two other partners, namely the FORTE-financed center “The Body at Work – from Problem to Potential” at the Centre for Musculoskeletal Research (CBF; Centrum för belastningsskadeforskning), University of Gävle and the Centre for Health Equity Studies (CHESS), Stockholm University and Karolinska Institutet.

The Graduate School started in early 2013 and was run until the end of 2018, when the funding ended. Throughout these years, the Graduate School was managed by a co-ordinator. From 2013 to 2017 Associate Professor Erik Berntson, senior lecturer and researcher at the Department of Psychology, Stockholm University was appointed co-ordinator, and 2015-2017, this responsibility was shared with Dr Lena Låstad (now senior lecturer at the Department of Psychology, University of Gothenburg). From early 2017 until its end, Associate Professor Claudia Bernhard-Oettel, senior lecturer and researcher at the Department of Psychology, Stockholm University took on the role as co-ordinator for the Graduate School.

The co-ordinator of the Graduate School was also co-opted member of the SSC steering committee. This means that the Graduate School was a regular item on the meeting agenda of the steering committee so that this committee was informed on a regular basis, and had the opportunity to discuss upcoming issues and planned activities together with the co-ordinator, who acted as link to the doctoral students.

2 Aims and strategies for the Graduate School

2.1 Overall and specific aims

The overall aim of the Graduate School was to provide a teaching-learning environment in which PhD students ha meet and learn from leading researchers in a wide range of disciplines including ergonomics, epidemiology, occupational health physiology/endocrinology, psychology, , public health, and sociology.

As stated in the application, the PhD program was supposed to address the shortage of interdisciplinary research within the area by identifying existing high-quality courses and developing new courses and workshops supporting a cross-disciplinary approach to work-related stress, health and performance.

More specifically, the Graduate School aimed at:

- i) delivering courses that enhancing PhD students' abilities to independently and critically synthesize the complex relationships between work environment, stress, health and performance
- ii) through teaching of state-of-the-art research methods and statistics provide PhD students with scientific tools for identifying, researching and evaluating questions of relevance to the field using a cross-disciplinary approach
- iii) enhancing PhD students' abilities to present and discuss their research with researchers, practitioners and policy makers in national and international settings and to support the learning of others.

2.2 Strategies to achieve these aims

Different strategies have been used to achieve the aims. First of all, the role of the co-ordinator has been central for the practical management and organization of the Graduate School. The co-ordinator was responsible for building and maintaining information channels (website, mailing-lists, newsletters) to reach PhD students at the different partner institutes and universities (CBF, CHESS; KI, SU). The co-ordinator also worked continuously to get new PhD students interested and involved in the Graduate School, and updated information about the number of PhD students in the Graduate School, their progress and foci of their PhD projects, to tailor activities and courses to existing needs and interests.

Courses were given at the different nodes of SSC and collaborative partner centers so that PhD students got valuable expertise knowledge on a variety of topics within their research fields. Also, courses were organized in collaboration with different partners, and by inviting international experts of the field. Furthermore, a number of method courses were given to make sure that PhD students in the Graduate School get training in state-of-the-art research methods and statistics to adequately address their research questions.

Also, annual PhD meetings were organized for participants to learn about the PhD projects of the students of the Graduate School. Several workshops, journal clubs and trainings were organized to provide possibilities to develop other important generic skills, such as presenting results, discussing and reflecting about them, or taking care of one's networking and career management.

A very important aspect of reaching the aims of an interdisciplinary approach was to provide a meeting arena for different disciplines, research interests, methods and units of inquiry (ranging from a cell to the individual, to society and national levels). In all courses and activities, a range of students, with different topics, educational backgrounds, affiliations and supervisors interacted. Also, the PhD students were in different stages of their PhD projects and these aspects worked as facilitators for a dynamic multi-disciplinary learning environment, which was much appreciated by both students and teachers.

Since the PhD students in the graduate school were based at different SSC partners and collaborative partners CBF and CHESS and thus were geographically and organizationally spread, an important step of the organization was to develop an infrastructure for continuous contact and information sharing.. First, a web page was set up (<http://www.idear-net.net/ssc/>) in which the graduate school was made visible and where news and information on upcoming courses and events were uploaded.

Second, the coordinator organized all contacts to PhD students through newsletters and e-mail communication. Third, for physical meetings, particularly for PhD students from outside Stockholm, it was possible to get funding so that contact and co-operation was not hindered by geographical distance. Fourth, the graduate school coordinator made use of the direct contact to all members in the steering committee to communicate information to and from the different SSC nodes. For example, such information included news on interesting workshops, seminars or courses that each node organized, and considered valuable for all PhD students in the Graduate school. Additional issues included dissemination of information on half-time seminars or defenses by PhD students actively involved in the Graduate School. Other important information that was spread via these channels related to the courses, workshops, journal clubs, and annual PhD days organized as activities specifically within the Stress Center Graduate School (see below).

3 Activities of the Graduate School 2013-2018

Ideas for new courses were discussed with the PhD students, who were active in suggesting topics for PhD courses and in communicating the kind of skills they would like to learn or develop further.. All courses and activities were developed in collaboration of the partners in the Stockholm Stress Center. Focus and content of the courses was discussed in the steering group but essentially developed and planned by each course leader, often in cooperation with the Graduate School Coordinator. Since the Graduate School itself had no examination rights, it was ensured that the learning goals in each course, as well as the course credits provided on successful completion of the course met standards for PhD courses set by Karolinska Institutet, Stockholm University and Gävle University.

3.1 PhD courses and work shops

The aim of the Graduate School was to set up 1-2 courses or workshops every term. Over the five years that the Graduate School existed, this goal was reached; a total of 18 PhD courses and/or workshops were organized. These courses and workshops focused on academic knowledge, skills and abilities related to the broad and interdisciplinary research field of stress, as well as knowledge, skills and abilities related to scientific research methods and data analysis. For successful completion of PhD courses, course credits were given in accordance with the course plans that had been approved by the university at which the course took place. Participation in workshops did not lead to course credits, instead, participants received a course certificate. Courses were offered to all PhD students of the Graduate School and, if places were available, also to other PhD students or post-graduate and more senior researchers of the Stockholm Stress Center. An overview over all given PhD courses and Workshops is given in Table 1.

Table 1. PhD courses and Workshops 2013-2018

Course	Course Leader/examiner	Participants
2013		
Sickness Absence Research: Theories Methods, and Concepts (4.5 Course credits)	Prof K. Alexandersson, KI	15
The Psychology of Stress and Sleep (3 Course credits)	Prof T. Åkerstedt, SU	18
2014		
Applied Psychoneuroimmunology (6 Course credits)	MD A. Andreasson, prof M. Lekander, SU/KI	10
Life Course Trajectories – Methods and Applications in Public Health Research (6 Course Credits)	Prof H. Westerlund, SU	16
Introduction to functional brain imaging (3 Course credits)	MD G. Nilsson, SU	19
Workshop Oral Presentation	Aleksandar Djordjevic	6
Evaluating organizational interventions (7.5 Course credits)	Prof K. Nielsen (UK)	17
Journal Club (3 Course credits)	Ass Prof E. Berntson (SU)	10
Workshop Mplus SEM	Dr C. Stride (UK)	18
2015		
Sickness Absence Research: Theories Methods, and Concepts (4.5 Course credits)	Prof K. Alexandersson, KI	16
2016		
Human Chronobiology and Working Life (1.5 Course credits)	Ass Prof A. Lowden, SU Ass Prof C. Moreno (BR)	15
Work, stress, and health: Psychological perspectives on mobility and embeddedness in working life (7.5 Course credits)	Prof M. Sverke, SU Dr H. Falkenberg, SU Ass Prof J. Hellgren, SU	10
Workshop Multilevel modelling	Prof P. van der Heijden (NL)	18
Research Ethics, open science and reproducible research (4.5 Course credits)	Dr Gustav Nilsson, SU	8
2017		
Growth modelling (1.5 Course credits)	Ass Prof C. Bernhard-Oettel, SU Dr Yannick Griep (CA) Prof Tim Vantilborgh (BE)	15
Psychoneuroimmunology (3 Course credits)	Dr B. Karshikoff, KI Prof M. Lekander, SU/KI	20
An introduction to modern methods for causal inference (1.5 Course credits)	Ass Prof L. Magnusson Hanson, SU	16
2018		
Sickness Absence Research: Theories Methods, and Concepts (4.5 Course credits)	Prof K. Alexandersson, KI	13
Interdisciplinary perspectives on work, stress, health and performance: Part I (3.5 Course credits)	Ass Prof E. Berntson, SU Ass Prof C. Bernhard-Oettel, SU	11
Interdisciplinary perspectives on work, stress, health and performance: Part II (4 Course credits)	Ass Prof E. Berntson, SU Ass Prof C. Bernhard-	9

3.2 Annual PhD days and workshops for generic skills

Every year during the fall term, a PhD day was organized so that PhD students within the Stockholm Stress Center Graduate School had a chance to meet, exchange ideas, as well as present and discuss their PhD projects. When the Graduate School was newly established, more time was allocated for PhD students in the network getting to know each other, and learning about each other's PhD projects. In later days, from 2016 and onwards, the PhD days also included half-day workshops or seminars on important issues related to PhD studies, such as grant application writing, career planning and career tracks inside and outside of academia, as well as written communication of research in popular media for non-academic audiences. The Graduate School Coordinator organized and led these PhD days and also attended all the meetings. In addition to the PhD day, PhD students also participated and presented abstracts in the annual workshop of the SSC, which was organized back-to-back with the PhD day. Table 2 gives an overview over all PhD days that were organized for the Graduate School.

Table 2. List of PhD days 2013-2018

PhD days	Course Leader	Participants
8-9 October 2013	Two days meeting PhD theses work presentations	26
2 September 2014	One day meeting with oral presentations	25
9 September 2015	One day meeting with group work on PhD thesis projects	17
6 September 2016	One day meeting, PhD theses work (presenter for own work, discussant for a peer) Seminar on Funding applications and career tracks in and outside of academia	25
13 November 2017	One day meeting, workshop on popular communication of research results (in Swedish)	17
19 September 2018	One day meeting, Poster presentation of recent study, Seminar on Career Planning for the time after PhD defense	15

3.3 Töres Theorell Young Investigator Award

Töres Theorell's young research award recognizes an outstanding research effort by a young investigator studying key research topics represented within Stockholm Stress Center. The basis for evaluation of candidates is a single publication accepted in a peer-review journal in the previous year, and the price winner should be first author to this publication. The Coordinator of the Graduate School called for nominations of candidates and each node sent a short text presenting the candidates work and a motivation for nomination together with the published study to the coordinator. All nominees presented their work on the annual SSC meeting, and the coordinator of the Graduate School, together with Töres Theorell, organized this presentation and price awarding

session. The award consisted of 15 000 SEK to be used for participation in a scientific conference or a visit to a research group or laboratory outside Sweden. The Töres Theorell price was awarded from 2015 and onwards. Table 3 gives an overview of the award recipients.

Table 3. Awardees: Töres Theorell Young Investigator Award

Year	Award winner	Research contribution ^a
2015	Bianka Karshikoff	Karshikoff, B., Lekander, M., Soop, A., Lindstedt, F., Ingvar, M., Kosek, E., Olgart Höglund, C. Axelsson, J. (2015). Modality and sex differences in pain sensitivity during human Endotoxemia. <i>Brain, Behavior and Immunity</i> , 46, 35-43.
2016	Domitilla Di Thiene	Di Thiene D., Alexanderson K., Tinghög P., La Torre G., & Mittendorfer-Rutz E (2015). Suicide among first-generation and second-generation immigrants in Sweden: association with labour market marginalisation and morbidity. <i>Journal of Epidemiology and Community Health</i> , 69(5):467-73.
2017	Helena Schiller	Schiller, H., Lekander, M., Rajaleid, K., Hellgren, C., Åkerstedt, T., Barck Holst, C., Kecklund, G. (2017). The impact of reduced worktime on sleep and perceived stress – a group randomized intervention study using diary data. <i>Scandinavian Journal of Work, Environment and Health</i> , 43(2), 109-116.
2018	Johanna Stengård	Stengård, J., Bernhard-Oettel, C., Berntson E., Leineweber, C. (2017). Stuck in the job: Does helplessness precede being locked-in at the workplace or vice versa? An analysis of cross-lagged effects. <i>Journal of Vocational Behavior</i> , 102 (3), 15-27.

^aSince the evaluation criteria was that research had been accepted the year before the award, year of publication can be the previous or same year of award.

3.4 Other activities

As part of the Graduate School, PhD students could also get grants for international research visits for active participation in international conferences, or for working and co-operating with scholars outside of Sweden. Other activities also included a Sleep and stress symposium (organized by T Åkerstedt and the Association for Swedish Sleep Research), a symposium on “Imaging the Sleepy Brain” (organized by T Åkerstedt as part of of a research course with the same name) and a research visit by Ass Prof Pascal LeBlanc, NL, for supporting and teaching PhD students in organizational interventions. Furthermore, the Graduate School made it possible for PhD students to apply for funding to get individualized statistical guidance if they needed help with advanced statistical methods for their PhD work. PhD students had to apply for such guidance and were required to define the statistical problem based on the PhD project, to suggest a relevant method and to invite other PhD students to take part in the learning process. This could be done in collaboration with the

supervisor and a statistician. Statisticians could be chosen from the list provided by the Graduate School, alternatively, a statistician with expertise in the specific method could be suggested to the coordinator of the Graduate School.

4 Doctoral students in the Graduate School

Throughout the years, the number of PhD students that were part of the Graduate School varied between 47 to 83 students, 25 men and 58 women. To date, 36 PhD students have graduated¹ and left the Graduate School. Forty-seven students were still registered as active PhD students in the SSC network at the end of 2018, when the Graduate School ended.

Courses and workshops could also be attended by other students not part of the SSC network. This means that many more than these 83 students have contributed from the activities in the SSC Graduate School. Mainly, these were PhD students from other Swedish universities, but to some extent, international PhD students, who were on longer research visits in Sweden, also participated in the Graduate school.

5 Teachers in the Graduate School and evaluation of overall course quality

Teachers in the Graduate School mainly worked with one of the partners in the SSC network, were experts in their fields and often recognized internationally. For all PhD courses in which course credits were given, the course leader/examiner had to be employed at one SSC partner university with examination rights. In a number of courses, international scholars were engaged as guest teachers to make use of their internationally recognized expertise and to facilitate networking. In sum, these strategies helped us to establish high quality of teaching in each of the courses given.

The Graduate School used several means to evaluate the quality of all activities offered to PhD students. Predominantly, this was done through course evaluations, but also through discussions and direct interaction with PhD students and the coordinators of the Graduate School, for example during PhD days. In general, course evaluations were very positive and many of the PhD students appreciated the possibilities to meet many different teachers, national as well as international specialists, and the possibilities to discuss their research with fellow students with similar research foci, but different disciplines.

¹ with very few exceptions

During the final PhD day and the closing session, it was also pointed out that workshops for generic skills with training opportunities for presentations or communication had been of great value to prepare students for future work tasks.

6 PhD theses 2013-2018

Department of Psychology, Stockholm University.

2013

Folkesson Hellstadius, L. Psychobiological functioning in mid-adolescent girls and boys: Linkages to self reported stress, self-esteem and recurrent pain.

Schraml, K. Chronic stress among adolescents: Contributing factors and associations with academic achievement.

Stenfors, C. Subjective cognitive complaints in the working population: The influence of objective cognitive functioning and working conditions.

2014

Hansen, N. Arbetsvillkor i privat och offentlig sjukvård: Implikationer för personalens attityder och hälsa.

2015

Annell, S. Hållbar polisrekrytering: Teoretiska, metodologiska och praktiska perspektiv på rekrytering och urval.

Eib, C. Processes of organizational justice: Insights into the perception and enactment of justice.

Låstad, L. Job insecurity climate: The nature of the construct, its associations with outcomes, and its relation to individual job insecurity.

Mattson, M. Promoting safety in organizations: The role of leadership and managerial practices.

Seddigh, A. Office type, performance and well-being: A study of how personality and work tasks interact with contemporary office environments and ways of working.

2017

Nylén, E. C. (2017) Psykosocial arbetsmiljö i välfärdssektorn: Krav i arbetet, resurser i arbetet och personliga resurser samt betydelsen av organiserade arbetsmiljöinsatser.

2018

Stengård, J. (2018). Being stuck in the workplace : Who is locked-in and what are the implications for well-being and health?

Division of Insurance Medicine, Karolinska Institutet

2013

Nilsson, M. Psychosocial situation and work after breast cancer surgery – women's experiences.

Samuelsson, Å. Risk factors for disability pension: Studies of a Swedish twin cohort.

2015

Wang, M. Sickness absence – subsequent psychiatric morbidity and suicidal behaviour.

Zetterström, K. Disability pension among patients undergoing coronary revascularization.

2017

Kvillemo P. Coping and stress management training with special focus on women with breast cancer.
Mather L. Burnout and sick leave due to mental disorders: heritability, comorbidity, risk factors and adverse outcomes.

Rahman S. Disability pension due to common mental disorders – subsequent psychiatric morbidity and suicidal behaviour.

Wiberg M. Development of income following sickness absence from the workplace or long-term unemployment, and among individuals with Multiple Sclerosis.

Division of Psychoneuroimmunology, Karolinska Institutet**2015**

Karshikoff, B. Sickness Behavior: Immune System Influences on Brain and Behavior.

Kemani, M. Efficacy and Processes of Change in Acceptance and Commitment Therapy for Chronic Pain.

Sundelin, T. The face of sleep loss.

2016

Rosén, A. Placebo effects in health and disease - How expectations shape treatment outcomes.

2017

Kanstrup, M. More than pain - assessment and treatment of pain-related dysfunction in pediatric chronic pain.

2018

Lodin, K. Inflammation and subjective health: the role of sickness behavior.

Salomonsson, S. CBT in primary care - Effects on symptoms and sick leave, implementation of stepped care and predictors of outcome.

CHESS and Stress Research Institute, Stockholm University**2017**

Schiller, H. How to work for a good night's sleep.

Bokenberger, K. The role of sleep and shift work in dementia and cognitive aging: An epidemiological approach.

Centre for Musculoskeletal Research, University of Gävle**2013**

Hallman, D. Autonomic nervous system regulation in chronic neck-shoulder pain

2014

Rudolfsson, T. Sensorimotor control and cervical range of motion in women with chronic neck pain

2015

Nordlöf, H. Prerequisites and possibilities for manufacturing companies to prioritize and manage occupational health and safety

2016

Zetterberg, C. The impact of visually demanding near work on neck/shoulder discomfort and trapezius muscle activity

2017

Bergsten, E. Working conditions and musculoskeletal disorders in flight baggage handling

Jackson, J. Bias and precision in biomechanical exposure assessment – making the most out of our methods

Licentiate Theses 2013-2018

Division of Insurance Medicine, KI

2018

Elrud R. Sickness absence, disability pension, and permanent medical impairment after a car crash.

7 Future

Several possibilities have been discussed in the network of the Graduate School regarding future contact and activities. As a result of this discussion, a virtual network in Facebook has been set up, in which PhD students and graduates of the Graduate School can continue to keep in touch and exchange information regarding advances in stress research, upcoming conferences or events, job openings, etc: <https://www.facebook.com/groups/1145615545594102/>

Through this initiative, a sustained benefit from the Stockholm Stress Center Graduate School is expected to be facilitated in the formation of a new generation of researchers in the area of stress, work, health., and performance.