The overall aim of this dissertation was to contribute with new knowledge on the importance of social relationships for health by: 1) Studying the impact of social relationships on health from a life course perspective, 2) incorporating methodological innovations into the studies of the impact of social relationships on health and 3) investigate potential gender differences in the associations between social relationships and health. The dissertation consists of four quantitative social-epidemiological studies. These utilize different conceptual approaches to measure qualitative and quantitative aspects of social relationships and their associations with several adverse physical and mental health outcomes.

The four studies are based on different data sources. First, a representative study sample of the inhabitants of the North Region Denmark in 2007 merged with data from three different national registers with 14 years follow-up on all-cause mortality (Study I). Second, a Danish national cohort consisting of all Danish Citizens born in 1961-1971 with follow-up between 14-24 years on cardiovascular disease, diabetes and pulmonary obstructive lung disease (Study II). Third, the National Survey of Health and Development, a representative British study sample born in 1946 with loneliness at age 68 as the outcome (Study III and IV).

Overall, the findings in this dissertation suggest that the degree to which current quantity and quality of social relationships protect against ill health are dependent upon both life course experiences and gender. Further, the results suggest that childhood and early life may be a sensitive period for both social relationship adversities and socioeconomic status. This detrimental effect of social relationship adversities and adverse socioeconomic status seem to accumulate over the life course. For socioeconomic status, approximately 30%-67% of the effect of socioeconomic status in early-life is mediated by the socioeconomic status attained in adulthood depending of the marker of socioeconomic status used and the specific health outcome investigated. A key finding in Study IV is that the extent to which lack of social contact exacerbates loneliness depends on social experiences in earlier life stages. Further, a high current quality of relationships may mitigate the negative effect that earlier social relationship adversities exert on loneliness. An added important contribution of this dissertation is the utilization and demonstration of statistical methods from the field of machine learning. In Study III it is demonstrated how these techniques can be used in the health sciences. Among 42 correlates of loneliness among older adults, both the quality and the quantity of social relationships are among the most important predictors of loneliness.
To fulfill the requirements for the PhD degree, Linda Ejlskov Jeppesen has submitted the thesis: The Importance of Social Relationships for Mental and Physical Health. Social-Epidemiological Studies using Life Course and Machine Learning Approaches., to the Faculty Council of Medicine at Aalborg University.

The Faculty Council has appointed the following adjudication committee to evaluate the thesis and the associated lecture:

**Professor Richard Peter**
Ulm University
Germany

**Associate Professor Ulla Toft**
Centre for Clinical Research and Prevention
Denmark

**Chairman:**
Professor Mogens Lytken Larsen
Aalborg University
Denmark

**Moderator:**
Associate Professor Henrik Bøggild
Aalborg University
Denmark

The PhD lecture is public and will take place on:

**Thursday 11 October 2018 at 13:00**
Aalborg University – Room 7C/2-209
Fredrik Bajers Vej 7C
9220 Aalborg East

The Importance of Social Relationships for Mental and Physical Health. Social-Epidemiological Studies using Life Course and Machine Learning Approaches.

Chairman: Professor Mogens Lytken Larsen
Moderator: Associate Professor Henrik Bøggild

13.00 Opening by the Moderator
13.05 PhD lecture by Linda Ejlskov Jeppesen
13.50 Break
14.00 Questions and comments from the Committee
Questions and comments from the audience at the Moderator’s discretion
16.00 Conclusion of the session by the Moderator

After the session a reception will be arranged