Göteborg, 2025

Health, well-being, and outcomes after aortic valve replacement

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i Hjärtats aula, Sahlgrenska Universitetssjukhuset, Göteborg, den 24 oktober, klockan 9.00

av

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Avhandlingen baseras på följande delarbeten

I. Lachonius M, Wallström S, Odell A, Pétursson P, Jeppsson A, Skoglund K, Nielsen S J. Patients' motivation to undergo transcatheter aortic valve replacement. A phenomenological hermeneutic study. *International Journal of Older People Nursing.*2023; *18*(1), e12521.

II. Lachonius M, Giang K. W, Lindgren M, Skoglund K, Pétursson P, Silverborn M, Jeppson A, Nielsen S J. Socioeconomic factors and long-term mortality risk after surgical aortic valve replacement. *International Journal of Cardiology Cardiovascular Risk and Prevention.* 2023; *19*, 200223.

III. Lachonius M, Giang K. W, Pétursson P, Angerås O, Skoglund K, Jeppsson A, Nielsen S J. Marital status, educational level, and mid-term mortality risk in 5924 patients after transcatheter aortic valve implantation. *European Heart Journal Open.* 2024*; 4*(5), oeae077.

IV. Lachonius M, Nielsen S J, Giang K. W, Backes J, Bjursten H, Hagström H, James S, Settergren M, Skoglund K, Jeppsson A, Pétursson P. Mortality and morbidity after transcatheter aortic valve implantation compared to an age and sex matched control population: a population–based study from the SWEDEHEART registry. *European Heart Journal - Quality of Care and Clinical Outcomes.* 2025; *11*:614-621.

V. Lachonius M, Straiton N, Odell A, Pétursson P, Skoglund K, Jeppsson A, Nielsen S J. Preoperative frailty, and changes in health-related quality of life after transcatheter aortic valve implantation. *In manuscript.*

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Health, well-being, and outcomes after aortic valve replacement

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Abstract

Background: Aortic stenosis is the most common heart valve disease requiring intervention. Without aortic valve replacement, the mortality is approximately 50% within 2 years after onset of severe symptoms.

Aim: To explore factors influencing patients' motivation to undergo aortic valve replacement, and to study associations between social factors and mortality risk, and associations between preoperative frailty and health-related quality of life, before and after aortic valve replacement.

Methods: This thesis comprises one qualitative study, three registry-based observational studies and one questionnaire-based study on patient reported outcome measures. **Paper I** explored 18 patients' motivation to undergo transcatheter aortic valve implantation (TAVI). **Paper II** explored associations between income, education, marital status, and long-term mortality risk in 14,537 patients who had undergone surgical aortic valve replacement (SAVR). **Paper III** explored the association between marital status, educational level, and mortality risk in 5,924 TAVI patients. **Paper IV** assessed the risk of all-cause mortality in 5,924 TAVI patients compared to 10,928 age- and sex-matched controls who had not undergone TAVI. **Paper V** compared changes in health-related quality of life (HRQoL) in relation to preoperative frailty level in 209 TAVI patients.

Results: Patients' motivations to undergo TAVI were driven by a longing to have a few more good years and to be independent of others. Survival after SAVR was three years shorter in patients with the lowest socioeconomic status compared to those with the highest. Never having been married and low education were associated with an increased mortality risk after both SAVR and TAVI. Low income was associated with an increased mortality risk after SAVR. Patients who underwent TAVI had a lower adjusted risk of mid-term mortality compared to age- and sex-matched individuals from the general population. TAVI patients' HRQoL improved one year after TAVI independently of the preoperative frailty level.

Conclusions: Patients' motivation to undergo TAVI was strongly linked to their hopes of restoring well-being. Social factors are associated with increased morbidity and mortality after aortic valve replacement. TAVI is associated with longer adjusted survival. Improvements in HRQoL after TAVI is independent of preoperative frailty level.

Keywords: Aortic stenosis, frailty, health-related quality of life, mortality, motivation, patient-reported outcome, social factors, socioeconomic status, surgical aortic valve replacement, transcatheter aortic valve implantation

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