Appendix SI. Variable definitions patient characteristics

	Unit	Definition
Patient demographics at ATAAD presentation		
Age at ATAAD	years	Age at ATAAD presentation
BSA	m^2	$\sqrt{\dfrac{height\ (cm)\ x\ weight\ (kg)}{3600}}$
History of hypertension		Known hypertension in patient history or medical treatment for hypertension.
History of hyperlipidemia		Medical treatment for hyperlipidemia or in patient history.
Diabetes mellitus		Known diabetes mellitus in patient history or medical treatment for diabetes mellitus.
COPD		Any history of Chronic Obstructive Pulmonary Disease that required medical treatment or FEV1<70%.
Current or past smoking ≥ 1 pack years		Currently smoking or > 1 pack year in past.
History of CVA or TIA		History of CVA or TIA
History of MI		(N)STEMI > 90 days before presentation
Chronic kidney disease		History of chronic kidney disease
Prior TAA		Thoracic aortic diameter of ≥ 40 mm.
Prior aortic surgery		Prior aortic surgery reported in patient history
Prior cardiac surgery		Prior cardiac surgery reported in patient history
Bicuspid aortic valve		Presence of bicuspid aortic valve, known in patient history or seen in the operation theatre

Known connective tissue disease	Known connective tissue disease at ATAAD presentation

ATAAD = acute type A aortic dissection; BSA = body surface area; COPD = chronic obstructive pulmonary disease; CVA = cerebrovascular accident; MI = myocardial infarction; TAA = thoracic aortic aneurysm; DHCA = deep hypothermic circulatory arrest

Appendix SII Scores of the study population compared with the general Dutch population stratified by sex

	All patients (n=324)	General population	P-value	Female (n=110)	General female population	P-value	Male (n=214)	General male population	P-value
Physical Functioning	66.9 ± 25.6	83.0 ± 22.8	<0.001	59.7 ± 26.2	80.4 ± 24.2	<0.001	70.6 ± 24.6	85.4 ± 21.0	<0.001
Role Physical	58.9 ± 41.7	76.4 ± 36.3	<0.001	50.5 ± 43.7	73.8 ± 38.5	<0.001	63.1 ± 40.1	78.7 ± 34.1	<0.001
Bodily pain	79.2 ± 24.4	74.9 ± 23.4	0.002	76.8 ± 24.6	71.9 ± 23.8	0.039	80.5 ± 24.2	77.3 ± 22.7	0.056
General Health	56.2 ± 22.7	70.7 ± 20.7	<0.001	54.0 ± 22.6	69.9 ± 20.6	<0.001	57.4 ± 22.8	71.6 ± 20.6	<0.001
Vitality	60.1 ± 24.0	68.6 ± 19.3	<0.001	56.2 ± 24.3	64.3 ± 19.7	<0.001	62.1 ± 23.6	71.9 ± 18.3	<0.001
Social Functioning	78.6 ± 26.3	84.0 ± 22.4	<0.001	74.3 ± 28.3	82.0 ± 23.5	0.006	80.8 ± 25.0	86.0 ± 21.1	0.003
Role Emotional	76.7 ± 36.3	82.3 ± 32.9	0.007	72.3 ± 39.0	78.5 ± 35.7	0.102	79.0 ± 34.7	85.5 ± 29.9	0.008
Mental Health	77.4 ± 19.6	76.8 ± 17.4	0.573	72.3 ± 23.2	73.7 ± 18.2	0.539	80.0 ± 17.0	79.3 ± 16.4	0.537

SF-36 subdomain scores are presented as mean ± SD in order to compare the data with the general population data which was reported as mean ± SD.
SD = standard deviation

Appendix SIII Scores of the study population compared with the general Dutch population stratified by age category

	Age 41-60			Age 61-70			Age > 70		
	TAAD patients (n=73)	General population	P-value	TAAD patients (n=119)	General population	P-value	TAAD patients (n=128)	General population	P-value
Physical Functioning	71.3 ± 25.2	84.0 ± 19.6	<0.001	70.3 ± 21.9	71.7 ± 25.6	0.505	61.7 ± 27.8	58.9 ± 30.8	0.254
Role Physical	62.2 ± 39.1	74.5 ± 36.8	0.009	59.4 ± 43.2	67.3 ± 40.9	0.051	56.9 ± 41.6	56.9 ± 44.0	0.990
Bodily pain	80.6 ± 22.1	71.8 ± 24.1	0.001	79.6 ± 25.9	70.5 ± 24.6	<0.001	78.5 ± 24.0	68.1 ± 27.4	<0.001
General Health	53.7 ± 23.8	69.7 ± 20.6	<0.001	57.2 ± 23.5	61.7 ± 20.2	0.038	57.1 ± 21.1	58.9 ± 21.1	0.339
Vitality	57.3 ± 23.9	68.6 ± 20.2	<0.001	60.6 ± 24.7	67.7 ± 19.6	0.002	61.7 ± 22.8	61.8 ± 23.6	0.973
Social Functioning	77.4 ± 25.8	83.5 ± 22.1	0.047	79.2 ± 26.0	82.0 ± 24.6	0.251	78.9 ± 27.0	75.6 ± 27.0	0.177
Role Emotional	77.5 ± 35.5	81.6 ± 33.2	0.330	78.2 ± 36.5	81.1 ± 35.0	0.388	75.3 ± 36.5	74.5 ± 38.2	0.815
Mental Health	75.9 ± 18.2	75.6 ± 18.5	0.892	77.6 ± 19.9	76.9 ± 17.9	0.710	78.2 ± 20.3	73.0 ± 19.9	0.005

SF-36 subdomain scores are presented as mean ± SD in order to compare the data with the general population data which was reported as mean ± SD. P-values < 0.05 are depicted in bold. Three patients were in the age range of 16-40 year, therefore these patients were not included in the age-matched analysis.

SD = standard deviation

Appendix SIV Multivariable linear regression analyses for the physical component summary (PCS) and mental component summary (MCS) scores adjusting for age and sex

	Physical component summary		Mental component summary	
	Beta estimate (95% CI)*	P-value	Beta estimate (95% CI)	P-value
Follow-up time	-0.093 (-0.443-0.257)	0.603	0.285 (-0.077-0.647)	0.123
Age at ATAAD	-	-	-	-
Sex (female)	-	-	-	-
History of hypertension	-3.428 (-5.715- -1.140)	0.003	-2.307 (-4.710-0.096)	0.060
History of hyperlipidaemia	-0.938 (-4.485-2.609)	0.603	1.768 (-1.901-5.438)	0.344
Diabetes mellitus	2.872 (-8.596-14.340)	0.623	4.591 (-7.282-16.465)	0.447
COPD	-7.282 (-12.852- -1.713)	0.012	-2.701 (-8.514-3.112)	0.361
History of CVA	2.522 (-3.364-8.308)	0.392	-4.305 (-10.275-1.665)	0.157
History of MI	-4.841 (-12.348-2.666)	0.205	3.456 (-4.371-11.283)	0.386
Chronic kidney disease	7.484 (-6.530-21.497)	0.294	10.169 (-4.301-24.639)	0.168
Prior TAA	-4.692 (-15.912-1.824)	0.043	-3.016 (-7.714-1.682)	0.208
Prior aortic surgery	-7.044 (-15.912-1.824)	0.119	-0.140 (-9.407-9.126)	0.976
Prior cardiac surgery	-3.506 (-9.066-2.054)	0.216	-2.938 (-8.719-2.844)	0.318
BAV	6.116 (-1.891-14.124)	-1.134	3.630 (-4.732-11.992)	0.394
AV surgery at ATAAD	-0.845 (-3.199-1.509)	-0.481	0.254 (-2.220-2.728)	0.840
Aortic arch surgery ATAAD	-1.529 (-3.973-0.915)	0.219	-2.379 (-4.909-0.151)	0.065
DHCA	-0.577 (-2.868-1.713)	0.620	-1.218 (-3.593-1.157)	0.314

*Beta estimates were adjusted for age and sex in a multivariable linear regression model. Beta coefficients and corresponding 95% CI are shown. Interpretation for beta coefficients: if the beta coefficient is positive, for every unit increase in the predictor variable, the outcome variable (PCS or MCS score) will increase by the beta coefficient value.

COPD = chronic obstructive pulmonary disease; CVA = cerebrovascular accident; MI = myocardial infarction; TAA = thoracic aortic aneurysm; BAV = bicuspid aortic valve; AV = aortic valve; DHCA = deep hypothermic circulatory arrest.