

Section 2

Demographics

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Breast cancer stage

In this PEEK study, a total of 52 participants with hormone receptor positive breast cancer were recruited into the study. There were two participants (3.85%) with Stage 0, 17 participants (32.69%) with Stage I, 21 participants (40.38%) with Stage II, 10 participants (19.23%) with Stage III, and two participants (3.85%) with Stage IV.

Demographics

Participants were most commonly from New South Wales (n = 18, 34.62%), Queensland (n = 14, 26.92%), and Victoria (n = 9, 17.31%). Most participants were from major cities (n = 41, 78.85%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 34 participants (65.38%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 18 participants (34.62%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 33 participants that had completed university to at least an associate degree (63.46%). There were 21 participants who were employed either full time (40.38%), or part time (n = 5, 9.62%).

Half of the participants were carers to family members or spouses (n = 26, 50.00%), most commonly carers to children (n = 19, 36.54%).

Other health conditions

The majority of participants had at least one other condition that they had to manage (n = 48, 92.31%), the maximum number reported was 9 other conditions, with a median of 3.00 (IQR = 3.25) other conditions. The most commonly reported health condition was anxiety (self or doctor diagnosed) (n = 31, 59.62%), followed by sleep problems or insomnia (n = 29, 55.77%), depression (self or doctor diagnosed) (n = 19, 36.54%), and arthritis (n = 16, 30.77%).

Baseline health

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, physical activities were slightly limited for participants in this study.

SF36 Role functioning/physical scale measures how physical health interferes with work or other activities. On average, physical health sometimes interfered with work or other activities for participants in this study.

SF36 Role functioning/emotional scale measures how emotional problems interfere with work or other activities. On average, emotional problems almost never interfered with work or other activities for participants in this study.

SF36 Energy/fatigue scale measures the proportion of energy or fatigue experienced. On average, participants were sometimes fatigued.

The **SF36 Emotional well-being** scale measures how a person feels, for example happy, calm, depressed or anxious. On average, participants had good emotional well-being.

The **SF36 Social functioning** scale measures limitations on social activities due to physical or emotional problems. On average, social activities were slightly limited for participants in this study.

The **SF36 Pain** scale measures how much pain, and how pain interferes with work and other activities. On average, participants had moderate pain.

The **SF36 General health** scale measures perception of health. On average, participants reported good health.

The **SF36 Health change** scale measures health compared to a year ago. On average, participants reported that their health is much the same as a year ago.

Participants

In this PEEK study, a total of 52 participants with hormone receptor positive breast cancer were recruited into the study. There were two participants (3.85%) with Stage 0, 17 participants (32.69%) with

Stage I, 21 participants (40.38%) with Stage II, 10 participants (19.23%) with Stage III, and two participants (3.85%) with Stage IV (Table 2.2, Figure 2.1).

Table 2.1: Participants

Participants and diagnosis	Number (n=52)	Percent
Stage 0	2	3.85
Stage I	17	32.69
Stage II	21	40.38
Stage III	10	19.23
Stage IV	2	3.85

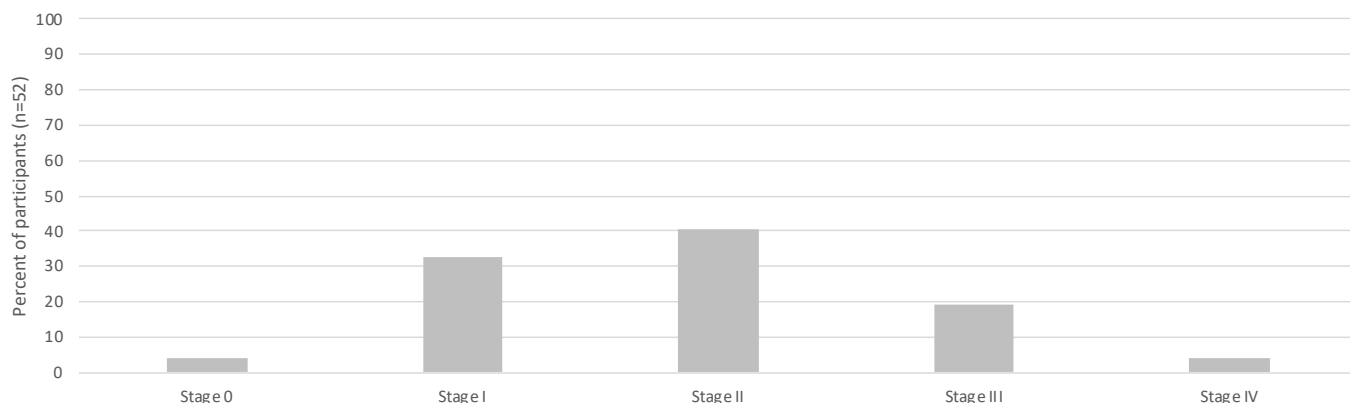


Figure 2.1: Participants

Demographics

There were 52 people who took part in this study. Participants were aged from 25 to 74 years of age, most were aged between 45 and 64 years (n = 28, 75.00%).

Participants were most commonly from New South Wales (n = 18, 34.62%), Queensland (n = 14, 26.92%), and Victoria (n = 9, 17.31%). Most participants were from major cities (n = 41, 78.85%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 34 participants (65.38%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 18 participants

(34.62%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 33 participants that had completed university to at least an associate degree (63.46%). There were 21 participants who were employed either full time (40.38%), or part time (n = 5, 9.62%).

Half of the participants were carers to family members or spouses (n = 26, 50.00%), most commonly carers to children (n = 19, 36.54%). The demographics of participants are listed in Table 2.2.

Table 2.2: Demographics

Demographic	Definition	Number (n=52)	Percent
Age	25 – 44	8	15.38
	45 – 54	21	40.38
	55 – 64	18	34.62
	65 – 74	5	9.62
Location	Major Cities of Australia	41	78.85
	Inner Regional Australia	7	13.46
	Outer Regional or remote Australia	4	7.69
State	Australian Capital Territory	2	3.85
	New South Wales	18	34.62
	Northern Territory	0	0.00
	Queensland	14	26.92
	South Australia	3	5.77
	Tasmania	0	0.00
	Victoria	9	17.31
	Western Australia	6	11.54
Socio-Economic Indexes for Areas (SEIFA)	1	0	0.00
	2	0	0.00
	3	2	3.85
	4	6	11.54
	5	4	7.69
	6	6	11.54
	7	5	9.62
	8	12	23.08
	9	10	19.23
	10	7	13.46
Race/ethnicity	Caucasian/White	48	92.31
	Other	4	7.69
Education	High school degree or less	11	21.15
	Some college but no degree	6	11.54
	Trade	2	3.85
	Associate or Bachelor degree	21	40.38
	Graduate degree	12	23.08
Employment	Currently receiving Centrelink support	2	3.85
	Employed working full time	13	25.00
	Employed working part time	21	40.38
	Full/part time carer	5	9.62
	Not employed looking for work	3	5.77
	Retired	11	21.15
	Other	2	3.85
Carer status	I am not a carer	26	50.00
	Children	19	36.54
	Parents	4	7.69
	Spouse	3	5.77
	Other	3	5.77

Other health conditions

Participants were asked about health conditions, other than hormone receptor positive breast cancer that they had to manage. Participants could choose from a list of common health conditions and could specify other conditions.

The majority of participants had at least one other condition that they had to manage (n = 48, 92.31%), the

maximum number reported was 9 other conditions, with a median of 3.00 (IQR = 3.25) other conditions (Table 2.3, Figure 2.2). The most commonly reported health condition was anxiety (self or doctor diagnosed) (n = 31, 59.62%), followed by sleep problems or insomnia (n = 29, 55.77%), depression (self or doctor diagnosed) (n =19, 36.54%), and arthritis (n = 16, 30.77%) (Table 2.4, Figure 2.3).

Table 2.3: Number of other conditions

Number of other conditions	Number (n=52)	Percent
No other conditions	4	7.69
1 to 2	17	32.69
3 to 4	16	30.77
5 to 6	11	21.15
7 or more	4	7.69

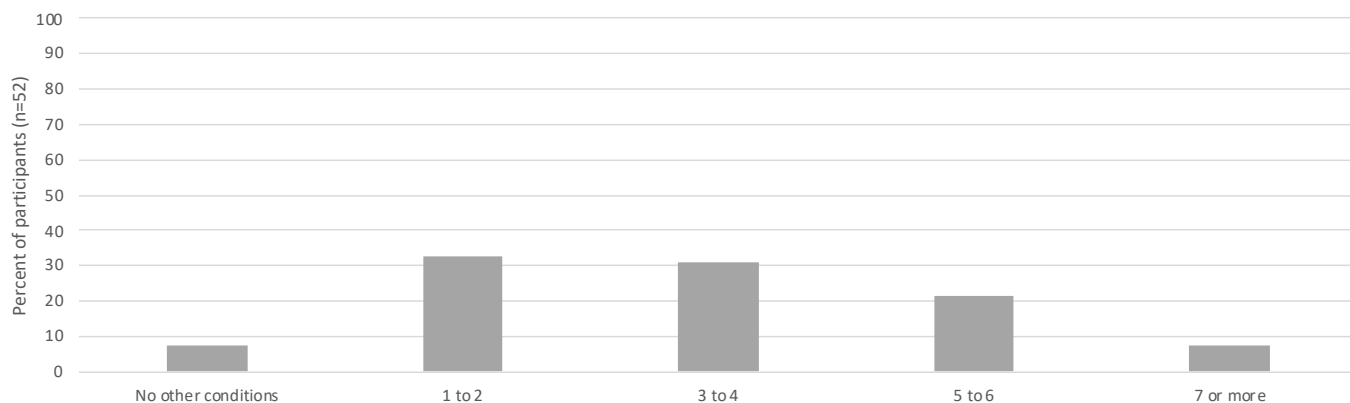


Figure 2.2: Number of other conditions

Table 2.4: Other health conditions

Other conditions	Number (n=52)	Percent
Anxiety (Self or doctor diagnosed)	31	59.62
Anxiety (that you diagnosed yourself)	17	32.69
Anxiety (that a doctor diagnosed)	27	51.92
Sleep problems or insomnia	29	55.77
Depression (Self or doctor diagnosed)	19	36.54
Depression (that you diagnosed yourself)?	12	23.08
Depression (that a doctor diagnosed)	13	25.00
Arthritis	16	30.77
High cholesterol	15	28.85
Chronic pain	10	19.23
Hypertension	8	15.38
Atrial fibrillation or arrhythmias	4	7.69
Cancer (other than breast)	4	7.69
Number of participants with other conditions (conditions not listed above)	21	40.38

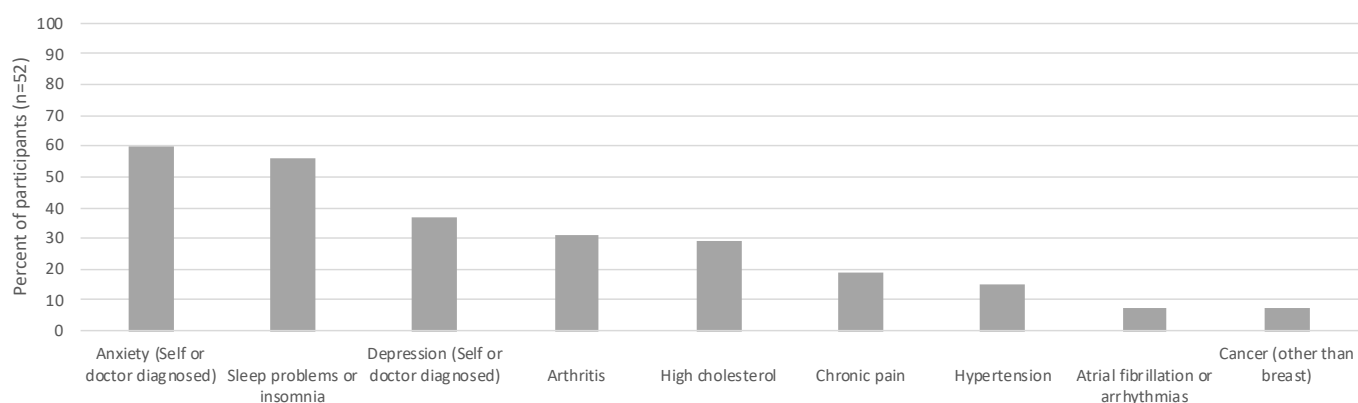


Figure 2.3: Other health conditions (% of all participants)

Subgroup analysis

Subgroup analysis are included throughout the study and the subgroups are listed in Table 2.5.

Comparisons were made by breast cancer **stage**, there were 19 participants (36.54%) with *Stage 0 and I* cancer, 21 participants (40.38%) with *Stage II*, and 12 participants (23.08%) with *Stage III and IV*.

Participants were grouped according to **age**, with comparisons made between participants *Aged 25 to 54* (n=29, 55.77%) and participants *Aged 55 to 74* (n=23, 44.23%).

Comparisons were made by **education** status, between those with trade or high school qualifications, *Trade or high school* (n=19, 36.54%), and those with a university qualification, *University* (n= 33, 63.46%).

Participants were grouped according to the year of breast cancer diagnosis, with 10 participants (19.23%)

Diagnosed in 2016 or before, 16 participants (30.77%) *Diagnosed in 2017 to 2019*, and 26 participants (50.00%) *Diagnosed in 2020 or 2021*.

The **location** of participants was evaluated by postcode using the Australian Statistical Geography Maps (ASGS) Remoteness areas accessed from the Australian Bureau of Statistics. Those living in regional/rural areas, *Regional or remote* (n=11, 21.15%) were compared to those living in a major city, *Metropolitan* (n=41, 78.85%).

Comparisons were made by **socioeconomic status**, using the Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au), SEIFA scores range from 1 to 10, a higher score denotes a higher level of advantage. Participants with a mid to low SEIFA score of 1-6, *Mid to low status* (n=158, 34.62%) compared to those with a higher SEIFA score of 7-10, *Higher status* (n=34, 65.38%).

Table 2.5: Subgroups

Subgroup	Definition	Number (n=52)	Percent
Breast cancer stage	Stage 0 and I	19	36.54
	Stage II	21	40.38
	Stage III and IV	12	23.08
Age	Aged 25 to 54	29	55.77
	Aged 55 to 74	23	44.23
Education	Trade or high school	19	36.54
	University	33	63.46
Year of diagnosis	Diagnosed in 2016 or before	10	19.23
	Diagnosed in 2017 to 2019	16	30.77
	Diagnosed in 2020 or 2021	26	50.00
Location	Regional or remote	11	21.15
	Metropolitan	41	78.85
Economic status	Mid to low status	18	34.62
	Higher status	34	65.38

Baseline health

The Short Form Health Survey 36 (SF36) measures baseline health, or the general health of an individual. The SF36 comprises nine scales: physical functioning, role functioning/physical, role functioning/emotional, energy and fatigue, emotional well-being, social function, pain, general health, and health change from one year ago. The scale ranges from 0 to 100, a higher score denotes better health or function.

Summary statistics for the entire cohort are displayed alongside the possible range of each scale in Table 2.6, for scales with a normal distribution, the mean and SD should be used as a central measure, and median and IQR for scales that do not have a normal distribution.

The overall scores for the cohort were in the highest quintile for **SF36 Role functioning/emotional** (median = 83.33, IQR = 66.67), indicating emotional function that almost never interferes with work and other activities.

The overall scores for the cohort were in the second highest quintile for **SF36 Physical functioning** (median = 75.00, IQR = 25.00), **SF36 Emotional well-being** (median = 72.00, IQR = 21.00), **SF36 Social functioning** (median = 75.00, IQR = 37.50), **SF36 General health** (mean = 60.48, SD = 17.55), indicating good physical function, good emotional well-being, good social functioning, and good general health.

The overall scores for the cohort were in the middle of the scale for **SF36 Role functioning/physical** (median = 50.00, IQR = 100.00), **SF36 Energy/Fatigue** (mean = 43.56, SD = 18.19), **SF36 Pain** (median = 57.50, IQR = 32.50), and **SF36 Health change** (median = 50.00, IQR = 50.00), indicating physical function that moderately interferes with work and other activities, moderate levels of energy, moderate pain, and health that is much the same as a year ago.

Comparisons of SF36 have been made based on **stage** (Tables 2.7 to 2.9, Figures 2.4 to 2.12), **age** (Tables 2.10 to 2.11, Figures 2.13 to 2.21), **education** (Tables 2.12 to 2.13, Figures 2.22 to 2.30), **year of diagnosis** (Tables 2.14 to 2.15, Figures 2.31 to 2.39), **location** (Tables 2.16

to 2.17, Figures 2.40 to 2.48), and **socioeconomic status** (Tables 2.18 to 2.19, Figures 2.49 to 2.57).

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, physical activities were slightly limited for participants in this study.

SF36 Role functioning/physical scale measures how physical health interferes with work or other activities. On average, physical health sometimes interfered with work or other activities for participants in this study.

SF36 Role functioning/emotional scale measures how emotional problems interfere with work or other activities. On average, emotional problems almost never interfered with work or other activities for participants in this study.

SF36 Energy/fatigue scale measures the proportion of energy or fatigue experienced. On average, participants were sometimes fatigued.

The **SF36 Emotional well-being** scale measures how a person feels, for example happy, calm, depressed or anxious. On average, participants had good emotional well-being.

The **SF36 Social functioning** scale measures limitations on social activities due to physical or emotional problems. On average, social activities were slightly limited for participants in this study.

The **SF36 Pain** scale measures how much pain, and how pain interferes with work and other activities. On average, participants had moderate pain.

The **SF36 General health** scale measures perception of health. On average, participants reported good health.

The **SF36 Health change** scale measures health compared to a year ago. On average, participants reported that their health is much the same as a year ago.

Table 2.6: SF36 summary statistics

SF36 scale (n=52)	Mean	SD	Median	IQR	Possible range	Quintile
Physical functioning	76.83	16.66	75.00	25.00	0 to 100	4
Role functioning/physical	48.56	43.28	50.00	100.00	0 to 100	3
Role functioning/emotional	67.31	38.77	83.33	66.67	0 to 100	5
Energy/Fatigue*	43.56	18.19	45.00	30.00	0 to 100	3
Emotional well-being	70.15	16.57	72.00	21.00	0 to 100	4
Social functioning	67.55	25.28	75.00	37.50	0 to 100	4
Pain	60.10	22.36	57.50	32.50	0 to 100	3
General health*	60.48	17.55	60.00	25.00	0 to 100	4
Health change	46.63	28.45	50.00	50.00	0 to 100	3

*Normal distribution, use mean and SD as central measure.

SF36 by stage

Comparisons were made by breast cancer **stage**, there were 19 participants (36.54%) with *Stage 0 and I* breast cancer, 21 participants (40.38%) with *Stage II*, and 12 participants (23.08%) with *Stage III and IV*.

A one-way ANOVA test was used when the assumptions for response variable residuals were normally distributed and variances of populations were equal (Table 2.7). When the assumptions for normality of residuals was not met, a Kruskal-Wallis test was used (Table 2.8). Post hoc pairwise comparisons using Wilcoxon rank sum test was used to identify the source of any differences identified in the Kruskal -Wallis test (Table 2.9).

A Kruskal-Wallis test indicated a statistically significant difference in the **SF36 Emotional well-being** scale between groups, $\chi^2(2) = 6.3538, p = 0.0417$. Wilcoxon rank sum tests between groups indicated that participants in the *Stage 0 and I* subgroup (median =80, IQR = 18), scored significantly higher than participants in the *Stage III and IV* subgroup (median =56, IQR = 24, $p = 0.0440$).

A Kruskal-Wallis test indicated a statistically significant difference in the **SF36 Social functioning** scale between

groups, $\chi^2(2) = 6.5106, p = 0.0386$. Wilcoxon rank sum tests between groups indicated that participants in the *Stage 0 and I* subgroup (median =75, IQR = 31.25), scored significantly higher than participants in the *Stage III and IV* subgroup (median =56.25, IQR = 31.25, $p = 0.0400$).

SF36 Emotional well-being scale measures how a person feels, for example happy, calm, depressed or anxious. On average, participants in the *Stage 0 and I* subgroup scored higher than participants in the *Stage III and IV* subgroup. This indicates that participants in the *Stage 0 and I* subgroup had good emotional well-being, and participants in the *Stage III and IV* subgroup had fair emotional well-being.

SF36 Social functioning scale measures limitations on social activities due to physical or emotional problems. On average, participants in the *Stage 0 and I* subgroup scored higher than participants in the *Stage III and IV* subgroup. This indicates that social activities were slightly limited for participants in the *Stage 0 and I* subgroup, and moderately limited for participants in the *Stage III and IV* subgroup.

Table 2.7: SF36 by stage summary statistics and one-way ANOVA

SF36 scale	Group	Number (n=52)	Percent	Mean	SD	Source of difference	Sum of squares	dF	Mean Square	f	p-value
Energy/fatigue	Stage 0 and I	19	36.54	48.68	16.06	Between groups	1902.00	2	950.90	3.114	0.0533
	Stage II	21	40.38	45.00	18.51	Within groups	14965.00	49	305.40		
	Stage III and IV	12	23.08	32.92	17.77	Total	16867.00	51			
Pain	Stage 0 and I	19	36.54	66.84	23.83	Between groups	2191.00	2	1095.50	2.303	0.1110
	Stage II	21	40.38	60.00	22.67	Within groups	23308.00	49	475.70		
	Stage III and IV	12	23.08	49.58	15.98	Total	25499.00	51			
General health	Stage 0 and I	19	36.54	60.26	17.52	Between groups	138.00	2	68.90	0.217	0.8060
	Stage II	21	40.38	62.14	18.81	Within groups	15575.00	49	317.90		
	Stage III and IV	12	23.08	57.92	16.44	Total	15713.00	51			

Table 2.8: SF36 by stage summary statistics and Kruskal-Wallis test

SF36 scale	Group	Number (n=52)	Percent	Median	IQR	C ²	dF	p-value
Physical functioning	Stage 0 and I	19	36.54	85.00	27.50	5.51	2	0.0636
	Stage II	21	40.38	80.00	15.00			
	Stage III and IV	12	23.08	70.00	7.50			
Role functioning physical	Stage 0 and I	19	36.54	75.00	100.00	5.77	2	0.0558
	Stage II	21	40.38	50.00	75.00			
	Stage III and IV	12	23.08	0.00	75.00			
Role functioning emotional	Stage 0 and I	19	36.54	100.00	33.33	4.20	2	0.1223
	Stage II	21	40.38	100.00	33.33			
	Stage III and IV	12	23.08	33.33	100.00			
Emotional well-being	Stage 0 and I	19	36.54	80.00	18.00	6.35	2	0.0417*
	Stage II	21	40.38	72.00	16.00			
	Stage III and IV	12	23.08	56.00	24.00			
Social functioning	Stage 0 and I	19	36.54	75.00	31.25	6.51	2	0.0386*
	Stage II	21	40.38	75.00	25.00			
	Stage III and IV	12	23.08	56.25	31.25			
Health change	Stage 0 and I	19	36.54	25.00	25.00	4.60	2	0.1004
	Stage II	21	40.38	50.00	25.00			
	Stage III and IV	12	23.08	25.00	25.00			

*Statistically significant at p<0.05

Table 2.9: SF36 by stage one-way post hoc Wilcoxon rank sum test

SF36 scale	Group	Stage 0 and I	Stage II
Emotional well-being	Stage II	0.4280	-
	Stage III and IV	0.0440*	0.0980
Social functioning	Stage II	0.5400	-
	Stage III and IV	0.0400*	0.0800

*Statistically significant at p<0.05

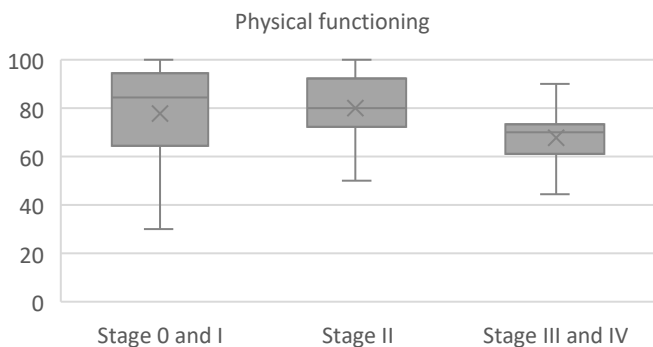


Figure 2.4: Boxplot of SF36 Physical functioning by stage

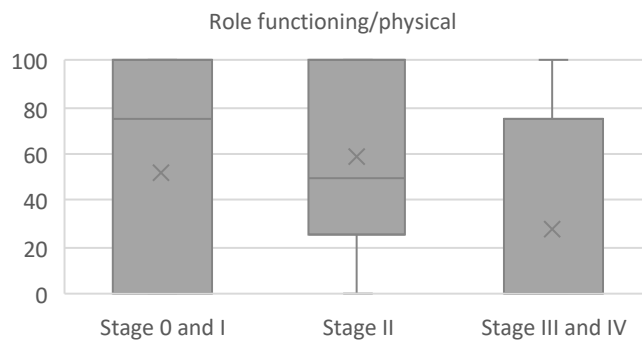


Figure 2.5: Boxplot of SF36 Role functioning/physical by stage

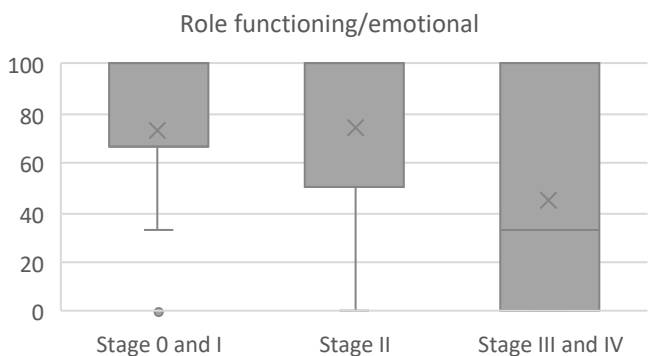


Figure 2.6: Boxplot of SF36 Role functioning/emotional by stage

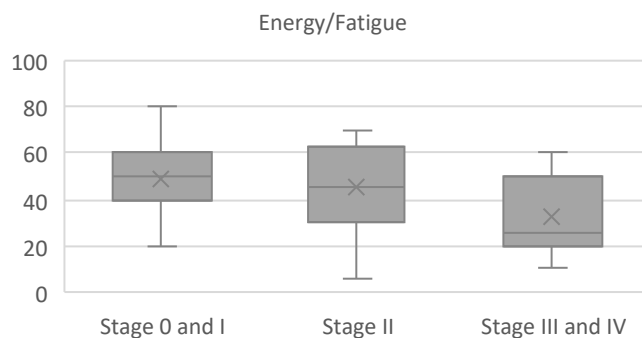


Figure 2.7: Boxplot of SF36 Energy/fatigue by stage

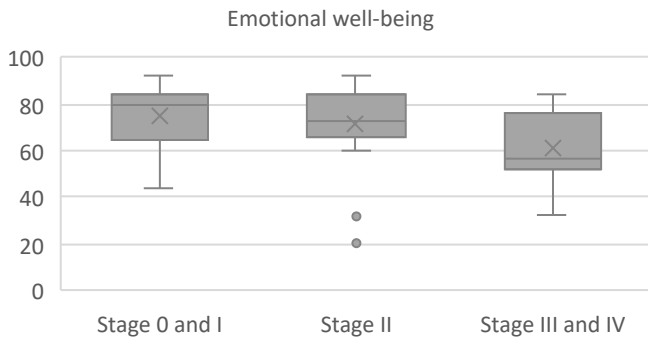


Figure 2.8: Boxplot of SF36 Emotional well-being by stage

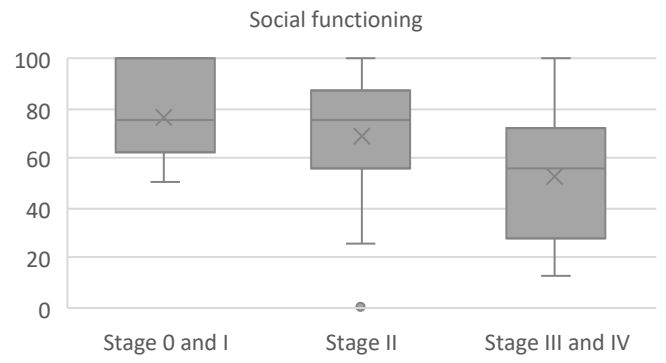


Figure 2.9: Boxplot of SF36 Social functioning by stage

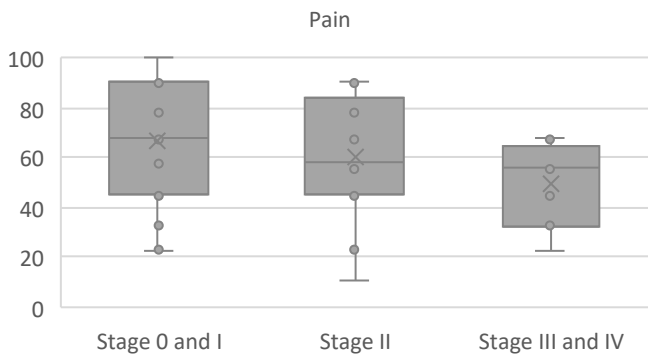


Figure 2.10: Boxplot of SF36 Pain by a stage

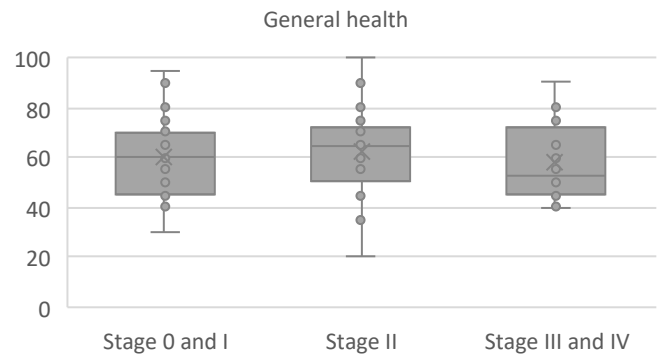


Figure 2.11: Boxplot of SF36 General health by stage

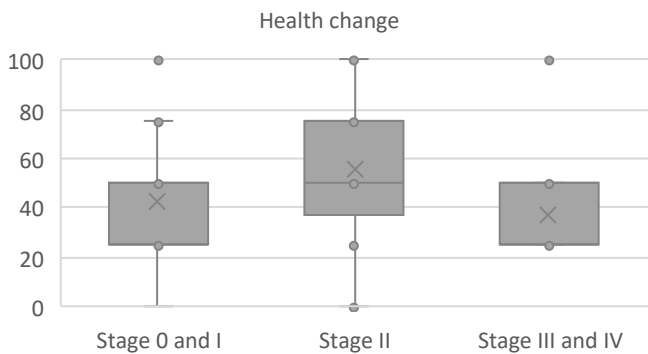


Figure 2.12: Boxplot of SF36 Health change by stage

SF36 by age

Participants were grouped according to **age**, with comparisons made between participants *Aged 25 to 54* (n=29, 55.77%) and participants *Aged 55 to 74* (n=23, 44.23%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.10), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.11).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the SF36 Social

functioning scale [W = 222.00, p = 0.0377*] was significantly lower for participants in the *Aged 25 to 54* subgroup (Median = 62.50, IQR = 25.00) compared to participants in the *Aged 55 to 74* subgroup (Median = 75.00, IQR = 31.25).

SF36 Social functioning scale measures limitations on social activities due to physical or emotional problems. On average, participants in the *Aged 55 to 74* subgroup had a higher score for social functioning compared to *Aged 25 to 54*, however, social activities were slightly limited for both groups.

Table 2.10: SF36 by age summary statistics and T-test

SF36 scale	Group	Number (n=52)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Aged 25 to 54	29	55.77	40.00	20.35	-1.61	50	0.1140
	Aged 55 to 74	23	44.23	48.04	14.20			
General health	Aged 25 to 54	29	55.77	60.69	17.96	0.10	50	0.9244
	Aged 55 to 74	23	44.23	60.22	17.42			

Table 2.11: SF36 by age summary statistics and and Wilcoxon test

SF36 scale	Group	Number (n=52)	Percent	Median	IQR	W	p-value
Physical functioning	Aged 25 to 54	29	55.77	75.00	20.00	325.00	0.8819
	Aged 55 to 74	23	44.23	75.00	27.50		
Role functioning/physical	Aged 25 to 54	29	55.77	25.00	75.00	244.50	0.0891
	Aged 55 to 74	23	44.23	75.00	87.50		
Role functioning/emotional	Aged 25 to 54	29	55.77	66.67	66.67	246.50	0.0858
	Aged 55 to 74	23	44.23	100.00	33.33		
Emotional well-being	Aged 25 to 54	29	55.77	72.00	28.00	297.00	0.5043
	Aged 55 to 74	23	44.23	72.00	20.00		
Social functioning	Aged 25 to 54	29	55.77	62.50	25.00	222.00	0.0377*
	Aged 55 to 74	23	44.23	75.00	31.25		
Pain	Aged 25 to 54	29	55.77	57.50	22.50	301.50	0.5567
	Aged 55 to 74	23	44.23	67.50	38.75		
Health change	Aged 25 to 54	29	55.77	50.00	50.00	360.00	0.6178
	Aged 55 to 74	23	44.23	50.00	25.00		

*Statistically significant at p<0.05

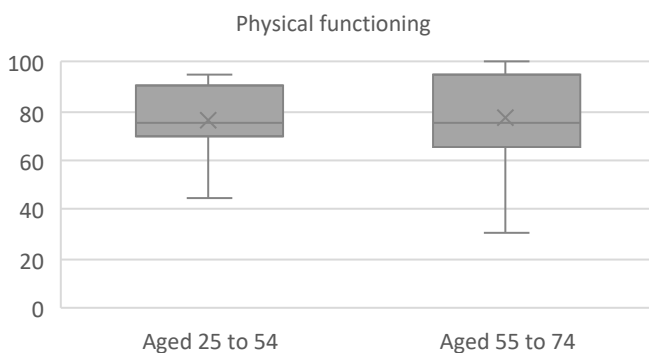


Figure 2.13: Boxplot of SF36 Physical functioning by age

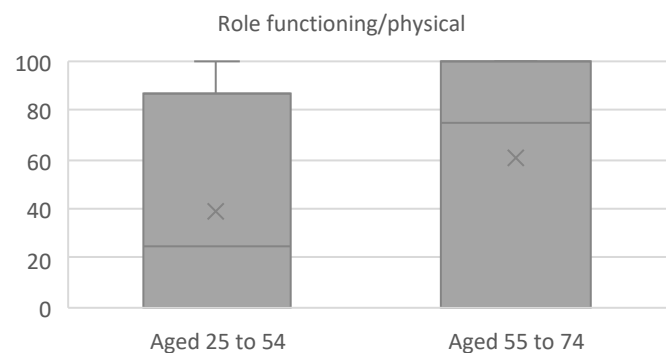


Figure 2.14: Boxplot of SF36 Role functioning/physical by age



Figure 2.15: Boxplot of SF36 Role functioning/emotional by age

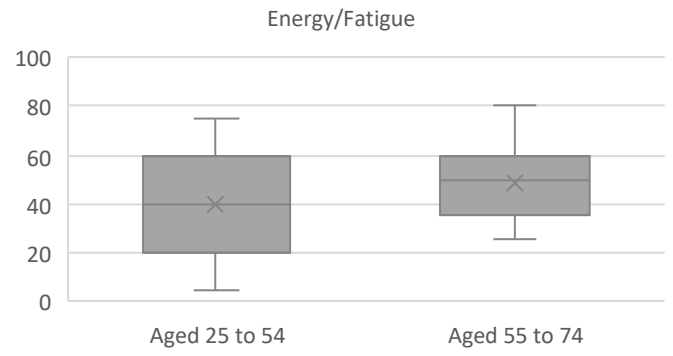


Figure 2.16: Boxplot of SF36 Energy/fatigue by age



Figure 2.17: Boxplot of SF36 Emotional well-being by age

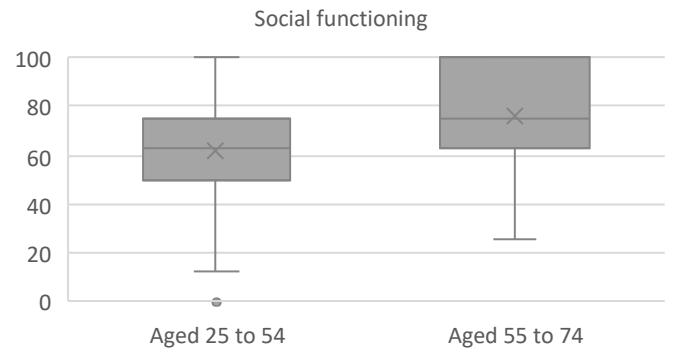


Figure 2.18: Boxplot of SF36 Social functioning by age

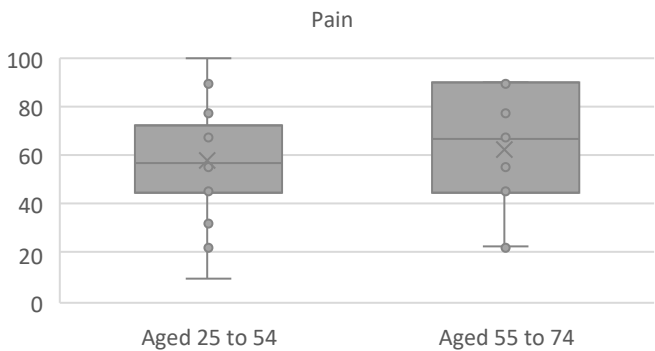


Figure 2.19: Boxplot of SF36 Pain by a age

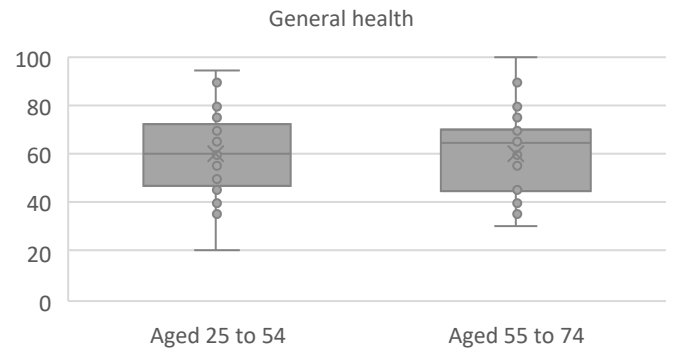


Figure 2.20: Boxplot of SF36 General health by age

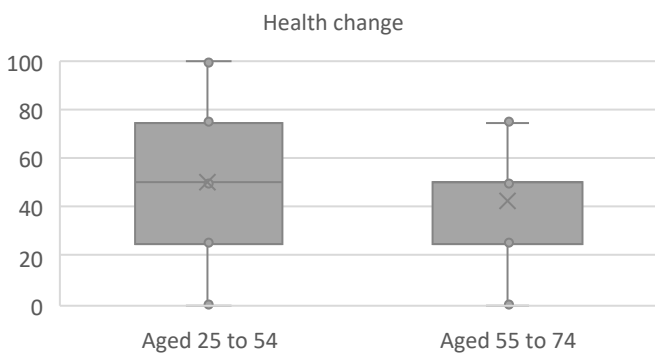


Figure 2.21: Boxplot of SF36 Health change by age

SF36 by education

Comparisons were made by **education** status, between those with trade or high school qualifications, *Trade or high school* (n=19, 36.54%), and those with a university qualification, *University* (n= 33, 63.46%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.12), or when

assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.13).

No significant differences were observed between participants by **education** for any of the SF36 scales.

Table 2.12: SF36 by education summary statistics and T-test

SF36 scale	Group	Number (n=52)	Percent	Mean	SD	T	dF	p-value
Physical functioning	Trade or high school	19	36.54	75.26	18.52	-0.51	50	0.6123
	University	33	63.46	77.73	15.72			
Energy/Fatigue	Trade or high school	19	36.54	43.42	18.93	-0.04	50	0.9677
	University	33	63.46	43.64	18.04			
General health	Trade or high school	19	36.54	62.11	17.90	0.50	50	0.6174
	University	33	63.46	59.55	17.56			

Table 2.13: SF36 by education summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=52)	Percent	Median	IQR	W	p-value
Role functioning/physical	Trade or high school	19	36.54	25.00	100.00	311.50	0.9763
	University	33	63.46	50.00	100.00		
Role functioning/emotional	Trade or high school	19	36.54	100.00	66.67	323.50	0.8457
	University	33	63.46	66.67	66.67		
Emotional well-being	Trade or high school	19	36.54	72.00	22.00	293.00	0.7020
	University	33	63.46	76.00	20.00		
Social functioning	Trade or high school	19	36.54	75.00	37.50	275.50	0.4690
	University	33	63.46	75.00	25.00		
Pain	Trade or high school	19	36.54	57.50	28.75	285.00	0.5900
	University	33	63.46	57.50	32.50		
Health change	Trade or high school	19	36.54	25.00	25.00	226.00	0.0851
	University	33	63.46	50.00	50.00		

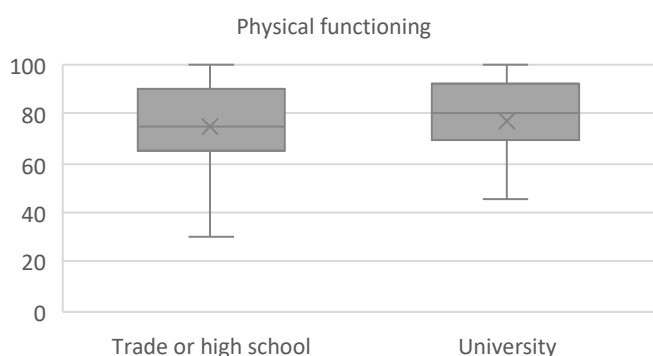


Figure 2.22: Boxplot of SF36 Physical functioning by education

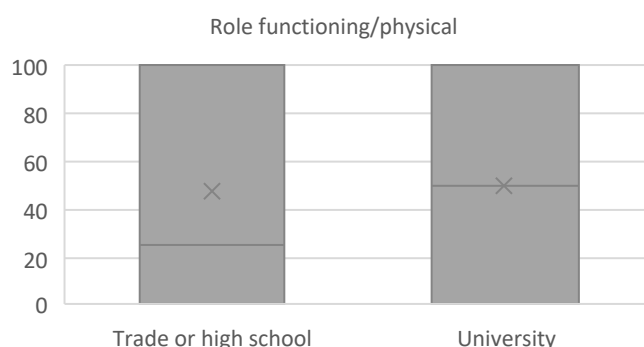


Figure 2.23: Boxplot of SF36 Role functioning/physical by education

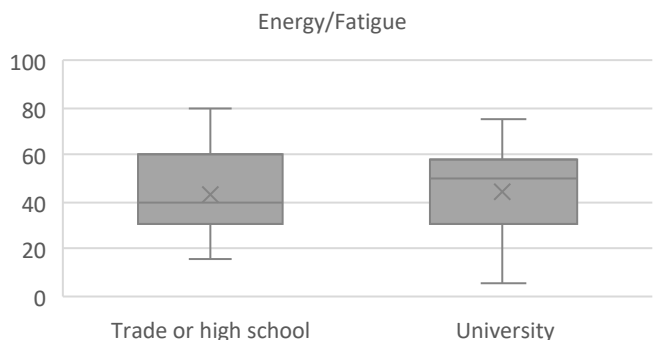


Figure 2.24: Boxplot of SF36 Role functioning/emotional by education

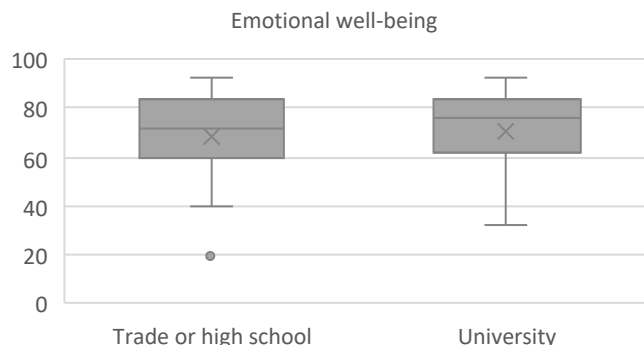


Figure 2.25: Boxplot of SF36 Energy/fatigue by education

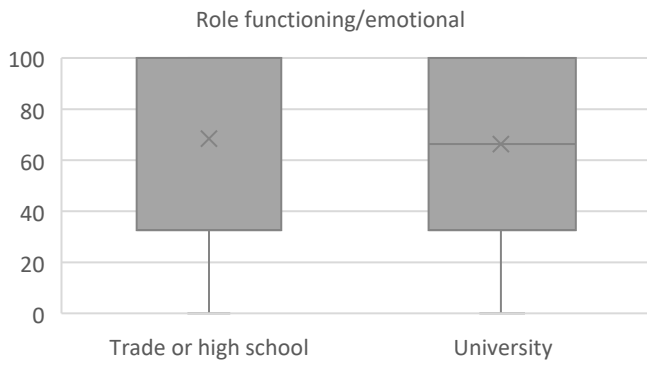


Figure 2.26: Boxplot of SF36 Emotional well-being by education

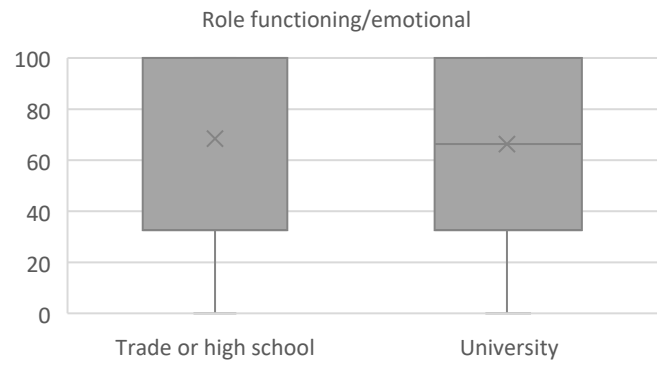


Figure 2.27: Boxplot of SF36 Social functioning by education

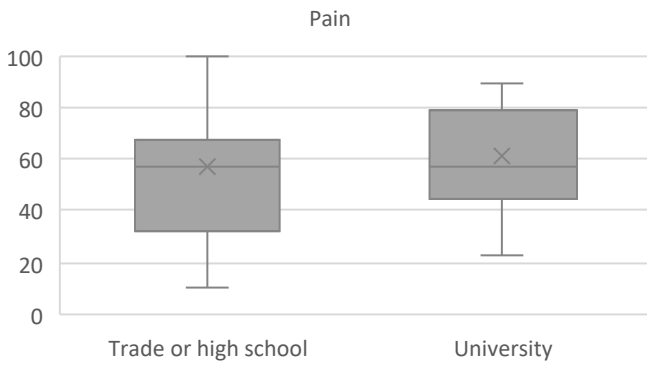


Figure 2.28: Boxplot of SF36 Pain by a education

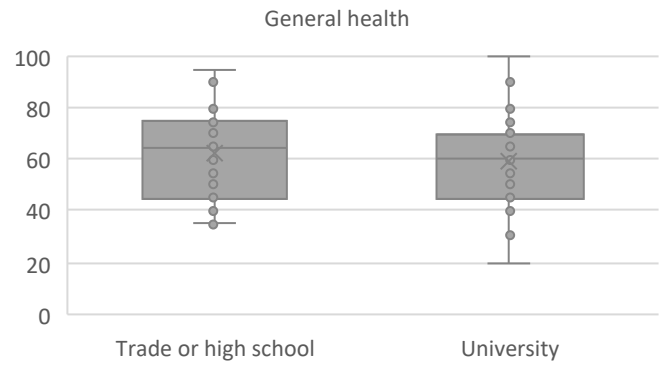


Figure 2.29: Boxplot of SF36 General health by education

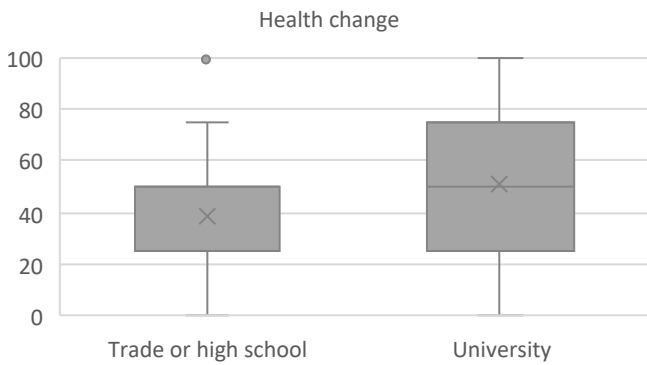


Figure 2.30: Boxplot of SF36 Health change by education

SF36 by year of breast cancer diagnosis

Participants were grouped according to the **year of breast cancer diagnosis**, with 10 participants (19.23%) *Diagnosed in 2016 or before*, 16 participants (30.77%) *Diagnosed in 2017 to 2019*, and 26 participants (50.00%) *Diagnosed in 2020 or 2021*.

A one-way ANOVA test was used when the assumptions for response variable residuals were

normally distributed and variances of populations were equal (Table 2.14). When the assumptions for normality of residuals was not met, a Kruskal-Wallis test was used (Table 2.15).

No significant differences were observed between participants by **year of breast cancer diagnosis** for any of the SF36 scales.

Table 2.14: SF36 by year of breast cancer diagnosis summary statistics and one-way ANOVA

SF36 scale	Group	Number (n=XXX)	Percent	Mean	SD	Source of difference	Sum of squares	dF	Mean Square	f	p-value
Energy/fatigue	Diagnosed in 2016 or before	10	19.23	51.00	19.97	Between groups	693.00	2	346.60	1.05	0.3580
	Diagnosed in 2017 to 2019	16	30.77	41.25	19.10	Within groups	16174.00	49	330.10		
	Diagnosed in 2020 or 2021	26	50.00	42.12	16.86	Total	16867.00	51			
Pain	Diagnosed in 2016 or before	10	19.23	61.75	27.94	Between groups	34.00	2	17.20	0.033	0.9670
	Diagnosed in 2017 to 2019	16	30.77	59.84	23.14	Within groups	25465.00	49	519.70		
	Diagnosed in 2020 or 2021	26	50.00	59.62	20.40	Total	25499.00	51			
General health	Diagnosed in 2016 or before	10	19.23	56.00	13.70	Between groups	499.00	2	249.30	0.803	0.4540
	Diagnosed in 2017 to 2019	16	30.77	58.44	20.55	Within groups	15214.00	49	310.50		
	Diagnosed in 2020 or 2021	26	50.00	63.46	16.96	Total	15713.00	51			

Table 2.15: SF36 by year of breast cancer diagnosis summary statistics and Kruskal-Wallis test

SF36 scale	Group	Number (n=XXX)	Percent	Median	IQR	C ²	dF	p-value
Physical functioning	Diagnosed in 2016 or before	10	19.23	80.00	28.75	0.54083	2	0.7631
	Diagnosed in 2017 to 2019	16	30.77	75.00	12.50			
	Diagnosed in 2020 or 2021	26	50.00	77.50	27.50			
Role functioning physical	Diagnosed in 2016 or before	10	19.23	75.00	100.00	1.164	2	0.5588
	Diagnosed in 2017 to 2019	16	30.77	62.50	81.25			
	Diagnosed in 2020 or 2021	26	50.00	25.00	93.75			
Role functioning emotional	Diagnosed in 2016 or before	10	19.23	100.00	25.00	1.7961	2	0.4074
	Diagnosed in 2017 to 2019	16	30.77	66.67	66.67			
	Diagnosed in 2020 or 2021	26	50.00	66.67	58.33			
Energy/fatigue	Diagnosed in 2016 or before	10	19.23	47.50	30.00	1.4527	2	0.4837
	Diagnosed in 2017 to 2019	16	30.77	47.50	27.50			
	Diagnosed in 2020 or 2021	26	50.00	45.00	28.75			
Social functioning	Diagnosed in 2016 or before	10	19.23	75.00	31.25	0.90329	2	0.6366
	Diagnosed in 2017 to 2019	16	30.77	75.00	40.63			
	Diagnosed in 2020 or 2021	26	50.00	75.00	21.88			
Health change	Diagnosed in 2016 or before	10	19.23	50.00	25.00	4.618	2	0.09936
	Diagnosed in 2017 to 2019	16	30.77	62.50	50.00			
	Diagnosed in 2020 or 2021	26	50.00	25.00	25.00			

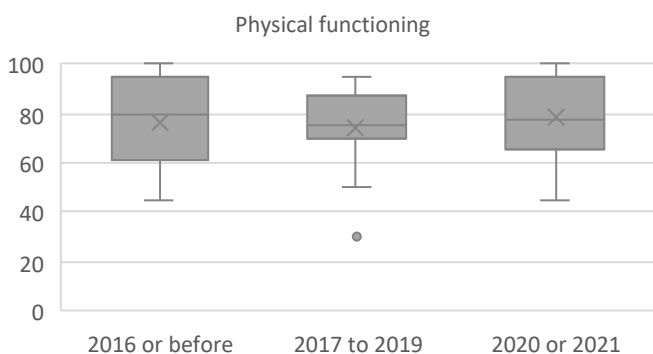


Figure 2.31: Boxplot of SF36 Physical functioning by year of breast cancer diagnosis

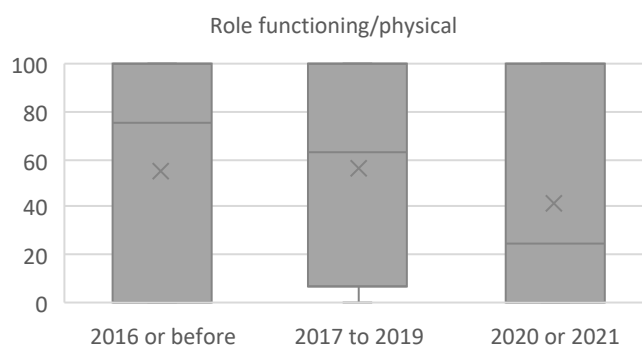


Figure 2.32: Boxplot of SF36 Role functioning/physical by year of breast cancer diagnosis

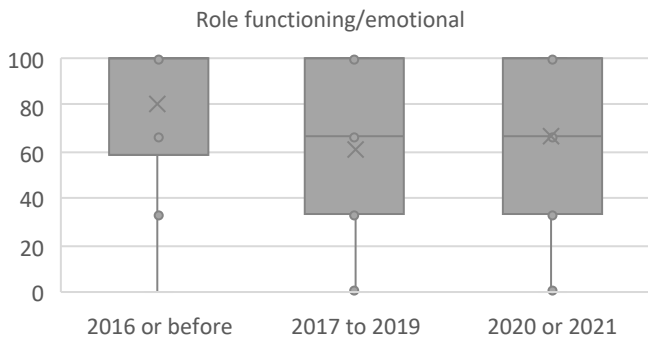


Figure 2.33: Boxplot of SF36 Role functioning/emotional by year of breast cancer diagnosis

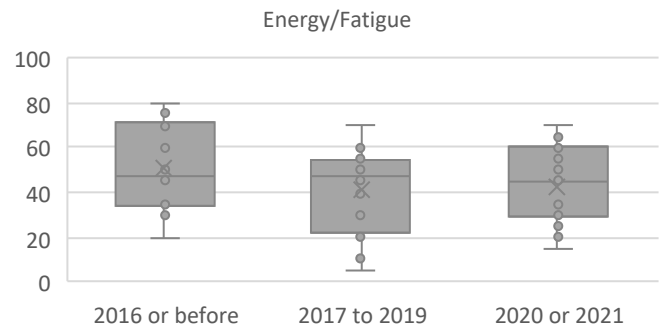


Figure 2.34: Boxplot of SF36 Energy/fatigue by year of breast cancer diagnosis

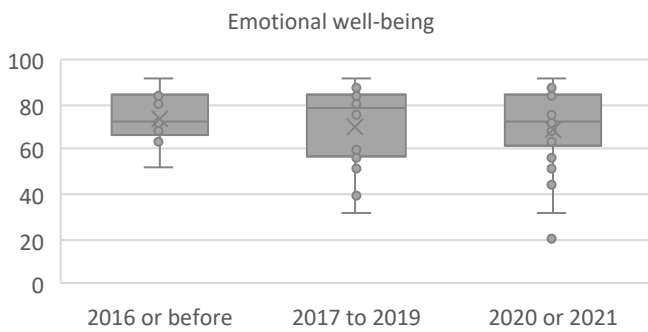


Figure 2.35: Boxplot of SF36 Emotional well-being by year of breast cancer diagnosis

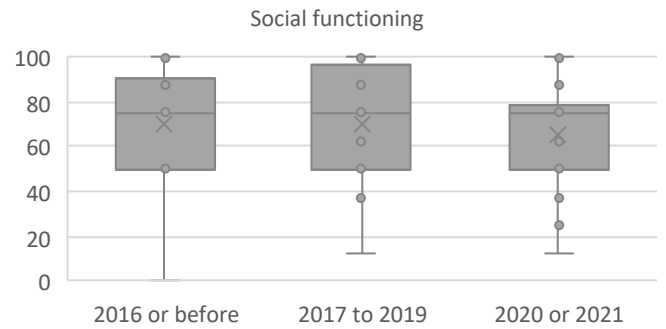


Figure 2.36: Boxplot of SF36 Social functioning by year of breast cancer diagnosis

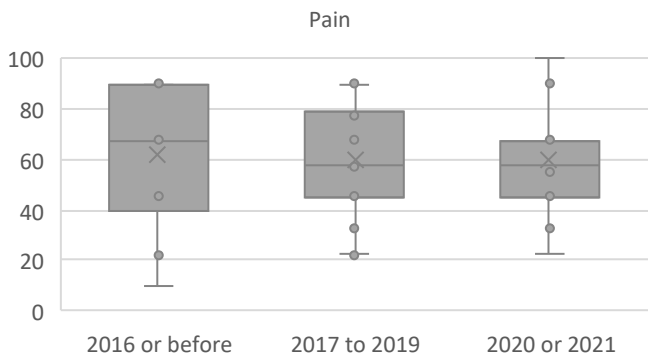


Figure 2.37: Boxplot of SF36 Pain by a year of breast cancer diagnosis

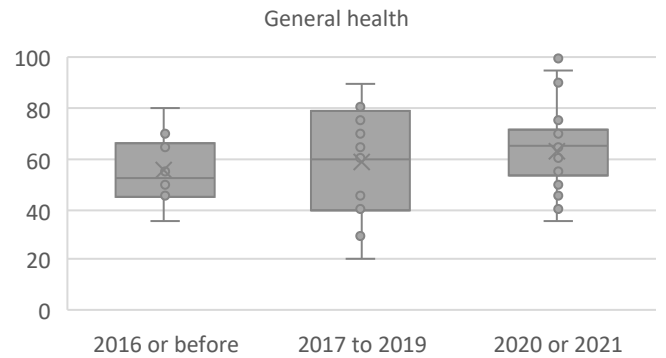


Figure 2.38: Boxplot of SF36 General health by year of breast cancer diagnosis

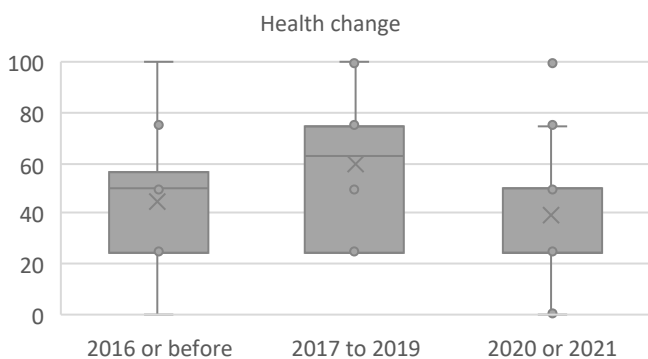


Figure 2.39: Boxplot of SF36 Health change by stage

SF36 by location

The **location** of participants was evaluated by postcode using the Australian Statistical Geography Maps (ASGS) Remoteness areas accessed from the Australian Bureau of Statistics. Those living in regional/rural areas, *Regional or remote* (n=11, 21.15%) were compared to those living in a major city, *Metropolitan* (n=41, 78.85%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.16), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.17).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Role**

functioning physical scale [W = 315.50, p = 0.0365*] was significantly higher for participants in the *Regional or remote* subgroup (Median = 100.00, IQR = 50.00) compared to participants in the *Metropolitan* subgroup (Median = 25.00, IQR = 75.00).

SF36 Role functioning/physical scale measures how physical health interferes with work or other activities. On average, participants in the *Regional or remote* subgroup scored higher than participants in the *Metropolitan* subgroup. This indicates that physical health never interfered with work or other activities for participants in the *Regional or remote* subgroup, and often interfered for participants in the *Metropolitan* subgroup.

Table 2.16: SF36 by location summary statistics and T-test

SF36 scale	Group	Number (n=52)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Regional or remote	11	21.15	48.18	17.50	0.95	50	0.3473
	Metropolitan	41	78.85	42.32	18.37			
General health	Regional or remote	11	21.15	61.82	19.01	0.28	50	0.7791
	Metropolitan	41	78.85	60.12	17.37			

Table 2.17: SF36 by location summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=52)	Percent	Median	IQR	W	p-value
Physical functioning	Regional or remote	11	21.15	90.00	27.50	282.50	0.2022
	Metropolitan	41	78.85	75.00	25.00		
Role functioning/physical	Regional or remote	11	21.15	100.00	50.00	315.50	0.0365*
	Metropolitan	41	78.85	25.00	75.00		
Role functioning/emotional	Regional or remote	11	21.15	100.00	33.33	271.50	0.2718
	Metropolitan	41	78.85	66.67	66.67		
Emotional well-being	Regional or remote	11	21.15	68.00	16.00	218.00	0.8745
	Metropolitan	41	78.85	76.00	24.00		
Social functioning	Regional or remote	11	21.15	75.00	43.75	264.50	0.3807
	Metropolitan	41	78.85	75.00	37.50		
Pain	Regional or remote	11	21.15	57.50	17.50	222.50	0.9548
	Metropolitan	41	78.85	57.50	32.50		
Health change	Regional or remote	11	21.15	25.00	25.00	191.50	0.4344
	Metropolitan	41	78.85	50.00	50.00		

*Statistically significant at p<0.05

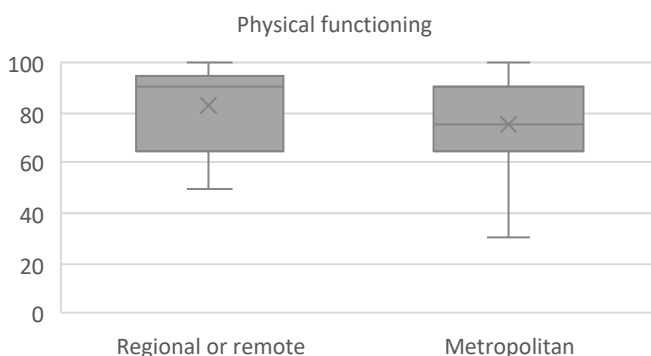


Figure 2.40: Boxplot of SF36 Physical functioning by location

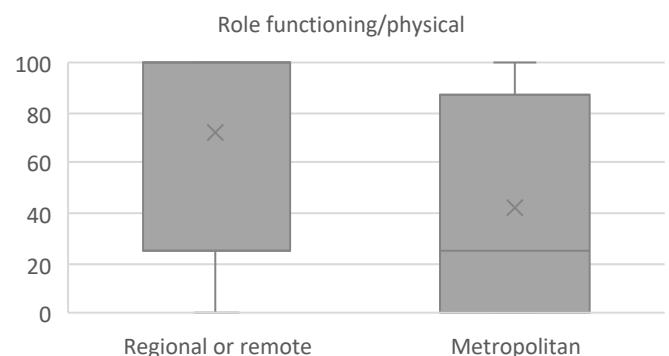


Figure 2.41: Boxplot of SF36 Role functioning/physical by location



Figure 2.42: Boxplot of SF36 Role functioning/emotional by location

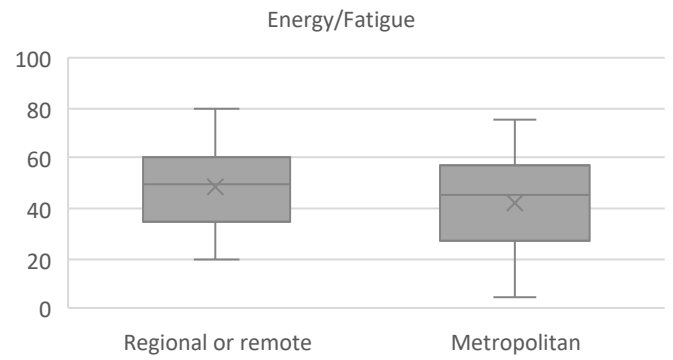


Figure 2.43: Boxplot of SF36 Energy/fatigue by location

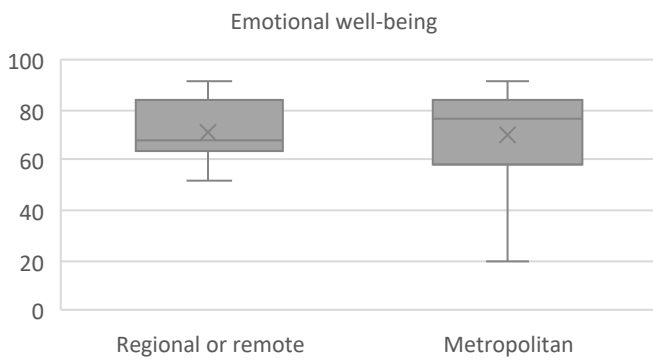


Figure 2.44: Boxplot of SF36 Emotional well-being by location

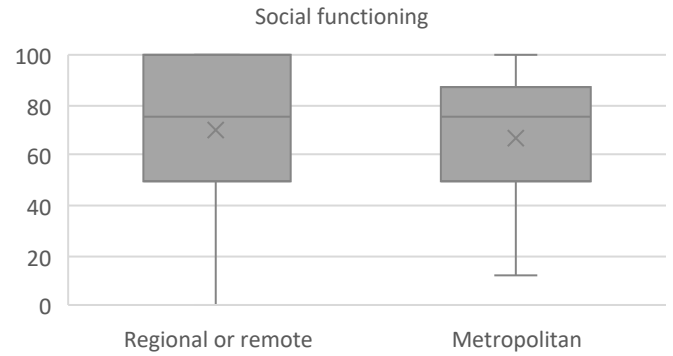


Figure 2.45: Boxplot of SF36 Social functioning by location

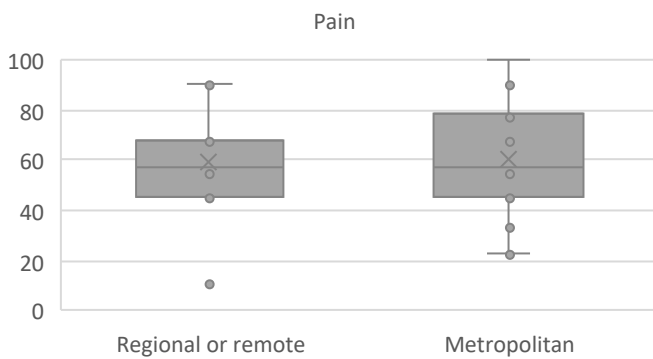


Figure 2.46: Boxplot of SF36 Pain by a location

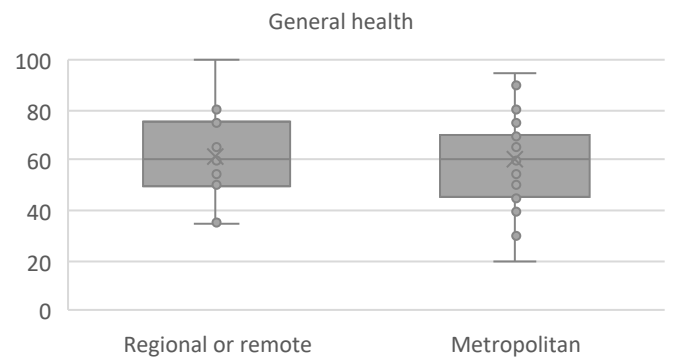


Figure 2.47: Boxplot of SF36 General health by location

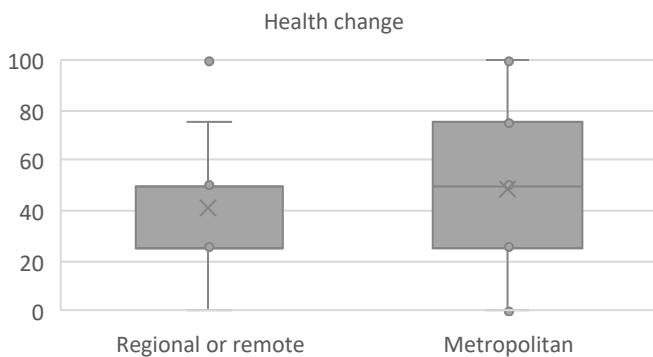


Figure 2.48: Boxplot of SF36 Health change by location

SF36 by socioeconomic status

Comparisons were made by **socioeconomic status**, using the Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au), SEIFA scores range from 1 to 10, a higher score denotes a higher level of advantage. Participants with a mid to low SEIFA score of 1-6, *Mid to low status* (n=158, 34.62%) compared to those with a higher SEIFA score of 7-10, *Higher status* (n=34, 65.38%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.18), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.19).

No significant differences were observed between participants by **socioeconomic status** for any of the SF36 scales.

Table 2.18: SF36 by socioeconomic status summary statistics and T-test

SF36 scale	Group	Number (n=52)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Mid to low status	18	34.62	44.72	16.76	0.33	50	0.7405
	Higher status	34	65.38	42.94	19.11			
General health	Mid to low status	18	34.62	59.17	18.73	-0.39	50	0.6985
	Higher status	34	65.38	61.18	17.15			

Table 2.19: SF36 by socioeconomic status summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=52)	Percent	Median	IQR	W	p-value
Physical functioning	Mid to low status	18	34.62	75.00	25.00	265.50	0.4382
	Higher status	34	65.38	77.50	20.00		
Role functioning/physical	Mid to low status	18	34.62	50.00	100.00	314.00	0.8804
	Higher status	34	65.38	37.50	100.00		
Role functioning/emotional	Mid to low status	18	34.62	100.00	33.33	346.00	0.4128
	Higher status	34	65.38	66.67	66.67		
Emotional well-being	Mid to low status	18	34.62	80.00	20.00	357.50	0.3234
	Higher status	34	65.38	72.00	26.00		
Social functioning	Mid to low status	18	34.62	75.00	34.38	313.50	0.8912
	Higher status	34	65.38	75.00	34.38		
Pain	Mid to low status	18	34.62	57.50	22.50	257.00	0.3448
	Higher status	34	65.38	62.50	45.00		
Health change	Mid to low status	18	34.62	50.00	50.00	335.00	0.5681
	Higher status	34	65.38	50.00	25.00		

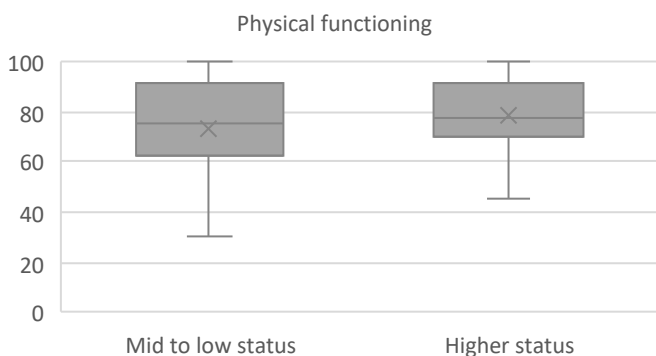


Figure 2.49: Boxplot of SF36 Physical functioning by socioeconomic status

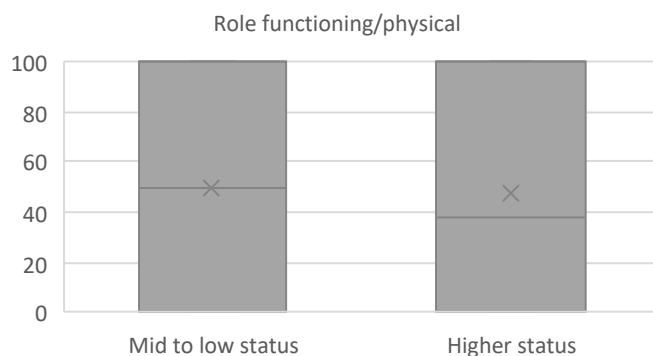


Figure 2.50: Boxplot of SF36 Role functioning/physical by socioeconomic status

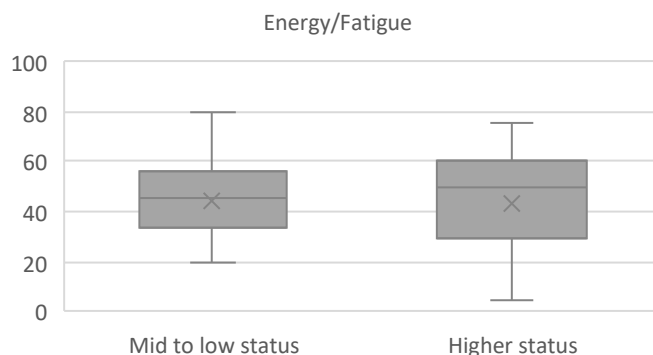
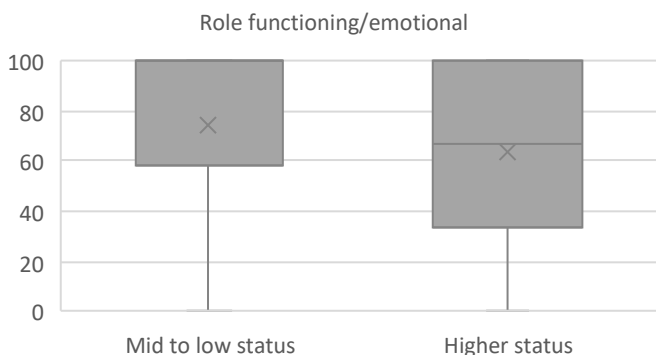


Figure 2.51: Boxplot of SF36 Role functioning/emotional by socioeconomic status

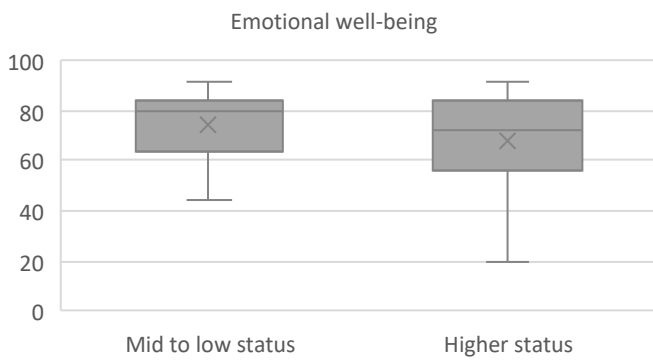


Figure 2.52: Boxplot of SF36 Energy/fatigue by socioeconomic status

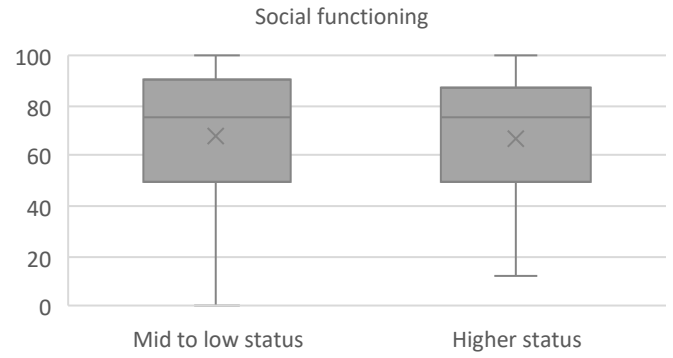


Figure 2.53: Boxplot of SF36 Emotional well-being by socioeconomic status

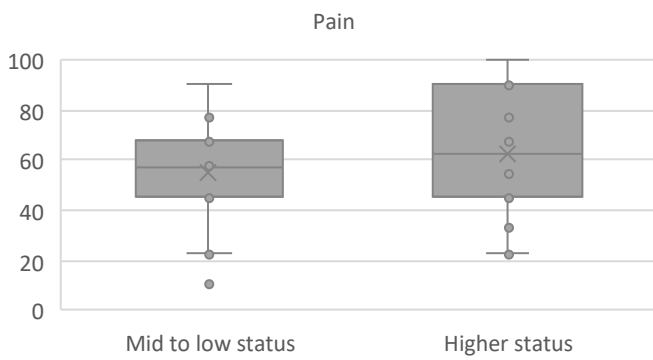


Figure 2.54: Boxplot of SF36 Social functioning by socioeconomic status

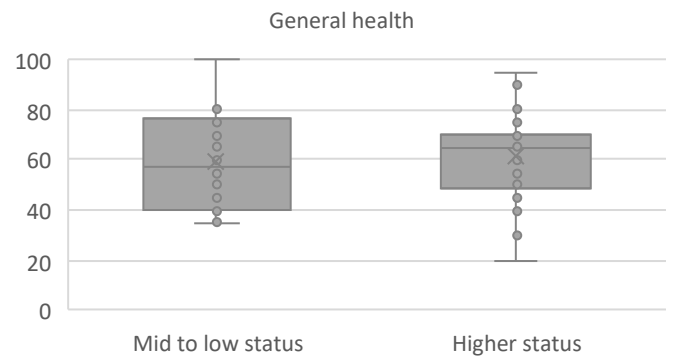


Figure 2.55: Boxplot of SF36 Pain by a stage socioeconomic status

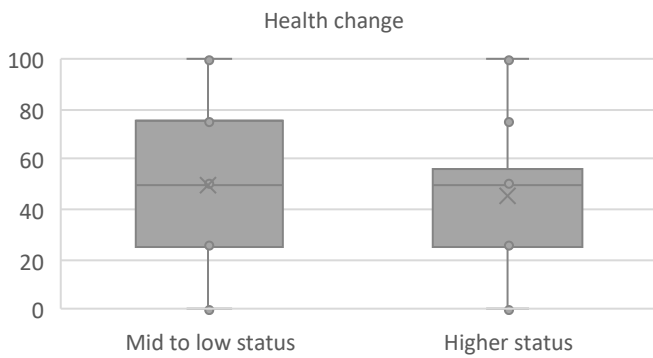


Figure 2.56: Boxplot of SF36 General health by socioeconomic status

Figure 2.57: Boxplot of SF36 Health change by socioeconomic status