Section 2

Demographics

Section 2 Demographics

Participants

There were 43 people with bladder cancer, and 5 carers of people with bladder cancer who took part in this study. There were 5 participants (10.42%) with Stage 0, 14 participants (29.17%) with Stage I, 10 participants (20.83%) with Stage II, 10 participants (20.83%) with Stage III, 4 participants (8.33%) with stage IV bladder cancer, and 5 carers (10.42%).

Demographics: Participants with bladder cancer

There were 43 people with bladder cancer that took part in this study, 17 were females (39.53%).

Participants were most commonly from New South Wales (n=20, 46.51%), Victoria (n=11, 25.58%), and South Australia (n=5, 11.63%). Most participants were from major cities (n=30, 69.77%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 26 participants (60.47%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 20 participants (41.67%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 18 participants (41.86%) that had completed university to at least an associate degree. There were 19 participants (44.19%), who were employed either full time or part time.

Approximately a quarter of participants were carers to family members or spouses (n=11,25.58%), most commonly carers to Children (n=5, 11.63%).

Demographics: Participants that are carers to people with bladder cancer

There were 5 carers to people with bladder cancer that took part, all were carers to males with bladder cancer. Carers most commonly lived in metropolitan areas (n=3, 60.00%), and were from NSW (n=2, 40.00%), or Victoria (n=2, 40.00%). The majority of carers were in either full or part time work (n=4, 80.00%).

Other health conditions

Participants were asked about health conditions other than bladder 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=38, 90.48%), the maximum number reported was 9 other conditions, with a median of 2.00 other conditions (IQR = 3.00). The most commonly reported health conditions were sleep problems (n=17, 40.48%), and anxiety (n=17, 40.48%), followed by arthritis or scoliosis (n=16, 38.10%), and depression (n=11, 26.19%).

Participants were asked a follow up question about their quality of life from these other conditions. Quality of life was rated on a Likert scale from one to seven, where one is "Life was very distressing" and seven is "Life was great". Median quality of life is presented where five or more participants reported the symptom.

Quality of life from other conditions ranged from 3.00 (life was a little distressing) to 5.00 (life was good).

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.

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, physical activities were not 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 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 mild pain.

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

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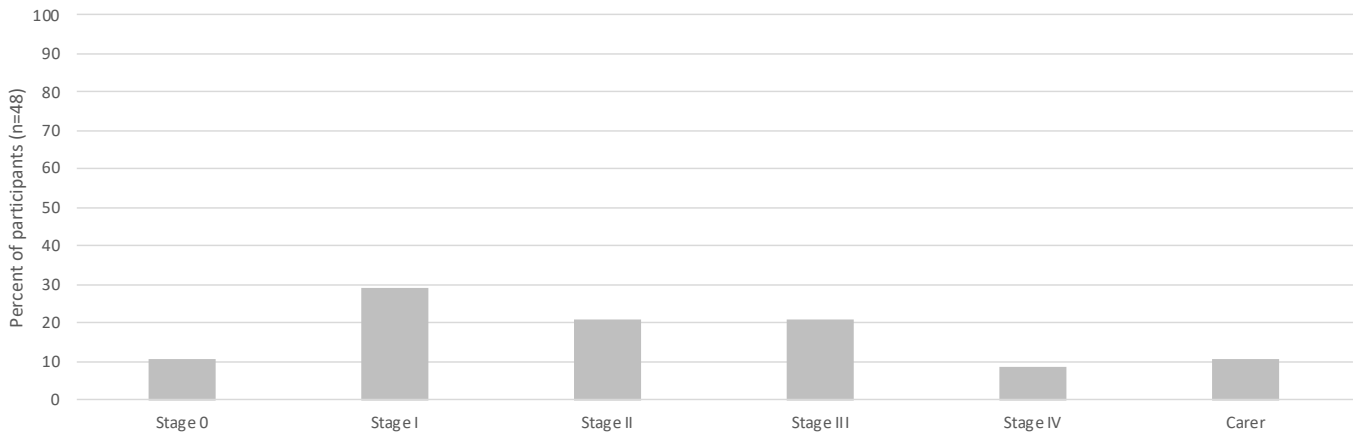
Participants

There were 43 people with bladder cancer, and 5 carers of people with bladder cancer who took part in this study. There were 5 participants (10.42%) with Stage 0, 14 participants (29.17%) with Stage I, 10 participants (20.83%) with Stage II, 10 participants (20.83%) with Stage III, 4 participants (8.33%) with stage IV bladder cancer, and 5 carers (10.42%). (Table 2.1, Figure 2.1).

Table 2.1: Participants

Participant type	Number (n=48)	Percent
Stage 0	5	10.42
Stage I	14	29.17
Stage II	10	20.83
Stage III	10	20.83
Stage IV	4	8.33
Carer	5	10.42

Figure 2.1: Participants

Demographics

Participants with bladder cancer

There were 43 people with bladder cancer that took part in this study, 17 were females (39.53%).

Participants were most commonly from New South Wales (n=20, 46.51%), Victoria (n=11, 25.58%), and South Australia (n=5, 11.63%). Most participants were from major cities (n=30, 69.77%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 26 participants (60.47%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 20 participants (41.67%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 18 participants (41.86%) that had completed university to at least an associate degree.

There were 19 participants (44.19%), who were employed either full time or part time.

Approximately a quarter of participants were carers to family members or spouses (n=11,25.58%), most commonly carers to Children (n=5, 11.63%). The demographics of participants are listed in Table 2.2.

Participants that are carers to people with bladder cancer

There were 5 carers to people with bladder cancer that took part, all were carers to males with bladder cancer. Carers most commonly lived in metropolitan areas (n=3, 60.00%), and were from NSW (n=2, 40.00%), or Victoria (n=2, 40.00%). The majority of carers were in either full or part time work (n=4, 80.00%).

Table 2.2: Demographics

Demographic	Definition	Number (n=43)	Percent	Number (n=5)	Percent
Gender	Female	17	39.53	0	0.00
	Male	26	60.47	5	100.00
Location	Major Cities of Australia	30	69.77	3	60.00
	Inner Regional Australia	10	23.26	0	0.00
	Outer Regional or remote Australia	3	6.98	2	40.00
State	Australian Capital Territory	3	6.98	0	0.00
	New South Wales	20	46.51	2	40.00
	Northern Territory	0	0.00	0	0.00
	Queensland	1	2.33	1	20.00
	South Australia	5	11.63	0	0.00
	Tasmania	1	2.33	0	0.00
	Victoria	11	25.58	2	40.00
	Western Australia	2	4.65	0	0.00
Socio-Economic Indexes for Areas (SEIFA)	1	1	2.33	1	20.00
	2	2	4.65	2	40.00
	3	3	6.98	0	0.00
	4	1	2.33	0	0.00
	5	6	13.95	0	0.00
	6	4	9.30	0	0.00
	7	4	9.30	0	0.00
	8	7	16.28	1	20.00
	9	7	16.28	0	0.00
	10	8	18.60	1	20.00
Race/ethnicity	Caucasian/White	40	93.02	4	80.00
	Asian	2	4.65	0	0.00
	Indigenous Australian	1	2.33	1	20.00
Education	Less than high school degree	3	6.98	0	0.00
	High school degree or equivalent	6	13.95	3	60.00
	Some college but no degree	6	13.95	0	0.00
	Trade	10	23.26	1	20.00
	Associate degree	2	4.65	0	0.00
	Bachelor degree	7	16.28	1	20.00
	Graduate degree	9	20.93	0	0.00
Employment	Retired	19	44.19	1	20.00
	Employed, working full time	14	32.56	3	60.00
	Employed, working part time	5	11.63	1	20.00
	Currently receiving Centrelink support	2	4.65	0	0.00
	Full/part time carer	2	4.65	0	0.00
	Disabled, not able to work	1	2.33	0	0.00
	Full/part time study	1	2.33	0	0.00
	Not employed, looking for work	1	2.33	0	0.00
Carer status	I am not a carer	32	74.42	3	60.00
	Children	5	11.63	2	40.00
	Parents	3	6.98	1	20.00
	Grandchildren	2	4.65	0	0.00
	Grandparents	1	2.33	0	0.00

Other health conditions

Participants were asked about health conditions other than bladder 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=38, 90.48%), the maximum number reported was 9 other conditions, with a median of 2.00 other conditions (IQR = 3.00) (Table 2.3, Figure 2.2). The most commonly reported health conditions were sleep problems (n=17, 40.48%), and anxiety (n=17, 40.48%), followed by arthritis or scoliosis (n=16, 38.10%), and depression (n=11, 26.19%) (Table 2.4, Figure 2.3).

Participants were asked a follow up question about their quality of life from these other conditions. Quality of life was rated on a Likert scale from one to seven, where one is "Life was very distressing" and seven is "Life was great". Median quality of life is presented where five or more participants reported the symptom.

Quality of life from other conditions ranged from 3.00 (life was a little distressing) to 5.00 (life was good).
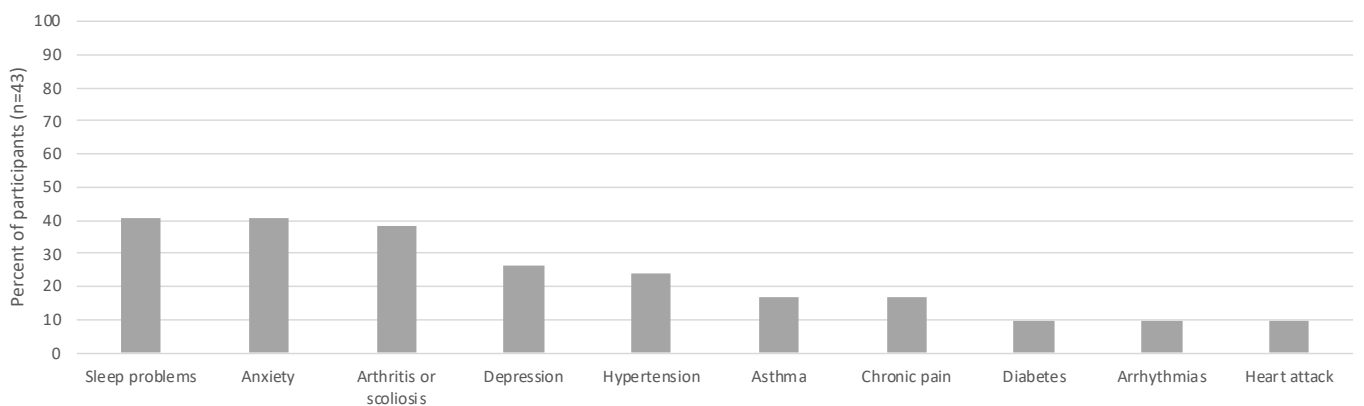
Table 2.3: Number of other health conditions

| Number of other conditions	Number (n=42)	Percent	Number (n=5)	Percent
No other conditions	5	11.90	3	7.14
1 to 2	19	45.24	0	0.00
3 to 4	13	30.95	1	2.38
5 to 6	4	9.52	1	2.38
7 or more	2	4.76	0	0.00
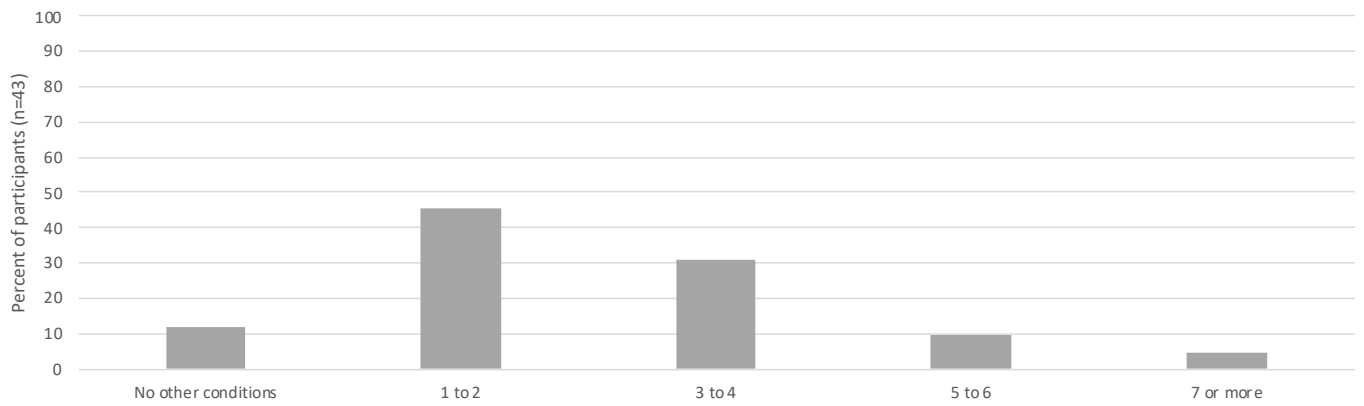
Figure 2.2: Number of other health conditions

Table 2.4: Other health conditions

Other conditions	Number (n=42)	Percent	Number (n=5)	Percent	Median	IQR
Sleep problems	17	40.48	1	20.00	4.00	1.00
Anxiety	17	40.48	2	40.00	4.00	2.00
Arthritis or scoliosis	16	38.10	1	20.00	4.50	1.50
Depression	11	26.19	1	20.00	4.00	1.50
Hypertension	10	23.81	1	20.00	5.00	1.50
Asthma	7	16.67	0	0.00	5.00	1.50
Chronic pain	7	16.67	1	20.00	3.00	1.00
Diabetes	4	9.52	0	0.00	NA	NA
Arrhythmias	4	9.52	0	0.00	NA	NA
Heart attack	4	9.52	0	0.00	NA	NA
Angina	2	4.76	0	0.00	NA	NA
Chronic Obstructive Pulmonary Disease (COPD)	2	4.76	1	20.00	NA	NA
Chronic heart failure	1	2.38	0	0.00	NA	NA
Other conditions or illnesses	13	30.95	2	40.00	NA	NA

Figure 2.3: Other health conditions (% of all participants)
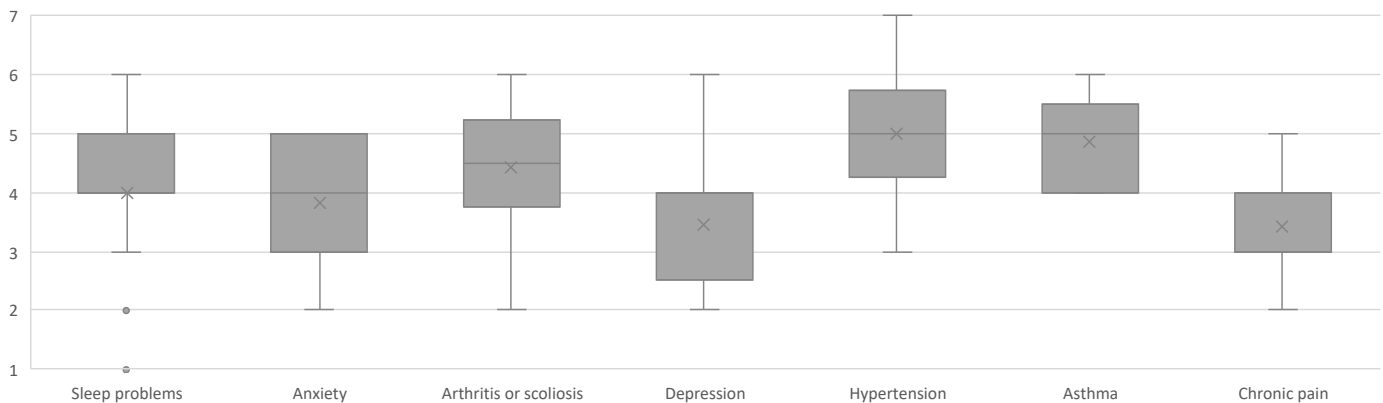
Figure 2.4: Other health conditions quality of life

Subgroup analysis

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

Comparisons were made by Stage. There were 19 participants (44.19%) with Early bladder cancer(Stages 0 and I), 10 participants (23.26%) with Invasive bladder cancer (Stage III), and 14 participants (32.56%) with Advanced bladder cancer (Stage IV).

Comparisons were made by type of participant, there were 43 participants (89.58%) with bladder cancer and, 5 participants (10.42%) that were a carer to someone with bladder cancer.

Comparisons were made by gender, there were 17 female participants (35.42%), and 31 male participants (64.58%).

Comparisons were made by education status, between those with trade or high school qualifications (n=29, 60.42%), and those with a university qualification (n=19, 39.58%).

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 or remote area (n=15, 31.25%) were compared to those living in a metropolitan area(n=33, 68.75%).

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 (n=20, 41.67%) compared to those with a higher SEIFA score of 7-10 (n=28, 58.33%).

Table 2.5: Subgroups

Subgroup	Definition	Number (n=48)	Percent
Stage (n=43)	Early (Stages 0 and I)	19	44.19
	Invasive (Stage III)	10	23.26
	Advanced (Stage IV)	14	32.56
Participant type	Person with bladder cancer	43	89.58
	Carer to someone with bladder cancer	5	10.42
Gender (n=48)	Female	17	35.42
(Of person with bladder cancer)	Male	31	64.58
Education(n=48)	Trade or high school	29	60.42
(Of person with bladder cancer)	University	19	39.58
Location(n=48)	Regional or remote	15	31.25
(Of person completing questionnaire)	Metropolitan	33	68.75
Socioeconomic status(n=48)	Mid to low status	20	41.67
(Of person completing questionnaire)	Higher status	28	58.33

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 Physical functioning** (median=85.00, IQR=20.00), and **SF36 Role functioning/emotional** (median=83.33, IQR=66.67), indicating very good physical functioning, very good emotional role functioning,

The overall scores for the cohort were in the second highest quintile for **SF36 Emotional well-being** (mean=66.92, SD=16.48), **SF36 Social functioning** (median=62.50, IQR=50.00), and **SF36 Pain** (median=77.50, IQR=25.00), indicating good emotional well-being, good social functioning, mild pain,

The overall scores for the cohort were in the middle quintile for **SF36 Role functioning/physical** (median=50.00, IQR=75.00), **SF36 Energy/Fatigue** (mean=52.71, SD=17.59), **SF36 General health** (mean=56.35, SD=18.76), and **SF36 Health change** (median=50.00, IQR=25.00), indicating moderate physical role functioning, moderate energy, moderate general health, about the same as a year ago

SF36 **Physical functioning** scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, physical activities were not 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 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 mild pain.

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

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

Table 2.6: SF36 summary statistics

SF36 scale (n=48)	Mean	SD	Median	IQR	Possible range	Quintile
Physical functioning	78.96	20.45	85.00	20.00	0 to 100	5
Role functioning/physical	56.25	39.11	50.00	75.00	0 to 100	3
Role functioning/emotional	64.58	39.74	83.33	66.67	0 to 100	5
Energy/Fatigue*	52.71	17.59	55.00	27.50	0 to 100	3
Emotional well-being*	66.92	16.48	68.00	24.00	0 to 100	4
Social functioning	65.89	26.89	62.50	50.00	0 to 100	4
Pain	71.51	21.34	77.50	25.00	0 to 100	4
General health*	56.35	18.76	60.00	30.00	0 to 100	3
Health change	58.33	24.91	50.00	25.00	0 to 100	3

*Normal distribution, use mean and SD as central measure. Possible range 0-100

SF36 by bladder cancer stage

Comparisons were made by Stage. There were 19 participants (44.19%) with early bladder cancer(Stages 0 and I), 10 participants (23.26%) with invasive bladder cancer (Stage III), and 14 participants (32.56%) with advanced bladder cancer (Stage 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 Physical functioning** scale between groups, $\chi 2(2) = 7.50$, p = 0.0235. Wilcoxon rank sum tests between groups indicated that participants in the early bladder cancer subgroup (median = 90.00, IQR = 15.00) was significantly higher compared to participants in the advanced bladder cancer subgroup (median = 72.50, IQR = 38.75 p=0.0770).

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, participants in the early bladder cancer subgroup scored higher than participants in the advanced subgroup. This indicates that physical activities were not limited for participants in the early bladder cancer subgroup and were slightly limited for participants in the advanced subgroup.

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

SF36 scale	Group	Number (n=43)	Percent	Mean	SD	Source of difference	Sum of squares	dF	Mean Square	f	p-value
Energy/fatigue	Early	19	44.19	53.16	15.83	Between groups	697.00	2	348.40	1.09	0.3470
	Invasive	10	23.26	59.50	17.07	Within groups	12804.00	40	320.10		
	Advanced	14	32.56	48.57	20.89	Total	13501.00	42	668.50		
Emotional well-being	Early	19	44.19	68.00	16.17	Between groups	28.00	2	13.87	0.05	0.9470
	Invasive	10	23.26	70.00	16.57	Within groups	10263.00	40	256.57		
	Advanced	14	32.56	68.29	15.41	Total	10291.00	42	270.44		
General health	Early	19	44.19	56.58	18.93	Between groups	362.00	2	181.20	0.54	0.5850
	Invasive	10	23.26	56.50	18.42	Within groups	13328.00	40	333.20		
	Advanced	14	32.56	50.36	17.15	Total	13690.00	42	514.40		

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

SF36 scale	Group	Number (n=43)	Percent	Median	IQR	C^2	dF	p-value
Physical functioning	Early	19	44.19	90.00	15.00	7.50	2	0.0235*
	Invasive	10	23.26	85.00	8.75			
	Advanced	14	32.56	72.50	38.75			
Role functioning physical	Early	19	44.19	50.00	62.50	2.81	2	0.2457
	Invasive	10	23.26	87.50	50.00			
	Advanced	14	32.56	25.00	75.00			
Role functioning emotional	Early	19	44.19	66.67	66.67	0.74	2	0.6919
	Invasive	10	23.26	100.00	66.67			
	Advanced	14	32.56	100.00	33.33			
Social functioning	Early	19	44.19	75.00	43.75	0.91	2	0.6341
	Invasive	10	23.26	75.00	56.25			
	Advanced	14	32.56	62.50	43.75			
Pain	Early	19	44.19	77.50	11.25	3.85	2	0.1460
	Invasive	10	23.26	85.00	20.00			
	Advanced	14	32.56	67.50	41.88			
Health change	Early	19	44.19	50.00	25.00	0.71	2	0.7003
	Invasive	10	23.26	50.00	25.00			
	Advanced	14	32.56	62.50	25.00			

*Statistically significant at p<0.05

Table 2.9: SF36 by bladder cancer stage Wilcoxon rank sum tests between groups p values

SF36 scale	Subgroup	Early	Invasive
Physical functioning	Invasive	0.6420	-
	Advanced	0.0310*	0.0770

*Statistically significant at p<0.05
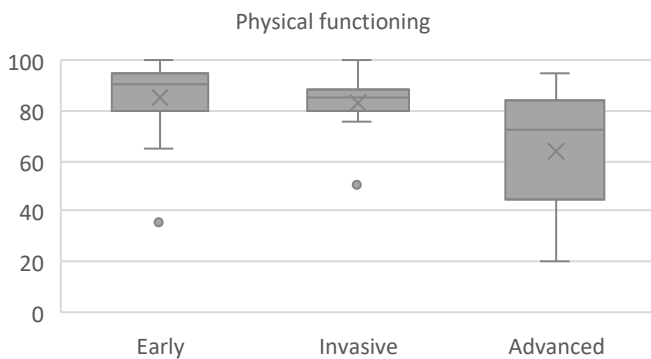
Figure 2.5: Boxplot of SF36 Physical functioning by bladder cancer stage
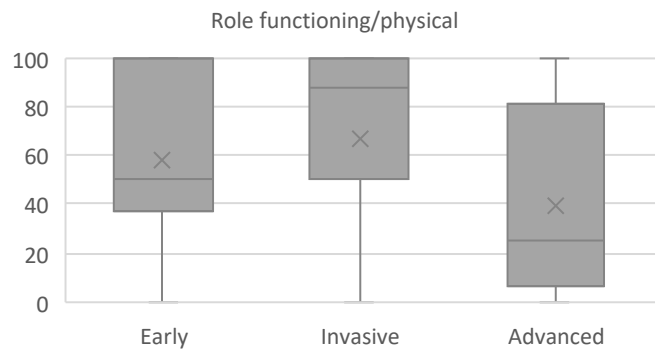
Figure 2.6: Boxplot of SF36 Role functioning/physical by bladder cancer stage

Figure 2.7: Boxplot of SF36 Role functioning/emotional by bladder cancer stage
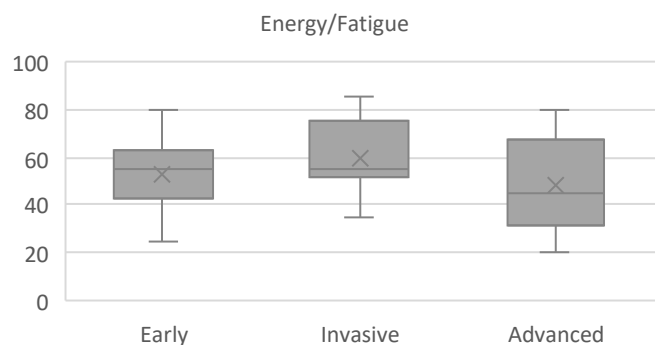
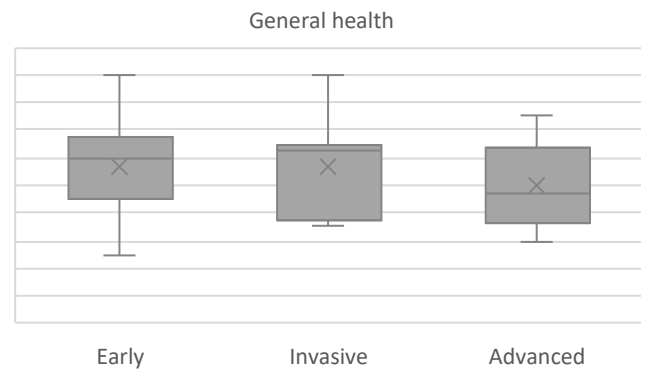**Figure 2.8: Boxplot of SF36 Energy/fatigue by bladder cancer stage**
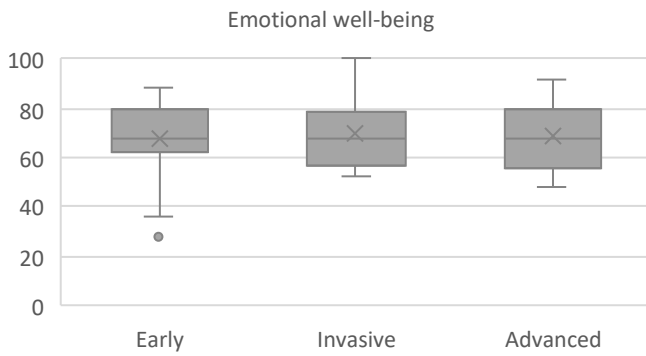
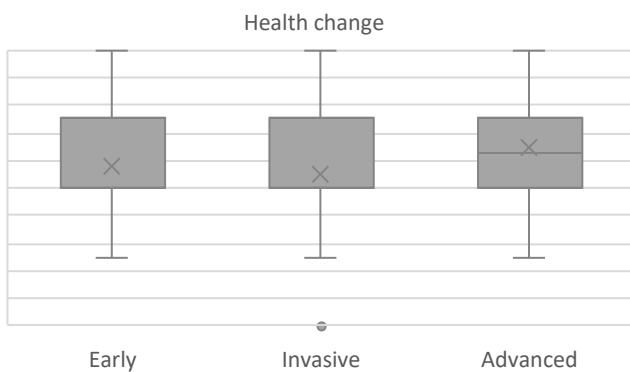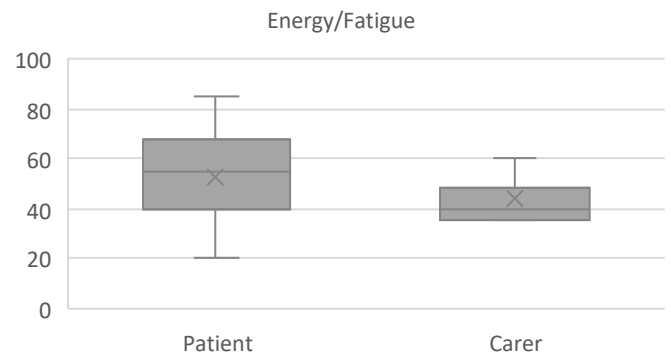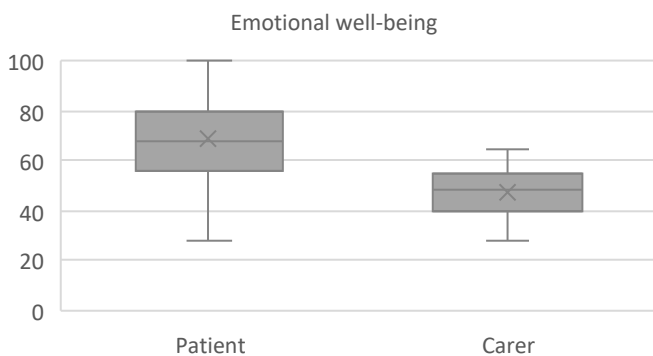**Figure 2.9: Boxplot of SF36 Emotional well-being by bladder cancer stage**
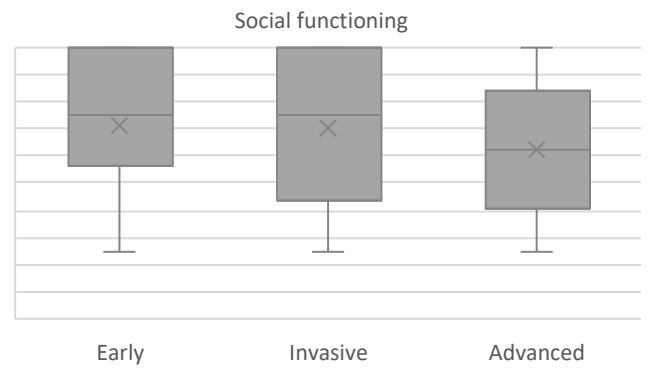
Figure 2.10: Boxplot of SF36 Social functioning by bladder cancer stage
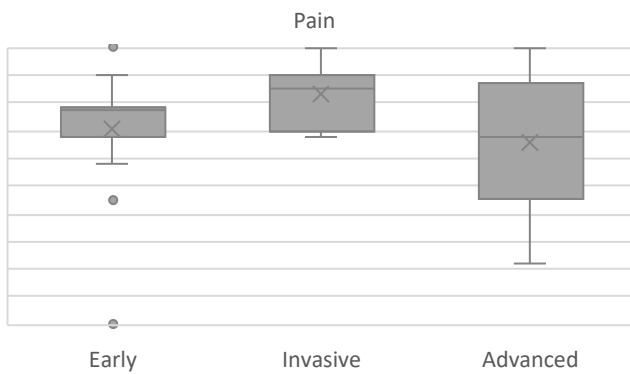
Figure 2.11: Boxplot of SF36 Pain by a bladder cancer stage

Figure 2.12: Boxplot of SF36 General health by bladder cancer stage

Figure 2.13: Boxplot of SF36 Health change by bladder cancer stage

SF36 by participant type

Comparisons were made by type of participant, there were 43 participants (89.58%) with bladder cancer and, 5 participants (10.42%) that were a carer to someone with bladder cancer.

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).

A two sample t-test indicated that the mean score for the **SF36 Emotional well-being** scale [t(46) = 2.10 , p =

0.0416] was significantly higher for participants in the Mid to low status subgroup (Mean = 68.56, SD = 15.65) compared to participants in the Higher status subgroup (Mean = 52.80, SD = 18.42.)

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

Table 2.10: SF36 by participant type summary statistics and T-test

SF36 scale	Group	Number (n=47)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Patient	43	89.58	53.14	17.93	0.49	46	0.6237
	Carer	5	10.42	49.00	15.57			
Emotional well-being	Patient	43	89.58	68.56	15.65	2.10	46	0.0416*
	Carer	5	10.42	52.80	18.42			

*Statistically significant at p<0.05

Table 2.11: SF36 by participant type summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=48)	Percent	Median	IQR	W	p-value
Physical functioning	Patient	43	89.58	85.00	20.00	59.50	0.1057
	Carer	5	10.42	100.00	15.00		
Role functioning/physical	Patient	43	89.58	50.00	75.00	81.00	0.3663
	Carer	5	10.42	75.00	0.00		
Role functioning/emotional	Patient	43	89.58	100.00	66.67	156.50	0.0771
	Carer	5	10.42	33.33	33.33		
Social functioning	Patient	43	89.58	75.00	50.00	158.50	0.0824
	Carer	5	10.42	50.00	0.00		
Pain	Patient	43	89.58	77.50	22.50	132.00	0.4117
	Carer	5	10.42	67.50	10.00		
General health	Patient	43	89.58	60.00	27.50	51.00	0.0576
	Carer	5	10.42	70.00	20.00		
Health change	Patient	43	89.58	50.00	25.00	130.50	0.4247
	Carer	5	10.42	50.00	0.00		
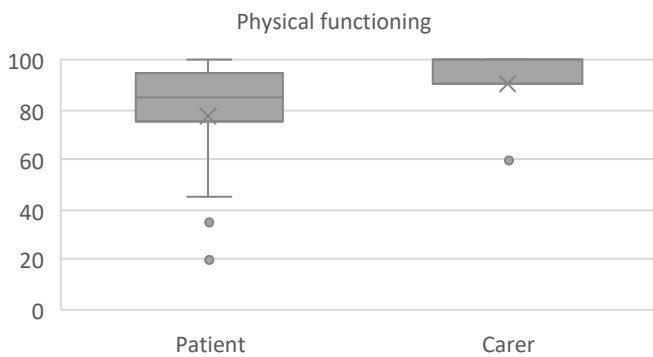
Figure 2.14: Boxplot of SF36 Physical functioning by participant type
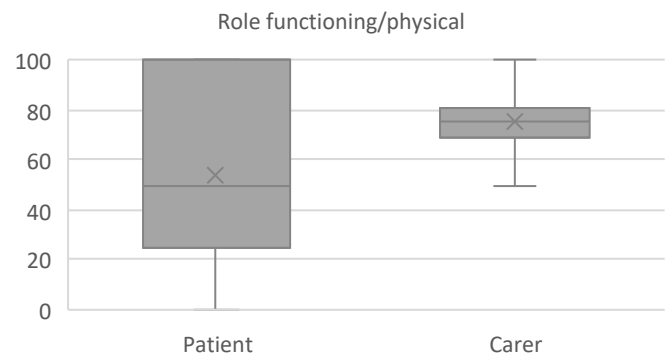
Figure 2.15: Boxplot of SF36 Role functioning/physical by participant type
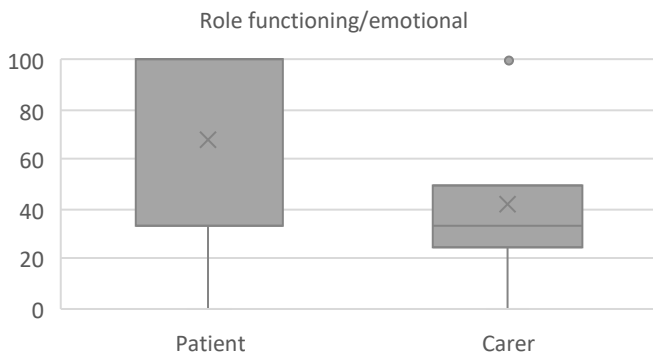
Figure 2.16: Boxplot of SF36 Role functioning/emotional by participant type

Figure 2.17: Boxplot of SF36 Energy/fatigue by participant type

Figure 2.18: Boxplot of SF36 Emotional well-being by participant type
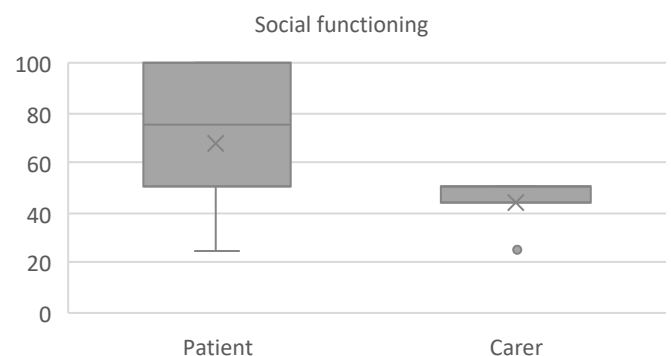
Figure 2.19: Boxplot of SF36 Social functioning by participant type
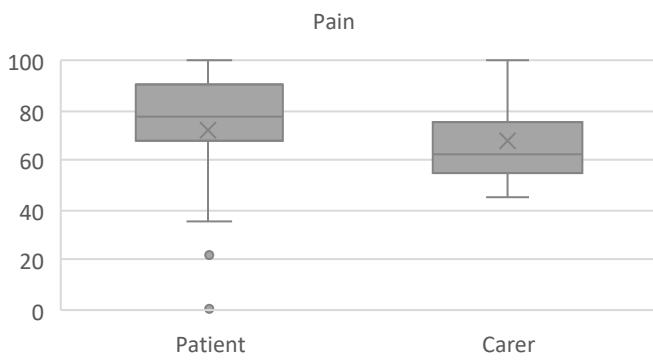
Figure 2.20: Boxplot of SF36 Pain by a participant type
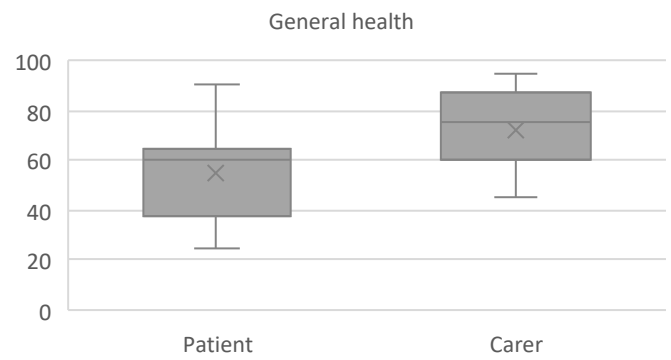
Figure 2.21: Boxplot of SF36 General health by participant type
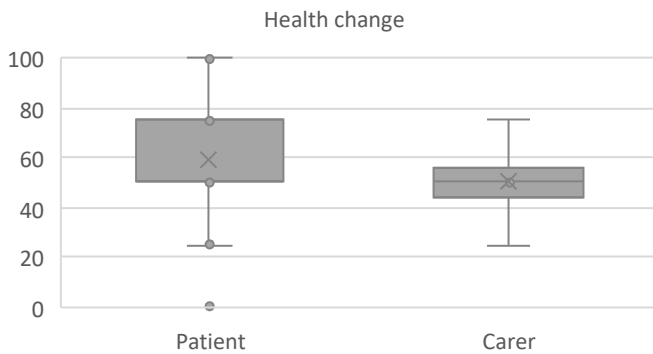
Figure 2.22: Boxplot of SF36 Health change by participant type

SF36 by Gender

Comparisons were made by gender, there were 17 female participants (35.42%), and 31 male participants (64.58%).

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).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Physical functioning** scale [W = 337.00, p = 0.0449] was significantly higher for participants in the female subgroup (Median = 90.00, IQR = 11.25) compared to participants in the male subgroup (Median = 80.00, IQR = 35.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Social functioning** scale [W = 339.50, p = 0.037] was significantly higher for participants in the female subgroup (Median = 81.25, IQR = 37.50) compared to participants in the male subgroup (Median = 62.50, IQR = 37.50).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 General health** scale [W = 345.50, p = 0.029] was significantly higher for participants in the female subgroup (Median = 65.00, IQR = 12.50) compared to participants in the male subgroup (Median = 45.00, IQR = 30.00).

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, participants in the female subgroup scored higher than participants in the male subgroup. This indicates that physical activities were not limited for participants in the female subgroup, and were slightly limited for participants in the male subgroup.

SF36 Social functioning scale measures limitations on social activities due to physical or emotional problems. On average, participants in the female subgroup scored higher than participants in the male subgroup. This indicates that social activities were not limited for participants in the female subgroup, and slightly limited for participants in the male subgroup.

SF36 General health scale measures perception of health. On average, participants in the female subgroup scored higher than participants in the male subgroup. This indicates that participants in the female subgroup had good health, and participants in the male subgroup had average health.

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

SF36 scale	Group	Number (n=48)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Female	17	35.42	59.06	18.00	1.76	45	0.0858
	Male	31	64.58	49.68	17.03			
Emotional well-being	Female	17	35.42	72.00	18.13	1.62	45	0.1112
	Male	31	64.58	63.87	15.23			

Table 2.13: SF36 by Gender summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=48)	Percent	Median	IQR	W	p-value
Physical functioning	Female	17	35.42	90.00	11.25	337.00	0.0449*
	Male	31	64.58	80.00	35.00		
Role functioning/physical	Female	17	35.42	100.00	56.25	320.00	0.0981
	Male	31	64.58	50.00	50.00		
Role functioning/emotional	Female	17	35.42	100.00	66.67	306.50	0.1613
	Male	31	64.58	66.67	66.67		
Social functioning	Female	17	35.42	81.25	37.50	339.50	0.0373*
	Male	31	64.58	62.50	37.50		
Pain	Female	17	35.42	78.75	15.00	330.50	0.0618
	Male	31	64.58	67.50	20.00		
General health	Female	17	35.42	65.00	12.50	345.50	0.0287*
	Male	31	64.58	45.00	30.00		
Health change	Female	17	35.42	50.00	25.00	282.00	0.4285
	Male	31	64.58	50.00	37.50		

*Statistically significant at p<0.05
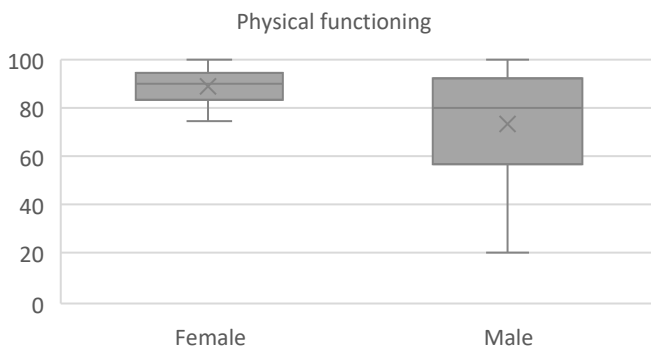
Figure 2.23: Boxplot of SF36 Physical functioning by Gender
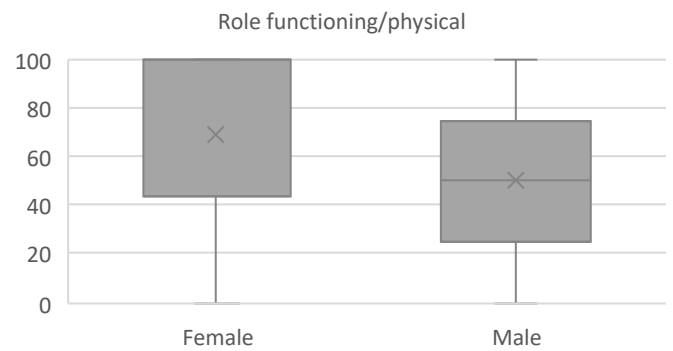
Figure 2.24: Boxplot of SF36 Role functioning/physical by Gender
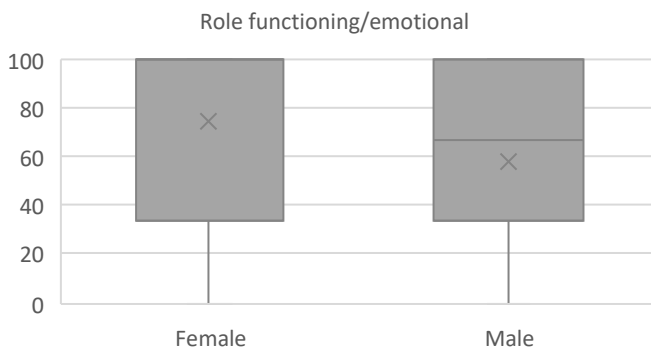
Figure 2.25: Boxplot of SF36 Role functioning/emotional by Gender
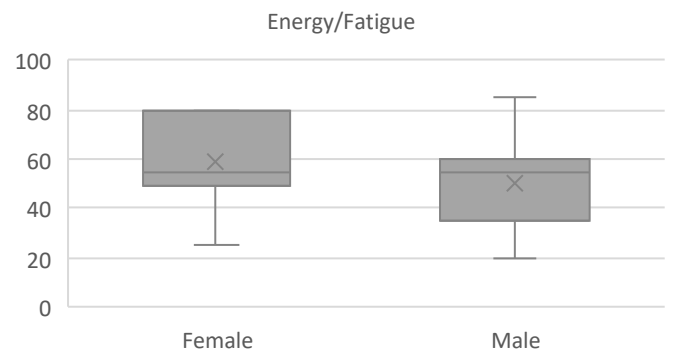
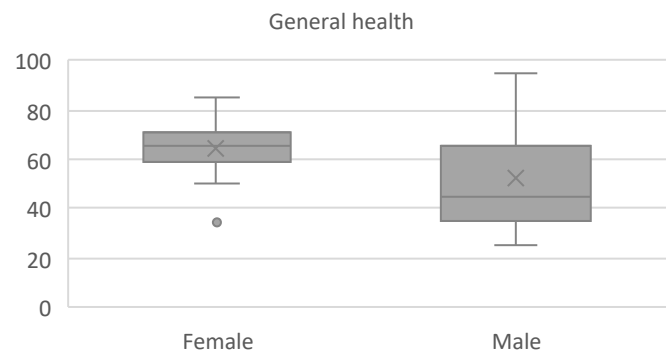**Figure 2.26: Boxplot of SF36 Energy/fatigue by Gender**

Figure 2.27: Boxplot of SF36 Emotional well-being by Gender
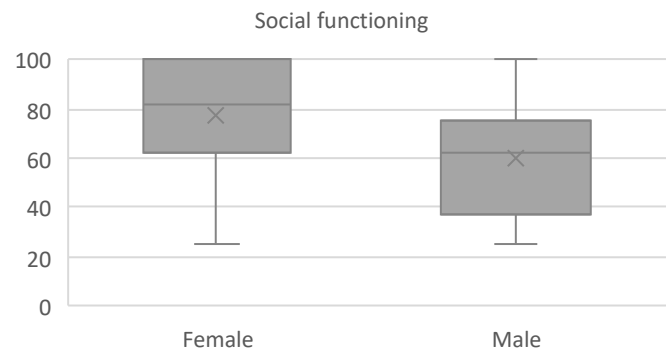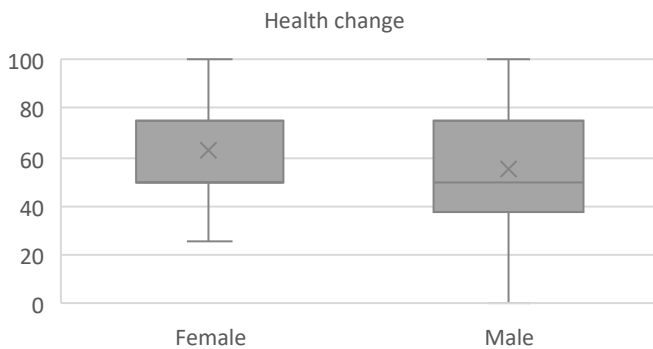

Figure 2.28: Boxplot of SF36 Social functioning by Gender
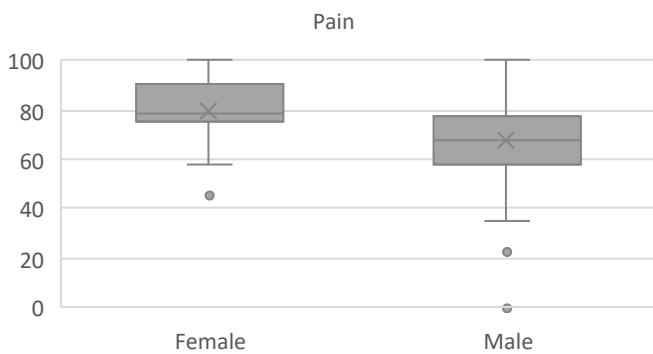
Figure 2.29: Boxplot of SF36 Pain by a Gender

Figure 2.30: Boxplot of SF36 General health by Gender

Figure 2.31: Boxplot of SF36 Health change by Gender

SF36 by education

Comparisons were made by education status, between those with trade or high school qualifications (n=29, 60.42%), and those with a university qualification (n=19, 39.58%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.14), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.15).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Physical functioning** scale [W = 169.00, p = 0.043] was significantly lower for participants in the trade or high school subgroup (Median = 80.00, IQR = 40.00)

compared to participants in the university subgroup (Median = 85.00, IQR = 10.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Energy/fatigue** scale [W = 163.00, p = 0.031] was significantly lower for participants in the trade or high school subgroup (Median = 40.00, IQR = 25.00) compared to participants in the university subgroup (Median = 55.00, IQR = 18.75).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Pain** scale [W = 137.50, p = 0.006] was significantly lower for participants in the trade or high school subgroup

(Median = 67.50, IQR = 32.50) compared to participants in the university subgroup (Median = 78.75, IQR = 20.00).

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, participants in the university subgroup scored higher than participants in the trade or high school subgroup. This indicates that physical activities were not limited for participants in the university subgroup, and were slightly limited for participants in the trade or high school subgroup.

SF36 Energy/fatigue scale measures the proportion of energy or fatigue experienced. On average, participants in the university subgroup scored higher than participants in the trade or high school subgroup. This indicates that participants in the university subgroup were sometimes fatigued, and participants in the trade or high school subgroup were often fatigued.

SF36 Pain scale measures how much pain, and how pain interferes with work and other activities. On average, participants in the university subgroup scored higher than participants in the trade or high school subgroup. This indicates that participants in the university subgroup had mild pain, and participants in the trade or high school subgroup had moderate pain.

Table 2.14: SF36 by education summary statistics and T-test

SF36 scale	Group	Number (n=48)	Percent	Mean	SD	T	dF	p-value
Emotional well-being	Trade or high school	29	60.42	65.10	16.97	-0.80	45	0.4254
	University	19	39.58	69.11	15.99			

Table 2.15: SF36 by education summary statistics and Wilcoxon test

| SF36 scale	Group	Number (n=48)	Percent	Median	IQR	W	p-value
Physical functioning	Trade or high school	29	60.42	80.00	40.00	169.00	0.0432*
	University	19	39.58	85.00	10.00		
Role functioning/physical	Trade or high school	29	60.42	50.00	75.00	215.00	0.3048
	University	19	39.58	75.00	68.75		
Role functioning/emotional	Trade or high school	29	60.42	66.67	66.67	210.00	0.2345
	University	19	39.58	100.00	66.67		
Energy/Fatigue	Trade or high school	29	60.42	40.00	25.00	163.00	0.0315*
	University	19	39.58	55.00	18.75		
Social functioning	Trade or high school	29	60.42	62.50	25.00	243.50	0.7045
	University	19	39.58	62.50	50.00		
Pain	Trade or high school	29	60.42	67.50	32.50	137.50	0.0063*
	University	19	39.58	78.75	20.00		
General health	Trade or high school	29	60.42	55.00	30.00	209.00	0.2576
	University	19	39.58	62.50	18.75		
Health change	Trade or high school	29	60.42	50.00	25.00	210.00	0.2446
	University	19	39.58	50.00	25.00		

*Statistically significant at p<0.05
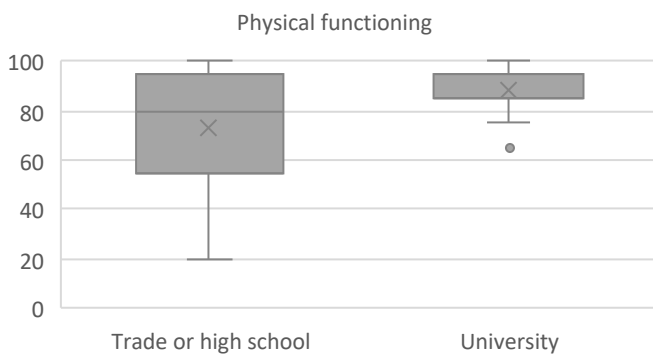
Figure 2.32: Boxplot of SF36 Physical functioning by education
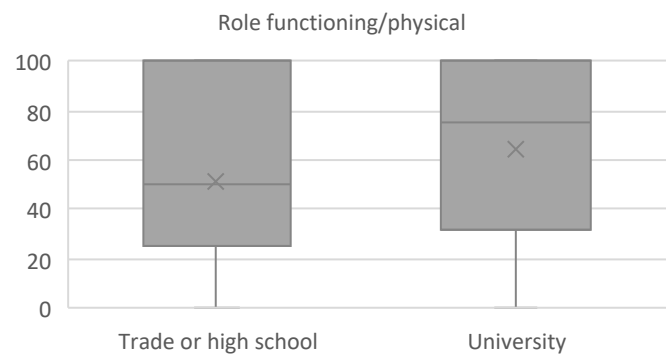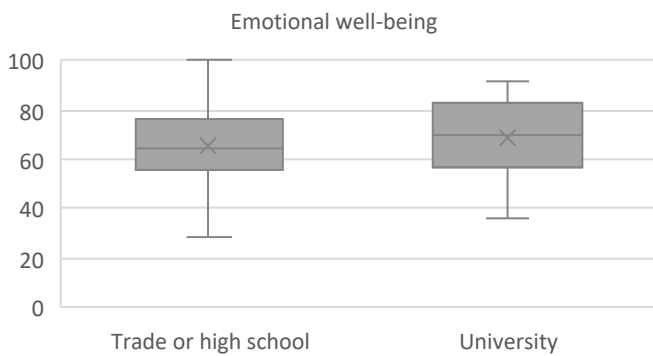

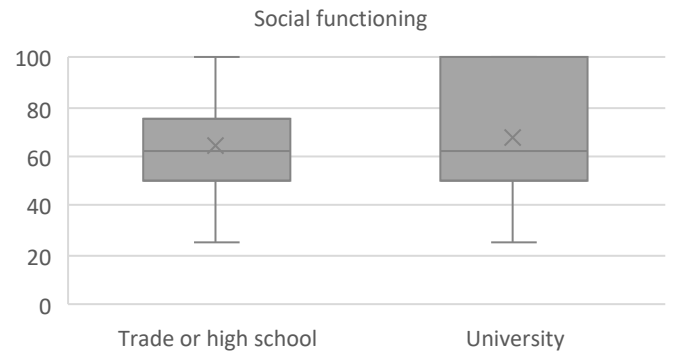**Figure 2.33: Boxplot of SF36 Role functioning/physical by education**
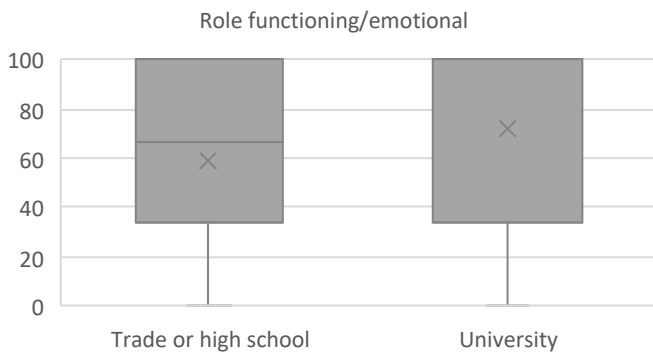
Figure 2.34: Boxplot of SF36 Role functioning/emotional by education
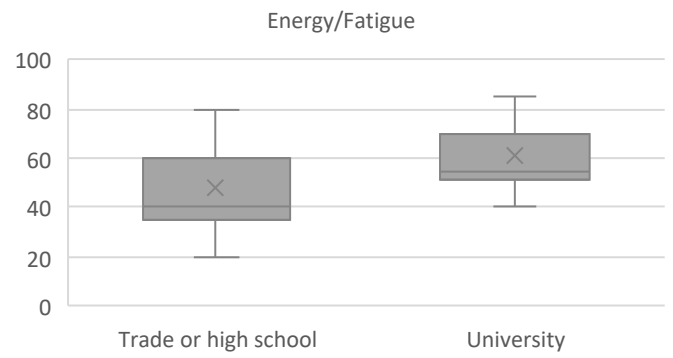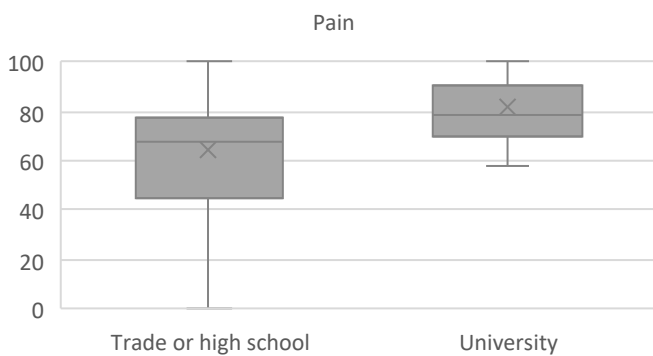

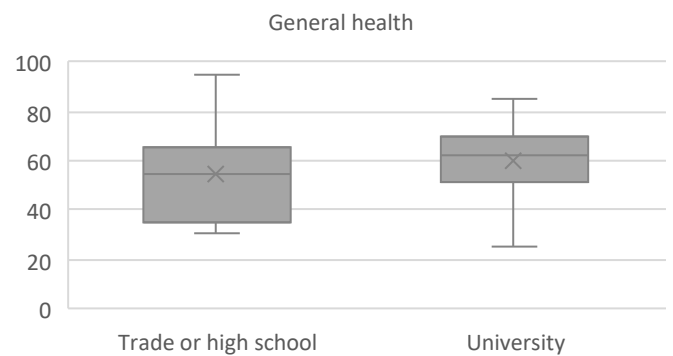**Figure 2.35: Boxplot of SF36 Energy/fatigue education**

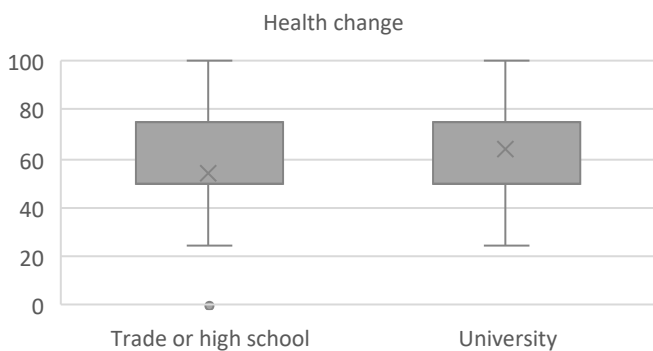**Figure 2.36: Boxplot of SF36 Emotional well-being by education**

Figure 2.37: Boxplot of SF36 Social functioning by education

Figure 2.38: Boxplot of SF36 Pain by a education

Figure 2.39: Boxplot of SF36 General health by education

Figure 2.40: Boxplot of SF36 Health change by education

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 or remote area (n=15, 31.25%) were compared to those living in a metropolitan area(n=33, 68.75%).

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).

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

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

SF36 scale	Group	Number (n=48)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Regional or remote	15	31.25	49.33	17.10	-0.93	45	0.3549
	Metropolitan	33	68.75	54.53	18.07			
Emotional well-being	Regional or remote	15	31.25	61.33	20.71	-1.53	45	0.1337
	Metropolitan	33	68.75	69.13	13.87			

Table 2.17: SF36 by location summary statistics and Wilcoxon test

| SF36 scale	Group	Number (n=48)	Percent	Median	IQR	W	p-value
Physical functioning	Regional or remote	15	31.25	85.00	15.00	266.50	0.5491
	Metropolitan	33	68.75	82.50	21.25		
Role functioning/physical	Regional or remote	15	31.25	75.00	62.50	263.50	0.5885
	Metropolitan	33	68.75	50.00	81.25		
Role functioning/emotional	Regional or remote	15	31.25	33.33	83.33	206.00	0.4109
	Metropolitan	33	68.75	83.33	66.67		
Social functioning	Regional or remote	15	31.25	62.50	62.50	243.50	0.9444
	Metropolitan	33	68.75	62.50	40.63		
Pain	Regional or remote	15	31.25	77.50	22.50	287.00	0.2817
	Metropolitan	33	68.75	67.50	32.50		
General health	Regional or remote	15	31.25	60.00	27.50	239.00	0.9909
	Metropolitan	33	68.75	60.00	31.25		
Health change	Regional or remote	15	31.25	75.00	25.00	314.50	0.0754
	Metropolitan	33	68.75	50.00	50.00		
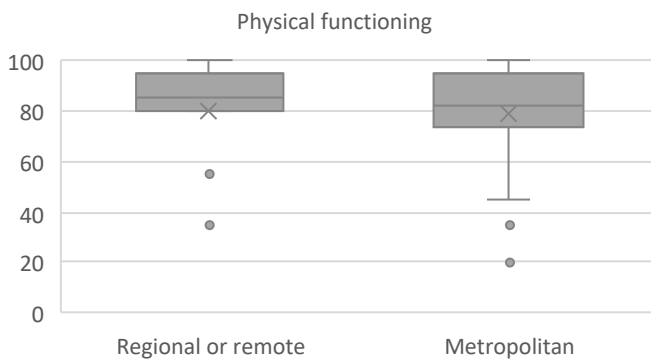
Figure 2.41: Boxplot of SF36 Physical functioning by location
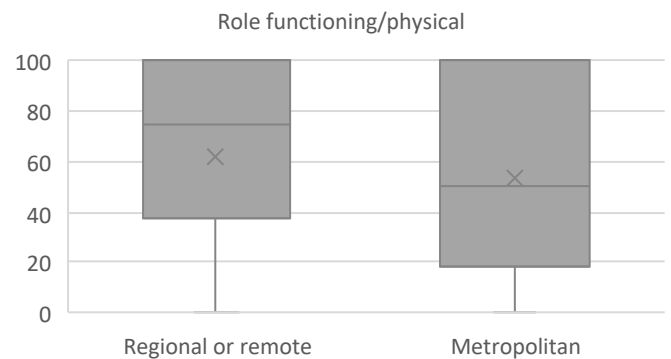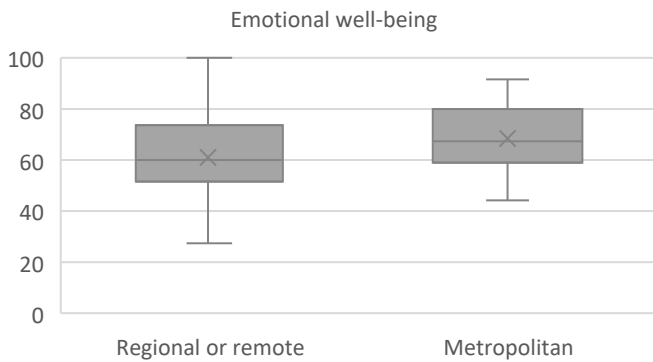

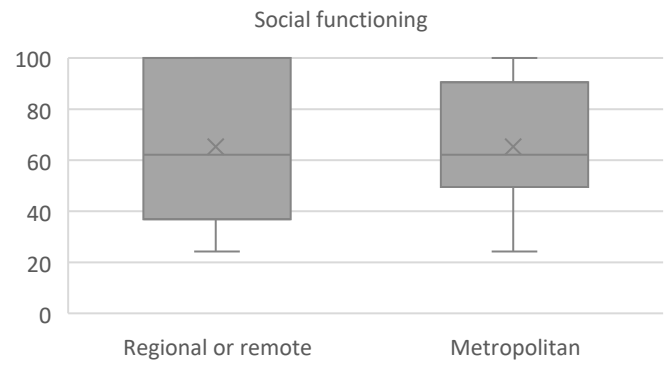**Figure 2.42: Boxplot of SF36 Role functioning/physical by location**
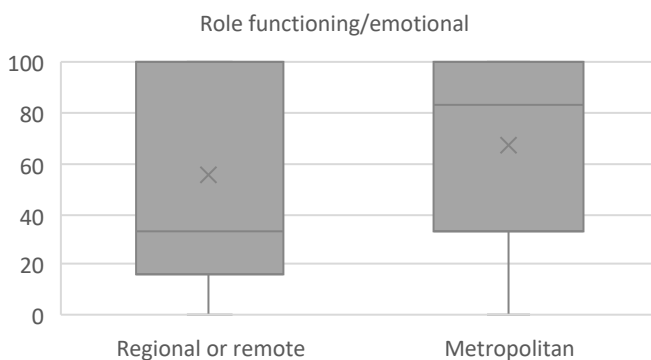
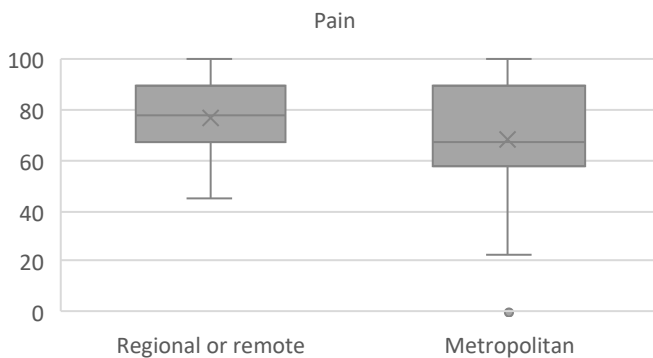**Figure 2.43: Boxplot of SF36 Role functioning/emotional by location**
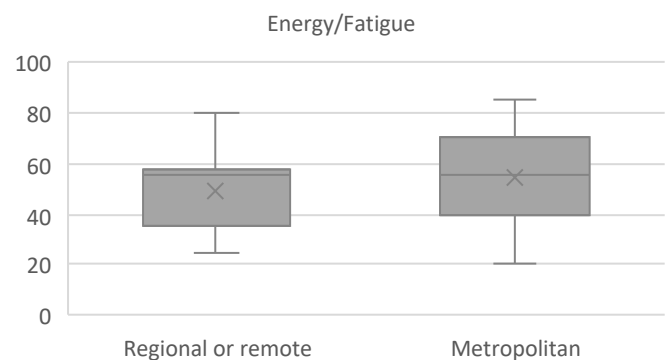
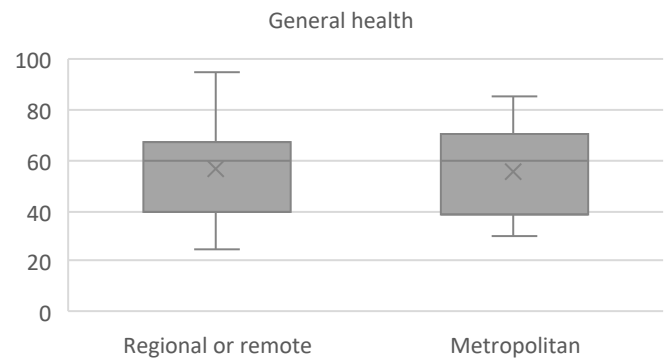**Figure 2.44: Boxplot of SF36 Energy/fatigue by location**

Figure 2.45: Boxplot of SF36 Emotional well-being by location
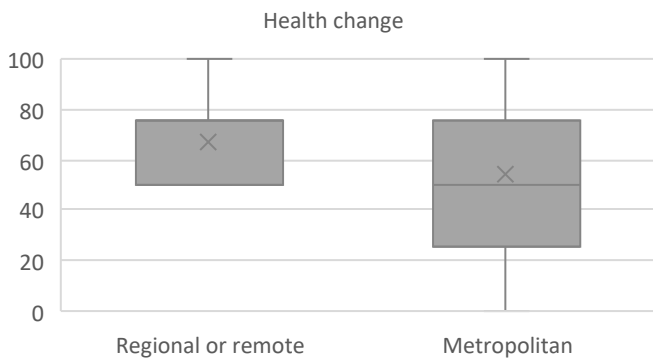

Figure 2.46: Boxplot of SF36 Social functioning by location

Figure 2.47: Boxplot of SF36 Pain by a location

Figure 2.48: Boxplot of SF36 General health by location

Figure 2.49: 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=20, 41.67%) compared to those with a higher SEIFA score of 7-10, Higher status (n=28, 58.33%).

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).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Role functioning emotional** scale [W = 175.00, p = 0.0287] was significantly lower for participants in the mid to low status subgroup (Median = 33.33, IQR = 100.00) compared to participants in the higher status subgroup (Median = 100.00, IQR = 50.00).

SF36 Social functioning scale measures limitations on social activities due to physical or emotional problems. On average, participants in the higher status subgroup scored higher than participants in the mid to low status subgroup. This indicates that social activities were not limited for participants in the higher status subgroup,

and limited for participants in the mid to low status subgroup.

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

SF36 scale	Group	Number (n=48)	Percent	Mean	SD	T	dF	p-value
Energy/fatigue	Mid to low status	20	41.67	49.25	18.08	-1.21	45	0.2324
	Higher status	28	58.33	55.56	17.34			
Emotional well-being	Mid to low status	20	41.67	65.20	19.81	-0.51	45	0.6133
	Higher status	28	58.33	67.70	13.94			

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

| SF36 scale	Group	Number (n=48)	Percent	Median	IQR	W	p-value
Physical functioning	Mid to low status	20	41.67	80.00	28.75	212.50	0.2157
	Higher status	28	58.33	85.00	17.50		
Role functioning physical	Mid to low status	20	41.67	50.00	50.00	196.50	0.1055
	Higher status	28	58.33	75.00	75.00		
Role functioning emotional	Mid to low status	20	41.67	33.33	100.00	175.00	0.0287*
	Higher status	28	58.33	100.00	50.00		
Social functioning	Mid to low status	20	41.67	62.50	46.88	229.00	0.3744
	Higher status	28	58.33	75.00	50.00		
Pain	Mid to low status	20	41.67	67.50	23.13	203.50	0.1497
	Higher status	28	58.33	77.50	22.50		
General health	Mid to low status	20	41.67	42.50	35.00	217.50	0.2611
	Higher status	28	58.33	60.00	15.00		
Health change	Mid to low status	20	41.67	50.00	25.00	278.50	0.8562
	Higher status	28	58.33	50.00	37.50		

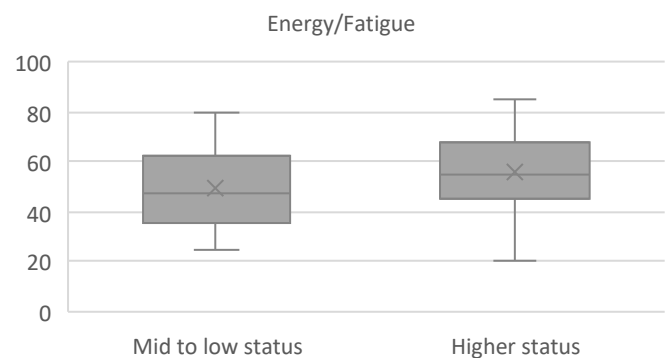*Statistically significant at p<0.05
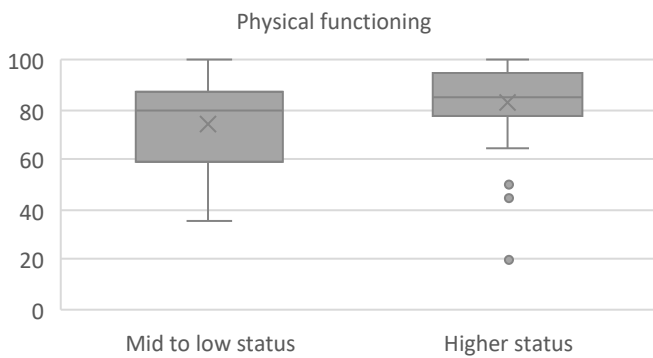
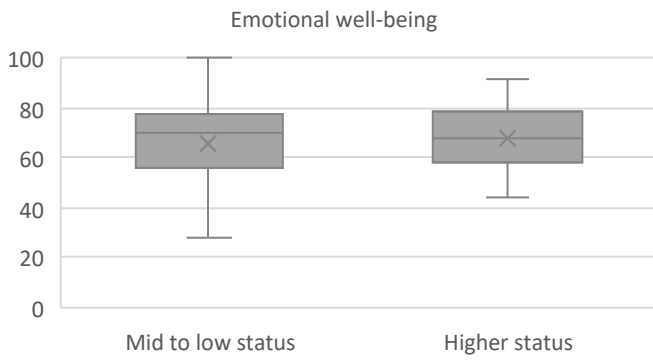**Figure 2.50: Boxplot of SF36 Physical functioning by socioeconomic status**
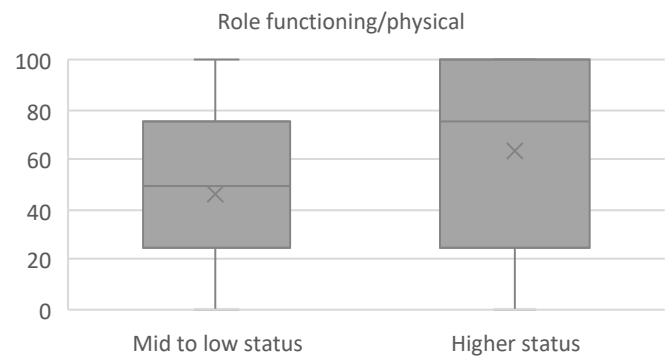
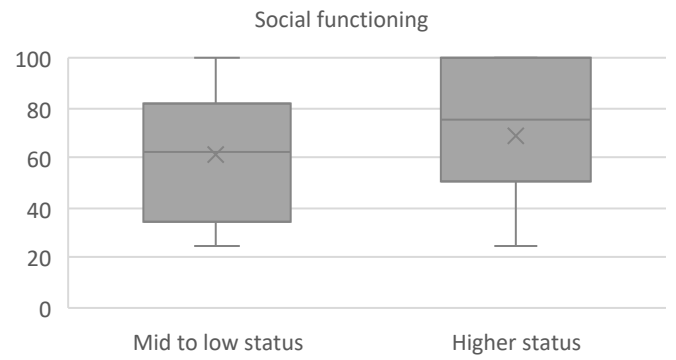**Figure 2.51: Boxplot of SF36 Role functioning/physical by socioeconomic status**
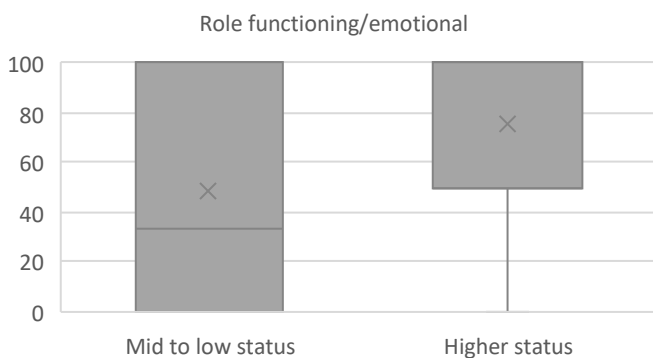
Figure 2.52: Boxplot of SF36 Role functioning/emotional by socioeconomic status
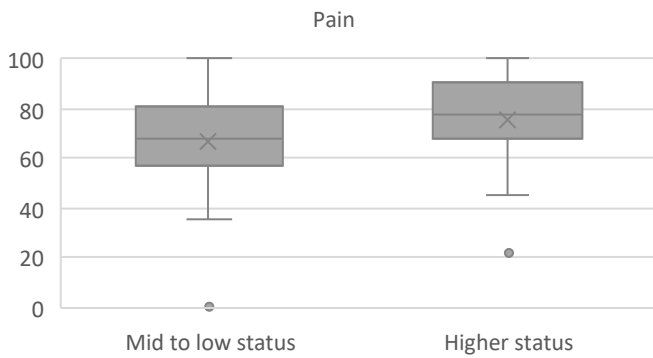

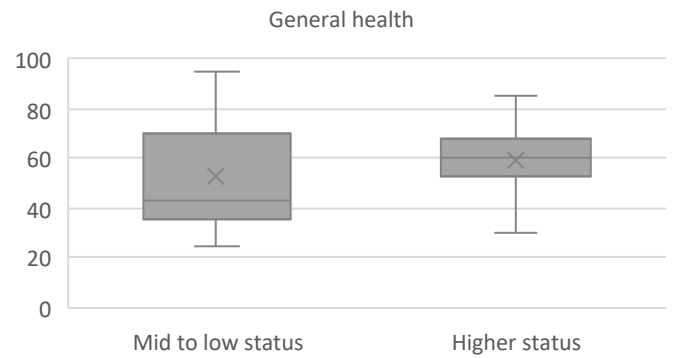**Figure 2.53: Boxplot of SF36 Energy/fatigue by socioeconomic status**

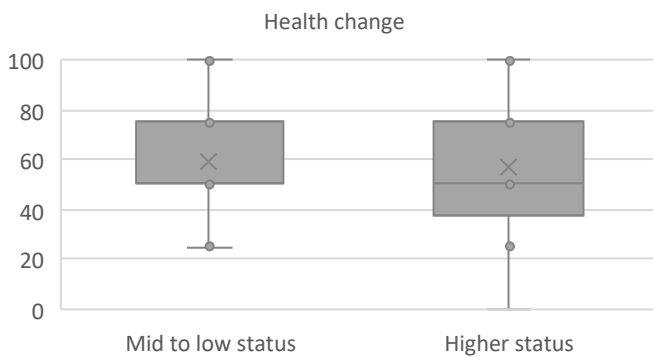**Figure 2.54: Boxplot of SF36 Emotional well-being by socioeconomic status**

Figure 2.55: Boxplot of SF36 Social functioning by socioeconomic status

Figure 2.56: Boxplot of SF36 Pain by a socioeconomic status

Figure 2.57: Boxplot of SF36 General health by socioeconomic status

Figure 2.58: Boxplot of SF36 Health change by socioeconomic status