

Section 2

Demographics

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There were 50 people who took part in this study with triple negative breast cancer. Participants were aged from 25 to 74 years of age, most were aged between 45 to 54 years (n = 22, 44.00%).

Participants were most commonly from New South Wales (n = 14, 28.00%), Queensland (n = 14, 28.00%), and Victoria (n = 11, 22.00%). Most participants were from major cities (n = 34, 68.00%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 30 participants (60.00%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 20 participants (40.00%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 26 participants that had completed university to at least an associate degree (54.00%). There were 27 participants who were employed either full time (54.00%), or part time (n = 14, 28.00%).

Almost half of the participants were carers to family members or spouses (n = 26, 54.00%), most commonly carers to children (n = 25, 50%).

Breast cancer stage

There were 50 people with triple negative breast cancer who took part in this study. There were six participants (12.00%) with Stage I, 17 participants (34.00%) with Stage II, 24 participants (6.00%) with Stage III, and three participants (6.00%) with Stage IV.

Other health conditions

The majority of participants had at least one other condition that they had to manage (n = 44, 88.00%), the maximum number reported was eight other conditions, with a median of three other conditions (IQR = 4.00). The most commonly reported health condition was anxiety either self or doctor diagnosed (n = 27, 54.00%), followed by sleep problems or insomnia (n = 22, 44.00%), chronic pain (n = 13, 26.00%), and depression (Self or doctor diagnosed) (n = 19, 38.00%).

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 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 slightly 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 rarely 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 moderately 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 a little pain.

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

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

Demographics

There were 50 people with triple negative breast cancer that took part in this study. Participants were aged from 25 to 74 years of age, most were aged between 45 to 54 years (n = 22 ,44.00%).

Participants were most commonly from New South Wales (n = 14, 28.00%), Queensland (n = 14, 28.00%), and Victoria (n = 11, 22.00%). Most participants were from major cities (n = 34, 68.00%), and they lived in all levels of advantage, defined by Socio-economic Indexes for Areas (SEIFA) (www.abs.gov.au) with 30 participants (60%) from an area with a high SEIFA score of 7 to 10 (more advantage), and 20 participants

(40.00%) from an area of mid to low SEIFA scores of 1 to 6 (less advantaged).

There were 26 participants that had completed university to at least an associate degree (54.00%). There were 27 participants who were employed either full time (54.00%), or part time (n = 14, 28.00%).

Almost half of the participants were carers to family members or spouses (n = 26, 54.00%), most commonly carers to children (n = 25, 50.00%). The demographics of participants are listed in Table 2.1.

Table 2.1: Demographics

Demographic	Definition	Number (n=50)	Percent
Age	25 – 34	4	8.00
	35 – 44	15	30.00
	45 – 54	22	44.00
	55 – 74	9	18.00
Location	Major Cities of Australia	34	68.00
	Inner Regional Australia	13	26.00
	Outer Regional Australia	2	4.00
	Remote Australia	1	2.00
State	New South Wales	14	28.00
	Queensland	14	28.00
	Victoria	11	22.00
	Western Australia	9	18.00
	South Australia	1	2.00
	Tasmania	1	2.00
	Australian Capital Territory	0	0.00
	Northern Territory	0	0.00
Socio-Economic Indexes for Areas (SEIFA)	1	2	4.00
	2	6	12.00
	3	3	6.00
	4	2	4.00
	5	5	10.00
	6	2	4.00
	7	6	12.00
	8	4	8.00
	9	9	18.00
	10	11	22.00
Race/ethnicity	Caucasian/White	47	94.00
	Other	3	6.00
Education	Less than high school degree	0	0.00
	High school degree or equivalent	12	24.00
	Some college but no degree	11	22.00
	Trade	1	2.00
	Associate degree	4	8.00
	Bachelor degree	14	28.00
Employment	Graduate degree	8	16.00
	Currently receiving Centrelink support	2	4.00
	Disabled, not able to work	1	2.00
	Employed, working full time	27	54.00
	Employed, working part time	14	28.00
	Full/part time carer	2	4.00
	Full/part time study	1	2.00
	Not employed, looking for work	2	4.00
	Retired	2	4.00
	Currently on sick/maternity leave	5	10.00
Carer status	I am not a carer	24	48.00
	Children	25	50.00
	Other	2	4.00

Participants

There were 50 people with triple negative breast cancer who took part in this study. There were 6 participants (12.00%) with Stage I, 17 participants (34.00%) with, Stage II, 24 participants (48.00%) with

Stage III and three participants (6.00%) with Stage IV (Table 2.2, Figure 2.1).

Table 2.2: Participants

Participants and diagnosis	Number (n=50)	Percent
Stage I	6	12.00
Stage II	17	34.00
Stage III	24	48.00
Stage IV	3	6.00

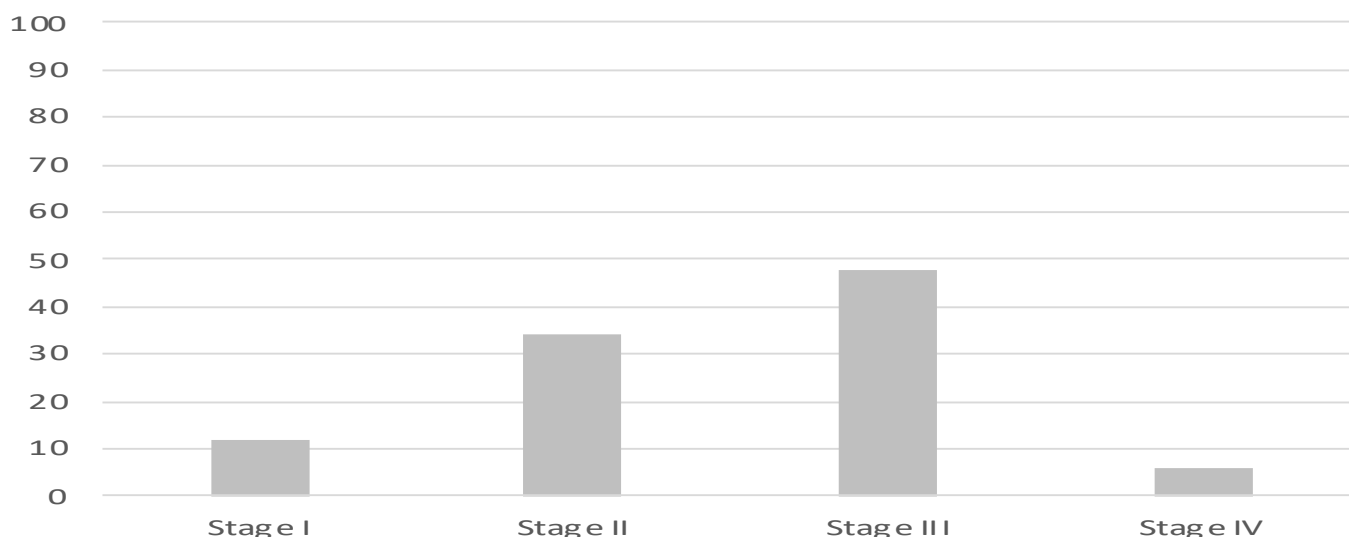


Figure 2.1: Participants

Other health conditions

Participants were asked about health conditions, other than triple negative 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 = 44, 88.00%), the maximum number reported was eight other conditions,

with a median of three other conditions (IQR = 4.00) (Table 2.3, Figure 2.2). The most commonly reported health condition was anxiety either self or doctor diagnosed (n = 27, 54.00%), followed by sleep problems or insomnia (n = 22, 44.00%), chronic pain (n = 13, 26%), and depression either self or doctor diagnosed (n = 19, 38%) (Table 2.4, Figure 2.3).

Table 2.3: Number of other health conditions

Number of other conditions	Number (n=50)	Percent
No other conditions	6	12.00
1 to 2	18	36.00
3 to 4	8	16.00
5 to 6	14	28.00
7 to 8	4	8.00

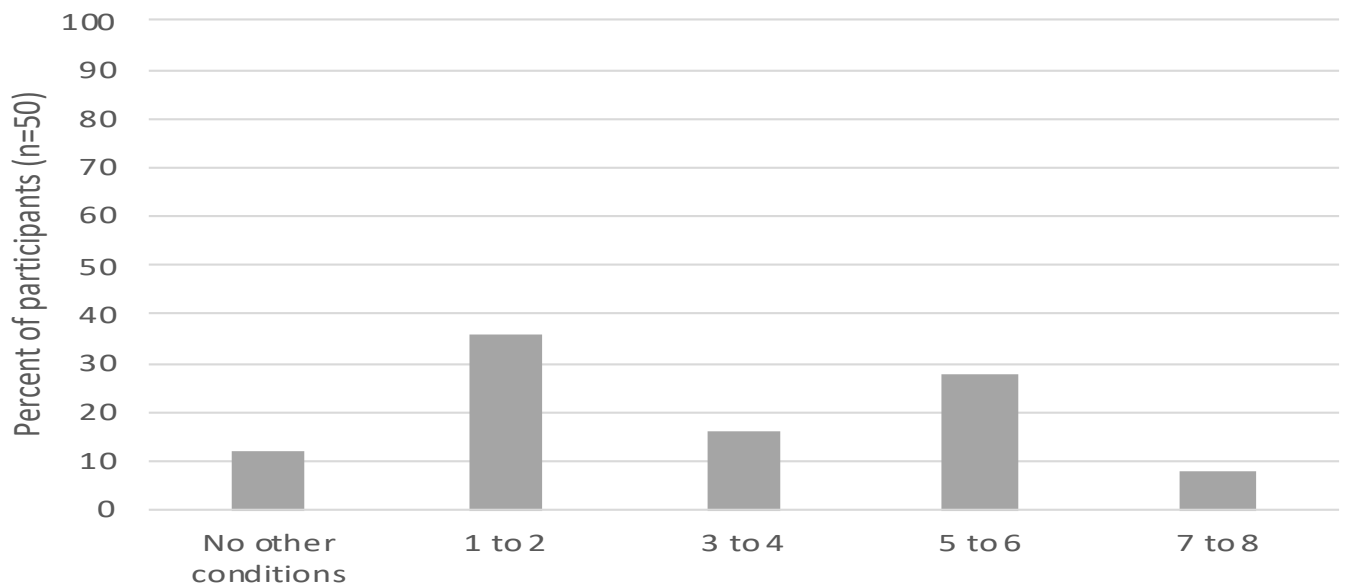


Figure 2.2: Number of other health conditions

Table 2.4: Other health conditions

Other conditions	Number (n=50)	Percent
Anxiety (Self or doctor diagnosed)	27	54.00
Anxiety (that you diagnosed) yourself	25	50.00
Anxiety (that a doctor diagnosed)	11	22.00
Sleep problems or insomnia	22	44.00
Chronic pain	13	26.00
Depression (Self or doctor diagnosed)	19	38.00
Depression (that you diagnosed yourself)?	14	28.00
Depression (that a doctor diagnosed)	10	20.00
Arthritis	9	18.00
High cholesterol	7	14.00
Hypertension	4	8.00
Atrial fibrillation or arrhythmias	4	8.00
Diabetes	3	6.00
Cancer (other than breast cancer)	2	4.00
COPD (Chronic obstructive pulmonary disease)	1	2.00
Have you had a stroke?	1	2.00
Chronic heart failure	0	0.00
Angina	0	0.00
Other	28	56.00

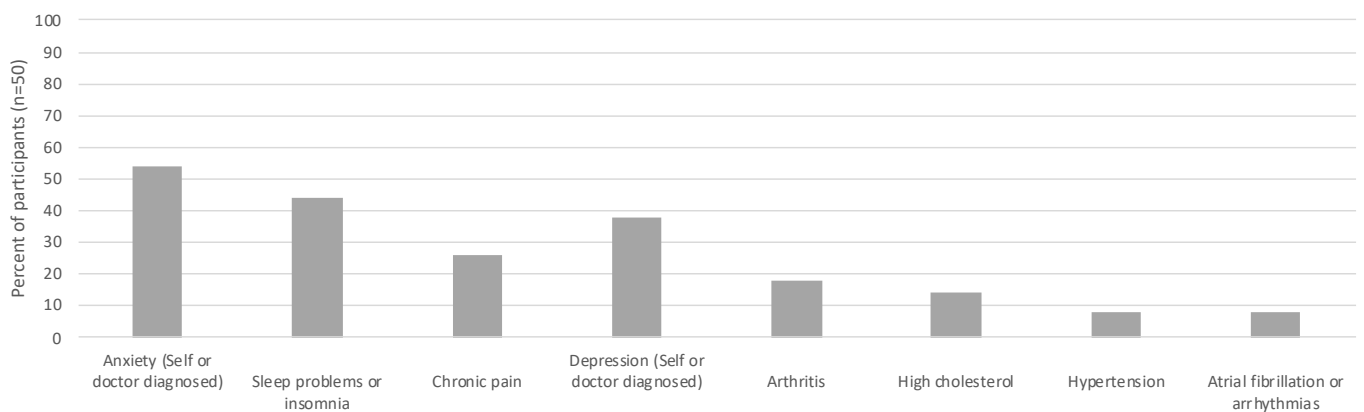


Figure 2.3: Other health conditions (% of all participants)

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 23 participants (46.00%) with *Early breast cancer* (Stage I or Stage II) and, 27 participants (54.00%) with *Advanced breast cancer* (Stage III or Stage IV).

Physical function was evaluated by the SF36 Role functioning/physical, this measures how physical health interferes with work or other activities. Participants that had an SF36 Role functioning/physical score of 40 or less were included in the *Poor physical function* subgroup (n=19, 43.18 %), and participants that scored more than 40 were included in the *Good physical function* subgroup (n=25, 56.82%).

Comparisons were made by the **year of diagnosis**, there were 26 participants that were *Diagnosed before 2020* (52.00%), and 24 participants *Diagnosed in 2020 or 2021* (48.00%).

Comparisons were made by **education** status, between those with *Trade or high school* qualifications, (n = 24,

48.00%), and those with a *University* qualification (n = 26, 52.00%).

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 =16, 32.00%) were compared to those living in a major city, *Metropolitan* (n = 34, 68.00%).

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 to 6, *Mid to low status* (n = 20, 40.00%) compared to those with a higher SEIFA score of 7 to 10, *Higher status* (n = 30, 60.00%).

Participants were grouped according to **age**, with comparisons made between participants *Aged 25 to 44* (n = 19, 38.00%), participants *Aged 45 to 54* (n = 22, 44.00%), and participants *Aged 55 to 74* (n = 9, 18.00%).

Table 2.5: Subgroups

Subgroup	Definition	Number (n=50)	Percent
Breast cancer stage	Early breast cancer	23	46.00
	Advanced breast cancer	27	54.00
Physical function (n=44)	Poor physical function	19	43.18
	Good physical function	25	56.82
Year of diagnosis	Diagnosed before 2020	26	52.00
	Diagnosed in 2020 or 2021	24	48.00
Education	Trade or high school	24	48.00
	University	26	52.00
Location	Regional or remote	16	32.00
	Metropolitan	34	68.00
Economic status	Mid to low status	20	40.00
	Higher status	30	60.00
Age	Aged 25 to 44	19	38.00
	Aged 45 to 54	22	44.00
	Aged 55 to 74	9	18.00

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 the **SF36 Role functioning/emotional** (median = 100, IQR = 33.33), scales, indicating very good health-related quality of life scores.

The overall scores for the cohort were in the second highest quintile for the **SF36 Physical functioning** (median = 77.50, IQR = 36.25), **SF36 Role functioning/physical** (median = 75.00, IQR = 81.25), **SF36 Emotional well-being** (median = 74.00, IQR = 21.00), **SF36 Social functioning** (median = 75.00, IQR = 40.63), **SF36 Pain** (median = 67.50, IQR = 37.50), scales, indicating good health-related quality of life scores.

The overall scores for the cohort were in the middle of the scale for the **SF36 Energy/Fatigue** (mean = 41.93, SD = 19.39), **SF36 General health** (mean = 51.93, SD = 18.02), SF36 Health change (median = 50.00, IQR = 50.00), scales, indicating moderate health-related quality of life scores.

Comparisons of SF36 have been made based on **breast cancer stage** (Tables 2.7 to 2.8, Figures 2.4 to 2.12), **physical function** (Tables 2.9 to 2.10, Figures 2.13 to 2.20), **year of diagnosis** (Tables 2.11 to 2.12, Figures 2.21 to 2.29), **education** (Tables 2.13 to 2.14, Figures 2.30 to 2.38), **location** (Tables 2.15 to 2.16, Figures 2.39 to 2.47), **socioeconomic status** (Tables 2.17 to 2.18, Figures 2.48 to 2.56), and **age** (Tables 2.19 to 2.20, Figures 2.57 to 2.65).

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 slightly 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 rarely 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 moderately 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 a little pain.

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

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

Table 2.6: SF36 summary statistics

SF36 scale (n=44)	Mean	SD	Median	IQR	Possible range	Quintile
Physical functioning	71.36	23.36	77.50	36.25	0 to 100	4
Role functioning/physical	55.11	41.96	75.00	81.25	0 to 100	4
Role functioning/emotional	77.27	34.31	100.00	33.33	0 to 100	5
Energy/Fatigue*	41.93	19.39	45.00	26.25	0 to 100	3
Emotional well-being	70.91	14.13	74.00	21.00	0 to 100	4
Social functioning	69.60	26.61	75.00	40.63	0 to 100	4
Pain	63.92	26.23	67.50	37.50	0 to 100	4
General health*	51.93	18.02	55.00	35.00	0 to 100	3
Health change	51.14	34.92	50.00	50.00	0 to 100	3

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

SF36 by breast cancer stage

Comparisons were made by **breast cancer stage**, there were 23 participants (46.00%) with *Early breast cancer* (Stage I or Stage II) and, 27 participants (54.00%) with *Advanced breast cancer* (Stage III or Stage IV).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.7), or when

assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.8).

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

Table 2.7: SF36 by breast cancer stage summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Early breast cancer	20	45.45	40.75	21.11	-0.37	42	0.7166
	Advanced breast cancer	24	54.55	42.92	18.23			
Emotional well-being	Early breast cancer	20	45.45	70.60	15.26	-0.13	42	0.8965
	Advanced breast cancer	24	54.55	71.17	13.45			
Pain	Early breast cancer	20	45.45	64.25	27.21	0.08	42	0.9404
	Advanced breast cancer	24	54.55	63.65	25.98			
General health	Early breast cancer	20	45.45	52.75	18.32	0.27	42	0.7870
	Advanced breast cancer	24	54.55	51.25	18.13			

Table 2.8: SF36 by breast cancer stage summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Early breast cancer	20	45.45	80.00	41.25	247.00	0.8774
	Advanced breast cancer	24	54.55	75.00	32.50		
Role functioning/physical	Early breast cancer	20	45.45	75.00	100.00	251.00	0.7971
	Advanced breast cancer	24	54.55	62.50	75.00		
Role functioning/emotional	Early breast cancer	20	45.45	100.00	33.33	275.00	0.3435
	Advanced breast cancer	24	54.55	100.00	66.67		
Social functioning	Early breast cancer	20	45.45	81.25	53.13	271.50	0.4584
	Advanced breast cancer	24	54.55	75.00	37.50		
Health change	Early breast cancer	20	45.45	62.5	50.00	240.00	1.0000
	Advanced breast cancer	24	54.55	50.00	56.25		

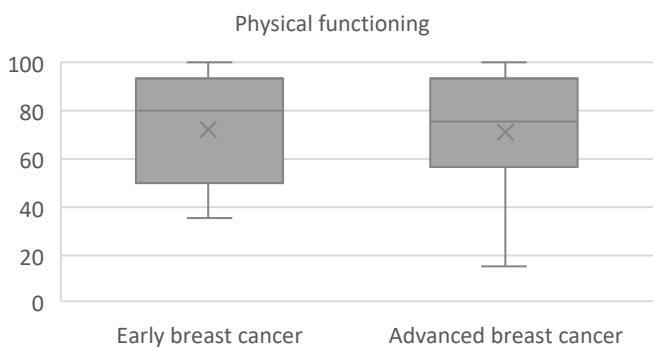


Figure 2.4: Boxplot of SF36 Physical functioning by breast cancer stage

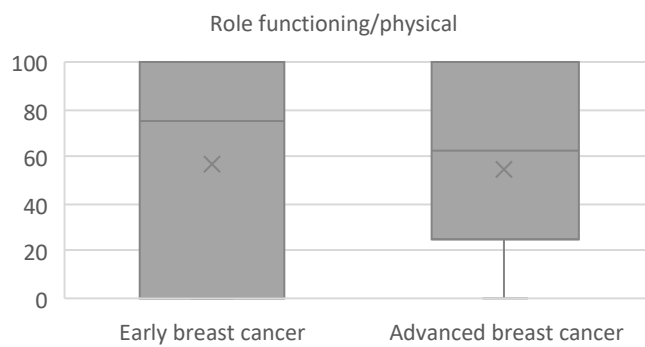


Figure 2.5: Boxplot of SF36 Role functioning/physical by breast cancer stage

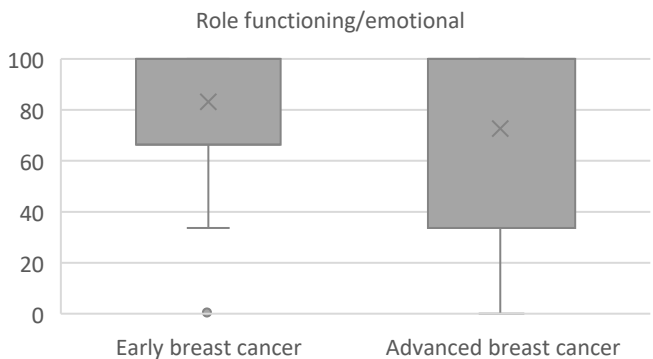


Figure 2.6: Boxplot of SF36 Role functioning/emotional by breast cancer stage

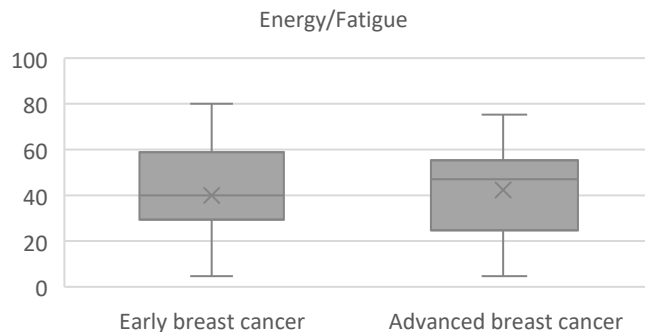


Figure 2.7: Boxplot of SF36 Energy/fatigue by breast cancer stage

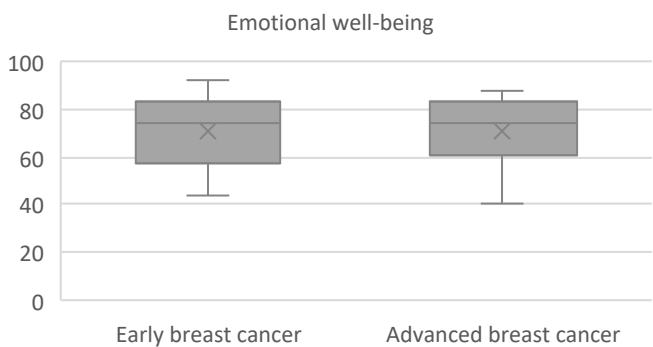


Figure 2.8: Boxplot of SF36 Emotional well-being by breast cancer stage

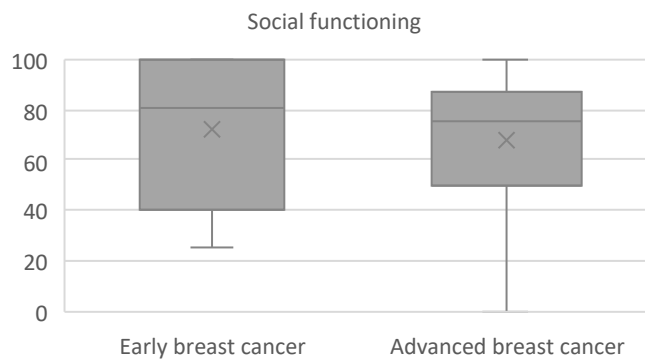


Figure 2.9: Boxplot of SF36 Social functioning by breast cancer stage

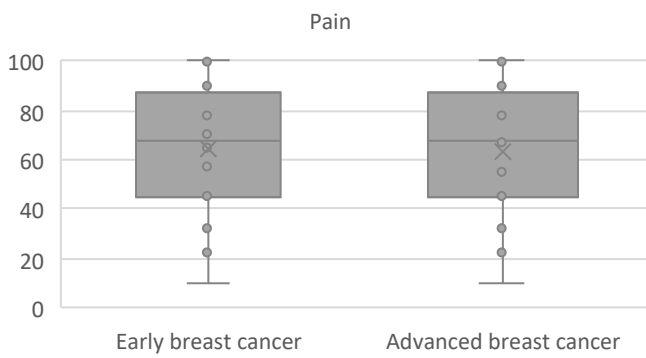


Figure 2.10: Boxplot of SF36 Pain by a breast cancer stage

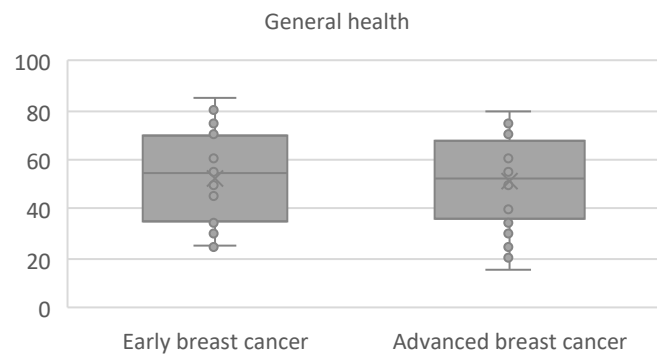


Figure 2.11: Boxplot of SF36 General health by breast cancer stage

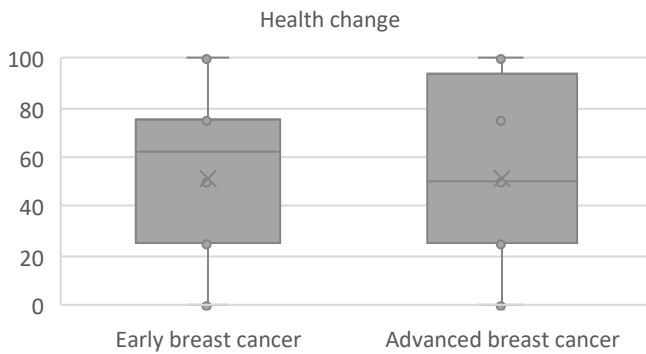


Figure 2.12: Boxplot of SF36 Health change by breast cancer stage

SF36 by physical function

Physical function was evaluated by the SF36 Role functioning/physical, this measures how physical health interferes with work or other activities. Participants that had an SF36 Role functioning/physical score of 40 or less were included in the *Poor physical function* subgroup (n=19, 43.18 %), and participants that scored more than 40 were included in the *Good physical function* subgroup (n=25, 56.82%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.9), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.10).

A two sample t-test indicated that the mean score for the **SF36 Energy/Fatigue** scale [$t(42) = -4.19$, $p = 0.0001$] was significantly lower for participants in the *Poor physical function* subgroup (Mean = 30.00, SD = 18.93) compared to participants in the *Good physical function* subgroup (Mean = 51, SD = 14.36).

A two sample t-test indicated that the mean score for the **SF36 Pain** scale [$t(42) = -4.14$, $p = 0.0002$] was significantly lower for participants in the *Poor physical function* subgroup (Mean = 47.89, SD = 27.05)

compared to participants in the *Good physical function* subgroup (Mean = 76.1, SD = 18.07).

A two sample t-test indicated that the mean score for the **SF36 General health** scale [$t(42) = -4.22$, $p = 0.0001$] was significantly lower for participants in the *Poor physical function* subgroup (Mean = 40.79, SD = 14.84) compared to participants in the *Good physical function* subgroup (Mean = 60.40, SD = 15.61).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Physical functioning** scale [$W = 104.5$, $p = 0.0016^*$] was significantly lower for participants in the *Poor physical function* subgroup (Median = 55.00, IQR = 35.00) compared to participants in the *Good physical function* subgroup (Median = 85.00, IQR = 20.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Social functioning** scale [$W = 56.00$, $p < 0.0001^*$] was significantly lower for participants in the *Poor physical function* subgroup (Median = 50.00, IQR = 37.50) compared to participants in the *Good physical function* subgroup (Median = 87.5, IQR = 25.00).

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

SF36 Energy/fatigue scale measures the proportion of energy or fatigue experienced. On average, participants in the *Good physical function* subgroup scored higher than participants in the *Poor physical function* subgroup. This indicates that participants in the *Good physical function* subgroup were sometimes fatigued, and participants in the *Poor physical function* subgroup were often fatigued.

SF36 Social functioning scale measures limitations on social activities due to physical or emotional problems. On average, participants in the *Good physical function*

subgroup scored higher than participants in the *Poor physical function* subgroup. This indicates that social activities were not limited for participants in the *Good physical function* subgroup, and moderately limited for participants in the *Poor physical function* subgroup.

SF36 Pain scale measures how much pain, and how pain interferes with work and other activities. On average, participants in the *Good physical function* subgroup scored higher than participants in the *Poor physical function* subgroup. This indicates that participants in the *Good physical function* subgroup had mild pain, and participants in the *Poor physical function* subgroup had moderate pain.

SF36 General health scale measures perception of health. On average, participants in the *Good physical function* subgroup scored higher than participants in the *Poor physical function* subgroup. This indicates that participants in the *Good physical function* subgroup had good health, and participants in the *Poor physical function* subgroup had average health.

Table 2.9: SF36 by physical function summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Poor physical function	19	43.18	30.00	18.93	-4.19	42.00	0.0001*
	Good physical function	25	56.82	51.00	14.36			
Pain	Poor physical function	19	43.18	47.89	27.05	-4.14	42.00	0.0002*
	Good physical function	25	56.82	76.10	18.07			
General health	Poor physical function	19	43.18	40.79	14.84	-4.22	42.00	0.0001*
	Good physical function	25	56.82	60.40	15.61			

*Statistically significant at p<0.05

Table 2.10: SF36 by physical function summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Poor physical function	19	43.18	55.00	35.00	104.50	0.0016*
	Good physical function	25	56.82	85.00	20.00		
Role functioning/emotional	Poor physical function	19	43.18	100.00	66.67	179.50	0.1125
	Good physical function	25	56.82	100.00	33.33		
Emotional well-being	Poor physical function	19	43.18	72.00	24.00	166.00	0.0909
	Good physical function	25	56.82	80.00	20.00		
Social functioning	Poor physical function	19	43.18	50.00	37.50	56.00	<0.0001*
	Good physical function	25	56.82	87.50	25.00		
Health change	Poor physical function	19	43.18	25.00	75.00	166.00	0.0856
	Good physical function	25	56.82	50.00	75.00		

*Statistically significant at p<0.05

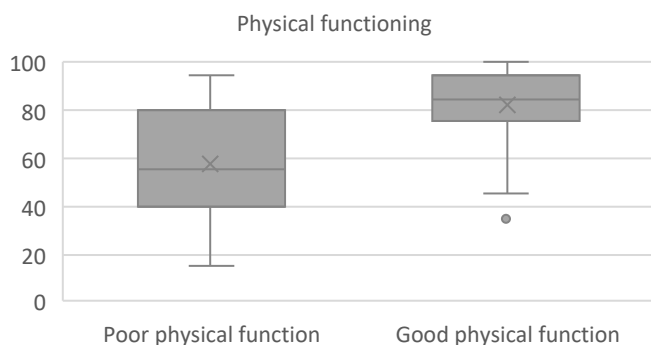


Figure 2.13: Boxplot of SF36 Physical functioning by physical function

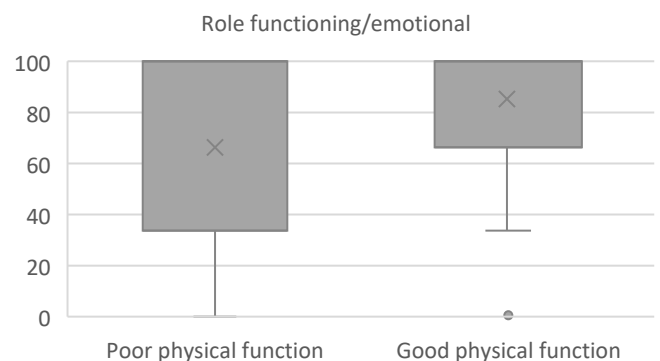


Figure 2.14: Boxplot of SF36 Role functioning/emotional by physical function

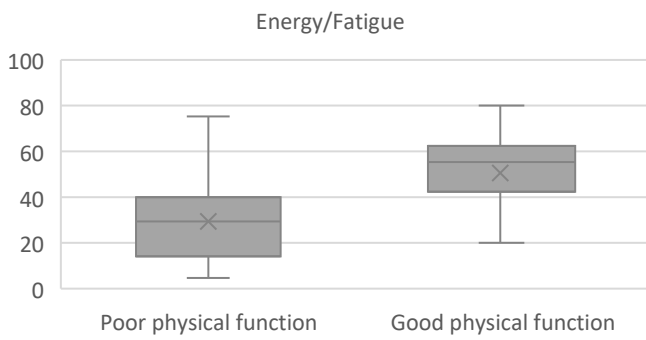


Figure 2.15: Boxplot of SF36 Energy/fatigue by physical function

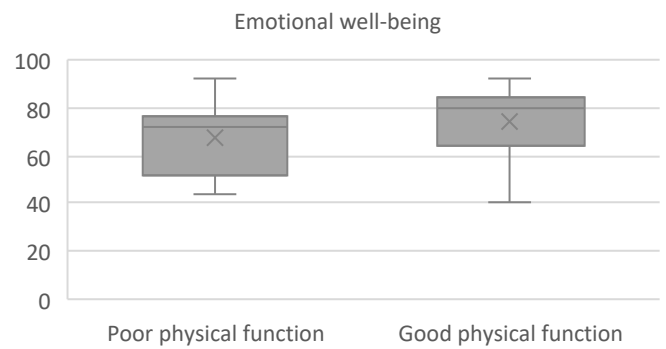


Figure 2.16: Boxplot of SF36 Emotional well-being by physical function

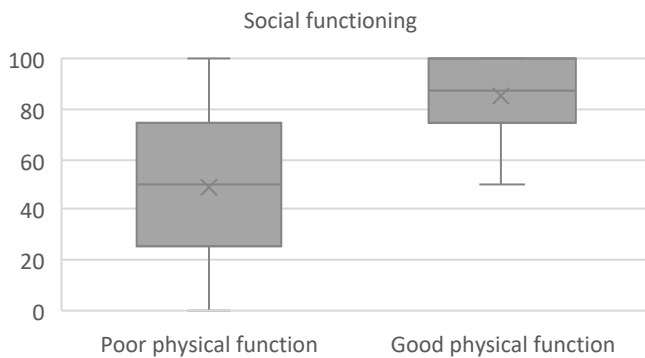


Figure 2.17: Boxplot of SF36 Social functioning by physical function

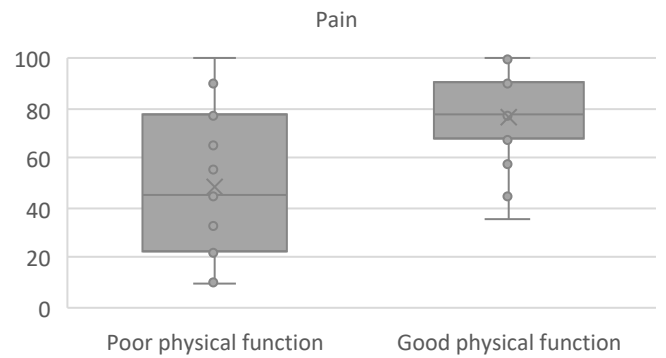


Figure 2.18: Boxplot of SF36 Pain by a physical function

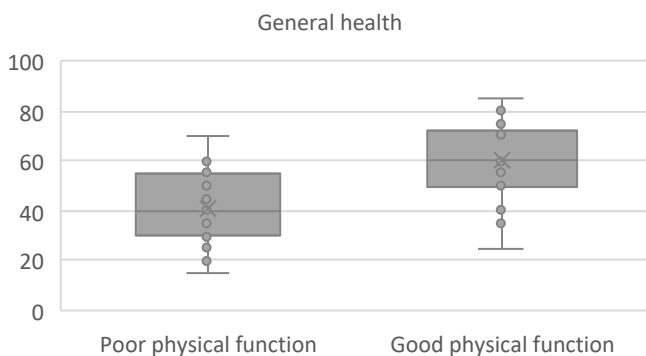


Figure 2.19: Boxplot of SF36 General health by physical function

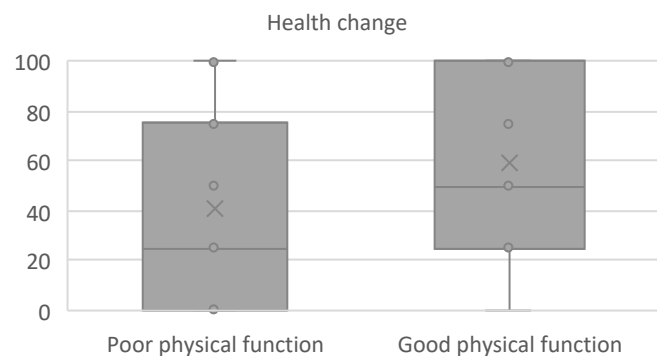


Figure 2.20: Boxplot of SF36 Health change by physical function

SF36 by year of diagnosis

Comparisons were made by the **year of diagnosis**, there were 26 participants that were *Diagnosed before 2020* (52.00%), and 24 participants *Diagnosed in 2020 or 2021* (48.00%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.11), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.12).

A two sample t-test indicated that the mean score for the **SF36 General health** scale [$t(42) = 2.43$, $p = 0.0195$] was significantly higher for participants in the

Diagnosed before 2020 subgroup (Mean = 58.18, SD = 17.01) compared to participants in the *Diagnosed in 2020 or 2021* subgroup (Mean = 45.68, SD = 17.13).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Physical functioning** scale [$W = 352.00$, $p = 0.0097$] was significantly higher for participants in the *Diagnosed before 2020* subgroup (Median = 90.00, IQR = 15.00) compared to participants in the *Diagnosed in 2020 or 2021* subgroup (Median = 70, IQR = 20.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Role functioning/physical** scale [W = 333.50 , p = 0.0265] was significantly higher for participants in the *Diagnosed before 2020* subgroup (Median = 87.50, IQR = 68.75) compared to participants in the *Diagnosed in 2020 or 2021* subgroup (Median = 25.00, IQR = 75.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the **SF36 Pain** scale [W = 336.00 , p = 0.0274] was significantly higher for participants in the *Diagnosed before 2020* subgroup (Median = 77.50, IQR = 46.88) compared to participants in the *Diagnosed in 2020 or 2021* subgroup (Median = 57.50, IQR = 30.00).

Wilcoxon rank sum tests with continuity correction indicated that the median score for the SF36 Health change scale [W = 369.5, p = 0.0023*] was significantly higher for participants in the *Diagnosed before 2020* subgroup (Median = 75, IQR = 43.75) compared to participants in the *Diagnosed in 2020 or 2021* subgroup (Median = 25, IQR = 68.75).

SF36 Physical functioning scale measures health limitations in physical activities such as walking, bending, climbing stairs, exercise, and housework. On average, participants in the *Diagnosed before 2020* subgroup scored higher than participants in the *Diagnosed in 2020 or 2021* subgroup. This indicates that physical activities were not limited for participants in the *Diagnosed before 2020* subgroup, and were slightly limited for participants in the *Diagnosed in 2020 or 2021* subgroup.

SF36 Role functioning/physical scale measures how physical health interferes with work or other activities. On average, participants in the *Diagnosed before 2020* subgroup scored higher than participants in the *Diagnosed in 2020 or 2021* subgroup. This indicates that physical health never interfered with work or other activities for participants in the *Diagnosed before 2020* subgroup, and often interfered for participants in the *Diagnosed in 2020 or 2021* subgroup.

SF36 Pain scale measures how much pain, and how pain interferes with work and other activities. On average, participants in the *Diagnosed before 2020* subgroup scored higher than participants in the *Diagnosed in 2020 or 2021* subgroup. This indicates that participants in the *Diagnosed before 2020* subgroup had mild pain, and participants in the *Diagnosed in 2020 or 2021* subgroup had moderate pain.

SF36 General health scale measures perception of health. On average, participants in the *Diagnosed before 2020* subgroup had a higher score for general health compared to *Diagnosed in 2020 or 2021*, however, both groups had moderate health.

SF36 Health change scale measures health compared to a year ago. On average, participants in the *Diagnosed before 2020* subgroup scored higher than participants in the *Diagnosed in 2020 or 2021* subgroup. This indicates that participants in the *Diagnosed before 2020* subgroup reported that their health was a better than a year ago, and participants in the *Diagnosed in 2020 or 2021* subgroup reported somewhat worse health.

Table 2.11: SF36 by year of diagnosis summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Diagnosed before 2020	22	50.00	44.09	20.68	0.73	42	0.4665
	Diagnosed in 2020 or 2021	22	50.00	39.77	18.22			
Emotional well-being	Diagnosed before 2020	22	50.00	70.73	15.58	-0.08	42	0.9332
	Diagnosed in 2020 or 2021	22	50.00	71.09	12.88			
General health	Diagnosed before 2020	22	50.00	58.18	17.01	2.43	42	0.0195*
	Diagnosed in 2020 or 2021	22	50.00	45.68	17.13			

*Statistically significant at p<0.05

Table 2.12: SF36 by year of diagnosis summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Diagnosed before 2020	22	50.00	90.00	15.00	352.00	0.0097*
	Diagnosed in 2020 or 2021	22	50.00	70.00	20.00		
Role functioning/physical	Diagnosed before 2020	22	50.00	87.50	68.75	333.50	0.0265*
	Diagnosed in 2020 or 2021	22	50.00	25.00	75.00		
Role functioning/emotional	Diagnosed before 2020	22	50.00	100.00	58.33	246.00	0.9238
	Diagnosed in 2020 or 2021	22	50.00	100.00	33.33		
Social functioning	Diagnosed before 2020	22	50.00	75.00	37.50	281.00	0.3592
	Diagnosed in 2020 or 2021	22	50.00	75.00	46.88		
Pain	Diagnosed before 2020	22	50.00	77.50	46.88	336.00	0.0274*
	Diagnosed in 2020 or 2021	22	50.00	57.50	30.00		
Health change	Diagnosed before 2020	22	50.00	75.00	43.75	369.50	0.0023*
	Diagnosed in 2020 or 2021	22	50.00	25.00	68.75		

*Statistically significant at p<0.05

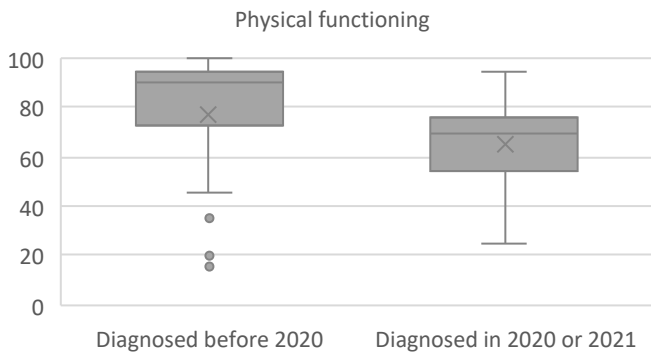


Figure 2.21: Boxplot of SF36 Physical functioning by year of diagnosis

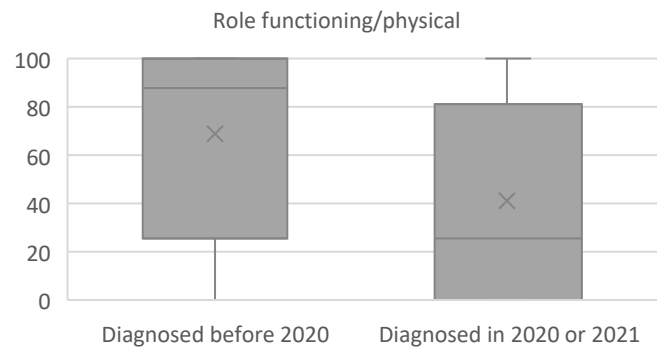


Figure 2.22: Boxplot of SF36 Role functioning/physical by year of diagnosis

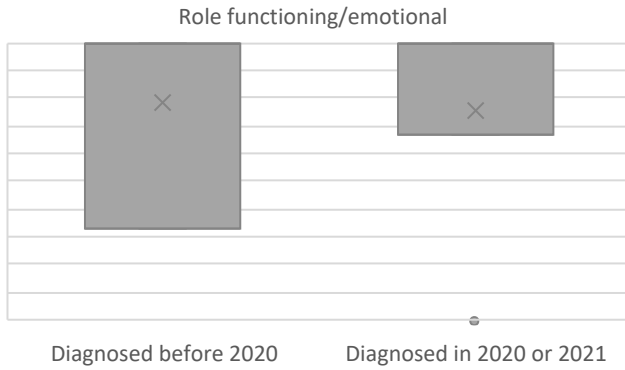


Figure 2.23: Boxplot of SF36 Role functioning/emotional by year of diagnosis

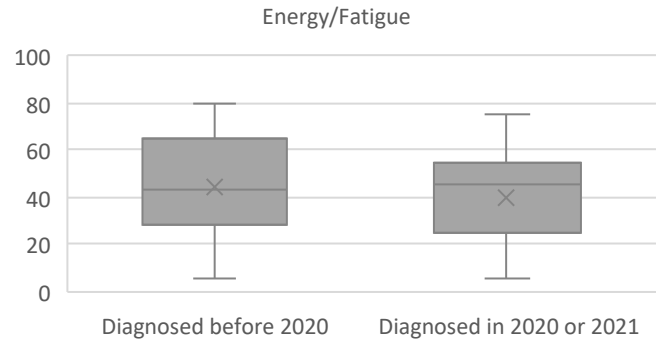


Figure 2.24: Boxplot of SF36 Energy/fatigue by year of diagnosis

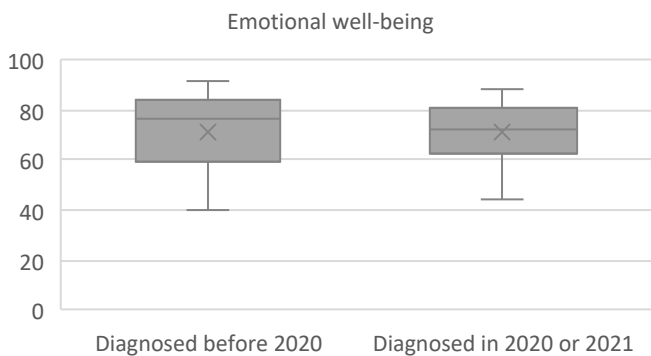


Figure 2.25: Boxplot of SF36 Emotional well-being by year of diagnosis

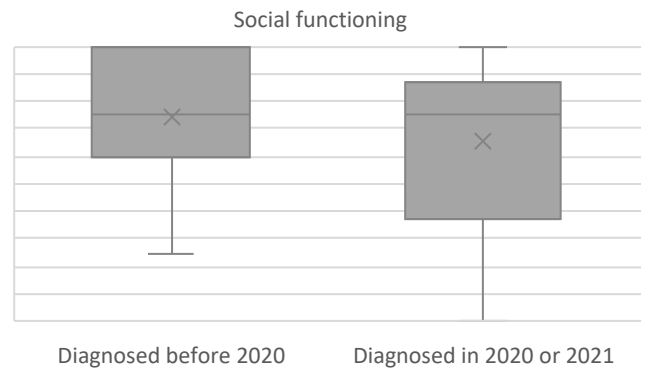


Figure 2.26: Boxplot of SF36 Social functioning by year of diagnosis

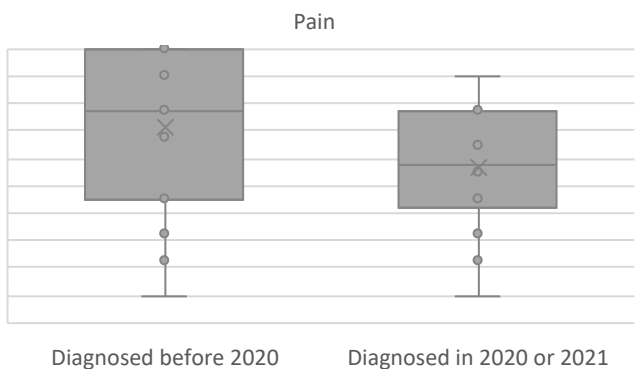


Figure 2.27: Boxplot of SF36 Pain by a year of diagnosis

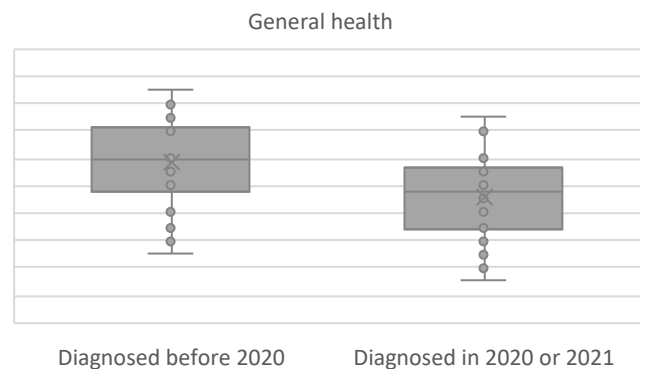


Figure 2.28: Boxplot of SF36 General health by year of diagnosis

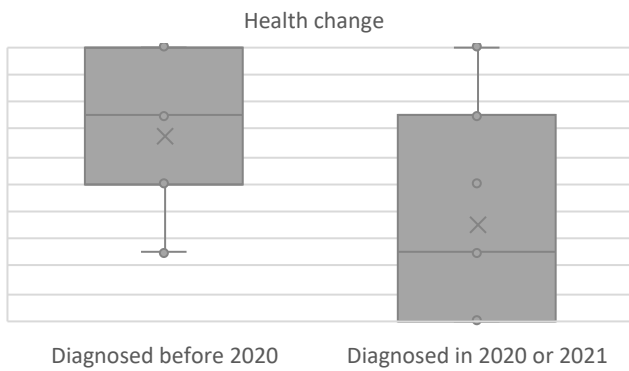


Figure 2.29: Boxplot of SF36 Health change by year of diagnosis

SF36 by education

Comparisons were made by **education** status, between those with *Trade or high school* qualifications, (n = 24, 48.00%), and those with a *University* qualification (n = 26, 52.00%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.13), or when

assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.14).

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

Table 2.13: SF36 by education summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Trade or high school	21	47.73	43.33	16.98	0.45	42	0.6522
	University	23	52.27	40.65	21.65			
General health	Trade or high school	21	47.73	50.71	17.34	-0.42	42	0.6736
	University	23	52.27	53.04	18.93			

Table 2.14: SF36 by education summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Trade or high school	21	47.73	75.00	30.00	231.50	0.8222
	University	23	52.27	80.00	45.00		
Role functioning/physical	Trade or high school	21	47.73	75.00	75.00	263.50	0.5997
	University	23	52.27	50.00	100.00		
Role functioning/emotional	Trade or high school	21	47.73	100.00	66.67	177.50	0.0822
	University	23	52.27	100.00	16.67		
Emotional well-being	Trade or high school	21	47.73	72.00	24.00	181.00	0.1565
	University	23	52.27	76.00	12.00		
Social functioning	Trade or high school	21	47.73	75.00	37.50	246.50	0.9146
	University	23	52.27	75.00	50.00		
Pain	Trade or high school	21	47.73	57.50	32.50	191.50	0.2425
	University	23	52.27	70.00	40.00		
Health change	Trade or high school	21	47.73	50.00	50.00	233.00	0.8477
	University	23	52.27	50.00	62.50		

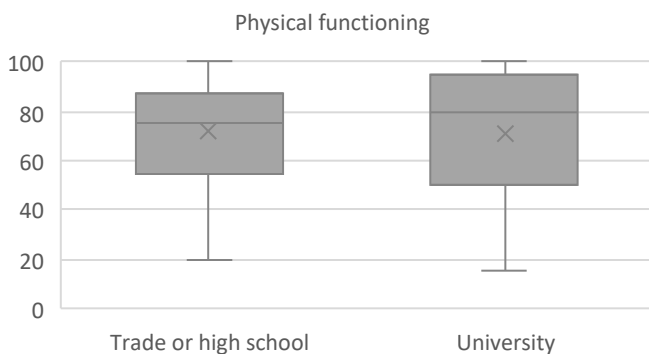


Figure 2.30: Boxplot of SF36 Physical functioning by education

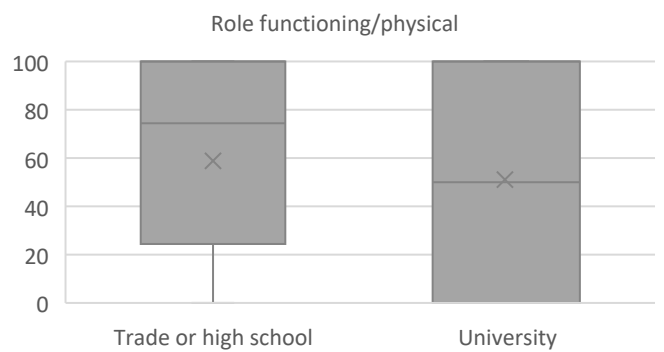


Figure 2.31: Boxplot of SF36 Role functioning/physical by education

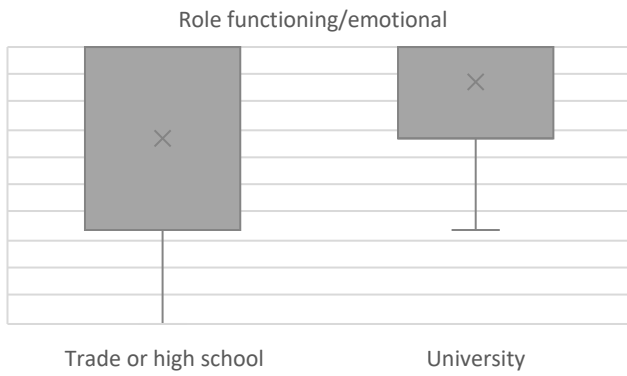


Figure 2.32: Boxplot of SF36 Role functioning/emotional by education

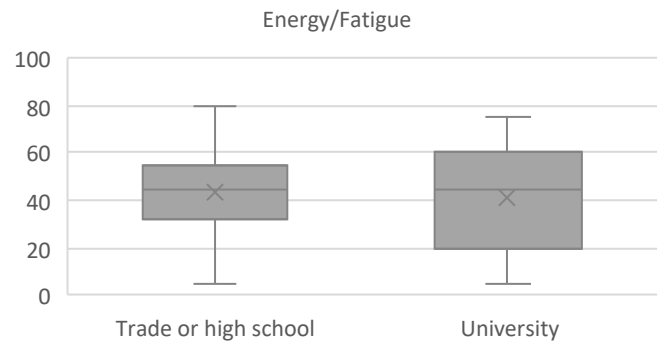


Figure 2.33: Boxplot of SF36 Energy/fatigue by education

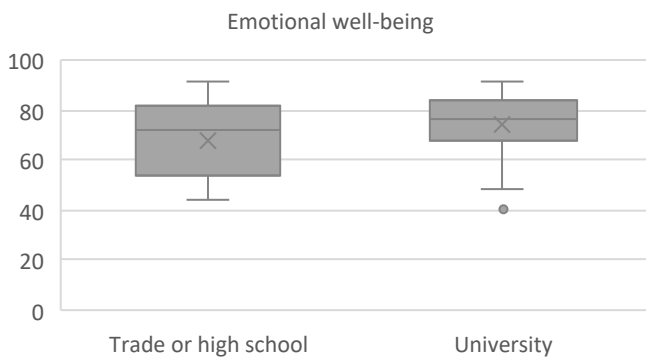


Figure 2.34: Boxplot of SF36 Emotional well-being by education

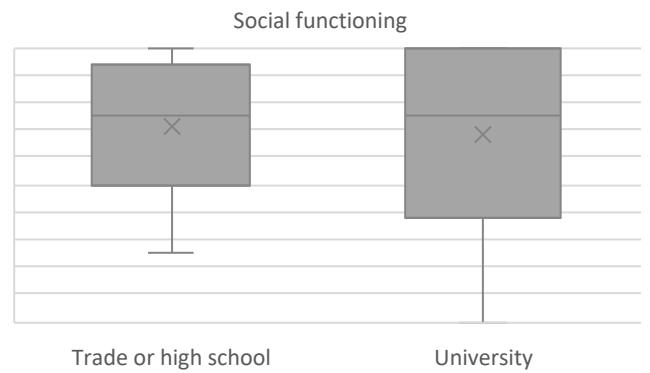


Figure 2.35: Boxplot of SF36 Social functioning by education

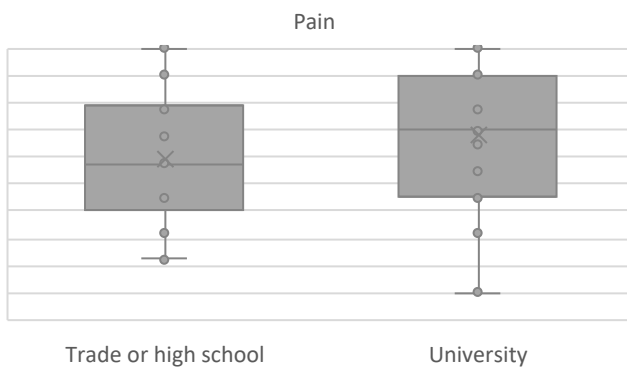


Figure 2.36: Boxplot of SF36 Pain by a education

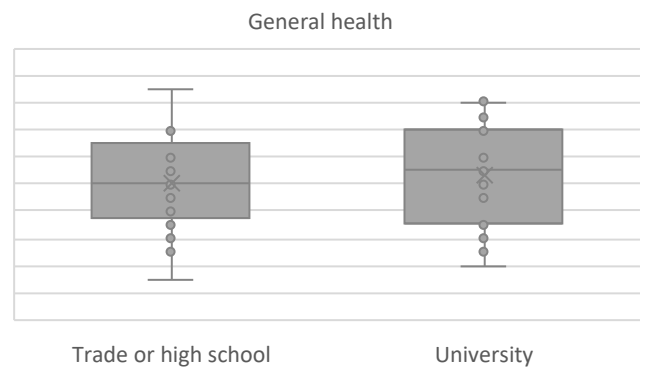


Figure 2.37: Boxplot of SF36 General health by education

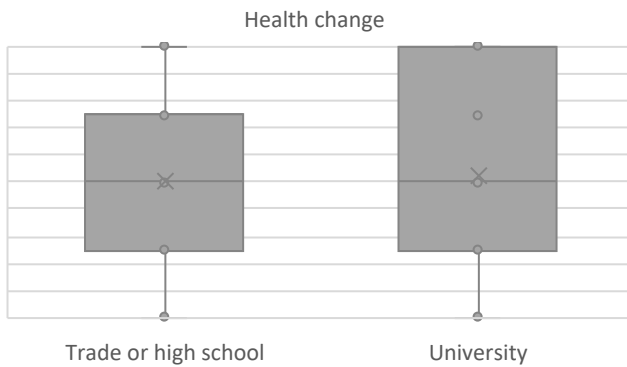


Figure 2.38: Boxplot of SF36 Health change by education

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/rural areas, *Regional or remote* (n =16, 32.00%) were compared to those living in a major city, *Metropolitan* (n = 34, 68.00%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.15), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.16).

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

Table 2.15: SF36 by location summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Regional or remote	14	31.82	45.00	18.50	0.71	42	0.4798
	Metropolitan	30	68.18	40.50	19.93			
Pain	Regional or remote	14	31.82	69.64	21.21	0.99	42	0.3287
	Metropolitan	30	68.18	61.25	28.21			
General health	Regional or remote	14	31.82	54.29	15.17	0.59	42	0.5601
	Metropolitan	30	68.18	50.83	19.35			

Table 2.16: SF36 by location summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Regional or remote	14	31.82	77.50	26.25	238.50	0.4775
	Metropolitan	30	68.18	77.50	38.75		
Role functioning/physical	Regional or remote	14	31.82	50.00	68.75	175.50	0.3735
	Metropolitan	30	68.18	75.00	75.00		
Role functioning/emotional	Regional or remote	14	31.82	83.33	66.67	163.00	0.1723
	Metropolitan	30	68.18	100.00	33.33		
Emotional well-being	Regional or remote	14	31.82	72.00	11.00	239.50	0.4627
	Metropolitan	30	68.18	76.00	30.00		
Social functioning	Regional or remote	14	31.82	75.00	25.00	202.00	0.8479
	Metropolitan	30	68.18	75.00	50.00		
Health change	Regional or remote	14	31.82	37.50	50.00	186.00	0.5451
	Metropolitan	30	68.18	50.00	50.00		

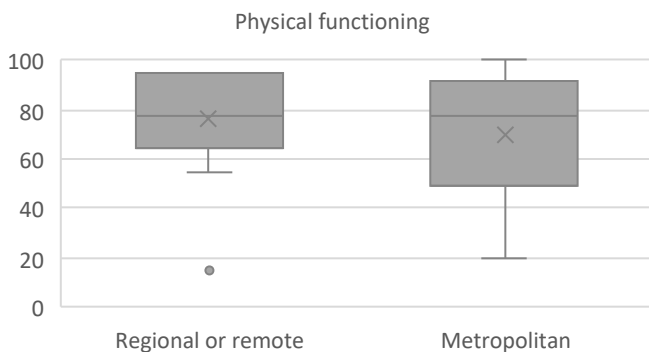


Figure 2.39: Boxplot of SF36 Physical functioning by location

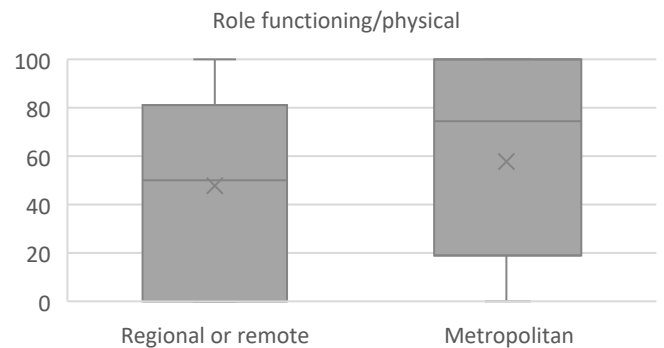


Figure 2.40: Boxplot of SF36 Role functioning/physical by location

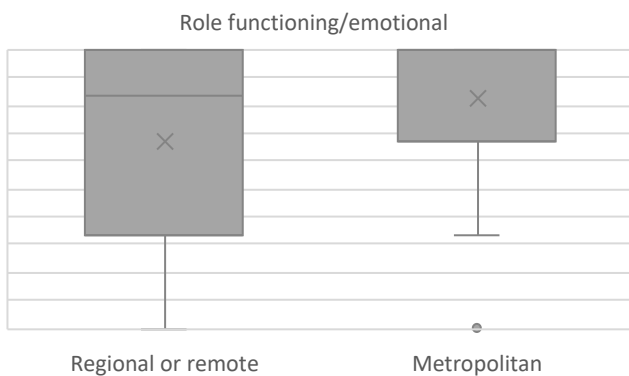


Figure 2.41: Boxplot of SF36 Role functioning/emotional by location

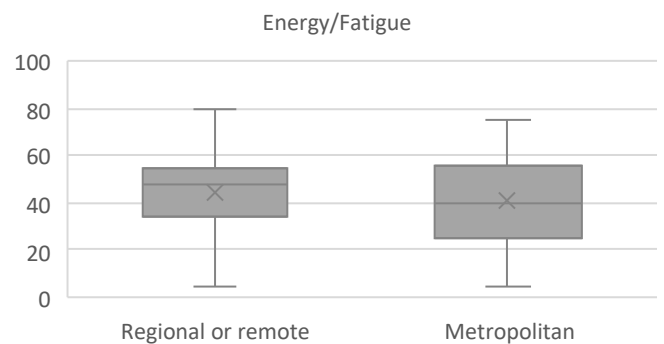


Figure 2.42: Boxplot of SF36 Energy/fatigue by location

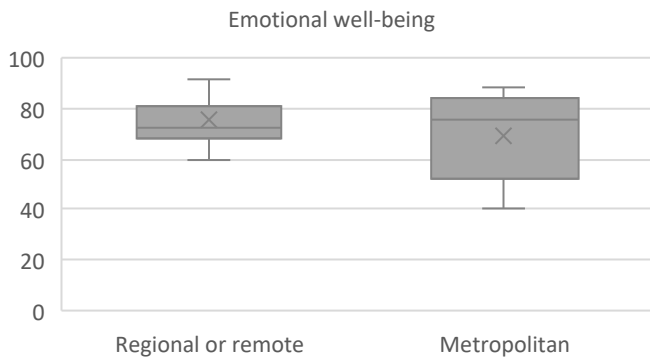


Figure 2.43: Boxplot of SF36 Emotional well-being by location

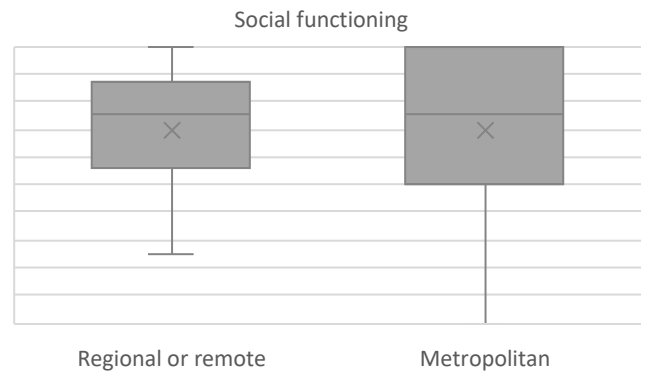


Figure 2.44: Boxplot of SF36 Social functioning by location

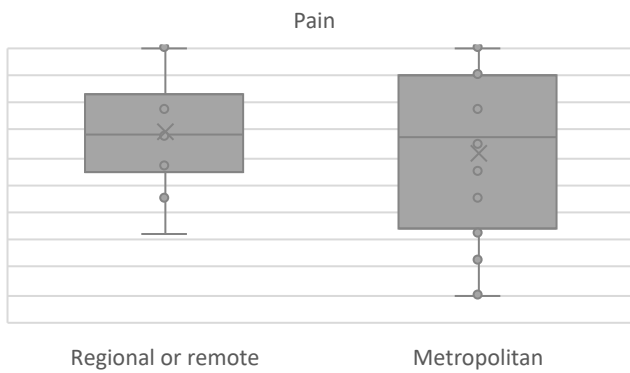


Figure 2.45: Boxplot of SF36 Pain by a location

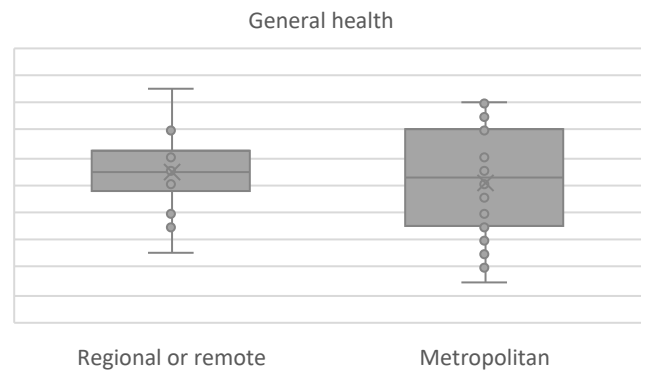


Figure 2.46: Boxplot of SF36 General health by location

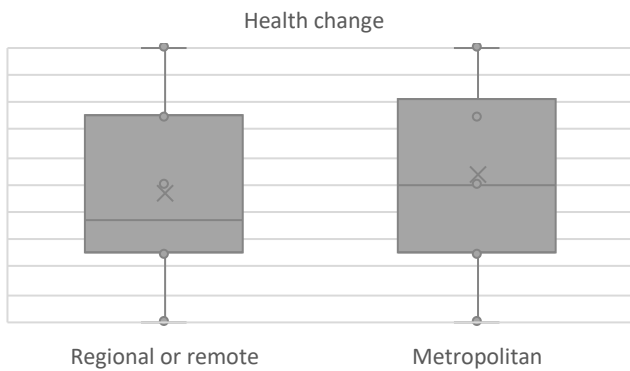


Figure 2.47: Boxplot of SF36 Health change by location

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 to 6, *Mid to low status* (n = 20, 40.00%) compared to those with a higher SEIFA score of 7 to 10, *Higher status* (n = 30, 60.00%).

A two-sample t-test was used when assumptions for normality and variance were met (Table 2.17), or when assumptions for normality and variance were not met, a Wilcoxon rank sum test with continuity correction was used (Table 2.18).

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

Table 2.17: SF36 by socioeconomic status summary statistics and T-test

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	T	dF	p-value
Energy/Fatigue	Mid to low status	17	38.64	40.59	18.28	-0.36	42	0.7199
	Higher status	27	61.36	42.78	20.35			
General health	Mid to low status	17	38.64	53.82	18.75	0.55	42	0.5865
	Higher status	27	61.36	50.74	17.80			

Table 2.18: SF36 by socioeconomic status summary statistics and Wilcoxon test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	W	p-value
Physical functioning	Mid to low status	17	38.64	75.00	35.00	210.50	0.6535
	Higher status	27	61.36	80.00	42.50		
Role functioning/physical	Mid to low status	17	38.64	50.00	75.00	220.50	0.8315
	Higher status	27	61.36	75.00	100.00		
Role functioning/emotional	Mid to low status	17	38.64	100.00	66.67	195.50	0.3469
	Higher status	27	61.36	100.00	33.33		
Emotional well-being	Mid to low status	17	38.64	72.00	24.00	236.00	0.8844
	Higher status	27	61.36	76.00	18.00		
Social functioning	Mid to low status	17	38.64	75.00	25.00	220.50	0.8353
	Higher status	27	61.36	75.00	50.00		
Pain	Mid to low status	17	38.64	67.50	35.00	225.00	0.9228
	Higher status	27	61.36	67.50	40.00		
Health change	Mid to low status	17	38.64	50.00	50.00	231.00	0.9804
	Higher status	27	61.36	50.00	50.00		

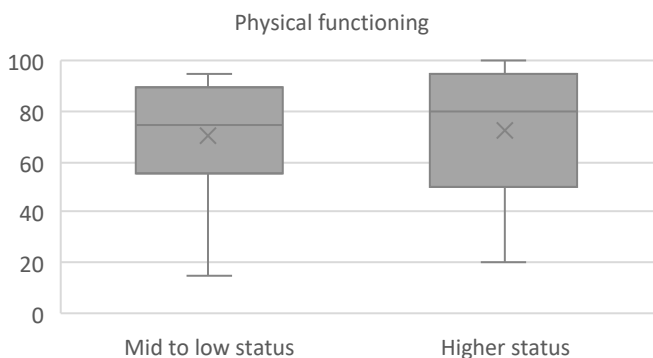


Figure 2.48: Boxplot of SF36 Physical functioning by socioeconomic status

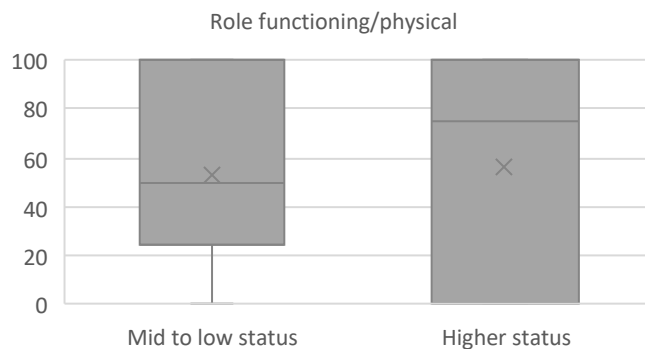


Figure 2.49: Boxplot of SF36 Role functioning/physical by socioeconomic status

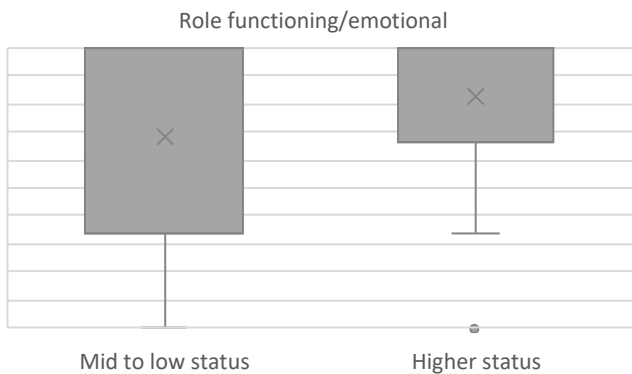


Figure 2.50: Boxplot of SF36 Role functioning/emotional by socioeconomic status

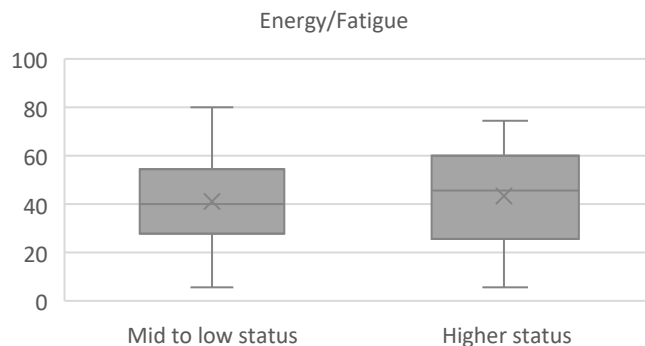


Figure 2.51: Boxplot of SF36 Energy/fatigue by socioeconomic status

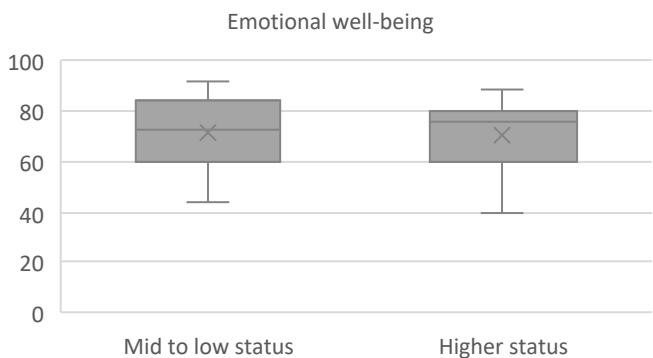


Figure 2.52: Boxplot of SF36 Emotional well-being by socioeconomic status

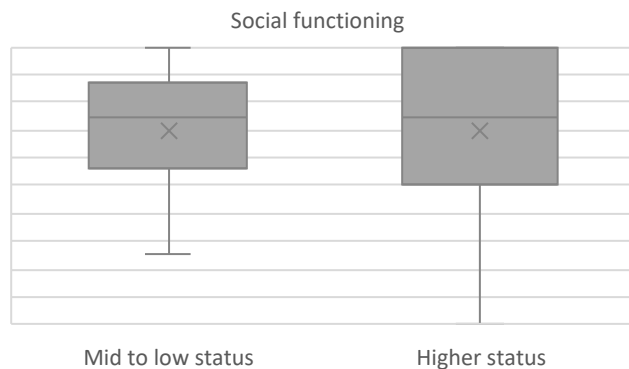


Figure 2.53: Boxplot of SF36 Social functioning by socioeconomic status

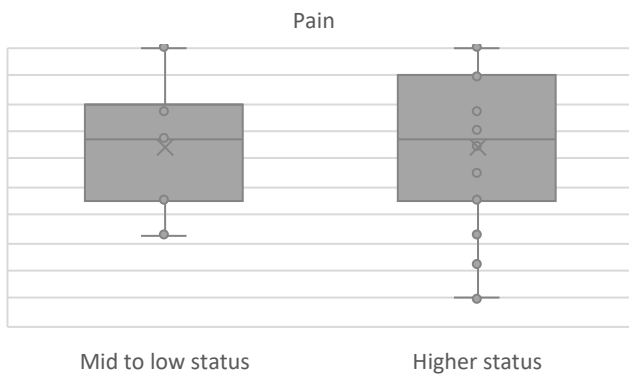


Figure 2.54: Boxplot of SF36 Pain by a socioeconomic status

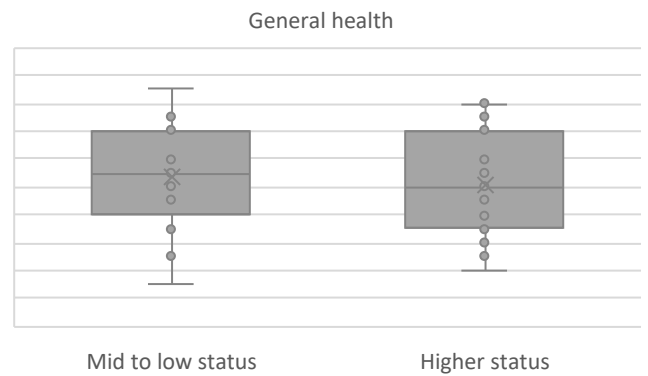


Figure 2.55: Boxplot of SF36 General health by socioeconomic status

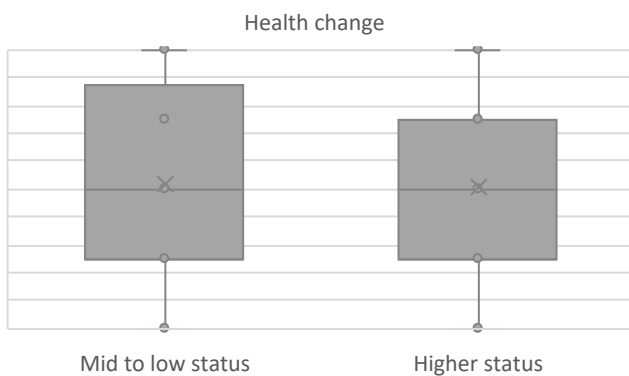


Figure 2.56: Boxplot of SF36 Health change by socioeconomic status

SF36 by age

Participants were grouped according to **age**, with comparisons made between participants *Aged 25 to 44* (n = 19, 38.00%), participants *Aged 45 to 54* (n = 22, 44.00%), and participants *Aged 55 to 74* (n = 9, 18.00%).

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

normally distributed, and variances of populations were equal (Table 2.19). When the assumptions for normality of residuals was not met, a Kruskal-Wallis test was used (Table 2.20).

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

Table 2.19: SF36 by age summary statistics and one-way ANOVA

SF36 scale	Group	Number (n=44)	Percent	Mean	SD	Source of difference	Sum of squares	dF	Mean Square	f	p-value
Energy/fatigue	Aged 25 to 44	16	36.36	39.06	21.77	Between groups	287.00	2	143.60	0.37	0.6920
	Aged 45 to 54	19	43.18	44.74	18.89	Within groups	15874.00	41	387.20		
	Aged 55 to 74	9	20.45	41.11	17.10	Total	16161.00	43			
Emotional well-being	Aged 25 to 44	16	36.36	71.25	12.33	Between groups	135.00	2	67.63	0.33	0.7220
	Aged 45 to 54	19	43.18	72.21	14.20	Within groups	8452.00	41	206.16		
	Aged 55 to 74	9	20.45	67.56	17.83	Total	8587.00	43			
General health	Aged 25 to 44	16	36.36	48.75	18.21	Between groups	390.00	2	194.90	0.59	0.5600
	Aged 45 to 54	19	43.18	55.26	19.04	Within groups	13571.00	41	331.00		
	Aged 55 to 74	9	20.45	50.56	16.09	Total	13961.00	43			

Table 2.20: SF36 by age summary statistics and Kruskal-Wallis test

SF36 scale	Group	Number (n=44)	Percent	Median	IQR	C ²	dF	p-value
Physical functioning	Aged 25 to 44	16	36.36	72.50	27.50	1.86	2	0.3948
	Aged 45 to 54	19	43.18	80.00	37.50			
	Aged 55 to 74	9	20.45	85.00	20.00			
Role functioning physical	Aged 25 to 44	16	36.36	50.00	100.00	0.47	2	0.7887
	Aged 45 to 54	19	43.18	75.00	87.50			
	Aged 55 to 74	9	20.45	75.00	75.00			
Role functioning emotional	Aged 25 to 44	16	36.36	83.33	66.67	1.94	2	0.3793
	Aged 45 to 54	19	43.18	100.00	33.33			
	Aged 55 to 74	9	20.45	100.00	0.00			
Social functioning	Aged 25 to 44	16	36.36	75.00	37.50	1.09	2	0.5798
	Aged 45 to 54	19	43.18	75.00	43.75			
	Aged 55 to 74	9	20.45	75.00	50.00			
Pain	Aged 25 to 44	16	36.36	66.25	28.13	0.72	2	0.6967
	Aged 45 to 54	19	43.18	67.50	40.00			
	Aged 55 to 74	9	20.45	77.50	45.00			
Health change	Aged 25 to 44	16	36.36	25.00	81.25	1.57	2	0.4559
	Aged 45 to 54	19	43.18	50.00	50.00			
	Aged 55 to 74	9	20.45	50.00	25.00			

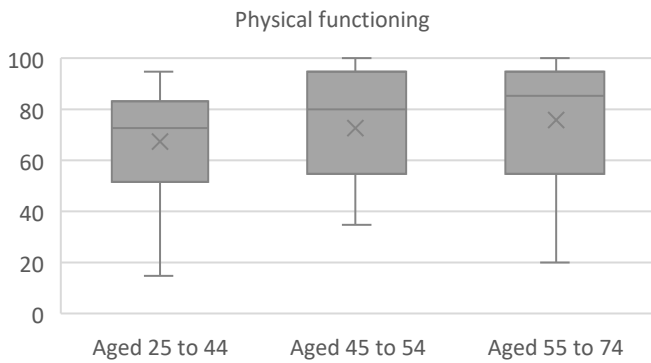


Figure 2.57: Boxplot of SF36 Physical functioning by age

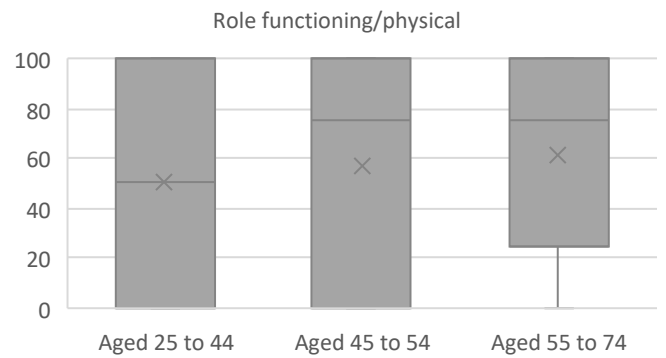


Figure 2.58: Boxplot of SF36 Role functioning/physical by age

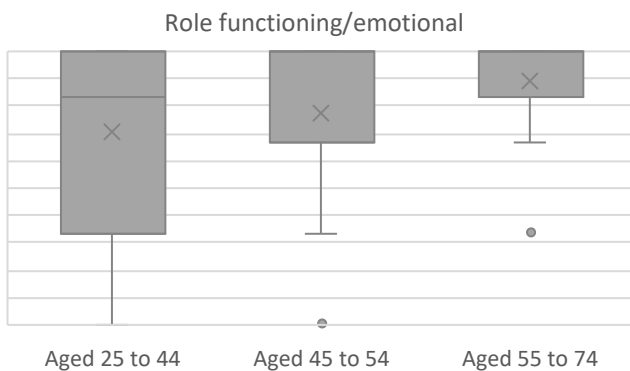


Figure 2.59: Boxplot of SF36 Role functioning/emotional by age

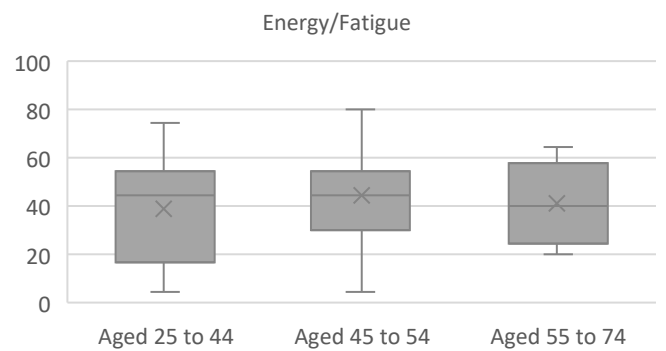


Figure 2.60: Boxplot of SF36 Energy/fatigue by age



Figure 2.61: Boxplot of SF36 Emotional well-being by age

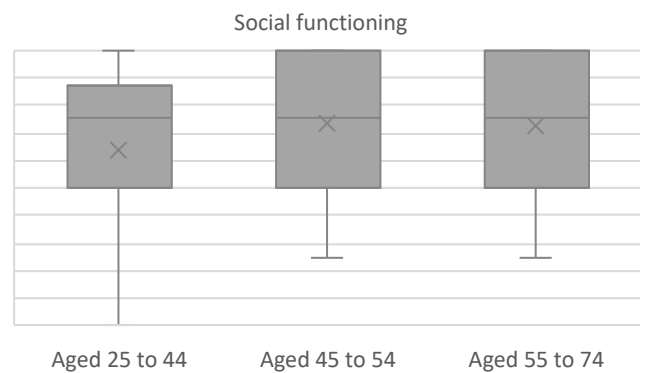


Figure 2.62: Boxplot of SF36 Social functioning by age

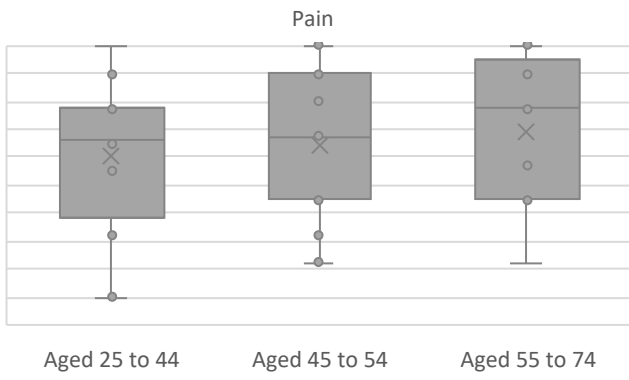


Figure 2.63: Boxplot of SF36 Pain by a age

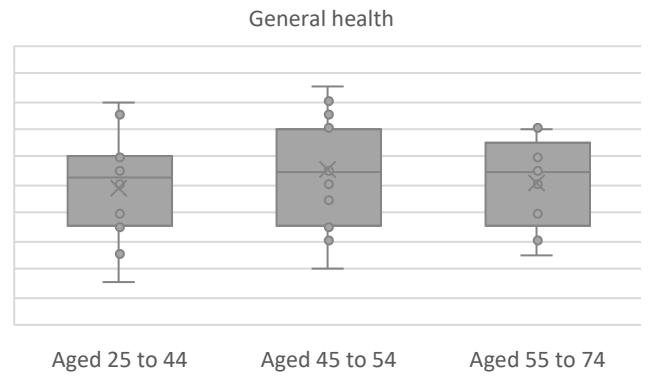


Figure 2.64: Boxplot of SF36 General health by age

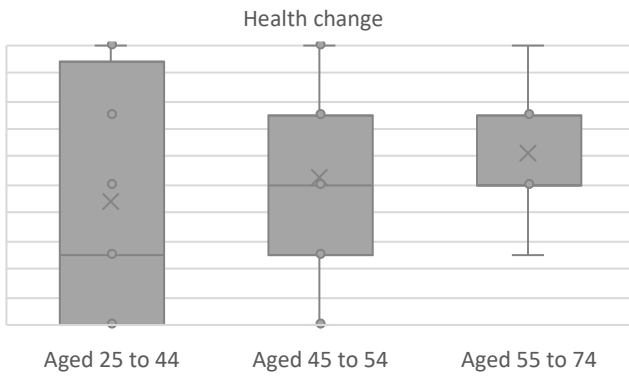


Figure 2.65: Boxplot of SF36 Health change by age