CHAPTER 4

RESULTS – PHASE 1

4.1 INTRODUCTION

In this chapter, the results the quantitative phase of the study (Phase 1), are presented. The objectives of this phase of the study were to:

- Ascertain a socio-demographic and spinal cord injury profile of each participant;
- Investigate the reliability and validity of the measurement instruments;
- Determine relationships among and between the measurement instruments; and
- Determine if there were significant differences between the full sample and the interviewed sub-sample in terms of the relationships between demographics, injury profile, interviewee status and measuring instruments.

The results are presented in sections based on these objectives. A short summary of the findings is presented at the end of each section.

4.2 SECTION1: SOCIO-DEMOGRAPHIC AND INJURY PROFILE OF PARTICIPANTS

4.2.1 Socio-demographic characteristics of the sample

The study sample consisted of 160 participants, 124 males and 36 females. The participants' socio-demographic profiles are presented according to the following characteristics: age, gender, marital status, education, geographical location, living arrangements and source of income.

4.2.1.1 Age of the participants

a) Age at the time of injury

The ages of the participants at the time of injury ranged from 15 to 52 years (*mean age = 29.19 years, sd = 8.05*). The majority of the participants (58.1%) were between 15 and 30 years at the time of injury, which corresponds to international trends (Ones, Yilmaz, Beydogan, Gultekin & Caglar, 2007). Table 4.1 depicts the participants' ages at the time of injury.

Table 4.1: Participant age at time of injury

Age	Frequency	Percent	Valid Percent	Cumulative Percent
15	4	2.5	2.5	2.50
16	4	2.5	2.5	5.00
18	4	2.5	2.5	7.50
21	7	4.4	4.4	11.9
22	15	9.4	9.4	21.3
23	21	13.1	13.1	34.4
24	6	3.8	3.8	38.1
25	4	2.5	2.5	40.6
26	7	4.4	4.4	45.0
28	4	2.5	2.5	47.5
30	17	10.6	10.6	58.1
31	8	5.0	5.0	63.1
32	11	6.9	6.9	70.0
33	3	1.9	1.9	71.9
34	14	8.8	8.8	80.6
36	4	2.5	2.5	83.1
38	4	2.5	2.5	85.6
39	3	1.9	1.9	87.5
41	12	7.5	7.5	95.0
42	1	0.6	0.6	95.6
44	1	0.6	0.6	96.3
49	4	2.5	2.5	98.8
52	2	1.3	1.3	100.0
Total	160	100.0	100.0	

b) Participants' age

The age of the participants at the time of the study ranged between 18 and 58 years as reflected in Figure 4.1:

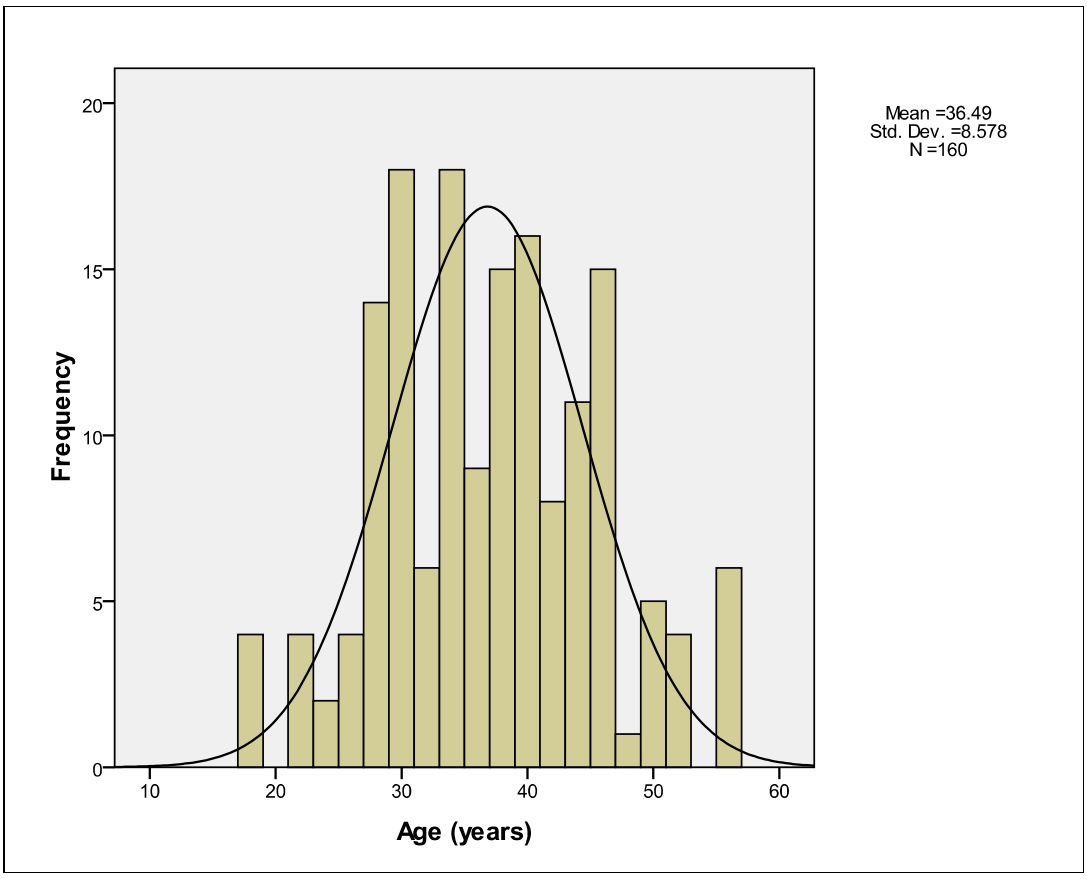

Figure 4.1: Age of participants at the time of the study

4.2.1.2 Gender

The gender distribution of the participants was 124 males (77.5%) and 36 females (22.5%) (Ratio 3.4:1, as indicated previously). Figure 4.2 below depicts the gender distribution in the different age categories.

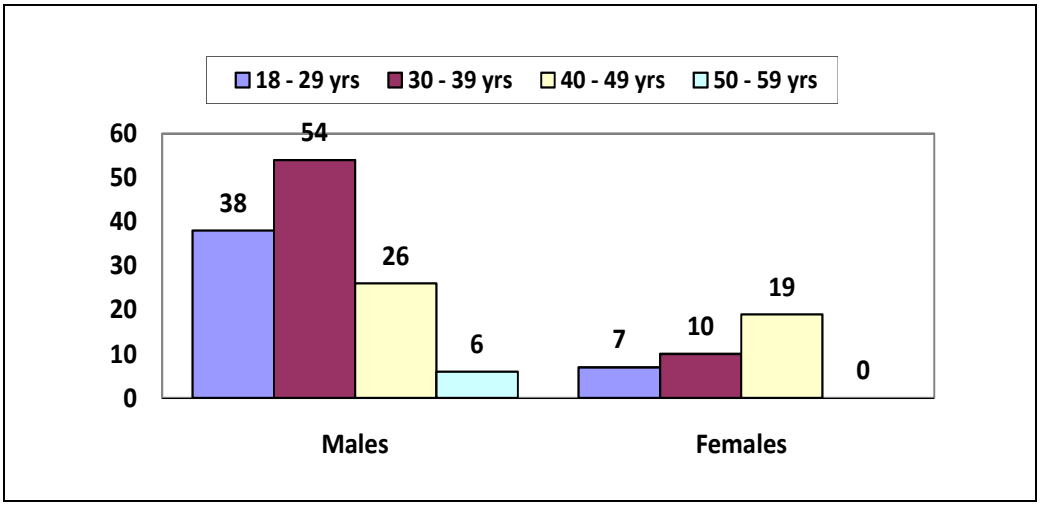

Figure 4.2: Percentage Gender distribution in the different age categories.

4.2.1.3 Marital status

Sixty-four percent of the sample were single (never married) at the time of their injury, and 36% were married. After the SCI, single participants remained single, while the marital status of five of the married participants changed. Two males were widowed, two others were divorced and one female was separated. The marital status of the participants at the time of the study is reflected in Figure 4.3.

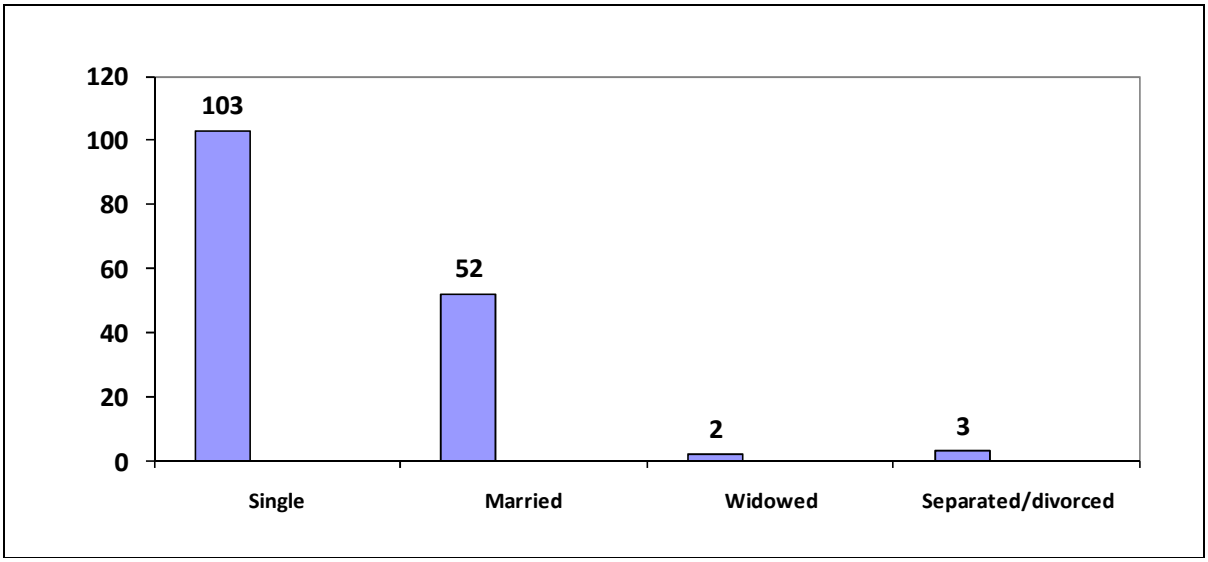

Figure 4.3: Marital status of participants at the time of the study

4.2.1.4 Educational background

All the participants in this study had some form of basic education; the level of education of the participants ranged from two to 12 years of formal basic education (*mean years = 9.87, sd = 2.57*). Figure 4.4 reflects the basic education level of the participants.

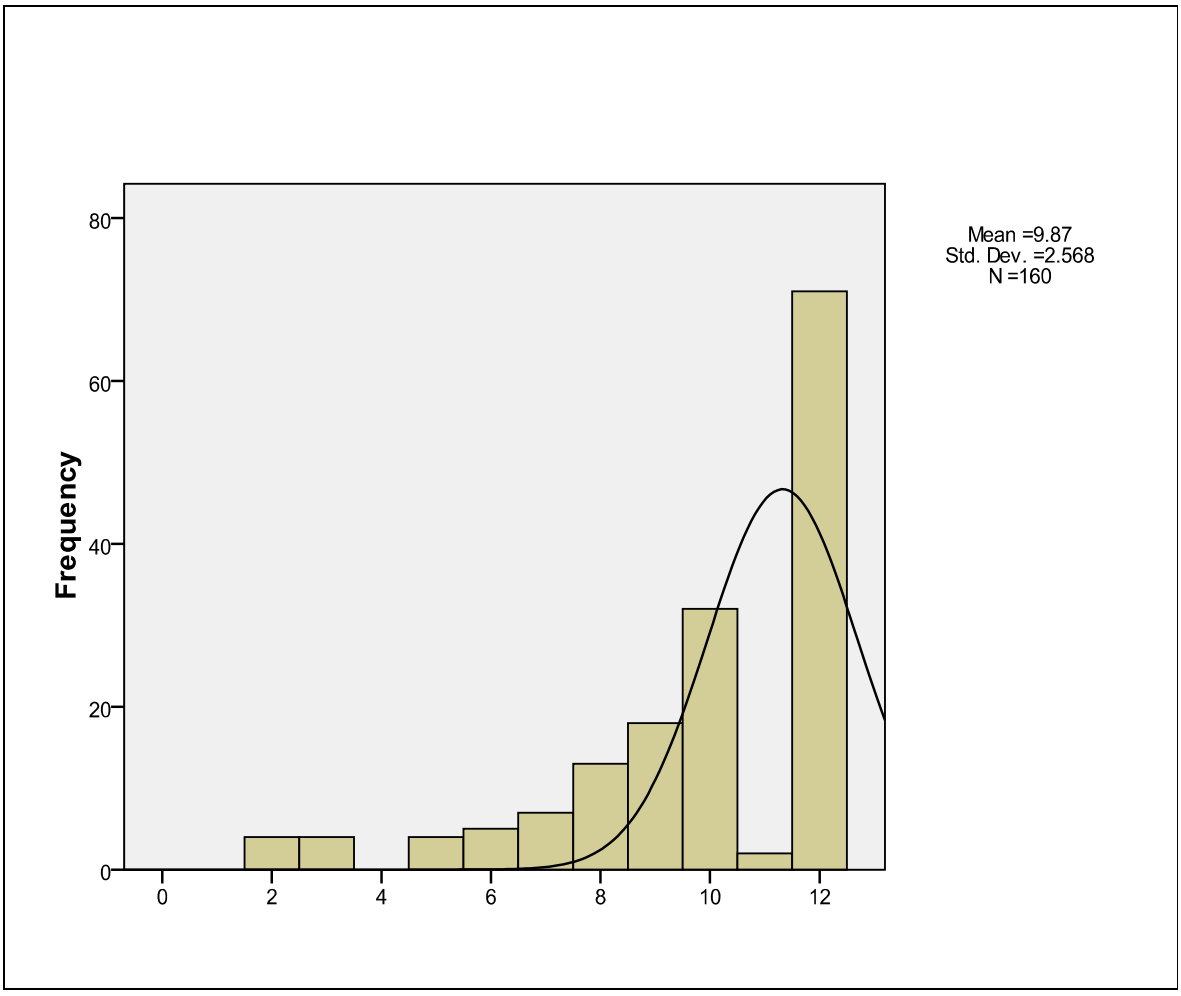

Figure 4.4: Participants' level of basic education

Of the 113 participants who had matriculated (completed high school), 67 (59.3%) had post school qualifications (39 = post basic certificate, 10 = tertiary diploma and 18 = tertiary degree), as indicated in Figure 4.5.

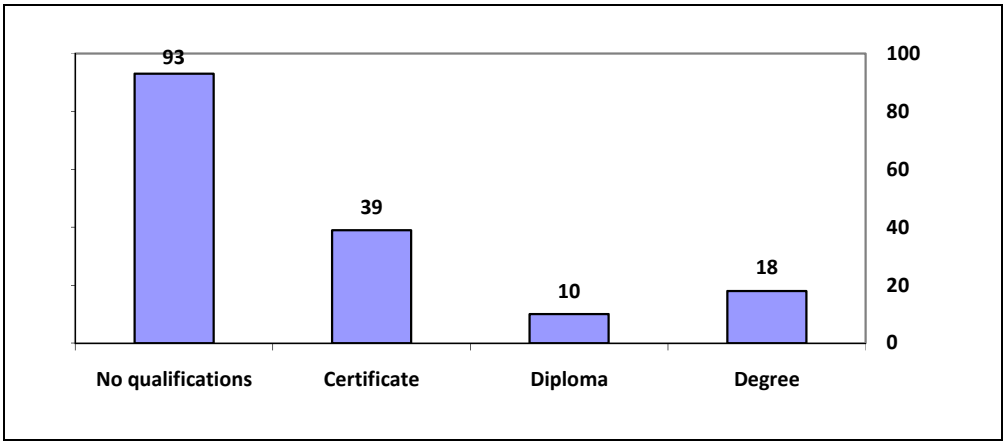

Figure 4.5: Post basic qualifications of participants

4.2.1.5 Residential areas of participants

The majority of the participants were living in townships (60%), while 25% resided in the suburbs of the Tshwane metropolitan area. The remaining 24 participants who indicated "other" (15%) were living in informal settlements or farms and plots outside the township or suburban areas at the time of the study.

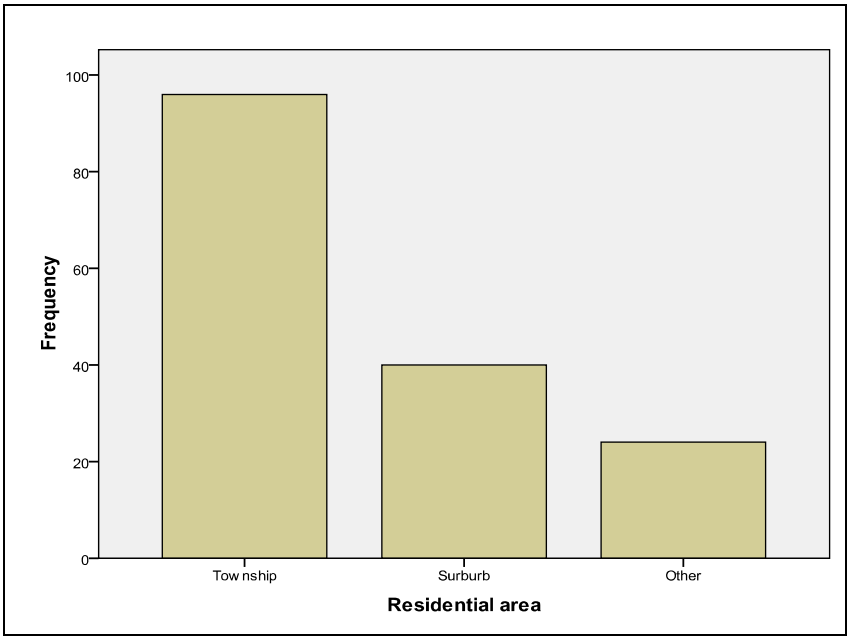

Figure 4.6: Residential area of participants

4.2.1.6 Living arrangements of participants

The vast majority of participants (144 or 90%) were living with their families (own family or parents), eight (5%) were living with friends while another eight participants (5%) resided in shelters or special homes. Figure 4.7 depicts the living arrangements of the participants.

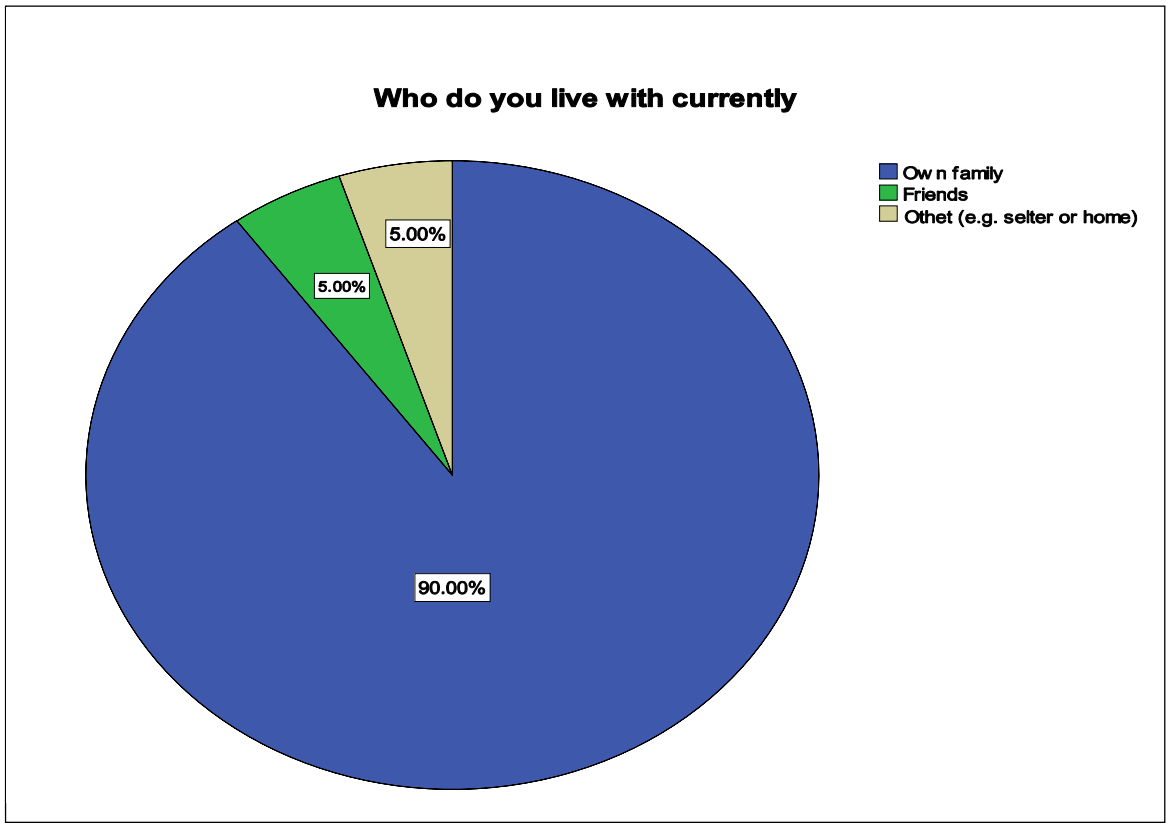

Figure 4.7: Living arrangements of participants'

4.2.1.7 Employment

The employment rate of participants was low, especially in the age groups expected to be in the economically active period of their lifespan (18 - 39 years). Figure 4.8 reflects participants' employment status at the time of the study.

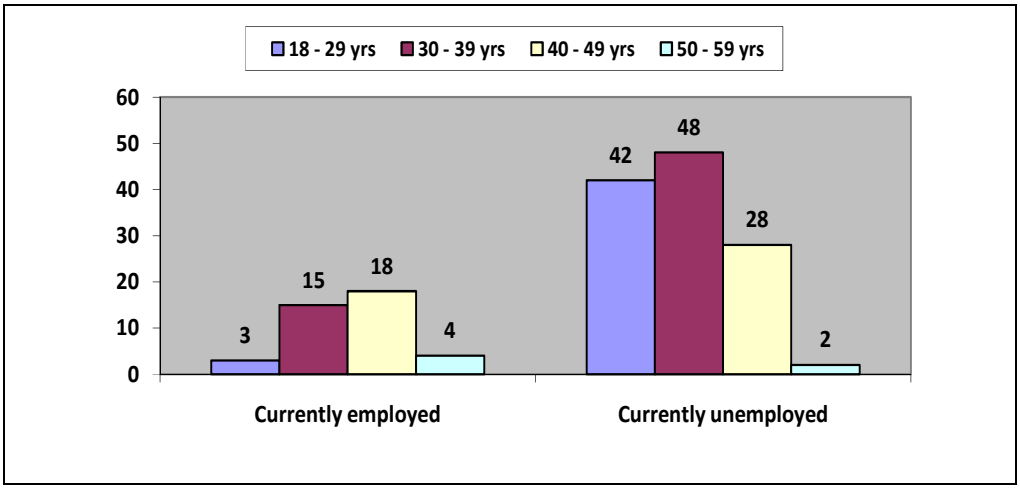

Figure 4.8: Employment status vs. age of participants

Before the SCI, 91 participants (56.9%) had been employed, while only 41 (25.6 %) were employed at the time of the study. Of the 41 employed participants, twelve had been previously unemployed and had gained new employment after sustaining the SCI, meaning that effectively only 29 participants had returned to work. Of these 29, 15 returned to their previous jobs, while 14 changed jobs. Forty-four participants lost their employment post injury, of which 20 were manual labourers (three domestic workers, four gardeners, five farm labourers and eight construction workers). Eighteen participants stopped working because they had received financial compensation from various sources (Road Accident Fund, compensation for occupational Injuries and personal disability insurance). As indicated earlier in this paragraph, only 12 of the 59 previously unemployed participants found new employment after the SCI, leaving 47 still unemployed post injury.

4.2.1.8 Source of income

More than a third of the participants (40%) stated that their main source of income was a disability grant. Forty-one participants (25.6%) were employed, 34 (21.3%) had other sources of income including a disability pension and compensation for occupational injuries, while 24 participants (15%) had no income at all and were

financially supported by other family members. The sources of income among participants are illustrated in Figure 4.9.

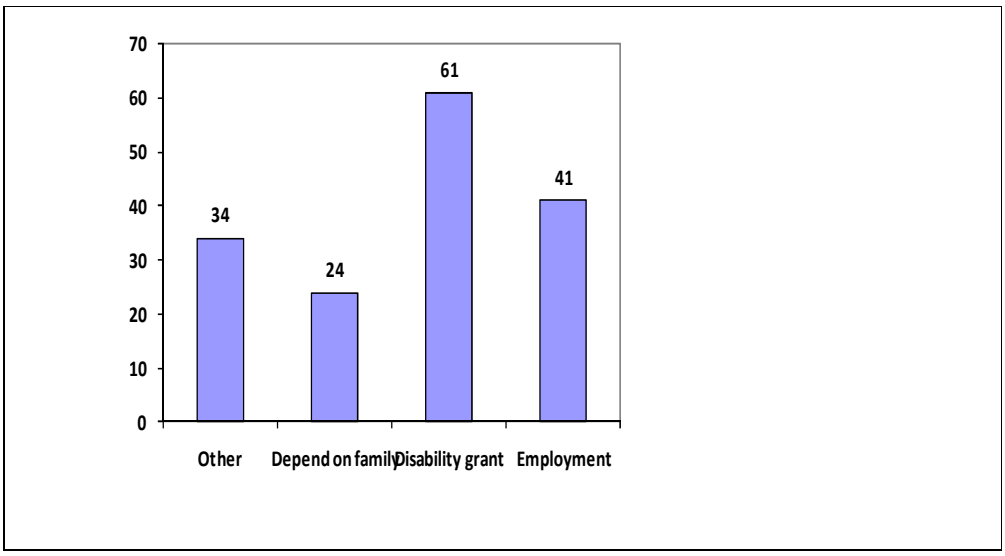

Figure 4.9: Participants' source of income (n = 160)

4.2.1.9 Number of years of living with SCI

The period in which participants had been living with SCI ranged between two and 25 years (*mean = 7.25 years, sd = 5.38*), as reflected in Figure 4.10. There were 13 outlier PLWSCI who had lived with the injury for more than 20 years and these caused the high variance in the responses.

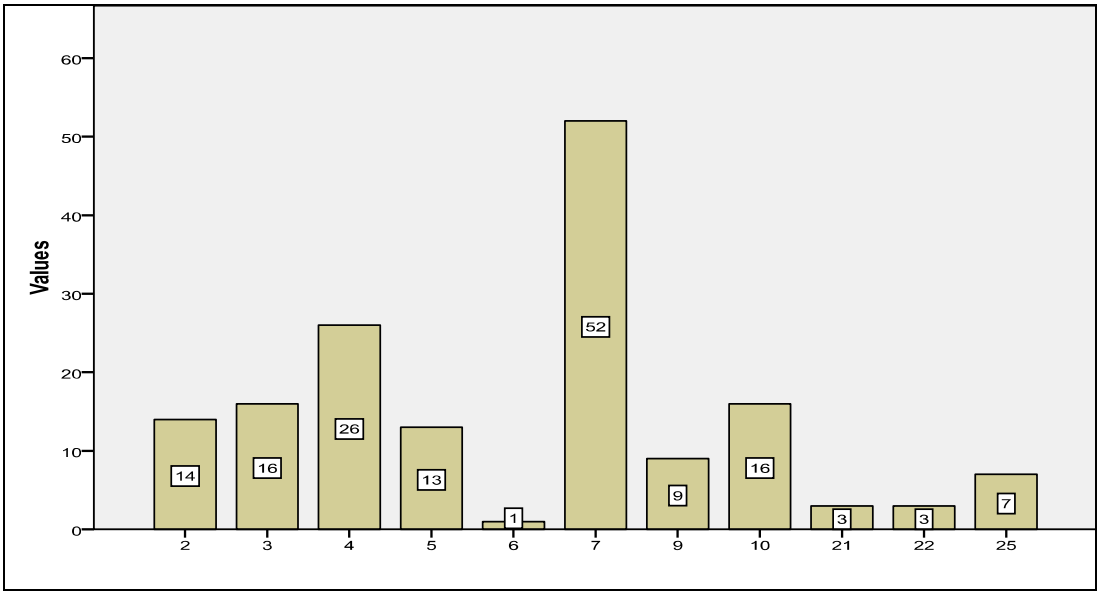

Figure 4.10: Number of years of living with SCI

4.2.2 Spinal cord injury and general health profile

4.2.2.1 Causes of Spinal Cord Injury (SCI) among participants

Figure 4.11 illustrates the causes of SCI among the participants.

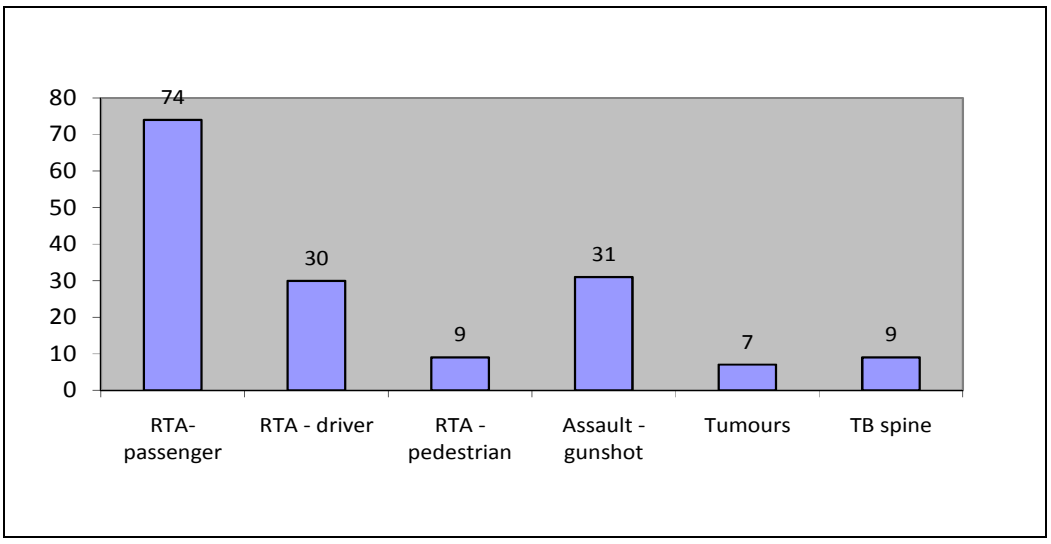

Figure 4.11: Cause of SCI in participants

The majority of participants (n = 144: 90%) had sustained traumatic spinal cord injuries in road traffic accidents or from violent gunshot injuries. Road traffic accidents (RTAs), whether the participant had been the driver of the vehicle, a passenger or a pedestrian accounted for 70.6% of all causes of SCI. Passengers constituted the majority of these RTA related causes (46.3%), while gunshot assaults (from hijackings, house robberies or personal attacks) were the cause of 19.4% of SCIs.

4.2.2.2 Level and completeness of lesion

One hundred participants had sustained lesions below T1 (paraplegia), while 60 (37.5%) had sustained cervical lesions (tetraplegia). Over half (101 or 63.1%) of the participants suffered complete lesions while 59 (36.9%) had incomplete lesions. The level of injury versus completeness of lesion distribution is illustrated in Figure 4.12.

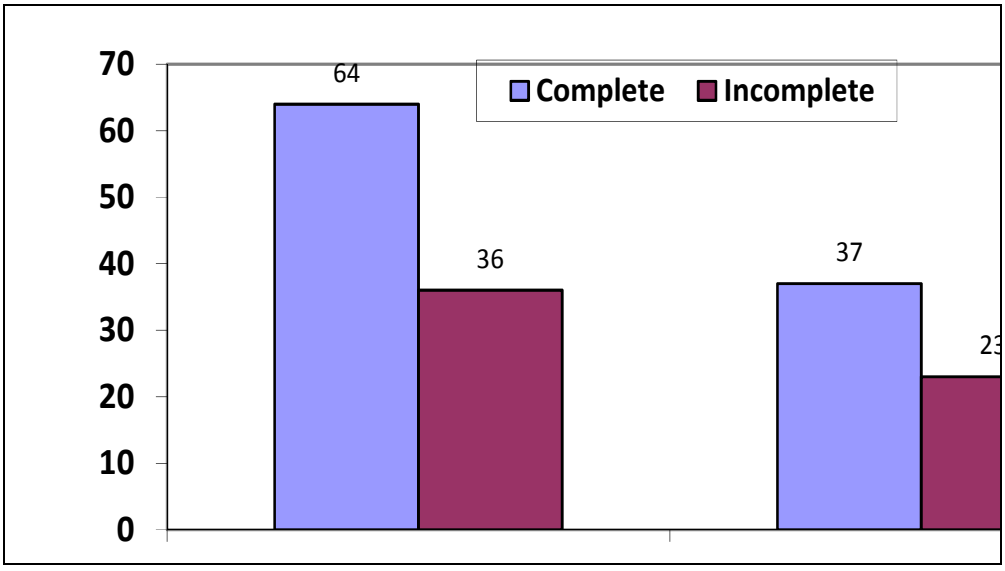

Figure 4.12: Level and completeness of SCI

4.2.2.3 Hospitalisation post rehabilitation

Almost half the participants (48.1%) had been re-admitted to hospital for some reason after having been discharged. Pressure ulcers were the main reason for re-admission (60 participants or 78% of re-admissions). Other reasons for re-admission

included urinary tract infections and respiratory problems. Figure 4.13 illustrates the reasons for re-hospitalisation of participants.

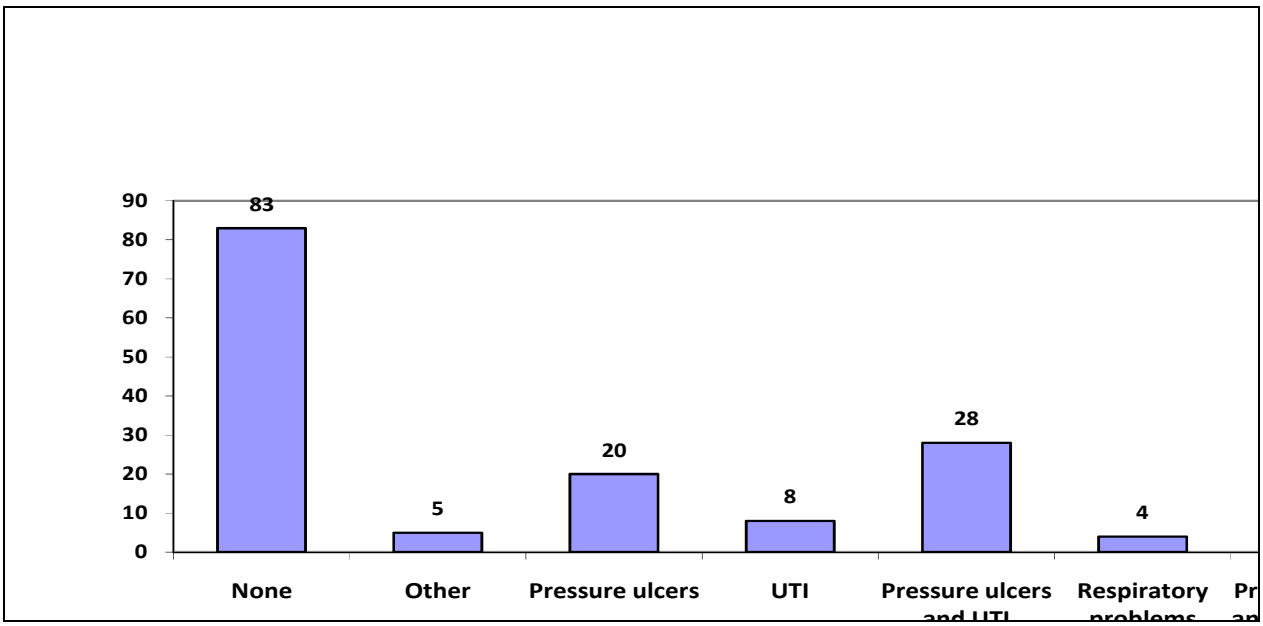

Figure 4.13: Reasons for re-hospitalisation following discharge from rehabilitation

4.2.2.4 Perceived general health status

Overall, the participants rated their general health as fair, good or very good (Figure 4.14). None of the participants rated their health as poor.

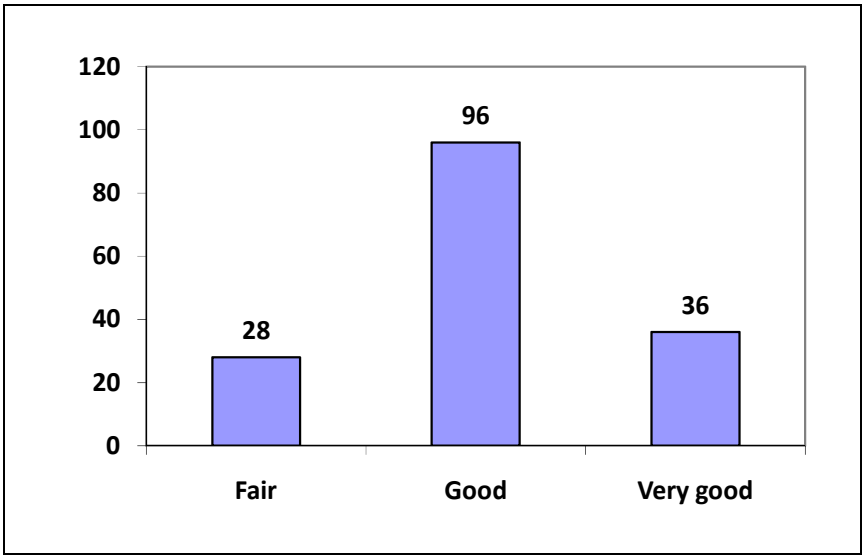

Figure 4.14: Participants' perceived rating of their health

4.2.2.4 Current health problems

Most of the participants (61.2%; n = 98) did not report any other health problems over or above the SCI. Of those who reported health problems, only two mentioned non-SCI related problems, namely HIV. One of two participants who mentioned HIV also suffered from tuberculosis. The remaining participants reported circulatory problems (pressure ulcers and oedema of the legs) and musculoskeletal problems (pain and spasms), as shown in Figure 4.14.

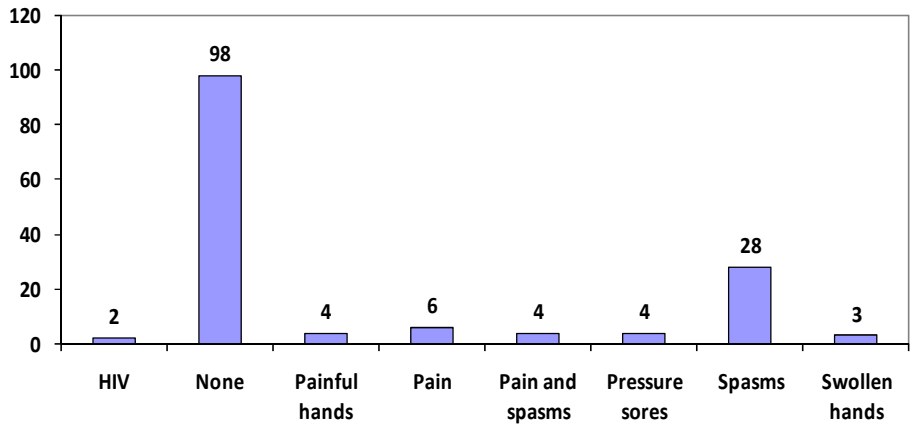

Figure 4.15 Health problems reported by participants

4.2.3 Summary of the socio-demographic and Spinal Cord Injury data

The descriptive statistics from the demographic information enabled the researcher to form a profile of the participants who comprised the study population. This demographic profile indicated that participants were predominantly young (58% had sustained SCI under 30 years of age), male (90%) and single (64%) The basic education of the respondents was satisfactory, with a mean of nine years of schooling. Employment dropped from 91 participants employed pre-injury to only 29 employed at the time of the study: the injuries they sustained thus imposed a substantial financial burden on the PLWSCI. Forty percent of the participants were dependent on government disability grants for financial support.

The level of SCI in the majority (63%) of the participants was paraplegia, while 37% of them presented with tetraplegic lesions. Road traffic accidents were the major cause of injury, accounting for 71% of the SCI. Almost half of the participants had been re-admitted to hospital for one or more complications after discharge from rehabilitation:

pressure ulcers (either alone or combined with UTI and/or respiratory problems) were the main reasons for re-admission to hospital in 78% of participants.

In the next section, the analysis of the data from the other three instruments used in this study, namely the RNLI, SCIM and CHIEF-SF, is presented.

4.3 SECTION 2: STATISTICAL ANALYSES OF THE INSTRUMENTS

In this section, the results of the statistical analysis of the Return to Normal Living Index (RNLI), the Spinal Cord Independence Measure - II (SCIM II) and the Craig Hospital Inventory of Environmental Factors short form (CHIEF –SF) are presented separately. In the case of each instrument, the descriptive statistics were the first step in the analysis, followed by psychometric tests for reliability and validity.

Reliability testing was performed by calculating internal consistency of the measurement instruments using Cronbach's alpha (Cronbach, 1970). Cronbach's alpha is a statistical comparison of the observed correlations or co-variances of the items with each other, and is used to express the internal consistency or reliability of a test (McDowell & Newell, 1996, 499). A coefficient alpha of 0.70 is regarded as acceptable for research purposes, between 0.71 and 0.80 as respectable, > 0.80 as good and > 0.90 as excellent (Arias & de Vos, 1996; Cronbach, 1970; George & Mallery, 2003; Nunnally, 1978). The intra-class correlation (ICC), with a two-way mixed effects model, established average measure reliability and 95% Confidence Interval (CI).

Multi-trait scaling was used as the first step in establishing validity. Equivalent item means and item variances were determined. In item convergent validity, corrected item-total correlation coefficients are the relationship between the specific item and a summation of the other items in the scale. The criterion for corrected item-total correlation coefficients was set at $r > 0.40$ (Stewart, Hays & Ware, 1988). Two methods were followed for item discriminant validity: inter-correlations among items in

a scale were compared with the scale's alpha coefficient; and relationships between factors were compared with the square root of the product of their reliability coefficients (Gaski & Nevin, 1985). Both methods used Fisher's *z*- test, with the criterion for discriminant validity set at $z > 1.96$ (Rosner, 1986).

The Kaiser-Meyer-Olkin (KMO) measure of item sampling adequacy was used to test the partial correlations between instrument items (Kaiser, 1974), as a preliminary measure of content validity. The KMO is a measure that indicates the amount of shared variance in the item pool, and may range from zero to one. The guide for interpreting the KMO (Kaiser, 1974) states that values in the 0.90s are marvellous, meritorious in the 0.80s, middling in the 0.70s, mediocre in the 0.60s, miserable in the 0.50s and unacceptable below 0.50.

Factor analysis, in particular principal components analysis and alpha factoring, was conducted on the measurement instruments for the following reasons:

- To reveal item sampling adequacy (content validity) and to confirm that the population matrix was not an identity.
- To provide an estimate of item reliability using the communalities.
- To provide a graphic representation of the Eigen values using the scree plot (Kim & Mueller, 1978).
- To examine the factor loadings in order to provide information on the underlying dimensions of each instrument; in order to ascertain significant factor loadings at the 1% level, loadings ≥ 0.50 were examined (Child, 1970; Nunnally, 1978).
- To provide support with this overall information for previous research and an estimate of the content and construct validity of the instruments in the case of this specific study population (Kaiser, 1974; Nunnally, 1978).

4.3.1 Return to Normal Living Index (RNLI)

The participants' satisfaction with their community participation was measured using the RNLI. Each RNLI item is scored on a 4-point scale with higher scores reflecting greater satisfaction with community participation.

4.3.1.1 Descriptive statistical analyses of the RNLI

Means for the RNLI items ranged between 2.49 and 3.14, as reflected in Table 4.4.

Table 4. 4 Descriptive statistics of the RNLI

RNLI items	mean	Sd
I move around my living quarters as I feel necessary.	3.33	0.94
I move around my community as I feel necessary.	3.03	0.98
I am able to make trips out of town as I feel necessary.	2.49	1.03
I am comfortable with how my self-care needs are met.	3.28	0.95
I spend most of my day occupied in work activity important to me.	2.81	1.13
I am able to participate in recreational activities as I want to.	2.96	1.13
I participate in social activities with my family, friends and/or business acquaintances as is necessary or desirable to me.	2.96	1.05
I assume a role in my family which meets my needs and those of the other family members.	2.94	1.05
In general I am comfortable with my personal relationships.	3.10	1.00
In general I am comfortable with myself when I am in the company of others.	3.14	0.96
I feel that I can deal with life events as they happen.	2.91	1.16

The lowest mean (2.49) was for the item "I am able to make trips out of town as I feel necessary", although this item also had a high standard deviation of 1.03, indicating greater variation in participants' responses to this question. The highest mean (3.30) was for the item "I move around my living quarters as I feel necessary".

Total RNLI scores were converted to an adjusted score by calculating the percentage. The percentages were used to determine the participants' RNLI categories according

to Caters et al. (2000) and Pang, Eng and Miller (2007), as described in section 3.6.1.2, where:

- A score of 100 indicates that the participants are fully satisfied with their community participation;
- A score between 80 and 99 indicates perceptions of mild restrictions in participation;
- A score between 60 and 79 indicates perceptions of moderate restrictions in participation; and
- A score of less than 60 indicates severe restrictions in self-perceived community participation.

Figure 4.15 illustrates the distribution of the RNLI categories among the participants.

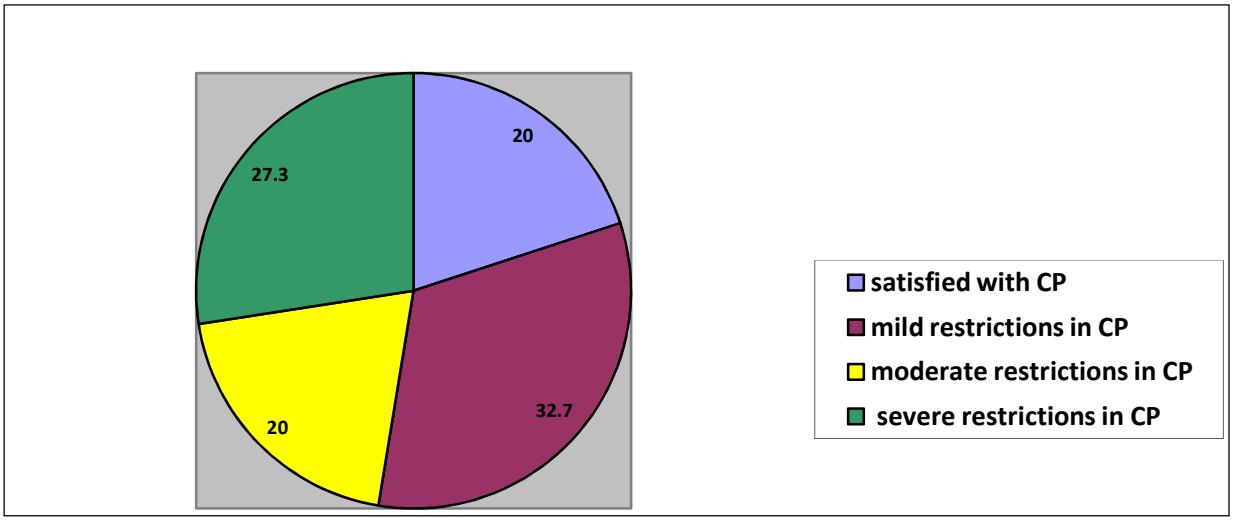

Figure 4.15: Participants' distribution in the RNLI categories

4.3.1.2 Psychometric analysis of the RNLI

Cronbach's alpha for the RNLI instrument was 0.97 (ICC 95% CI: 0.97 – 0.98), which is regarded as an excellent reliability coefficient (Arias & de Vos, 1996; George & Mallery, 2003).

Item convergent and discriminant procedures were used as the first step in establishing validity of the RNLI. As far as an item's convergent validity is concerned, corrected item-total correlation coefficients are the relationship between the specific item and a summation of the other items in the scale.The first two criteria for item convergent validity, namely equivalent item means and variance of all items in the instrument and corrected item-total correlation coefficients, were determined for this instrument. Inspection of the means and standard deviations for the 11 items revealed roughly equivalent means and variance, with the exception of one item, thereby satisfying the first criterion. Corrected RNLI item-total correlation coefficients ranged between 0.73 and 0.91, satisfying the criterion of $r > 0.40$ for item convergent validity (Stewart, Hays & Ware, 1988).

In order to determine item discriminant validity of the RNLI, Fisher's z test for comparing two correlations was used, with the criterion for discriminant validity set at $z > 1.96$ (Rosner, 1986). Firstly, inter-correlations between the RNLI items were compared with the RNLI's alpha coefficient. The highest inter-correlation coefficient was 0.92, and the coefficient alpha was 0.97. A z-score table was used to transform the highest correlation and coefficient alpha into z-scores.

The formula for Fisher's test is: z1 – z2/√ (square root) 2/n – 3, where z1 is the z-equivalent of the coefficient alpha (2.092), z2 is the z-equivalent of the largest inter-item correlation (1.589) and n is the sample size (160). Using the above formula,

z = 2.092 – z2 1.589/√2/160-3,

= 0.503/ √0.013

= 4.45

The z- value of 4.45 is greater than 1.96, the criterion for z. Therefore item discriminant validity of the RNLI was established.

Alpha factoring was conducted on the 11 RNLI items to ascertain a common factor model (Kim & Mueller, 1978). In alpha factoring, variables included in the factor analysis are considered as a sample from the universe of variables, while assuming

that these variables are observed over a given population with a key emphasis on psychometric inference rather than statistical inference. The condition of the data matrix was examined by calculating the Kaiser-Meyer-Olkin (KMO) measure of item sampling adequacy. The KMO index for the 11 x 11 matrix was 0.90, which is in the "marvellous" category according to Kaiser (1974). Bartlett's test of sphericity indicated that the population matrix was not an identity (Chi-square = 2174.83, *df* = 45, $p < 0.001$). Both tests confirmed that factor analysis was the correct procedure for the RNLI data.

A minimum of 10 participants per item has been recommended as the smallest acceptable sample size for factor analysis (Coakes & Steed, 1996; Nunnally, 1978). The sample size of 160 therefore fulfilled this minimum criterion. All communality estimates exceeded the criterion of 0.30 for reliable items (Child, 1970), and ranged between 0.71 and 0.90. Alpha factoring identified only one component in the RNLI (see scree plot and Table 4.5 below), suggesting that all items were useful in measuring RNLI. Item loadings ranged between 0.86 and 0.93 (> 0.71) on all the items, providing support for construct validity of the RNLI as a pure measure of community participation (Tabachnick & Fidell, 2006).

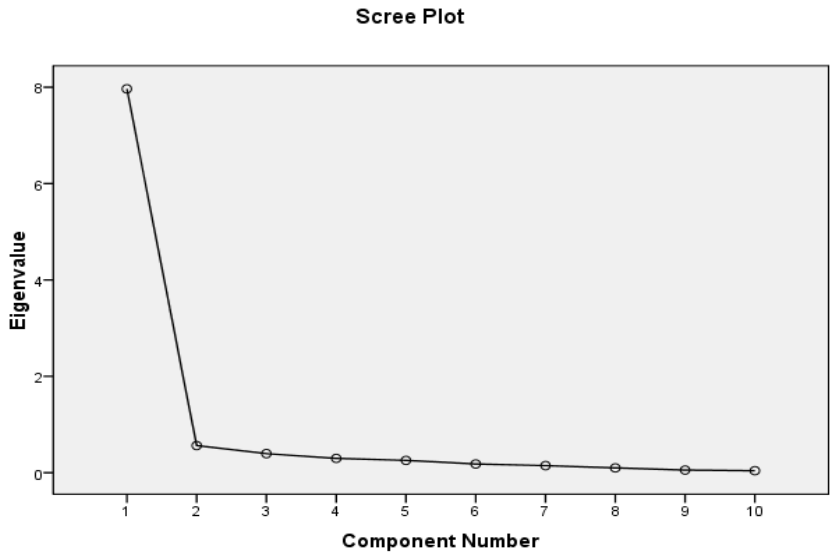

Figure 4.5 Scree plot of the Eigen values from the factor analysis of the RNLI

Table 4.5: Alpha factoring for the RNLI

RNLI items	Factor 1
I move around my community as I feel necessary.	.915
I am able to make trips out of town as I feel necessary.	.776
I am comfortable with how my self-care needs are met.	.859
I spend most of my day occupied in work activity important to me.	.889
I am able to participate in recreational activities as I want to.	.856
I participate in social activities with my family, friends and/or business acquaintances as is necessary or desirable to me.	.927
I assume a role in my family which meets my needs and those of the other family members.	.923
In general I am comfortable with my personal relationships.	.912
In general I am comfortable with myself when I am in the company of others.	.941
I feel that I can deal with life events as they happen.	.916

4.3.1.3 Summary – RNLI psychometrics

These results demonstrate that the RNLI is psychometrically sound for this sample and has excellent reliability as measured by the internal consistency coefficient and ICC. The instrument was shown to have item convergent and item discriminant validity as well as content and construct validity. Analysis of participants' comments indicated that the scores allocated were consistent with the reasons provided. The RNLI is therefore a reliable and valid instrument for use on this population of PLWSCI in the Tshwane metropolitan area, Gauteng, South Africa.

4.3.2 Spinal Cord Independence Measure (SCIM II)

The Spinal Cord Independence Measure, version II [SCIM II] (Appendix J) was used to measure the participants' functional abilities, in terms of activities of daily living, respiration and sphincter control and mobility.

4.3.2.1 Descriptive statistical analysis of the SCIM

Table 4.8 provides the descriptive statistics of individual items of the SCIM II. The lowest mean (0.83) was on the item “stair management”. This item also had a high standard deviation of 1.38, indicating a greater variation in participants’ responses to this question. The highest mean (10.00) was for the item “respiration”. It must be mentioned here that three tetraplegic participants performed “self-assisted” coughing. They were therefore given a full score as assistance was not provided by an external person, thus they were independent in this activity. There was no variation in this item, as all 160 participants were able to breathe and cough independently and therefore scored 10: hence the standard deviation of 0.00. In more complex analyses, this item was therefore removed.

Table 4.8: Descriptive statistics of the SCIM II

Item	SCIM II item description	Mean	sd	N
1	Feeding, cutting food, opening containers, bringing food to mouth	4.60	0.82	160
2	Bathing - soaping, manipulating water tap, washing	4.23	1.41	160
3	Dressing - preparing clothes, dressing upper and lower body, undressing	4.28	1.38	160
4	Grooming - washing hands and face, brushing teeth, combing hair, shaving, applying make-up	4.30	1.40	160
5	Respiration	10.0	0.00	160
6	Sphincter management – bladder	9.63	5.06	160
7	Sphincter management – bowel	7.75	2.74	160
8	Use of toilet	3.68	2.21	160
9	Mobility in bed and action to prevent pressure sores	4.95	1.70	160
10	Transfers from bed to wheelchair - breaks, footrests, armrests, transferring, lifting feet	1.78	0.91	160
11	Transfers from wheelchair to and from toilet	1.63	0.66	160
12	Mobility indoors - short distance	2.75	1.92	160
13	Mobility for moderate distances (10 - 100 metres)	2.65	1.80	160
14	Mobility outdoors (more than 100 metres)	2.45	1.79	160
15	Stair management	0.83	1.38	160
16	Transfer from wheelchair to car - approaching car, brakes, arm- and footrests, transferring to and from car, bringing wheelchair into car	1.83	0.92	160

4.3.2.2 Psychometric analysis of the SCIM II

It is generally assumed that the SCIM II comprises three components: activities of daily living (ADL), respiration and mobility. However, this assumption requires testing. The condition of the data matrix was examined by calculating the Kaiser-Meyer-Olkin (KMO) measure of item sampling adequacy. The KMO index for the 15 x 15 matrix was 0.90, in the “marvellous” category according to Kaiser (1974). Bartlett’s test of sphericity indicated that the population matrix was not an identity (Chi-square = 4024.19, df = 105, $p < 0.000$). Both tests confirmed that factor analysis was the correct procedure for the SCIM II data. The sample size of 160 participants fulfilled the minimum recommended criterion of 10 participants per item for factor analysis (Coakes & Steed, 1996; Nunnally, 1978). Principal component analysis with a two factor (VARIMAX) rotational solution was conducted on the 15 SCIM II items. This

principal component analysis revealed two factors, as illustrated in the scree plot of Eingen values in Figure 4.5.

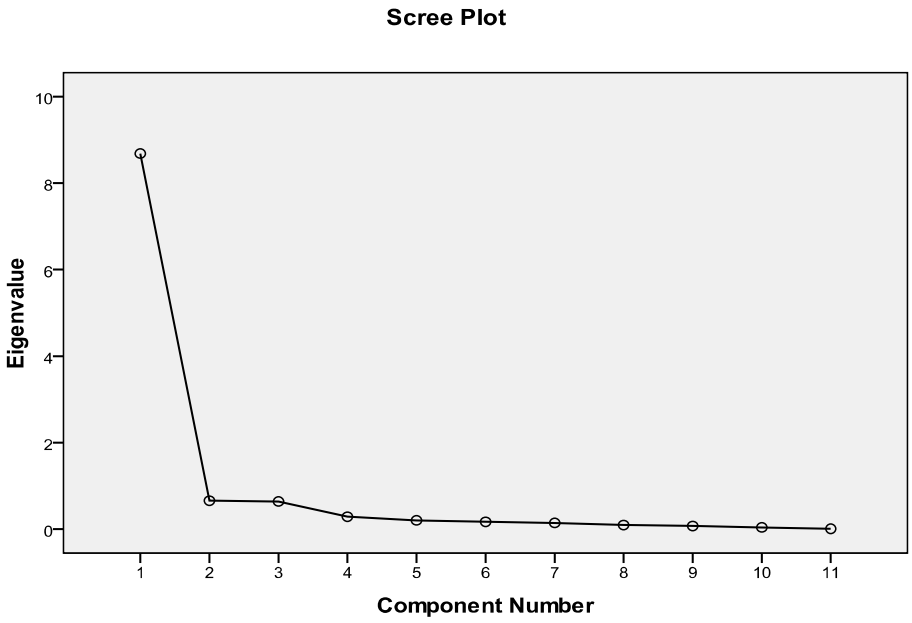

Figure 4.5: Scree plot of the Eigen values from the factor analysis of the SCIM II

Based on the Eigen values, the percentage of total variance accounted for by the factors and the scree plot, a two factor orthogonal (VARIMAX) rotational solution was conducted. All communality estimates exceeded the criterion of 0.30 (for reliable items) and ranged between 0.50 and 0.88. The two factors explained 83.9% of the variance. Factor I contained 11 significant loadings and accounted for 54.6% of the variance. Factor II contained four significant loadings and accounted for 29.3% of the variance. One item (sphincter management – bladder) loaded on both factors, but at a lower level on the second factor.

Table 4.9: Factor analysis of the SCIM II

No	SCIM items	Factor I	Factor II
1	Feeding, cutting food, opening containers, bringing food to mouth	**.90**	.20
2	Bathing - soaping, manipulating water tap, washing	**.92**	.24
3	Dressing - preparing clothes, dressing upper and lower body, undressing	**.95**	.22
4	Grooming - washing hands and face, brushing teeth, combing hair, shaving, applying make-up	**.91**	.20
5	Sphincter management – bladder	**.72**	**.54**
6	Sphincter management – bowel	**.68**	.37
7	Use of toilet	**.83**	.28
8	Mobility in bed and action to prevent pressure sores	**.88**	.27
9	Transfers from bed to wheelchair - breaks, footrests, armrests, transferring, lifting feet	**.78**	.06
10	Transfers from wheelchair to and from toilet	**.92**	.25
11	Mobility indoors - short distances	.26	**.95**
12	Mobility for moderate distances (10 - 100 metres)	.26	**.95**
13	Mobility outdoors (more than 100 metres)	.27	**.91**
14	Stair management	.11	**.94**
15	Transfer from wheelchair to car - approaching car, brakes, arm- and footrests, transferring to and from car, bringing wheelchair into car	**.87**	.19

Significant loadings in bold

Factor I consisted of items one to 10, and item 15. The major items on Factor I were: Feeding, cutting food, opening containers, bringing food to mouth (0.90); Bathing - soaping, manipulating water tap, washing (0.92); Dressing - preparing clothes, dressing upper and lower body, undressing (0.95); Grooming - washing hands and face, brushing teeth, combing hair, shaving, applying make-up (0.91); Mobility in bed and action to prevent pressure sores (0.88); Transfers from wheelchair to and from toilet (0.92); Transfer from wheelchair to car - approaching car, brakes, arm- and footrests, transferring to and from car, bringing wheelchair into car (0.87). As the items appear to represent a combination of ADL and use of a wheelchair, this factor was labelled the “SCIM: ADL-wheelchair” factor.

Factor II comprised items 11 to 14. The major items on Factor II were: Mobility indoors - short distances (0.95); Mobility for moderate distances (10 - 100 metres) (0.95); Mobility outdoors (more than 100 metres) (0.91); Stair management (0.94). This factor contained items related to mobility and stair management and was labelled the "SCIM: mobility" factor, owing to its emphasis on mobility, both on flat surfaces or when negotiating stairs.

These two SCIM II factors were further factor analysed (Andeleeb, 2001) and all loadings were greater than > 0.71, satisfying the criterion for factor loadings (Nunnally, 1978) and providing support for the construct validity of the SCIM II factors. This finding indicated that the two factors (subscales) represented pure SCIM: ADL-wheelchair use and SCIM: mobility factors (Tabachnick & Fidell, 2006). The two factors were significantly related to each other ($r = 0.57$, $p < 0.001$). It would appear that previous assumptions about the three components of the SCIM II did not fit the data for the present sample.

Corrected item-total correlation coefficients ranged between 0.61 and 0.89, satisfying the criterion for item convergent validity (Stewart, Hays & Ware, 1988). In order to determine the item discriminant validity of the SCIM, the relationships between factors were compared with the square root of the product of their reliability coefficients (Gaski & Nevin, 1985). The square root of 0.91 X 0.97 (coefficient alphas for the two factors) was 0.94. The correlation between the two factors was 0.57. The formula for discriminant validity is 0.94 ($z = 1.738$) – 0.57 ($z = 0.648$)/ $\sqrt{2}$/157. 1.738 – 0.648/0.113 = 9.65. The value of 9.65 is higher than 1.96, the criterion for z. Therefore item discriminant validity of the SCIM II was established.

Coefficient alpha was 0.91 (95% CI: 0.89-0.93) for the SCIM: ADL-wheelchair use, 0.98 (95% CI: 0.97-0.98) for the SCIM: mobility and 0.93 (95% CI: 0.91-0.94) for the full SCIM II instrument; all excellent reliability coefficients (Arias & de Vos 1996; George & Mallery, 2003).

4.3.2.4 Summary – SCIM II psychometrics

These results demonstrated that the SCIM II was psychometrically sound and had excellent reliability as measured by the internal consistency coefficients. The instrument was shown to have item convergent and item discriminant validity, and content and construct validity. The SCIM II can therefore be regarded as a reliable and valid instrument for use on this population of PLWSCI in the Tshwane metropolitan area, Gauteng, South Africa.

4.3.3 Craig Hospital Inventory of Environmental Factors – short form (CHIEF – SF)

The Craig Hospital Inventory of Environmental Factors short form (Appendix K: CHIEF-SF) was used to evaluate the impact of perceived environmental barriers on community participation, as reported by individuals with a SCI.

4.3.3.1 Descriptive statistical analyses of the CHIEF-SF

The CHIEF-SF asks participants to rate how frequently they experience environmental barriers and the magnitude of these perceived barriers. The total score is a product of the frequency and magnitude: the overall impact. The following results are based on the CHIEF-SF impact score. Table 4.6 depicts the mean scores of the perceived impact of environmental factors on CHIEF-SF.

Table 4.6: Descriptive Statistics CHIEF-SF

CHIEF-SF items	Min	Max	mean	sd
Impact of transport barrier	0	6	2.06	2.05
Impact of natural environment	0	6	0.73	1.23
Impact of surroundings	0	2	0.13	0.46
Impact of information needs	0	4	0.28	0.81
Impact of service availability	0	2	0.33	0.72
Impact of help at home	0	4	0.45	1.00
Impact of help at school or work	0	1	0.05	0.22
Impact of people's attitude at home	0	4	0.25	0.77
Impact of people's attitude at school or work	0	4	0.30	0.93
Impact of discrimination	0	6	1.32	1.80
Impact of organisational or business policy	0	4	0.60	1.29
Impact of government policy	0	4	0.40	1.12

As can be seen from Table 4.6 above, the CHIEF-SF item that was perceived to be the environmental factor with greatest impact on PLWSCI was “transport barrier”, with a mean score of 2.06. This item also had the highest standard deviation of 2.05, suggesting greater variability in the participants’ responses. The CHIEF-SF item that was perceived to be the environmental factor with the lowest impact was “surroundings”, with a mean score of 0.13. This item also had the lowest standard deviation, suggesting little variability in the participants’ responses.

4.3.3.2 Psychometric analysis of the CHIEF-SF

The condition of the CHIEF-SF data matrix was examined by calculating the KMO measure of item sampling adequacy. The KMO index for the 15 x 15 matrix was 0.44, in the “unacceptable” category according to Kaiser (1974). Although Bartlett’s test of sphericity indicated that the population matrix was not an identity (Chi-square = 999.74, df = 66, $p < 0.000$), the “unacceptable” KMO values indicated that the CHIEF-SF data was not appropriate for factor analysis.

Therefore, further psychometric testing of the CHIEF-SF was not performed, as there is no point in testing the reliability of an instrument that is not valid. Only the descriptive statistics will therefore be used in further discussions of the CHIEF-SF. All CHIEF-SF item scores were summed to obtain an overall CHIEF-SF score for further analysis.

4.3.4 Summary – CHIEF-SF psychometrics

In section 4.3, the psychometric properties of the three instruments used in this study (RNLI, SCIM II and CHIEF-SF) were presented. The RNLI and SCIM II were found to be psychometrically sound, but with a different factor structure, while the CHIEF-SF was not psychometrically acceptable.

The next section presents the relationship between the various variables measured by the various instruments in this study.

4.4 RELATIONSHIPS BETWEEN SOCIO-DEMOGRAPHIC DATA, SCI DATA AND THE MEASURING INSTRUMENTS

Because the factor analysis of the SCIM II yielded two distinct subscales (factors), the ensuing results will present these two separately, and not as a single SCIM II. Throughout the discussion of the results, references to the “four instruments” will refer to the RNLI, CHIEF-SF and the two SCIM II subscales (SCIM: ADL wheelchair use and SCIM: mobility).

4.4.1 Age, years of living with SCI, years of basic education and the four instruments

The inter-relationships among age at time of injury, years of basic education, years of living with SCI and the different measurement instruments are indicated in Table 4.10.

Table 4.10: Inter-relationships among age at time of injury, years of basic education, years living with SCI and different measurement instruments

	Years of schooling	Years living with SCI	RNLI	CHIEF-SF	SCIM:ADL wheelchair	SCIM: mobility
Age at time of injury	.029	-.159*	-.024	.185*	.241**	.235**
Years of schooling		.125	.380**	-.332**	.087	.117
Years living with SCI			.157*	-.069	-.037	-.204**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Participants' age at the time of injury was modestly but negatively related to years of living with SCI (r = -0.159, $p < 0.05$). This implies that those participants who were younger at time of injury had more years of living with SCI at the time of the study. Another modest but positive correlation was found between participants' age at time of injury and CHIEF-SF score (r = 0.185, $p < 0.05$). This finding suggests that the younger the person at the time of injury, the fewer environmental barriers they experienced; or, the older the person at the time of injury, the more environmental barriers they experienced. Strong and positive correlations were found between age at time of injury and ADL-wheelchair (r = 0.241, $p < 0.001$) and mobility (r = 0.235, $p < 0.001$). This finding indicates that the older the PLWSCI were at the time of injury, the better their functional ability (SCIM: ADL-wheelchair and SCIM: mobility) scores at time of the study.

Years of basic education was strongly positively related to RNLI (r = 0.380, $p < 0.001$), suggesting that PLWSCI with more years of basic education had a better chance of being satisfied with their community participation than those with only a few years of basic education. Years of basic education were also strongly but negatively related to CHIEF-SF, suggesting that PLWSCI with less education were likely to be exposed to greater environmental barriers than those with a higher level of education.

Years of living with SCI were modestly and positively related to RNLI (r = 0.157, p < 0.05), suggesting that PLWSCI who had been living with SCI for a longer period had a greater chance of being satisfied with their community participation than those who had not lived with SCI as long. Years of living with SCI was, however, negatively related to mobility (r = -0.204, p < 0.001), suggesting that PLWSCI who had been living with SCI for longer were likely to have more mobility limitations than those PLWSCI who had lived with SCI for a shorter period.

4.4.2 Chi square tests of independence

The relationship between various categorical variables was tested using the chi square test of independence. Significant relationships are presented in the tables below.

4.4.2.1 Employment versus residential area

Table 4.11: Cross tabulation of employment by residential area

Currently employed	Current residential area type			Total
	Township	Suburb	Other	
No	78	24	17	119
Yes	18	16	7	41
Total	96	40	24	160
% Employed	18.8	40	29.2	25.6

From the above cross tabulation, it appears that employment is associated with residential area, indicating that more participants living in suburbs were employed than those from townships or “other” areas. This observation is confirmed by the chi-square test [χ^2 (2) = 20.5, p < 0.001].

4.4.2.2 Current employment versus previous employment

Table 4.12: Cross tabulation of current employment by previous employment

	Employment before the SCI		Total
Current employment	NO	YES	
No	57	62	119
Yes	12	29	41
Total	69	91	160
% Employed	17.39	31.9	25.6

From the above cross tabulation, it appears that current (post SCI) employment is associated with previous (pre SCI) employment. It was expected that previous employment would be an advantage for post-injury employment. The chi-square test of independence confirmed that PLWSCI who were employed pre-injury were more likely to be employed post-injury than those who had not been employed before their injury [χ^2 (2) = 4.3, $p < 0.05$].

4.4.2.3 Current employment versus perceived health rating

Table 4.13: Cross tabulation of employment by perceived health rating

	Health rating			Total
Currently employment	FAIR	GOOD	VERY GOOD	
No	25	79	15	119
Yes	3	17	21	41
Total	28	96	36	160
% Employed	10.7	17.7	58.3	25.6

It appears from the table above that employment is associated with participants' perception of their health, with more employed participants having good and very good perceived health ratings [χ^2 (2) = 26.6, $p < 0.001$].

4.2.2.4 Perceived health rating by gender

Table 4.14: Cross tabulation of perceived health rating by gender

Perceived health rating	Gender		Total
	MALE	FEMALE	
Fair	28	0	28
Good	71	25	96
Very good	25	11	36
Total	124	36	160
% Good and very good	77.4	100	82.5

It would seem from the above cross tabulation that participants' gender is associated with their health perception, with only male participants having a fair health rating, and a higher percentage of females having combined good and very good perceived health ratings. A chi-square test of independence confirmed that association, [χ^2 (2) = 10.2, $p < 0.05$].

4.4.3 Interrelationships among the measuring instruments

Table 4.15 reflects the interrelationships among the measuring instruments used in the study.

Table 4.15: Interrelationships among the measuring instruments

	CHIEF-SF	SCIM:ADL wheelchair	SCIM: Mobility
RNLI	-.700**	.177*	.216**
CHIEF-SF		-.073	-.231**
ADL			.580**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The four measures were significantly related to each other with exception of the CHIEF-SF and the SCIM: ADL wheelchair subscale which had a negative and insignificant relationship (r = -0.073). RNLI was positively related to SCIM: ADL-wheelchair (r = 0.177, p < 0.05) and to SCIM: mobility (r = 0.216, p < 0.001), suggesting that an increase in the one meant an increase in the other and vice versa. RNLI was negatively related to CHIEF-SF(r = -0.700, p < 0.001), suggesting that an increase in the one corresponded to a decrease in the other and vice versa. The CHIEF-SF was strongly and negatively related to mobility (r = -0.231, p < 0.001), indicating that an increase in the one corresponded to a decrease in the other and vice versa. ADL-wheelchair and mobility were both significantly related to each other (r = 0.580, p < 0.001), indicating that an increase in the one corresponded to a decrease in the other and vice versa.

4.4.4 Mean comparisons across the measured variables

4.4.4.1 T-tests

Independent-samples t-tests were conducted to determine the influence of gender, race, employment, marital status, completeness of the lesion and interviewee status on the four measures (instruments). Gender and the level of the lesion had no significant influence.

a) Employment

Employed participants performed better than unemployed participants across all the measures except the ADL-wheelchair subscale. Table 4.16 reflects the t-test results of the employment differences in the measured variables.

Table 4.16: Means, standard deviations and group statistics according to employment

	Employment						
	Employed (n= 41)		Unemployed (n = 119)				
Measure	***M***	***sd***	***m***	***sd***	***t***	***df***	***p***
RNLI	41.9	3.4	30.0	9.9	-11.27	158.0	.000
SCIM:ADL-Wheelchair	51.0	14.6	46.5	17.0	-1.488	158.0	.139
SCIM: mobility	11.3	8.5	7.8	5.7	-2.449	53.1	.018
CHIEF-SF	1.9	3.8	8.6	6.9	7.734	126.4	.000

There was a significant difference between the RNLI scores of employed and unemployed participants: t (158) =-11.266, $p < 0.001$. The higher mean RNLI scores of employed participants (m = 41.9; sd = 3.4) suggests that they were more satisfied with their community participation than unemployed participants (m = 30.9; sd = 9.9).

Another strongly significant difference was noted in the CHIEF scores: t (126.4) = 7.73, $p < 0.001$. The low mean CHIEF-SF scores of employed participants (m = 1.9; sd = 3.8) suggests that they experienced fewer environmental barriers than the unemployed participants (m = *8.6*; *sd* = *6.9*).

A modestly significant difference in the SCIM: mobility scores [t (53.12) = 2.25, $p <$ 0.05] indicates that employed participants (m = 11.3; sd = 8.5) had a slight mobility advantage over unemployed participants (m = 7.3; sd = 5.7). There was no significant difference in the SCIM: ADL- wheelchair-use scores of employed and unemployed participants.

b) Race

The original data for race was captured in four categories, namely Black, White, Indian and Coloured. The results revealed few white, Indian or coloured participants and many black participants. The race variable was therefore re-coded to capture all the "minority" participants under a single category of "non-African". The black

category was re-coded "African". These two categories were computed for t-test purposes. Table 4.17 shows the t-test results of the variations in employment according to the variables measured. Non-African participants performed better than black African participants across all variables except the SCIM: ADL-wheelchair subscale.

Table 4.17: Means, standard deviations and group statistics according to race

	Race						
	African (n = 124)		Non-African (n =36)				
Measure	***M***	***sd***	***M***	***sd***	***t***	***df***	***p***
RNLI	31.4	10.4	38.8	6.7	-5.040	87.9	0.000
SCIM: ADL-Wheelchair	46.8	17.3	50.7	12.9	-1.490	75.6	0.140
SCIM: mobility	8.8	6.9	8.2	5.8	0.404	158	0.659
CHIEF-SF	8.2	7.114	2.4	3.5	6.645	119.6	0.000

There was a significant difference between the RNLI scores of black African participants and non-African participants: t (87.89) = -5.0, $p < 0.001$. The higher mean RNLI scores of non-African participants (m = 38.8; sd = 6.7) suggests that they were more satisfied with their community participation than were black African participants (m = 31.4; sd = 10.4).

Another strongly significant difference between Africans and non-Africans was noted in the CHIEF scores: t (119.6) = 6.65, $p < 0.001$. The low mean CHIEF-SF scores of non-African participants (m = 2.4; sd = 3.5) suggest that they experienced fewer environmental barriers than African participants (m = 8.2; sd = 7.1).

There was no significant difference in the SCIM: ADL-wheelchair-use or SCIM: mobility scores between African and non-African participants.

c) Marital status

The original data for marital status was captured in four categories, namely single, married, separated/divorced and widowed. The results revealed very few participants

in the separated/divorced and widowed categories. The main characteristics of these categories were that individuals were living without partners. The variable was therefore re-coded to capture all participants without a partner in a single category for t-test purposes. Table 4.18 reflects the t-test results of marital status differences according to the variables measured.

Table 4.18: Means, standard deviations and group statistics according to marital status

	Marital status						
	Single (n = 108)		Married (n =52)				
Measure	***m***	***sd***	***M***	***sd***	***t***	***df***	***p***
RNLI	32.3	10.5	34.6	9.7	-1.339	158	.183
SCIM: ADL-Wheelchair	43.7	17.8	55.8	8.9	-5.721	158	.000
SCIM: Mobility	8.1	6.6	10.0	6.8	-1.677	158	.097
CHIEF-SF	748	7.0	5.9	6.6	1.319	158	.189

There were no significant differences between single and married participants across all the variables except the ADL-wheelchair subscale. Marital status was strongly related to ADL-wheelchair [t (158) = 6.65, $p < 0.001$], with married participants (m = 11.3; sd = 8.5) having higher ADL-wheelchair scores than single participants (m = 11.3; sd = 8.5). This finding suggests that married PLWSCI have a better chance of coping with their functional activities (ADL-wheelchair) than single PLWSCI. This is possibly due to the availability of support from a partner.

d) Type of injury

Table 4.19: Means, standard deviations and group statistics according to level of injury

	Type of injury						
	Paraplegia (n = 100)		Tetraplegia (n =60)				
Measure	***m***	***sd***	***m***	***Sd***	***t***	***df***	***p***
RNLI	34.1	10.6	31.4	9.3	1.6	158	0.58
SCIM: ADL-Wheelchair	54.5	1.0	36.3	18.7	7.0	79.261	0.000
SCIM: mobility	8.9	5.3	8.9	8.4	-0.252	88.166	0.000
CHIEF-SF	7.2	7.3	6.3	6.1	0.78	158	0.093

The level of injury was significantly related to the participant's functional ability, as seen on the ADL- wheelchair factor [t (79.3) = 7.0, $p < 0.001$] and Mobility [t (-88.2) = -0.2, $p < 0.001$]. These findings suggest that participants with paraplegia were likely to have better functional abilities than those with tetraplegia.

e) Full sample versus interviewed sample

There was no significant difference on RNLI, ADL-wheelchair use, Mobility or the CHIEF-SF between those who were interviewed and those who were not ($p > 0.05$), suggesting that these four measures were equally applicable to both groups. In addition, this lack of difference appears to indicate that the sub-sample of interviewees was representative of the whole main sample.

4.4.4.2 Analysis of variance (ANOVA)

A series of one-way analyses of variance (ANOVAs) was conducted to determine the influence of residential area, source of income, level of injury and perceived health on the four measures (RNLI, SCIM: ADL-wheelchair, SCIM: mobility and the CHIEF-SF). Bonferroni t-tests were calculated for multiple comparisons of the four measures.

a) Relationship between participants' residential area and the four measures

Table 4.20 indicates the means, standard deviations and group statistics for current residential area in relation to the four measures.

Table 4.20: Means, standard deviations and group statistics according Residential area in relation to the four measures

	Current residential area								
	Township (n =96)		Suburb (n =40)		Other (n =24)				
Measure	***M***	***Sd***	***m***	***sd***	***M***	***Sd***	***F***	***df***	***p***
RNLI	31.42	10.9	37.3	8.1	32.8	8.3	5.0	2,157	0.008
SCIM:ADL-Wheelchair	48.9	16.4	51.7	12.3	35.8	18.1	8.4	2,157	0.000
SCIM: Mobility	9.1	6.7	9.6	7.6	5.3	3.3	3.7	2,157	0.026
CHIEF-SF	8.8	7.5	2.8	4.5	5.8	4.0	13.0	2,157	0.000

There was an overall significant difference on all the measures by current residential area, with RNLI [F (2,157) = 5.0, $p < 0.001$], SCIM: ADL-wheelchair use [F (2,157) = 8.4, $p < 0.001$], SCIM: mobility [F (2,157) = 3.7, $p < 0.05$] and the CHIEF-SF [F (2,157) = 13.0, $p < 0.001$].

Post hoc comparisons using the Bonferroni t-test indicated the following:

- a significant difference existed only between the RNLI scores of participants from the townships and the suburbs ($p < 0.05$). This suggested that satisfaction with participation is influenced by the socioeconomic status of the residential area.

- a significant difference existed only between the CHIEF-SF scores of participants from the townships and the suburbs ($p < 0.05$), suggesting that participants from townships were more likely to perceive environmental barriers than their suburban and "other" counterparts.

- a modestly significant difference existed only between the mobility scores of participants from "other" areas and both townships and suburbs ($p < 0.05$). These results suggested the mobility of participants was more affected in "other" areas (e.g. informal settlements) than in townships and suburbs.

b) Relationship between participants' source of income and the four measures

Table 4.21: Means, standard deviations and group statistics according to source of income in relation to the four measures

	Source of income										
	From family		Disability grant		Employment		Other				
Measure	***m***	***sd***	***m***	***sd***	***M***	***sd***	***m***	***sd***	***F***	***df***	***p***
RNLI	26.3	12.0	27.8	8.4	41.9	3.4	36.8	7.6	34.0	3, 16	0.00
SCIM: ADL-Wheelchair	40.8	21.9	45.7	17.1	51.0	14.6	52.1	10.	3.2	3, 16	0.03
SCIM: Mobility	5.5	2.6	8.8	6.2	11.3	8.5	7.5	6.0	4.2	3, 16	0.01
CHIEF-SF	15.8	5.1	7.7	5.4	1.9	3.8	5.2	6.9	35.7	3, 16	0.06

The mean scores and standard deviations for all four measures in relation to the participants' source of income are reflected in Table 4.21. There was an overall significant difference on all the measures by current residential area, with RNLI [F (3,156) = 34.0, $p < 0.001$], SCIM: ADL-wheelchair use scores [F (3,156) = 3.2, $p < 0.05$] SCIM: mobility [F (3,156) = 4.2, $p < 0.05$] and CHIEF-SF score [F (3,156) = 35.7, $p < 0.001$].

Post hoc comparisons using the Bonferroni t-test indicated that:

- significant differences existed between the RNLI scores of participants whose source of income was family, employment and other ($p < 0.001$). These results suggested that participants who were employed had more satisfaction with their community participation.

- significant differences existed only between SCIM: mobility scores of participants whose source of income was from the family or employment ($p < 0.05$).This finding suggests that participants whose source of income was employment were more likely to have better mobility than those whose source of income was their family.

c) Relationship between level of injury and the four measures

Table 4.22 Means, standard deviations and group statistics according to level of injury in relation to the four measures

	Level of injury								
	Cervical (n = 68)		Thoracic (n = 76)		Lumbar (n = 16)				
Measure	***m***	***sd***	***m***	***sd***	***m***	***Sd***	***df***	***F***	***p.***
RNLI	31.1	9.9	33.4	10.7	40.1	4.5	2,16	5.40	.005
ADL-wheelchair	36.3	19.7	55.6	4.6	58.3	5.5	2,16	43.14	.000
Mobility	9.0	8.0	7.1	2.7	15	8.6	2,16	10.63	.000
CHIEF-SF	6.8	6.0	7.2	7.5	6.0	7.8	2,16	0.21	.815

There was no overall significant difference on the CHIEF-SF by level of injury ($p > 0.05$). However, level of injury was significantly related to RNLI [F (2,157) = 5.4, $p < 0.05$], SCIM: ADL-wheelchair use [F (2,157) =42.139, $p < 0.001$] and SCIM: mobility F (2,157) = 10.626, $p < 0.001$].

Post hoc comparisons using the Bonferroni t-test indicated that:

- a significant difference in the ADL-wheelchair scores existed between participants with cervical and thoracic level injuries ($p < 0.001$), and between those with cervical and lumbar level injuries ($p < 0.001$). These results indicate that participants with thoracic and lumbar level injuries were more likely to be able to perform their ADL-wheelchair related functions than those with cervical level injuries.

- a significant difference in the mobility scores existed between the participants with thoracic and lumbar level injuries ($p < 0.001$) and between those with cervical and lumbar level injuries ($p < 0.05$). These results suggest that thoracic level injuries present different mobility challenges than cervical and lumbar level injuries.

d) Relationship between participants' perceived health and the four measures

Table 4.23: Means, standard deviations and group statistics for perceived health in relation to the four measures

	Perceived health rating								
	FAIR		GOOD		VERY GOOD				
Measure	***m***	***Sd***	***m***	***sd***	***m***	***sd***	***F***	***df***	***P***
RNLI	28.4	9.6	32.5	9.5	38.4	10.2	8.9	2,157	0.000
SCIM: ADL-Wheelchair	28.0	19.3	51.7	13.1	52.3	10.2	34.5	2,157	0.000
SCIM: mobility	6.8	6.5	10.3	5.7	11.1	8.6	3.7	2,157	0.027
CHIEF-SF	10.4	4.7	6.7	6.7	4.9	8.1	4.6	2,157	0.012

Perceived health rating was significantly related to all four measurements, as reflected above in Table 4.23. There was an overall significant difference on all the measures by perceived health, with RNLI [F (2,157) = 8.9, $p < 0.001$], ADL-wheelchair use scores [F (2,157) = 34.5, $p < 0.001$], mobility [F (2,157) = 3.7 $p < 0.05$] and CHIEF-SF scores [F (2,157) = 4.6, $p < 0.05$].

Post hoc comparisons using the Bonferroni t-test indicated that:

- significant differences existed between RNLI scores of participants who perceived their health as very good and those who rated it as fair or good ($p < 0.001$), and not between with those who perceived their health as good and those who rated it as fair. These results suggest that participants who perceived their health as very good had a greater chance of being satisfied with their community participation.

- significant differences existed between ADL-wheelchair scores of participants who perceived their health as fair and good ($p < 0.001$) and fair and very good ($p < 0.001$). These results suggested that participants who perceived their health as very good were likely to have better functional abilities (ADL-wheelchair).

- significant differences existed only between the mobility scores of participants who rated their health as fair and those who rated it as very good ($p < 0.05$). These results suggest that participants who perceive their health as very good are likely to have better mobility.

- significant differences existed only between the CHIEF-SF scores of participants who rated their health fair and those who rated it as very good ($p < 0.05$). These results suggest that participants with better perceived health are less likely to experience environmental barriers than their counterparts.

4.4.4.3 Multiple regression analyses

Multiple regression analyses were conducted to determine the most significant predictors of community participation (RNLI). The command for the first step was ENTER, and it was used to enter all categorical variables into the regression model. The beta coefficients were inspected to identify significant predictors. The criteria for entry were set at 0.05. In the second step of the analysis, the command STEPWISE was used to enter all continuous variables into the regression model. Again, beta coefficients were inspected to identify significant predictors. The results of the regression analyses are shown in Table 4.24.

Table 4.24 Results of the stepwise multiple regression analyses with the RNLI as a dependent variable.

Dependent variable	Predictor variables	Adjusted R^2	*β*	*t*
RNLI	(constant)			38.10
	Employment status	0.26	0.26	4.39
	CHIEF-SF	0.50	-0.59	-9.89
$F(2, 157) = 94.11$, $p < 0.001$				

Significant predictors [F (2, 157) = 94.11, $p < 0.001$] of community participation (RNLI) were employment status and environmental barriers (CHIEF-SF), accounting for 26% and 24% of the variance respectively. The positive β coefficient for employment indicated that if participants were employed, they were more likely to be satisfied with their community participation than those who were not employed. As far as environmental barriers were concerned, the negative β coefficient indicated that participants who reported fewer perceived environmental barriers (i.e. who had lower CHIEF-SF scores) were more likely to be satisfied with their community participation than those who reported more perceived environmental barriers (higher CHIEF-SF scores).

4.5 SUMMARY OF PHASE 1 RESULTS

In this chapter, the results of Phase 1, the quantitative part of the study, were presented. The demographic and SCI profiles of the participants were described and the results of the validity and reliability of the RNLI, SCIM II and the CHIEF-SF instruments were provided. The RNLI and the SCIM II were found to be valid and reliable for use in this study sample, albeit with different factor structures. The CHIEF-SF did not meet the criteria for factor analysis, thus further psychometric tests could not be performed, rendering the instrument invalid and unreliable for this study population of PLWSCI living in the Tshwane metropolitan area, Gauteng, South Africa.

The relationship between demographic variables, SCI variables and the measuring instruments was statistically examined to determine factors related to community participation of PLWSCI. These statistical tests indicated that the number of years of living with SCI, years of basic education, employment, race, residential area, source of income, level of injury, environmental barriers, SCIM: mobility, SCIM: ADL-wheelchair use and perceived health were all significant factors associated with participants' satisfaction with community participation. However, multiple regression analyses identified only employment and environmental barriers as significant predictors of participants' satisfaction with community participation.

These findings are discussed in the next chapter (Chapter 5) in relation to the literature.