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What does this study/review add to the existing literature and how will it influence future clinical practice?

This study demonstrates that there is a high proportion of people who are from socially deprived areas who undergo a lower extremity amputation due to vascular disease. It highlights the detrimental association between social deprivation and quality of life, specifically in reference to limb-fitting, mobility and participation at one year after amputation.

Abstract

Objective

Lower Extremity Amputation (LEA) is more common in people from lower socio-economic groups. This study examined this further by investigating the influence of socio-economic status on mobility, participation and Quality of Life (QoL) after LEA.

Method

Prospective data were gathered for all LEAs performed in one year in one Scottish Health Board, commencing March 2014. Postcode-derived Scottish Index of Multiple Deprivation (SIMD) was applied by quintile (SIMD 1, most deprived). Routine data were collected on the cohort of 171 patients and 101 participants consented and received postal questionnaires on QoL (EQ-5D-5L), participation (RNLI) and mobility (PLUS-M), 6 (n=67) and 12 months (n=50) after LEA.

Results

The cohort were 66.2 years (±11.4), 75% males and 53% had diabetes. 67% lived in SIMD 1 & 2 and 11.1% SIMD 5. 60% had a trans-tibial amputation (TTA). Mortality was 6% at 30 days 17% at 6 and 29%, at 12 months. Those in SIMD 1 were significantly younger (62.9years) than SIMD 5 (76.3years). Significantly more participants with a trans-femoral amputation (TFA) lived in SIMD 1 (44%) than SIMD 5 (11%) (*p=0.004*). Participation was low (RNLI scores; 6 months 55.7 and 12 months 56.6) and PLUS M scores suggested mobility was poor overall at 6 (39.1) and 12 months (38.9). Mean QoL was 0.37 at 6 months and 0.33 at 12 months.

Conclusion

Although this study observed more LEAs in those from low socioeconomic areas it is impossible to conclude whether QoL after LEA is truly influenced by socioeconomic status. There was an association between the disproportionately high rate of LEAs in

SIMD groups 1 and 2 and the high prevalence of smoking (61%); compared to only 21% of those in the least deprived areas (SIMD 3,4,and 5) being current smokers.

Keywords: Quality of Life, Scottish Index of Multiple Deprivation, Lower Extremity Amputation

Introduction

Low socio-economic status is associated with poor health [1–3]. Those living in deprived areas are more likely to exhibit features of unhealthy lifestyles such as smoking, low levels of physical activity and obesity [4]. Peripheral arterial occlusive disease (PAOD) and its ischaemic complications are also strong determinants of poor health [5]. Many who have lower extremity amputations (LEA) due to PAOD will also have other co-morbidities, the most common of these are Diabetes and Renal Disease. There is a higher risk of PAD related LEA in those from lower socio-economic status, when these co-morbidities have been accounted for [6].

PAOD is the most common cause of major lower extremity amputation (LEA), and rates of LEA are 65% higher in areas of low socio-economic status [4]. Only 40% of people who have a LEA will receive a prosthetic limb [7]. Quality of Life (QoL) after LEA is known to be poor and this is determined by the ability to walk with prosthesis, as well as level of amputation, psychological motivation, living situation and social function [8]. QoL is also generally poorer in those from more deprived areas, due to factors such as poorer housing and limited access to community services [3,9].

Scotland is ranked as the 14th wealthiest country in the world according to the Organisation for Economic Co-operation and Development [10] accessed 24.11.17. Almost half (47%) of the population in Greater Glasgow & Clyde Health Board (GG&C HB) reside in areas ranked within the 20% of the most deprived areas in Scotland. In contrast, only 4% of the population in GG&C HB live in the 10% of the least deprived areas in Scotland.

The aim of this study was to determine the influence of socio-economic status on mobility, participation and QoL following LEA of those living in Greater Glasgow & Clyde. Other outcomes such as level of LEA, limb fitting and mortality were also examined.

Methods

This study was approved by the NHS West of Scotland Research Ethics Committee 3, 14/WS/0016. One hundred and seventy one people underwent LEA at supra-malleolar level (classified as major LEA) under the care of the vascular surgeons in NHS Greater Glasgow & Clyde between 1st March 2014 and 28th February 2015. A clinical review of 171 medical case notes was undertaken at the time of LEA, and 6 and 12 months afterwards. One hundred and one patients consented to complete follow up questionnaires on QoL, participation and mobility 6 and 12 months after LEA and 70 were unable to consent to follow up due to cognitive deficits or other co-morbidities.

Socio-economic status at time of LEA was classified by the Scottish Index of Multiple Deprivation (SIMD). SIMD, determined by residential postcode, is derived from several factors including household income, school attainment, travel time to general practitioners, health measures, crime and unemployment rates [11]. Nationally, there are 6976 data zones, ranked by deprivation score which are categorised discretely. Commonly, the national data are expressed by quintile, with SIMD 1 being the most deprived and SIMD 5 the least deprived[12].

The electronic patient records and therapy notes were examined for health data, including socio-demographic descriptors, at the time of amputation, and 6 and 12 months later. Level and date of initial LEA and 30 day mortality were recorded alongside any further operative procedures, length of hospital stay, discharge destination and referral for prosthetic fitting. Level of LEA was categorised into: trans-tibial (TTA), trans-femoral (TFA), bilateral trans-tibial, bilateral trans-femoral; and trans-tibial and trans-femoral (TTA & TFA). The data for the small number of people who underwent a through-knee amputation (n=3) were included in the TFA group due to similarities in prosthetic prescription. Other demographic variables were age, gender, ethnicity, education and employment. Social situation referred to who the participant lived with, if anyone at all. Type of housing differentiated between social housing, owner/occupier or nursing home. Wheelchair accessibility within the home was assessed by an Occupational Therapist and categorised into either full access, housebound or restricted access to essential rooms (i.e. single room living). The Functional Co-morbidity Index (FCI) was used to assess the level of multi-morbidity [13]. Smoking status and excessive alcohol consumption (>14 units per week) were also recorded.

Follow Up Questionnaires

In addition to the medical case note review, patients who were able to understand English, were medically fit after their LEA, and able to give written informed consent were asked to complete postal questionnaires on QoL (EQ-5D-5L), participation (Reintegration to Normal Living Index (RNLI) and, prosthetic mobility (Prosthetic

Limb User Survey of Mobility (PLUS-M) (described below). Response rates were 66.3% (n=67) and 49.5% (n=50) at 6 and 12 months respectively.

The QoL measure (EQ-5D-5L) assesses health over five domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression, using a Likert scale ranging from 1 to 5 (Herdman *et al.* 2011). The scores in the 5 domains are converted to a Health index from the Euroqol calculator, ranging from -0.6, the poorest health related QoL, to +1 the best health related QoL[14]. A health index below zero represents a quality of life "worse than death".

Participation was measured with the RNLI which assesses quantitatively, the degree to which an individual who has experienced a traumatic or incapacitating illness achieves reintegration into normal social activities [15]. There are eleven statements relevant to social participation (for example *"I move around my community as I feel necessary"* and "*I assume a role in my family which meets my needs and those of other family members"*). Each statement is rated from 0, unable to perform, through to 10, able to perform fully, generating a maximum score of 110 [15]. This is converted into an adjusted score with a maximum of 100; greater scores representing higher levels of integration and hence participation.

The Prosthetic Limb User Survey of Mobility (PLUS-M™ 12-item short form v1.2) was only completed by those who had received a prosthesis. This questionnaire, comprising twelve activity statements, asked the respondents to rate their ability to perform physical tasks whilst wearing their prosthesis. PLUS-M Scores are converted

to a t-score which ranges from 21.8, unable to walk at all, to 71.4, independent walking with no walking aids [16].

Statistical Analysis

The study variables were summarised using descriptive statistics. Continuous variables are expressed as means (SD) and were grouped by SIMD quintile for comparison. Chi squared tests were applied to the differences between SIMD quintile and predictor variables e.g. limb fitting and level of LEA. One way analysis of variance (ANOVA) was conducted to explore differences between SIMD quintiles and outcome variables e.g. QoL, participation and mobility. Post hoc analysis was also used for between groups testing. Logistic regression was used to determine associations between mortality and socio-economic status.

Results

Cohort Characteristics

There were 171 patients who underwent a major LEA in one year (1st March 2014 and 28th February 2015) in Greater Glasgow & Clyde (Table 1). The mean age was 66.2 years (±11.4) and 75% were male (n=128). Almost two thirds (67%) of the cohort lived in SIMD 1 and 2 and there was a statistically significant difference in age at time of LEA across the SIMD quintiles (*p<0.001*) with those in the most deprived area (SIMD 1) being on average 13 years younger (62.9 years ± 10.6) than those in the least deprived area, SIMD 5, (76.3 years ±12.0). Bonferoni post hoc analysis found statistically significant differences in age between SIMD 1 and SIMD 5 (*p<0.001*) and between and SIMD 2 and 5 *(p=0.047)* and SIMD 3 and 5 *(p=0.009)*.

More patients had a TTA (60%, n=103) than a TFA (40%, n=68), and those with a TFA were older than those with a TTA (mean 67.7 years and 65.2 years respectively, *p=0.030*). More of those with a TFA lived in the lower socio-economic quintiles (*p=0.037*) (Table 1).

Table 1 Near Here

Socio-economic Status

High levels of socio-economic deprivation were found in this cohort. Almost half of the cohort (44%) lived in the most deprived area (SIMD1), while only 11% lived in the least deprived area. Almost a quarter of the cohort lived in SIMD 2 (23%), while the remaining 20% lived in SIMD 3 (16%) and SIMD 4 (5%) and this was disproportionate to both the GG&C HB and Scottish populations (Figure 1).

Figure 1 Near Here

Overall, 17% (n=29) of the cohort had already undergone LEA (that is prior to the study). Of these, two participants underwent LEAs to a higher level and 27 became bilateral amputees; thus 16% of the study cohort were bilateral amputees. However, during in-patient stay 30 participants underwent revision or further amputation resulting in a total of 34% (n=58) of the cohort being bilateral amputees when discharged home. There was no statistically significant difference between the SIMD quintile and becoming a bilateral amputee (*p=0.708*).

Approximately half of the study population (50%, n=85) achieved prosthetic fitting at discharge from rehabilitation. When prosthetic fitting was compared across SIMD quintiles there was no statistically significant differences (*p=0.100*), despite higher numbers of those in SIMD 5 being fitted with a prosthesis compared to SIMD 1 – 4, despite being on average 10 years older than the whole cohort (Table 1).

Other characteristics were compared across the socio-economic groups (Table 2). There was a statistically significant difference between SIMD quintile and level of amputation (*p=0.037*) (Table 2). Post hoc analysis found that the only nominally significant difference is the finding that more patients had a TFA compared to a TTA in SIMD 2 (*p=0.045*); however, there were no other statistically significant differences in level of LEA for the remaining SIMD quintiles: SIMD 1 (*p=0.920*), SIMD 3 (*p=0.089*), SIMD 4 (*p=0.271*) and SIMD 5 (*p=0.072*). More patients who lived in SIMD 1 smoked compared to the other quintiles, and the highest number who consumed excess alcohol lived in the 2 most deprived areas. Additionally, more of those in SIMD 1 lived in social housing compared to other areas

Mortality following LEA was 6% 30 days after surgery and increased to 17% (n=30) at 6 months and 29% (n=50) at 12 months. Logistic regression analysis found no statistically significant difference between SIMD quintiles and mortality at 30 days (*p=0.141*), 6 months (*p=0.295*) or 12 months (*p=0.468*). There was no significant difference between SIMD quintiles and the number of co-morbidities, measured by the FCI (*p=0.930*).

One hundred and one patients consented to completing follow up questionnaires; 67 were completed at 6 months and this reduced to 50 at 12 months. Follow up at 6 months found more patients who completed questionnaires were limb fitted and did not smoke (*p=0.037* and *p<0.001* respectively) compared to those who did not complete the questionnaires. Other variables did not vary significantly between the two groups. There were no statistically significant associations between SIMD quintiles and those who did and did not complete follow up questionnaires (χ^2 (4, n= 171) =3.568, *p=0.468*).

Quality of life 6 months after LEA was lower in those returning questionnaires 0.37 (±0.37) compared to the population norm in the UK of 0.79 (for those between 65-75years old) [17]. A one way ANOVA demonstrated no association between SIMD and QoL at 6 months (F (4, 62) = 1.7, *p=0.161*) or 12 months (F (4, 45) =2.0, *p=0.111*).Over a quarter (27%, n=8) of participants who completed the questionnaire and lived in the most deprived area (SIMD 1) scored their QoL as below zero, representing a quality of life "worse than death" (Figure 2 and 3).

Figure 2 and 3 Near Here

There was a non-significant association between higher levels of participation (RNLI) and lower levels of deprivation (SIMD) at 6 months (*p=0.057*). Mobility was poor for all those who were fitted with a prosthesis, however, there were no statistically

significant differences across the SIMD quintiles at 6 or 12 months following LEA (*p=0.628*, *p=0.164 respectively*) (Table 2).

Table 2 Near Here

Discussion

This prospective longitudinal cohort study assesses QoL and socio-economic status in those undergoing lower extremity amputation (LEA) due to PAOD and, or diabetes. We observed that the majority of those (67%) undergoing LEA lived in the most deprived areas of Greater Glasgow and Clyde Health Board, and this had a negative impact on QoL. The association between higher rates of LEA and increasing deprivation has been identified previously. Ferguson et al (2010) retrospectively examined 327 people who underwent both minor and major LEAs in a 6-year period of one district general hospital in England, UK, and found that LEAs were more prevalent in deprived areas [4].

The current study reports a significant difference in mean age when undergoing LEA across socio-economic groups, with those in SIMD 5 having their LEA 13 years later than those in SIMD 1. Arya et al (2018) demonstrated that there is a higher risk of amputation at a younger age when living in a lower socioeconomic area [6]. Furthermore, Tunstall et al (2006) reported that living in the most deprived areas is associated with a significant increase in cardiovascular risk; an effect equivalent to increasing a person's age by 10 years or attributing them with a diagnosis of diabetes [18].

In addition to morbidity, mortality is also affected by socio-economic status as those in less deprived areas of Greater Glasgow and Clyde Health Board (GG&C HB) live up to 15 years longer than those in more deprived areas [19]. Despite the high mortality rates at 6 and 12 months, this cohort study did not find any association between socio-economic status and mortality after a LEA. However, the difference in age across the socio-economic groups is an important observation, as those who lived in SIMD5 were 13 years older than those in SIMD 1, as age is an important predictor of mortality.

Approximately half (50%) of this cohort achieved prosthetic fitting, which is higher than figures of 40% reported by the Scottish Physiotherapy Amputee Research Group (SPARG) for the wider Scottish population (Scott et al 2012), 36% reported in an elderly population in USA [20] and 45% reported in an elderly population of vascular patients in Australia [21]. The numbers in this study are too small to explore a link between deprivation and limb fitting, but this finding may be reflective of the higher number of people with proximal amputations (TFA),in the SIMD 1 cohort, perhaps indicating more advanced PAOD, rather than being a function of socio-economic status per se..

Although not statistically significant, the self-reported mobility with the prosthesis (PLUS-M), at 6 and 12 months was poor (mean score 39.1 at 6 months and 38.9 at 12 months from maximum score of 71.4). Furthermore, levels of mobility were lowest in those from the most deprived area (PLUS-M scores in SIMD 1: 37.4 and 34.6 at 6 and 12 months respectively); although this was not statistically significant (*p=0.628*

and *p=0.164* respectively). A clear reason for the poor levels of mobility is the greater number of people in the lower socio-economic groups with TFA. It is more difficult to walk with a TFA prosthesis, due to increased energy requirements and as such more dependence upon walking aids [22]. There are no other published data describing prosthetic mobility over a longer duration or prosthetic mobility across socio-economic datazones and as such these are novel findings.

Quality of Life (QoL) was poor overall following LEA, compared to the general population, and particularly so for those from areas of greatest socio-economic deprivation, as many reported QoL as "worse than death". The negative impact of a LEA on QoL has been discussed in several studies through cross-sectional analysis of cohorts of patients, often with LEAs for mixed aetiologies [23,24]. Although many studies report poor QoL as after LEA, none have described the impact of socio-economic status.

Recent literature review found that the ability to participate in daily life whilst using a prosthesis was the most important factor influencing QoL following LEA [8]. If more people were successfully limb fitted, this may facilitate greater participation and better QoL. Previous research has also reported a positive association between mobility and QoL, in prosthetic users of mixed aetiology [25,26]. Deans et al (2008) concluded that social integration was more important than physical capability in improving QoL in prosthetic users [26]. This may explain the poor RNLI scores in this study. A high proportion of those in the SIMD 1 cohort did not receive a prosthesis rendering them wheelchair dependent and thus reducing their ability to participate

socially, therefore negatively impacting their QoL. This is despite similar accessibility issues, within the home environment, being observed across all SIMD quintiles.

There were 70 patients who were unable to consent to completing questionnaires at 6 month follow up due to cognitive deficits and poor health; however, 34 of those who had consented to participate in the 6 month follow up did not complete the questionnaires, of which 10 had died. It is possible that those who completed the questionnaires represented "healthier" patients and the QoL of those who declined or were unfit to participate may have been substantially worse that those who did complete. One of the limitations of the study was that QoL was not assessed immediately pre or post LEA. This limitation was unavoidable in this cohort as many were unwell prior to surgery or had their LEA as emergency procedures, even if it had been assessed, at this point it would have been unlikely to represent the participants general QoL. Furthermore, the QoL measure is only pertinent to the person once they are discharged from the hospital setting. It is also worth noting that although the data derive from a single Health Board, NHS GG&C HB are the largest in the UK and have an uneven distribution of its population across the SIMD quintiles which is reflected in this cohort. The statistical analysis of this study was impeded due to small numbers in each SIMD area which were reducing over the course of the study. While the majority of the significant differences were seen when comparing SIMD 1 and 5, there is an acknowledgement that SIMD 5 was small (n=19) and the participants were older than SIMD 1. Therefore comparisons are of limited validity. In order to make statistically sound inferences from this observational study multivariate analysis would be required. Multiple confounders

may exist that could potentially contribute to the low QoL e.g. other co-morbidities and social support networks, however these data were not available within this study design.

Despite previous research into the prevalence of LEAs and increased mortality following LEA in people from more deprived areas, this is the first prospective longitudinal study to report that the majority of those with a LEA live in the most socially deprived areas. Furthermore, it is the first study that has shown that QoL is so poor after LEA, especially in people from the most socially deprived areas.

Improving quality of life for people following LEA requires action from health services (including vascular surgeons and rehabilitation services) but also a wider societal response. There may be an assumption that improved mobility will lead to better QoL through increased exercise potential and better social integration. This would require significant investment by both health and social services. Justifying these costs would require a larger cohort study that could validate whether QoL was associated with socio-economic status; such a study should allow for adjustment for confounding variables. Once this has been conducted, robust trials to evidence whether increased input during rehabilitation and better, more accessible housing will lead to better mobility and improved QoL are required. Legislation integrating health and social care in Scotland was implemented in April 2016, after the 12 month follow up in this cohort [27], so it may be that the situation in Scotland is changing, and that those living in more deprived areas may receive more targeted rehabilitation to improve their mobility after LEA.

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Table 1 Description of the cohort by socio-economic status (n=171)

SIMD Quintile	Total (%) (n)	SIMD 1	SIMD 2	SIMD 3	SIMD 4	SIMD 5	*p Value*
	100% (171)	43% (75)	23% (40)	16% (28)	5% (9)	11% (19)	
Mean Age years (±SD)	66.2 (±11.4)	62.9 (±10.6)	68.0 (±9.3)	65.6 (±11.6)	65.8 (±12.8)	76.3 (±12.0)	*<0.001**
Males	74% (128)	76% (57)	80% (32)	78% (22)	66% (6)	57% (11)	*0.400*
Mean FCI* (±SD)	5.053 (±2.25)	5.213 (±2.37)	4.900 (±2.20)	5.036 (±2.15)	4.678 (±1.59)	4.947 (±1.94)	*0.930*
Excess Alcohol Consumption	15% (26)	18% (14)	20% (8)	10% (3)	0% (0)	5% (1)	*0.188*
Currently Smoking	48% (82)	58% (44)	65% (26)	35% (10)	11% (1)	5% (1)	*<0.001**
Caucasian	97% (166)	97% (73)	100% (40)	100% (28)	66% (6)	100% (19)	*<0.001**
Further Education	8% (14)	4% (3)	2% (1)	7% (2)	11% (1)	36% (7)	*<0.001**
Retired	69% (119)	53% (40)	82% (33)	71% (20)	77% (7)	100% (19)	*<0.001**
Social Housing	52% (89)	68% (51)	60% (24)	32% (9)	33% (3)	10% (2)	*<0.001**
Living alone	37% (64)	49% (37)	32% (13)	25% (7)	33% (3)	21% (4)	*0.139*
Diabetes	53% (91)	50% (38)	47% (19)	67% (19)	77% (7)	42% (8)	*0.181*
At discharge home							
TTA	43% (75)	41% (31)	30% (12)	57% (16)	66% (6)	52% (10)	*0.037*
TFA	36% (63)	44% (33)	50% (20)	17% (5)	0% (0)	26% (5)	
Bilateral TTA	7% (13)	6% (5)	0% (0)	14% (4)	11% (1)	15% (3)	
Bilateral TFA	5% (10)	5% (4)	7% (3)	3% (1)	11.% (1)	5% (1)	
TTA & TFA	5% (10)	2% (2)	12% (5)	7% (2)	11% (1)	0% (0)	
Housebound	77% (132)	77% (58)	75% (30)	85% (24)	66% (6)	73% (14)	*0.950*
At discharge from rehabilitation							
Limb Fitted	49% (85)	46% (35)	37% (15)	57% (16)	55% (5)	73% (14)	*0.100*

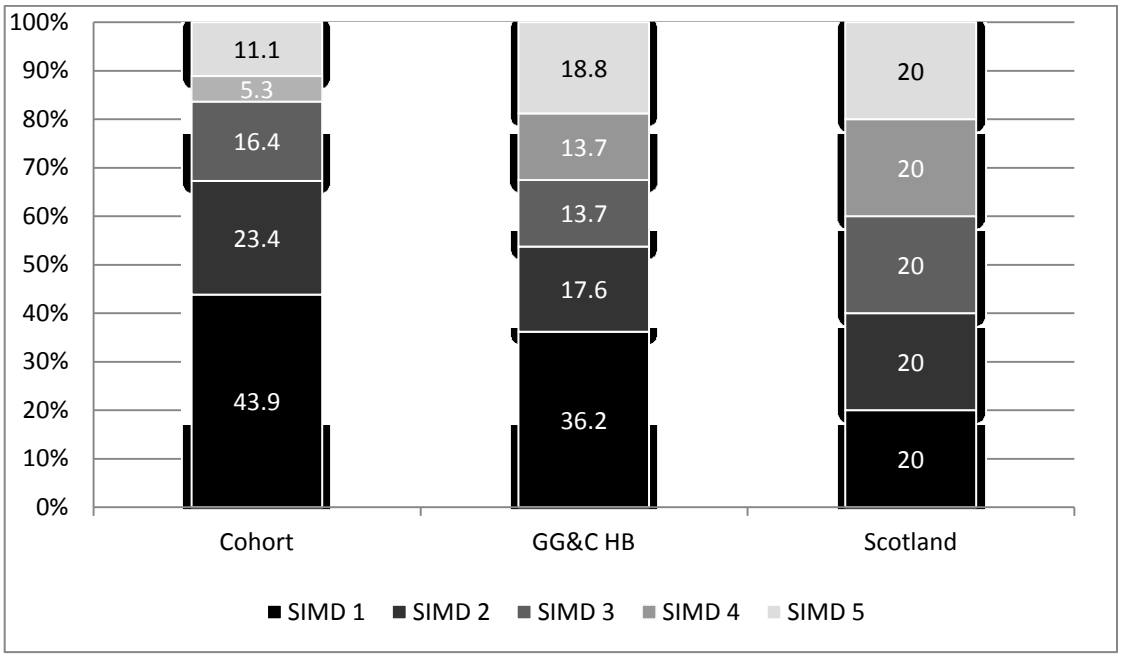
Abbreviations: SIMD=Scottish Index of Multiple Deprivation, FCI=Functional Co-Morbidity Index, LEA=Lower Extremity Amputation, TTA=Trans-tibial Amputation, TFA=Trans-femoral Amputation.
*>1 decimal place due to small numbers in FCI
All variables are displayed as % (n) except FCI which is mean (±SD)
P Value is the result of comparing each variable by SIMD quintile using Chi Square for categorical variables and ANOVA for age and FCI

Table 2 Results of Follow Up Questionnaires 6 and 12 Months post LEA by SIMD Quintile

6 Months Post LEA							
	All Cohort (n=67)	**SIMD 1 (n=30)**	**SIMD 2 (n=11)**	**SIMD 3 (n=13)**	**SIMD 4 (n=4)**	**SIMD 5 (n=9)**	***p Value***
EQ-5D-5L	0.37 (±0.37)	0.26 (±0.39)	0.51 (±0.29)	0.41 (±0.37)	0.35 (±0.39)	0.54 (±0.30)	*0.161*
RNLI	55.7 (±23.3)	47.8 (±24.6)	61.8 (±21.6)	55.7 (±23.9)	62.5 (±16.8)	71.9 (±11.0)	*0.057*
PLUS-M (t-score) (n=50)	39.1 (±11.8)	37.4 (±10.5)	42.5 (±8.1)	37.2 (±15.9)	47.1 (±0.9)	40.8 (±13.4)	*0.628*
Limb Fitted	82.1% (55)	76.7% (23)	81.8% (9)	92.3**%** (12)	50.0% (2)	100% (9)	*0.026**
12 Months Post LEA							
	All Cohort (n=50)	**SIMD 1 (n=17)**	**SIMD 2 (n=11)**	**SIMD 3 (n=10)**	**SIMD 4 (n=4)**	**SIMD 5 (n=8)**	
EQ-5D-5L	0.33 (±0.39)	0.23 (±0.38)	0.40 (±0.34)	0.55 (±0.26)	0.82 (±0.08)	0.52 (±0.34)	*0.111*
RNLI	56.6 (±24.5)	53.6 (±24.4)	55.2 (±21.3)	62.5 (±25.7)	83.6 (±1.3)	67.7 (±25.3)	*0.217*
PLUS-M (t-score) (n=43)	38.9 (±11.9)	34.6 (±10.8)	37.7 (±12.2)	40.4 (±10.7)	55.2 (±4.5)	42.3 (±13.5)	*0.164*
Limb Fitted	84.0% (42)	82.4% (14)	81.8% (9)	100.0% (10)	50.0% (2)	100.0% (8)	*0.341*

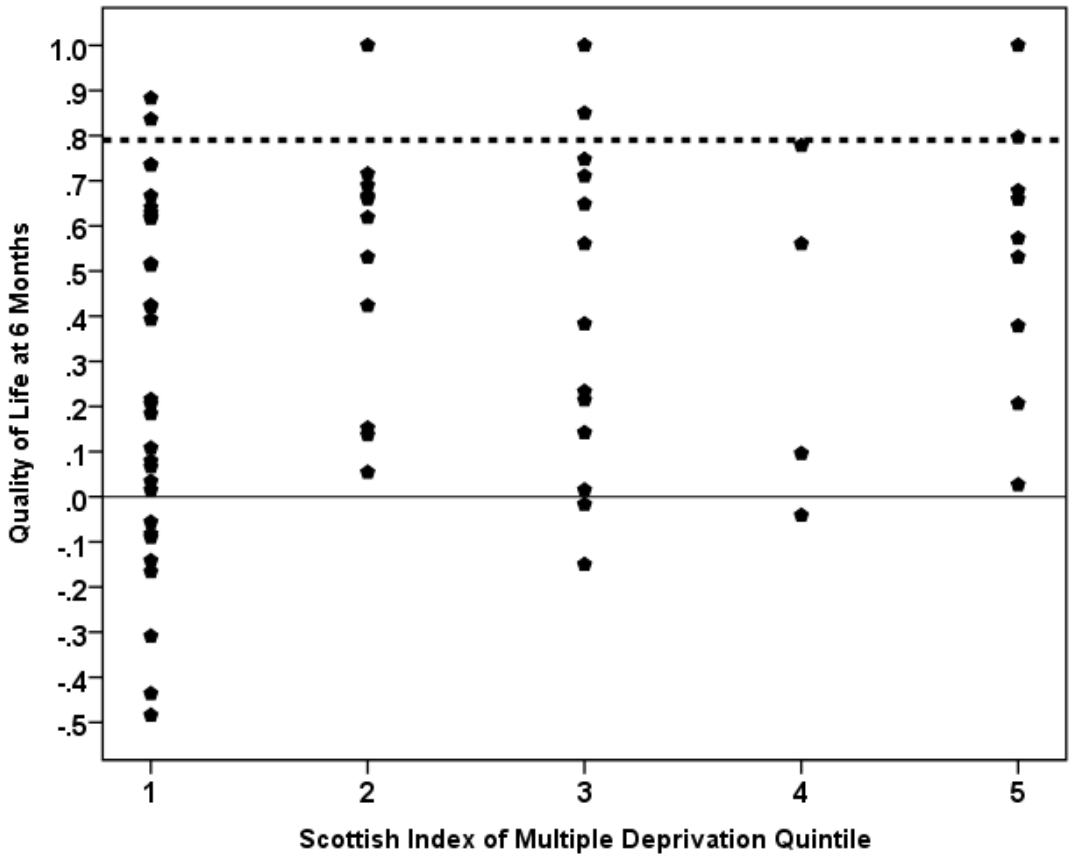
Abbreviations: SIMD=Scottish Index of Multiple Deprivation, EQ-5D-5L=Quality of Life, RNLI=Reintegration to Normal Living Index, PLUS-M=Prosthetic Limb User Survey of Mobility
All numbers Limb Fitted are displayed as % (n), All others are displayed as mean (±SD)

Figure 1 Socio-economic status of this cohort, the population in GG&C Health Board and Scotland



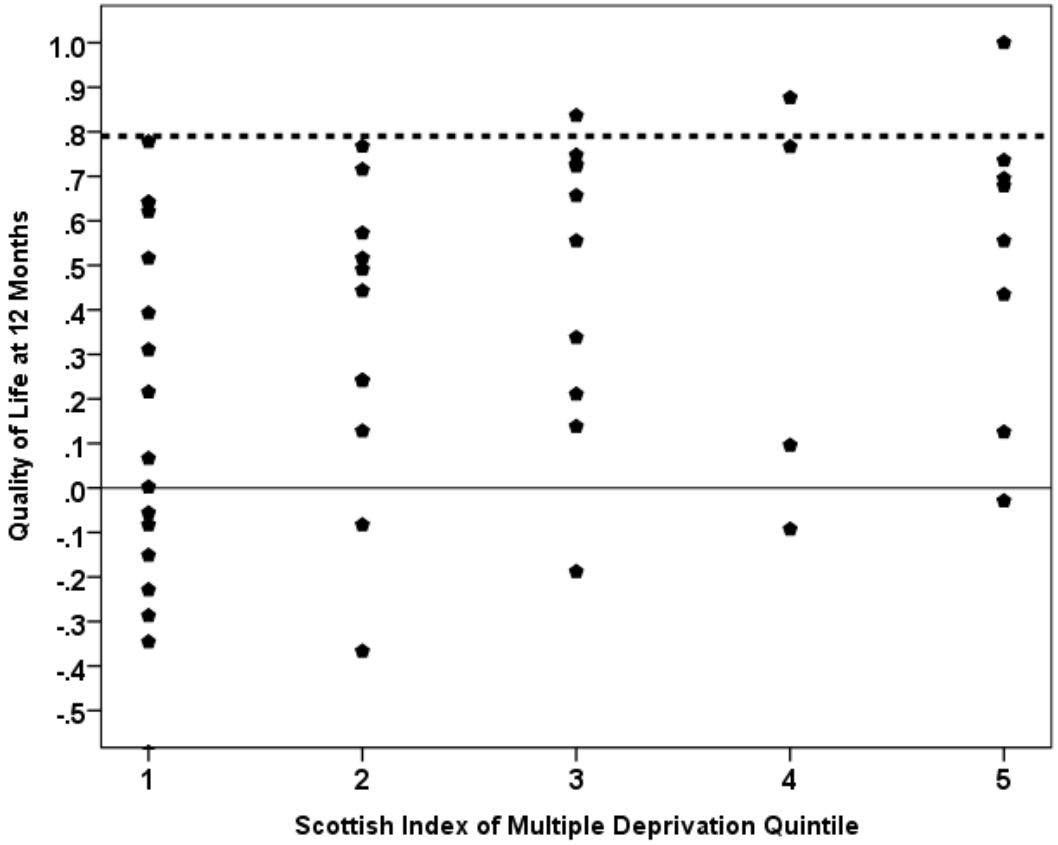
Abbreviations: SIMD=Scottish Index of Multiple Deprivation, GG&C HB=Greater Glasgow &Clyde Health Board
All numbers in Figure 1 are % ages

Figure 2 Quality of Life at 6 months after LEA by SIMD Quintile



Denotes mean QoL (0.79) of age matched normal population

Figure 3 Quality of Life at 12 months after LEA by SIMD Quintile



Denotes mean QoL (0.79) of age matched normal population