

Title	A qualitative study of the effect of limb injury/surgery on participation
Authors	Khan, Talha
Publication date	2021-03-16
Original Citation	Khan, T. (2021) A qualitative study of the effect of limb injury/ surgery on participation. Cork: Community-Academic Research Links, University College Cork.
Type of publication	Report
Link to publisher's version	<a href="https://www.ucc.ie/en/scishop/rr/">https://www.ucc.ie/en/scishop/rr/</a>
Rights	©2021, Talha Khan.
Download date	2025-08-01 06:48:40
Item downloaded from	<a href="https://hdl.handle.net/10468/12096">https://hdl.handle.net/10468/12096</a>

# A Qualitative Study of the Effect of Limb Injury/Surgery on Participation

Talha Khan

**CARL Research Project**  
in collaboration with  
**The Westgate Foundation**



<b>Name of student:</b>	Talha Khan
<b>Name of civil society organisation/community group:</b>	The Westgate Foundation
<b>Name of community group liaison person:</b>	Aisling Murphy
<b>Academic supervisor(s):</b>	Dr. Suzanne Timmons/Dr. Siobhan Fox
<b>Name and year of course:</b>	Graduate-Entry Medicine
<b>Date completed:</b>	16/03/2021

### **What is Community-Academic Research Links?**

Community Academic Research Links (CARL) is a community engagement initiative provided by University College Cork to support the research needs of community and voluntary groups/ Civil Society Organisations (CSOs). These groups can be grass roots groups, single issue temporary groups, but also structured community organisations. Research for the CSO is carried out free of financial cost by student researchers.

CARL seeks to:

- provide civil society with knowledge and skills through research and education;
- provide their services on an affordable basis;
- promote and support public access to and influence on science and technology;
- create equitable and supportive partnerships with civil society organisations;
- enhance understanding among policymakers and education and research institutions of the research and education needs of civil society, and
- enhance the transferrable skills and knowledge of students, community representatives and researchers ([www.livingknowledge.org](http://www.livingknowledge.org)).

### **What is a CSO?**

We define CSOs as groups who are non-governmental, non-profit, not representing commercial interests, and/or pursuing a common purpose in the public interest. These groups include: trade unions, NGOs, professional associations, charities, grass-roots organisations, organisations that involve citizens in local and municipal life, churches and religious committees, and so on.

### **Why is this report on the UCC website?**

The research agreement between the CSO, student and CARL/University states that the results of the study must be made public through the publication of the final research report on the CARL (UCC) website. CARL is committed to open access, and the free and public dissemination of research results.

### **How do I reference this report?**

Author (year) *Dissertation/Project Title*, [online], Community-Academic Research Links/University College Cork, Ireland, Available from: <http://www.ucc.ie/en/scishop/completed/> [Accessed on: date].

### **How can I find out more about the Community-Academic Research Links and the Living Knowledge Network?**

The UCC CARL website has further information on the background and operation of Community-Academic Research Links at University College Cork, Ireland. <http://carl.ucc.ie>. You can follow CARL on Twitter at @UCC\_CARL. All of our research reports are accessible free online here: <http://www.ucc.ie/en/scishop/rr/>.

CARL is part of an international network of Science Shops called the Living Knowledge Network. You can read more about this vibrant community and its activities on this website: <http://www.scienceshops.org> and on Twitter @ScienceShops. CARL is also a contributor to Campus Engage, which is the Irish Universities Association engagement initiative to promote community-based research, community-based learning and volunteering amongst Higher Education students and staff.

### **Are you a member of a community project and have an idea for a research project?**

We would love to hear from you! Read the background information here <http://www.ucc.ie/en/scishop/ap/c&vo/> and contact us by email at [carl@ucc.ie](mailto:carl@ucc.ie).

### **Disclaimer**

Notwithstanding the contributions by the University and its staff, the University gives no warranty as to the accuracy of the project report or the suitability of any material contained in it for either general or specific purposes. It will be for the Client Group, or users, to ensure that any outcome from the project meets safety and other requirements. The Client Group agrees not to hold the University responsible in respect of any use of the project results. Notwithstanding this disclaimer, it is a matter of record that many student projects have been completed to a very high standard and to the satisfaction of the Client Group.

## Table of Contents

<b><i>Abstract</i></b> .....	<b>5</b>
<b><i>Introduction</i></b> .....	<b>6</b>
<b><i>Aim</i></b> .....	<b>9</b>
<b><i>Objectives</i></b> .....	<b>10</b>
<b><i>Methods</i></b> .....	<b>11</b>
<b><i>Results</i></b> .....	<b>13</b>
<b>Mobility</b> .....	<b>14</b>
<b>Domestic Life</b> .....	<b>15</b>
<b>Self-care</b> .....	<b>16</b>
<b>Interpersonal Interactions and Relationships</b> .....	<b>17</b>
<b>Community, Social, and Civic Life</b> .....	<b>18</b>
<b>Communication &amp; Major Life Areas</b> .....	<b>19</b>
<b><i>Discussion</i></b> .....	<b>20</b>
<b>Mobility</b> .....	<b>20</b>
<b>Public Transport</b> .....	<b>21</b>
<b>Supports</b> .....	<b>21</b>
<b>Westgate Foundation</b> .....	<b>22</b>
<b>Strengths and Limitations</b> .....	<b>22</b>
<b>Implications for Practice</b> .....	<b>22</b>
<b>Future Research</b> .....	<b>23</b>
<b><i>Conclusion</i></b> .....	<b>24</b>
<b><i>Acknowledgments</i></b> .....	<b>27</b>
<b><i>Appendix A</i></b> .....	<b>28</b>
<b><i>Appendix B</i></b> .....	<b>29</b>

## Abstract

**Objectives:** The International Classification of Functioning, Disability and Health (ICF) defines participation as involvement in life. Participation is a key component of human functioning that is at risk of being impaired when an individual experiences illness or disability. One context in which participation may be impaired is in the event of Limb Injury or Surgery. Older people are particularly vulnerable, with impaired participation due to pre-existing disability or illnesses potentially being exacerbated by the impact of a Limb Injury/Surgery. The aim of this project is to explore the effect of Limb Injury/Surgery on participation in older clients of the Westgate Foundation Active Retirement Club.

**Methods:** The data was collected by using six face-to-face, semi-structured interviews, lasting approximately 30 minutes, with members of the Westgate Foundation Active Retirement Club. The interview topics focused on the nature of the injury/surgery and how this has impacted participation. Transcripts of the interviews were then coded and analysed using Thematic Analysis.

**Results:** Participation was negatively impacted following Limb Injury/Surgery for all participants interviewed. Participation was decreased in the domains of mobility, self-care, domestic life, interpersonal interactions and relationships, and community, social and civic life. Mobility was independently decreased and also led to a subsequent decrease in the other domains of participation. Participation in the domains of communication and major life areas was not decreased among those with limb injury or surgery. Supports varied, including home support services and disability aids, with family help and organizations such as the Westgate Foundation highlighted as significant facilitators for participation.

**Conclusion:** Limb Injury/Surgery has a negative impact upon participation. Increasing mobility, both within the home and outside, can increase participation across most domains due to its knock-on effect. Access to supports should be considered prior to discharge to facilitate allocation of appropriate resources and services within a community setting. This highlights the need for community services and organisations that may serve as protective factors against the loss of participation in those with limb injuries or surgeries.

## Introduction

Limb Injuries/Surgeries present significant challenges to healthcare systems as a result of their high incidence, with Upper and Lower Extremity Injuries accounting for more than 11 million visits per year to emergency departments in the US alone (1). Those who have undergone surgery or suffered an injury in the limb are likely to have experienced a resulting impact on their life. Accurately characterising the impact of such Injuries/Surgeries is difficult, as clinical outcome measures fail to comprehensively depict the scale of the effect.

The International Classification of Functioning, Health & Disability (ICF) is a conceptual framework set out by the World Health Organisation (WHO) that provides a common language for describing health and disability in the context of a given health condition (2). The ICF measures health and disability according to impairment of a set of defined factors. These factors comprise two components (see figure 1);

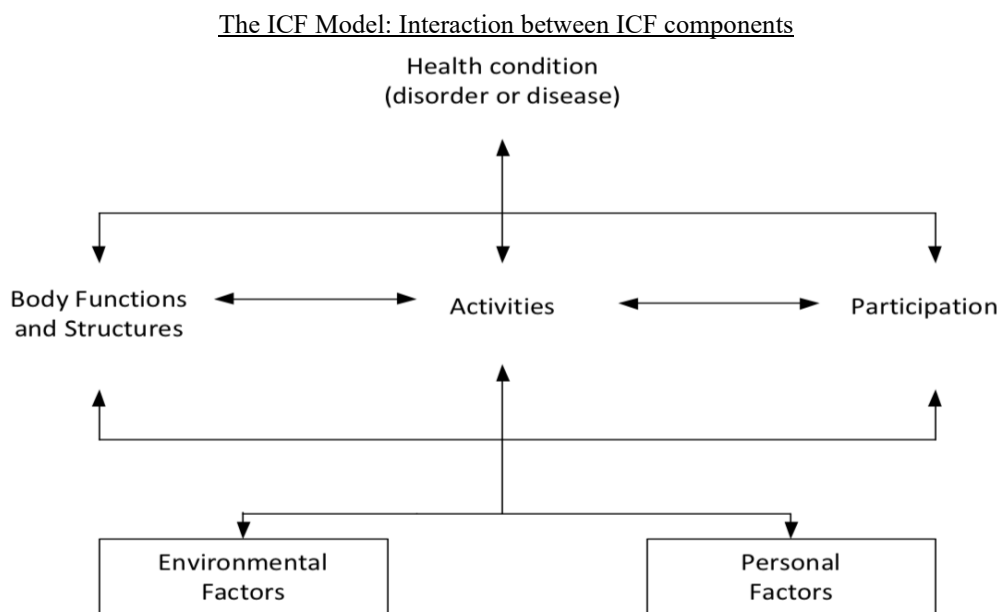


Figure 1 – Diagram showing the interaction between ICF components (3).

1. Contextual Factors
  - a. Personal Factors
  - b. Environmental Factors

2. Functioning and disability
  - a. Body Functions and Structures
  - b. Activities
  - c. Participation

The ICF defines participation as involvement in life situations (e.g. socialising, shopping, supporting a spouse or sibling, voting, contributing to society). Participation is a key component of human life and forms part of our identity and self-value, but may be impaired by illness or disability. One context in which participation may be temporarily or permanently impaired is in the event of Limb Injury or Surgery, particularly in older people who may already have other comorbidities to contend with (3). Applying the ICF framework to the condition of those who have undergone surgery or suffered injury in their limb, allows the characterisation of their disability in terms of encroachment on any of the different domains of functioning and disability, including those that pertain to Participation. The ICF domains of participation are as follows (2):

1. Communication
2. Mobility
3. Self-care
4. Domestic life
5. Interpersonal interactions and relationships
6. Major life areas
7. Community, social and civic life

Focusing on the effect of Limb Injury/Surgery on Participation, allows for a more holistic view of the impact on the individual's life, beyond simple measures of clinical outcome. Previous literature describes increases in the various domains of participation over the years following surgery, most commonly in the domain of mobility (4-8). This is likely due to the effect of rehabilitation and healing following surgery, leading to an increase in function and activity, and subsequently participation. Furthermore, the aim of surgery is to reduce pain and allow for regain of function, so it follows that the therapeutic effect of the surgery itself increases participation when compared to pre-surgery levels. Self-care is another domain that is frequently reported on, with patients with tibial injuries reporting few problems with self-care, and patients with limb surgeries reporting improvements in self-care following the surgery (4, 6-8). Previous studies displayed contrasting results relating to the effect of limb injury/surgery on the domain of community, civic and social participation. One study reported that the majority of patients who underwent total hip replacements (THR), or total knee replacements (TKR) found that both social and leisure activities became less difficult after surgery (9). In contrast, other studies reported decreases in social and recreational activity participation (7, 10). Other domains of the ICF were sparsely reported on, highlighting the need for further research in these key areas.



Another limitation of existing data relating to this research question is that current literature is more heavily reflective of the impact of limb surgery rather than injury. Furthermore, the type of surgery most frequently reported in the literature was THR/TKR and amputation. The narrow scope of the types of limb injury/surgery examined in current literature fails to capture the broad variety of experiences that exist within the population, highlighting the need for a broader investigation into the impact of limb injury/surgery on participation. It should also be noted that the existing literature is heterogenous in terms of the methodology used to measure participation and differs in its definitions of participation. The use of the ICF to define outcomes was inconsistent, creating difficulties in comparing results between studies.

The aim of this paper is to address the gaps that exist in the current literature by applying the ICF to measure the effect of Limb Injury/Surgery on Participation in clients of the Westgate Foundation Active Retirement Club, a community group consisting of older individuals who, as a result of their age are more likely to be susceptible to falls and subsequently, limb injury/surgery. The utilisation of the ICF in this study will allow for the research question to be addressed using a comprehensive and predetermined framework, allowing for a complete assessment of Participation while using common language that can be built upon in future studies, as originally intended by the developers of the ICF.

Aim

To explore whether limb injury/surgery has any effect on Participation in clients of the Westgate Foundation Active Retirement Club.

## Objectives

- To characterise the clients' disability following Limb Injury or Surgery, according to the level of encroachment on the ICF domains relating to participation
- To determine the self-reported factors that influence loss of participation in clients that have experienced Limb Injury or Surgery
- To explore the clients' own perspectives of solutions that would increase participation for those that have suffered from Limb Injury or Surgery
- To evaluate the Westgate foundation service

## Methods

### Study Design

This is a qualitative study based on six face-to-face, one-on-one interviews with members of the Westgate Foundation Active Retirement club, of around 30-minute duration.

### Participants

Six participants were recruited through the Westgate Foundation Active Retirement Club, a social club for retirees in Cork. Recruitment was facilitated through a co-ordinator from the Westgate Foundation. Inclusion criteria involved participants who have suffered from a Limb Injury/Surgery in the past 5 years and are current members of the club. Participants were therefore aged 55+ and were retired people of mixed gender. Clients with significant existing musculoskeletal problems, mental disorders or degenerative diseases were excluded.

### Study Measures

Participation was assessed by conducting one-on-one, semi-structured interviews with participants. Interviews were structured around an interview schedule that was developed by the study team to assess the type of injury/surgery, as well as the resulting impact on each of the domains of the ICF relating to participation. A copy of the interview schedule may be found in Appendix A.

### Procedures

Members of the Westgate Foundation Active Retirement Group were approached at a social meeting and invited to participate. They were then given an information sheet and consent form to sign. Six members agreed to participate and were scheduled for one-on-one interviews with a member of the research team. The interview schedule was used as a guide for a semi-structured interview that lasted around 30 minutes. The interviews were recorded and later transcribed by the same researcher who had undertaken the interview. Thematic analysis was then undertaken on the transcripts to identify the relevant themes.

### Coding and Thematic Analysis

The interview schedule was based around the domains of the ICF, facilitating the identification of pre-determined themes that could be extracted from the transcripts. During the coding process, sub-themes within each of the major themes were also identified. The sub-themes were not pre-determined but rather based on reoccurring themes that emerged during the interview process. The ICF provides its own coding system that was adapted for use in the analysis. The data were manually coded by a research team member reviewing the transcripts line-by-line and assigning codes.

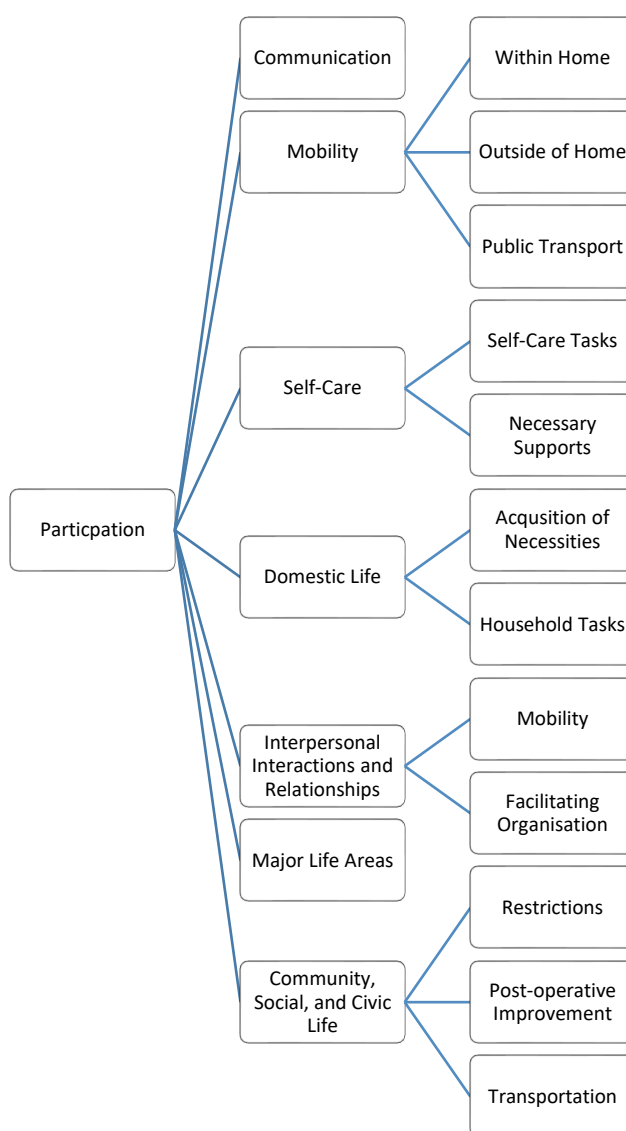
## Ethics

Ethical approval has been granted by the University College Cork Social Research Ethics Committee.

## Results

The results of this qualitative study are reported as seven major themes and twelve subthemes, as indicated in figure 2. These themes also correspond to the seven separate domains which comprise participation, according to the ICF framework.

Themes and sub-themes identified during Thematic Analysis



**Figure 2** – Diagram showing themes and corresponding sub-themes that emerged during thematic analysis

## Mobility

Mobility was described to be universally impacted, by all six respondents. Mobility was impaired both within and outside the home. It was also impacted by the accessibility of public transport.

Respondents' experiences are largely summarised into three sub-themes: mobility within the home, mobility outside the home, and experiences with public transport.

### Mobility Within the Home

Impaired mobility within the home was primarily due to physical limitations as a result of limb injury or surgery. One respondent had the following experience following a dislocated hip:

*“Getting out of bed in the morning can be a bit annoying I suppose or uneasy and lifting the leg into the bed at night would be the same. I’m getting quite a bit of cramps and sometimes it can be very crampful.”*

### Mobility Outside the Home

A significant contributor to impaired mobility outside the home was the inability to drive. For some participants, this was due to physical limitations posed by their limb injury or surgery. However, some participants also faced restrictions on their driving licence and insurance policy secondary to their injury/surgery. In regard to mobility outside the home, some respondents made the following remarks:

*“We are confined. Very, very confined, certainly missing the car”*

*“I drove before but I couldn’t drive then because there was no insurance that would cover you if you had a fractured limb. So, I rang my insurance company and they said they would put the insurance on hold because they said I would be out for 8-10 weeks.”*

### Public Transport

Additionally, the reliance on public transportation was also a consistent hinderance for many participants. Public transport was not considered adequately accessible by many respondents, mainly due to gaps in regional services. This was further emphasised by respondents in living rural environments. For example, one respondent described the following experience with public transport.

*“I was out in the middle of the country, and there would be a bus pass through there once a week, on a Tuesday. So, I mean that will tell you, in regards of vehicles and things I found it very restrictive not being able to drive.”*

## Domestic Life

### Acquisition of Necessities

For many individuals, the impact of their injury/surgery on their domestic life was secondary to not being able to gather or acquire necessities. For example, some individuals had a difficult time getting groceries or gathering materials for gardening. Shopping was one aspect of daily life that was impaired for many respondents. When asked about household tasks, one respondent replied with the following:

*“Things like shopping is still a problem. Most of the time I have to rely on getting the shopping delivered. And there’s added expense on that too so that doesn’t really appeal to me all that much.”*

### Household Tasks

Limb injury or surgery had a considerable impact on household tasks such as preparing meals and cleaning. Many respondents struggled with tasks such as cooking, bending over or getting into corners to clean, and moving small household objects. These limitations posed a lot of frustration for some respondents as they had to rely on additional supports, such as friends and family. Some participants relied on family members to cook and clean, while others struggled to do them independently. The effect of limb injury/surgery on household tasks is captured by the following responses:

*“You could do the hoovering with one hand, but it wasn’t half done. And you’re sitting there, and you’d say ‘gee, that corner needs to be dusted.’ The window really needs to be cleaned but you can’t do it. It’s frustrating, when you can’t do the things you want to do.”*

*“I couldn’t do anything with my right hand because it was too weak like, I couldn’t hold a tea pot because there was no strength in my arm.”*

*“Trying to bend down and reach difficult positions, you were always looking for some support. Yeah, it was awkward I suppose alright. It was fairly rough going.”*



## Self-care

Respondents indicated several effects of their limb injury/surgery on their ability to care for themselves. The impact on self-care is further divided into self-care tasks and necessary supports.

### Self-care Tasks

Tasks such as cutting nails, showering, and grooming were impaired for a number of participants. Additionally, participants had to make amendments to aspects such as clothing and footwear to accommodate the limitations posed by their injury/surgery. This was a reoccurring adaptation made by respondents. Responses below capture the effect of limb injury/surgery on the ability to complete self-care tasks.

*“Well, when I had a high necked jumper I would have some help getting it off because it is so tight and I couldn’t lift it up over my head, so I got help with that.”*

*“You could half cut the nails on this hand with the left hand, but my daughter used to do the necessary things like that for me. But I still had to take my clothes off and put them on because there was no one there when I was getting up in the morning or going to bed at night.”*

*“But putting on socks and things was difficult at the start. Putting on shoes and trying the laces. Some morning I wouldn’t be able to put them on. I would have to ask someone to help me. Slip on shoes wouldn’t be a problem. I have had difficulties with trousers and things again”*

*“I would probably need home help because getting out of the bed and taking a bath, putting on the socks and the shoes would be very awkward.”*

### Necessary Supports

The effect of limb injury or surgery on self-care varied according to the supports available to respondents. For example, some individuals were able to complete their self-care with the assistance of family members, as noted in an above quote. Additionally, many respondents had adapted their home environment with aids which helped them accomplish many of their daily tasks. Raised toilet seats, shower adaptations, and aids for dressing were common supports employed by respondents.

*“In the bathroom I had a shower seat, a raised toilet seat because I found it very difficult sitting in the normal one, getting up from the normal one. I had some bars to help me up.”*

*“I had the picker, I had the seat for the toilet. You had the shoehorn, a thing for putting on stockings.”*

*“Extra banister to hold onto which is a great help and we got bars fitted in the bathroom for showering now and getting up and sitting down and a stool in the shower as well that you can sit down on in the shower.”*

## Interpersonal Interactions and Relationships

### Mobility

Most respondents reported difficulties in interpersonal relationships due to a decrease in mobility. Individuals related their inability to drive to a decrease in their independence and autonomy. Many of them relied on friends and family to drive them to social events while others reduced their interactions with others as a result of their injury.

*“I used to go to a social every other Thursday night, but I couldn’t go because I had no way of going. You’re really stuck if you can’t drive.”*

*“It did, because I couldn’t drive, and I couldn’t go to places I wanted to go to. I’d have to sit in the passenger seat if I did want to go somewhere. You were very dependent on people.”*

Another individual reported difficulty maintaining relationships as a result of her injury. She was no longer able to drive others and this negatively impacted her relationships with them.

*“Well there were people that I couldn’t do things for that I was always doing things for and they dropped me when I wasn’t able to do things for them.”*

### Facilitating Organisations

The Westgate Foundation Active Retirement Club was mentioned as a facilitator for social relationships. This foundation organises and hosts social events where retirees can interact with others. In addition, the Westgate Foundation also provides transportation to its members, to and from these events. This was a significant facilitator for several respondents as it mitigated common mobility restraints.

*“Since I gave up the car now because I depend on Westgate to collect us at 2 o’clock. They collect other people as well and then they brought us over here, they’ll take us back after that then, again.”*

*“Well with Westgate, now and whatever, like the social down here or this afternoon we come to that or next week they might be going to x we’ll go there with the group in the bus. if there’s a function on, other day there was an over-60s Talent competition.”*

## Community, Social, and Civic Life

### Transportation

Many respondents experienced limitations in their community, social, and civic engagements secondary to a lack of transportation. Some individuals could not no longer drive and either relied on public transportation or friends and family. Limitations secondary to a lack of public transportation were further magnified for those living in rural areas. Some participants continued their community, social and civic engagements by attending with other friends who could drive, or through the Westgate Foundation, as it provides transportation to its members.

*“No, [going to matches] sort of went out the window. I still go to local GAA games, local matches. The fella I go with has problems himself. So, when the two of us get back to the car, we drive in together and he has a disability car, we go into the wheelchair access places. At times when we get to the car, we would be crippled because of the legs.”*

*“I used to go to a social every other Thursday night, but I couldn’t go because I had no way of going. You’re really stuck if you can’t drive. It’s alright if you’re in [place] or somewhere with regular buses, but if you’re living in the country it’s a different thing”*

### Post-operative Improvement

Some participants experienced increased ability to be involved in community and social opportunities. These participants were among those that had underwent surgery following an injury. One respondent remarked on her mobility increasing following a total knee replacement surgery.

*“I was able to walk better, I was able to go out and socialise more easily, not being on constant painkillers”*

### Restrictions

Many respondents noted restrictions posed from organisations they were previously involved in, mainly for insurance purposes. For example, one respondent was involved in the Men’s Shed

Organisation, a local non-profit organisation that provides a space for older men to gather and share skills. Following his injury, he faced difficulty in travelling to the men's shed and relied on his family for transportation. Due to liability and insurance concerns, he was not able to be actively involved in the projects as well. Another respondent faced similar restrictions when he was no longer allowed to volunteer and assist the Meals on Wheels organisation, which he had been a part of prior to his injury. These experiences are recounted in the quotes below.

*"The men's shed. That's an organisation for retired people, and they be building things and doing things like and all that and when I go up at night then I couldn't drive up there myself so my daughter would drive me and then pick me up after or one of the lads would drive me home. .... I couldn't do anything there because of the insurance. They are all insured for the work machinery, special insurance for that like but I don't work that now."*

*'I [attend mass] secondary to the residents association, and secondary to the pitch and putt minigolf and secondary to a whole lot of things. I did meals on wheels for 25 years, and they won't let me even do that now, and I want to!'*

## Communication & Major Life Areas

For the majority of respondents, communication & major life areas were not reported to be affected by limb injury/surgery. Many respondents relied on telephone conversations and occasional meets at social events to stay in touch with their friends and family. Below is a response from a participant pertaining to communication following a hip injury. In regard to major life areas, respondents did not report any changes following their injury or surgery. One

*"Well, I was able to use my phone, and it was really a lifeline. One or two friends would call to see me. MY 2 daughters, that would be kind of it."*

## Discussion

This qualitative study provides valuable insight into the effects of limb injury or surgery on the various domains of Participation. Most importantly, by using a standardised framework to assess Participation, the results of this study can be built upon with little data lost due to variability in nomenclature or definitions. The ICF not only provides a unified and standard language for the description of health and health-related states, but its utilisation also has several implications for practice. This was highlighted in this study as well and will be further explored in the subsequent sections.

### Mobility

Mobility was a significant component of everyday life that was affected by limb injury or surgery. All of the respondents experience some degree of limitation in their mobility. Perhaps the most remarkable revelation is that mobility had a knock-on impact on each of the ICF domains. Within the home, participants experienced the most reduction in participation in the domains of self-care and domestic life. Outside the home, participants remarked on their difficulty in fulfilling community, social, and civic responsibilities, as well as maintaining and building interpersonal interactions and relationships. The most important contributor to these limitations was the lack of transportation as many respondents were not driving due to their limb injury or surgery. Reduced participation was most prominently noted in those that resided in rural environments as public transportation was sparse in these areas. Additionally, the effect of mobility on the remaining ICF domains varied in response to the extent of family support respondents had, as many of them relied on friends and family for transportation to the grocery store, social events, or other amenities.

Among those that had suffered a limb injury or had undergone surgery, the longitudinal trend in their mobility contrasted. Individuals with limb injuries did not necessarily see an improvement in mobility over time, however, individuals who received surgery did notice a gradual improvement in their mobility, both within and outside the home. As mobility seems to have a significant effect on the remaining ICF domains, the emphasis on improving mobility as a means to increase overall Participation cannot be understated.

The improvement in mobility following surgery is supported by existing literature as well. This is likely due to the effect of rehabilitation from the surgery; surgery also leads to healing, both mental and physical, which allow for the regain of function, and consequently ability to perform activities. This newfound ability to perform activities then conveys the freedom to participate in life situations as per the patients' wishes. Another aspect to consider is that surgery tends to be therapeutic; by definition the aim of surgery is to reduce pain and allow for regain of function. It follows then, that

the outcomes of surgery would result in increases of Participation when compared to pre- surgery levels.

## Public Transport

The losses in participation due to loss in mobility can be mitigated by improving community services such as increasing access to public transportation. Many individuals experienced tremendous frustration from a lack of timely and accessible public transport which hindered their ability to leave their home and carry out other activities. The World Health Organisation (WHO) states that individuals suffering from any condition or disability that encroaches on their ability to Participate, in any of the ICF domains, require public assistance in the areas of shopping, housework, transport, self-care and care of others, in order to function more fully in society. One of the recommendations made by the WHO is increasing public transport services. This can be an important area of future public service work as it will not only increase participation in mobility, but all seven domains of the ICF (2).

## Supports

There were two major areas of support employed by individuals with limb injury or surgery. Broadly, individuals relied on integrated home supports, such as bannisters, sit-in showers, raised toilet seats and handrails, as well as support from family and friends. In fact, family support was mentioned by every single respondent in this study. These supports highlight two areas of focus.

Firstly, home supports were often recommended by occupational therapists and physical therapists. However, not all individuals had access to professional support. Integrating occupational and physical therapy should be a consideration for individuals with limb injuries or surgeries as it can increase mobility directly or make home more accessible through the use of integrated supports. This is something that should be evaluated prior to discharging patients with similar injuries or surgeries. Secondly, although family support was mentioned by every individual, there will indefinitely be individuals who do not have nearby family support. This implication poses additional restrictions on their Participation. An evaluation of family and household support can identify those that may be isolated and thus more susceptible to a decrease in participation. These individuals would benefit from increased outreach and transportation services. A multidisciplinary approach that promoted integration into the community will be beneficial for these individuals.

For individuals with an extensive family support system, family-centred care should be considered. Previous research has shown that the family members' well-being influences the person with the health condition, thus family members' needs and expertise are an integral part of goal-setting and

decision-making (11, 12). Family members should be included in discussions related to increasing participation as well as evaluating additional resources that may be introduced.

## Westgate Foundation

As participants were recruited from the Westgate Foundation Active Retirement Club, many of them commented on the impact the foundation had on their participation and well-being. It was consistently mentioned as a good source of support for individuals. The foundation hosted events and socials as an opportunity to socialise and build relationships. Perhaps the most appreciated aspect was the foundation's transportation services. Individuals were picked up and dropped off at their home following the events, thus mitigating some of the mobility restrictions and increasing participation. This foundation provides good insight into community services and initiatives that can be implemented for individuals following limb injury or surgery.

## Strengths and Limitations

The utilisation of the WHO's ICF is a significant strength of this study. The ICF provided definitive measures of participation which can be comparable and replicated. Additionally, this study included both participants who had suffered a limb injury and those that had undergone therapeutic surgery. The incorporation of both events allows this study to capture a broad understanding of participation without excluding one particular group. This also allows for comparisons to be made between the groups. The research methodology, mainly the utilisation of semi-structured interviews, does allow for recall bias, posing a limitation in this study. Lastly, as the participants were members of the Westgate Foundation Active Retirement Club, they may not be comparable to the general public. The foundation was also identified as a significant protective factor in encouraging participation.

## Implications for Practice

This study has highlighted several areas of development that can aid individuals in increasing participation, across all seven domains. Community and legislative changes that encourage a more reliable transportation system or programs that aim to provide transportation services to individuals with limb injuries or surgeries is imperative. Individuals who may be at risk of increased isolation should be assessed prior to discharge by ascertaining their living environment and extent of family support. These individuals require further outreach and follow-up and increasingly rely on physical and occupational therapy support. These individuals will benefit from a multidisciplinary approach. Additionally, those that rely on family and friends should be offered a family-centred approach where their family members are educated on limitations and involved in goal-setting and decision-making. By utilising the ICF to assess and monitor participation, we can identify individuals who need

additional supports to maintain participation. These individuals should also be encouraged to join organisations which facilitate events and transportations, such as the Westgate Foundation Active Retirement Club.

## Future Research

Currently, the much of the existing research reports the effect of amputation, total hip replacement, or total knee replacement on participation (5). This should be expanded on as many individuals suffer limb injuries that are not amenable to surgery or amputation. Furthermore, most of the research done on participation has been following surgery, which does not accurately reflect participation in the majority of individuals suffering from disability or reduced participation due to limb injury. An important discovery during this project was the variation and lack of standardisation in how participation is assessed. Many studies did not define their outcomes in regard to the ICF but used proxy measures for participation (6, 10, 13, 14). This discrepancy in methodology and framework makes it difficult to compare research and build upon it further. The ICF was developed by the WHO to provide a standardised approach to measuring and improving participation and future research should work to incorporate it when assessing participation. There is also need for longitudinal and prospective research to limit the recall bias as most of the existing literature utilises questionnaires administered years after the injury/surgery.



## Conclusion

The results of this qualitative study indicate that both limb injury and surgery effect participation. The greatest effect was on mobility, which then had a subsequent effect on the remaining domains. It should be noted that limb injury and surgery did not have an effect on communication or major life areas. Efforts to increase participation among those with limb injury or surgery should focus on improving mobility, both within the home through a multidisciplinary approach, and outside the home, through community services and increased public transportation. Family support is a major support for limb injury/surgery patients and those lacking an appropriate support network should be targeted for outreach services. Community organisations such as the Westgate Foundation can have a protective role against decreases in participation and should therefore be supported.

## References

1. NHAMCS – Emergency Department Summary Tables Atlanta: Centers for Disease Control and Prevention; 2015 [cited 2019 March 12]. Available from: [https://www.cdc.gov/nchs/data/nhamcs/web\\_tables/2015\\_ed\\_web\\_tables.pdf](https://www.cdc.gov/nchs/data/nhamcs/web_tables/2015_ed_web_tables.pdf).
2. World Health Organization. International Classification of Functioning, Disability and Health (ICF) Geneva: World Health Organisation; 2019 [cited 2019 March 10]. Available from: <https://www.who.int/classifications/icf/en/>.
3. World Health Organization. How to use the ICF: A practical manual for using the International Classification of Functioning, Disability and Health (ICF) Geneva: World Health Organisation; 2013 [cited 2019 March 10]. Available from: <https://www.who.int/classifications/drafticfpracticalmanual2.pdf?ua=1>.
4. Bunketorp-Kall L, Reinholdt C, Friden J, Wangdell J. Essential gains and health after upper-limb tetraplegia surgery identified by the International classification of functioning, disability and health (ICF). *Spinal Cord*. 2017;55(9):857-63.
5. Davis AM, Perruccio AV, Ibrahim S, Hogg-Johnson S, Wong R, Streiner DL, et al. The trajectory of recovery and the inter-relationships of symptoms, activity and participation in the first year following total hip and knee replacement. *Osteoarthritis Cartilage*. 2011;19(12):1413-21.
6. Giannoudis PV, Harwood PJ, Kontakis G, Allami M, Macdonald D, Kay SP, et al. Long-term quality of life in trauma patients following the full spectrum of tibial injury (fasciotomy, closed fracture, grade IIIB/IIIC open fracture and amputation). *Injury*. 2009;40(2):213-9.
7. Liu Y, Hu A, Zhang M, Shi C, Zhang X, Zhang J. Correlation between functional status and quality of life after surgery in patients with primary malignant bone tumor of the lower extremities. *Orthop Nurs*. 2014;33(3):163-70.
8. Stenquist DS, Elman SA, Davis AM, Bogart LM, Brownlee SA, Sanchez ES, et al. Physical activity and experience of total knee replacement in patients one to four years postsurgery in the dominican republic: a qualitative study. *Arthritis Care Res (Hoboken)*. 2015;67(1):65-73.

9. Wylde V, Livesey C, Blom AW. Restriction in participation in leisure activities after joint replacement: an exploratory study. *Age Ageing*. 2012;41(2):246-9.
10. Burger H, Marinček Č. The life style of young persons after lower limb amputation caused by injury. *Prosthetics and Orthotics International*. 1997;21(1):35-9.
11. Visser-Meily A, Post M, Gorter JW, Berlekom SB, Van Den Bos T, Lindeman E. Rehabilitation of stroke patients needs a family-centred approach. *Disabil Rehabil*. 2006;28(24):1557-61.
12. Grawburg M, Howe T, Worrall L, Scarinci N. Describing the impact of aphasia on close family members using the ICF framework. *Disabil Rehabil*. 2014;36(14):1184-95.
13. McMurray A, Grant S, Griffiths S, Lefford A, Wilson D. Mapping recovery after total hip replacement surgery: health-related quality of life after three years. *Aust J Adv Nurs*. 2005;22(4):20-5.
14. Williams RM, Ehde DM, Smith DG, Czerniecki JM, Hoffman AJ, Robinson LR. A two-year longitudinal study of social support following amputation. *Disability and Rehabilitation*. 2004;26(14-15):862-74.

## Acknowledgments

I would like to thank Dr. Suzanne Timmons for her supervision, as well as Dr. Siobhan Fox for contributing to the project as a member of the research team; this project would not have been possible without them. This study was completed in collaboration with the University College Cork, Community Access Research Links (CARL) initiative, with special thanks to Anna Kingston as the CARL co-ordinator. Finally, I would like to thank the members of the Westgate Foundation Active Retirement club for their support, as well as Aisling Murphy for liaising with the group and assisting with recruitment.

## Appendix A

# INTERVIEW SCHEDULE

### Introduction

1. Please tell me about your Injury/Surgery?  
Prompt: How long did the recovery take?
2. Was your mobility affected by your injury/surgery?  
Prompt: within house, outside, driving and public transport
3. Was your ability to carry out daily household tasks affect by your Injury/Surgery?  
Prompt: personal care and housework
4. Was there any impact on your social life?  
Prompt: meet with friends, social activities; Club meetings; family or personal relationships?
5. *If upper limb affected, was there any effect on your ability to communicate with others?*  
*Prompt: writing, hand gestures, technology such as computers, or phones*
6. What kind of support did you receive to help you cope with the Injury/Surgery?  
Prompt: family and friends, Westgate Foundation, healthcare or voluntary groups
7. Of the support that was offered to you, what do you perceive to have been most/least helpful?  
Prompt: what else could have helped you or others like you?

Thanks and end.

## Appendix B

### COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
<b>Domain 1: Research team and reflexivity</b>			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	2
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	NA
Occupation	3	What was their occupation at the time of the study?	NA
Gender	4	Was the researcher male or female?	Na
Experience and training	5	What experience or training did the researcher have?	NA
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	11
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	11
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	11
<b>Domain 2: Study design</b>			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	12
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	11
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	11

Sample size	12	How many participants were in the study?	11
Non-participation	13	How many people refused to participate or dropped out? Reasons?	NA
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	11
Presence of nonparticipants	15	Was anyone else present besides the participants and researchers?	11
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	11
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	31
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	11
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	11
Field notes	20	Were field notes made during and/or after the inter view or focus group?	11
Duration	21	What was the duration of the inter views or focus group?	11
Data saturation	22	Was data saturation discussed?	NA
Transcripts returned	23	Were transcripts returned to participants for comment and/or correction?	11
<b>Domain 3: analysis and findings</b>			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	12
Description of the coding tree	25	Did authors provide a description of the coding tree?	13
Derivation of themes	26	Were themes identified in advance or derived from the data?	13
Software	27	What software, if applicable, was used to manage the data?	12
Participant checking	28	Did participants provide feedback on the findings?	NA
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	13-21
Data and findings consistent	30	Was there consistency between the data presented and the findings?	13-21
Clarity of major themes	31	Were major themes clearly presented in the findings?	13-21
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	13-21

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357