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Explore Older Adults Experiences of Falls and Recovery from Falls

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Abstract

Objective. To explore older adults' fall experiences and how they cope and recover from the fall. The research tried to discover both physical and psychological changes in participants' life, in order to develop suitable falls prevention strategies. *Methods*. Semi-structured interviews were conducted in day care service using an interview topic guide with 6 services users aged over 65. The interview covered general health status, detail of fall experiences and physical/psychological or social/environmental changes after falls. The Interviews were transcribed verbatim and analysed using the thematic network. *Results*. Participants' mobility declined rapidly after the fall, the loss of independence leaded to social isolation, which resulted a disruption in participants' mental health. Poor mental health status further affected participants' functional ability which could cause the next fall. *Conclusion*. Improve older adults' functional ability is the first focus in future falls prevention. In the meantime, preserve older adults' social activities to achieve their mental wellbeing is another essential element in falls prevention.

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Contents

1. Introduction

Falls are the primary cause of injuries among older adults, fall-related injuries result in substantial personal and societal burden (Evitt and Quigley, 2004). Despite various research on falls and its prevention, falls continue to cause considerable immobility, loss of independence and premature mortality (Sylliaas *et al.,* 2009). The main purpose of this research is to present the consequences of falls in older adults' daily life, and to have a better understanding on older adults' falls experience through personal interview, and hoping to build a falls prevention that match their needs.

2. Literature Review

The definition of falls that used in American Geriatrics Society (AGS) and British Geriatrics Clinical (BGS) is: "an event whereby an individual unexpectedly comes to rest on the ground or another lower level without known loss of consciousness" (British Geriatrics Society, 2008). Falls are the biggest cause of morbidity in older adults, it significantly contributes to death, immobility, hospitalization, and early entry to long-term care facilities (Brown, 1999; Drootin, 2011). Falls can decrease older adults' physical function by causing injuries which can limit their activities, and fear of falling again (Scheffer *et al.*, 2008). In 2002, the number of people aged 50 and over living in England was 16.56 million, it rose to 18.65 million in 2012, with the aging population 80 and over rising from 4.3% to 4.7% (The National Institute for Health and Care Excellence (NICE), 2013). According to NICE (2013) 30% of older adults fall at least once a year, and this increased to 50% with people older than 80. In Scotland, aging

population increased much more than younger population from 1997 to 2017. Population 75 and over age group increased by 31% while 0 to 15 age group dropped by 9% during that period (National Record of Scotland, 2018). With number of older population growing more rapidly than any other age group, it presents a significant challenge to both society and health care system (World Health Organization, 2007).

Older people aged 65 and older are the most vulnerable group on fall, it causes frailty, immobility, and acute/chronic health impairment (Berg and Cassells, 1992). As such, falling is a significant cause of injury, older adults generally have lower bone density, which may increase the risk of hip and other fractures (Tinetti, 2003). Most injuries in the older adults are attributed by falls, such as fractures of hip, forearm, humerus, and pelvis (Sattin, 1992). Injuries like this usually result from the combined effect of falls and osteoporosis (Kenny, Romero-Ortuno and Kumar, 2017). Falling is a significant cause of injury in older adults and have shown the importance of this problem around the world (Olij *et al.*, 2017). It is difficult for government to develop a practical public health strategy to regulate the preventions. The reason behind this issue is because falling is not a disease. It is a serious of symptom of underlying disorder with a potential hazard environment (Sattin, 1992). For instance, some acute or chronic diseases may directly or indirectly result in falls (e.g. cardiovascular or musculoskeletal disease) (Bergland, 2012), and vice versa, falls can also contribute to disease such as fracture and traumatic brain injury. More often, when falls only cause minor injuries, it may not draw public health or even faller's attention. However, older adults with falling experience may undergone a dramatic change emotionally. Older persons with high

level of fall-related concerns are found to have more limitations in ADLs and social participation (Van Der Meulen *et al.*, 2014).

2.1 Risk Factors of Falls

The fifth-leading cause of death among older people are accidents caused by falls and it attributes to two-thirds of all accidental deaths (Deandrea *et al.*, 2010). In developed countries, 30% of community-dwelling older people fall every year, and over 40% fall accidents happened in care home or other long-term care facilities (Rubenstein and Josephson, 2002). Although with high falling rate, most of falls do not result in death, they usually cause serious injuries and influence health and quality of life of older adults (Deandrea *et al.*, 2010). Risk factors for falls are classified into two categories: intrinsic and extrinsic (Deandrea *et al.*, 2010). Intrinsic risk factors are described as physical difficulties and poor health which are individual-specific. For example old age, chronic disease, muscle weakness, gait and balance disability, and cognitive impairment or dementia, neuro-cardiovascular instability, visual deficits, infection (Deandrea *et al.*, 2010; Kenny, Romero-Ortuno and Kumar, 2017). Biological factor is one of the main focus in intrinsic factors, it is related to ageing decline of physical, cognitive and affected capabilities (World Health Organization, 2007). Age and frailty level has a great impact on the frequency of falls and fall-related injuries, most falls are related to health condition that are influenced by age, such as physical frailty, immobility, and reduced functional capacity (Yoshida, 2007). Frail older adults present symptoms (e.g. balance, strength, and gait impairments develop) before falls. Intrinsic risk factors are more prevalent in older adults aged 80 and older (Peel, 2011).

Extrinsic risk factors are the potential hazards in older adults' living space, it often refers to an active lifestyle and surface irregularities and seasonal variations (Kenny, Romero-Ortuno and Kumar, 2017). Such as medication use, environmental hazards (e.g. poor lighting, loose carpets), and harmful activities (e.g. move without walking aid, sudden change of position), which are inclined to be associated with older adults below age 75 years (Deandrea *et al.*, 2010; Peel, 2011). Some falls may be caused by a single reason, however most of them are the interactions between environmental hazards (or extrinsic factors) and accumulated effects of intrinsic factors (Day, 2003). The risk of falling may increase persistently if older people have more of these risk factors (Nevitt *et al.*, 1989; Tinetti, 2003).

2.2 Consequences of Falls

2.2.1 Physical

The consequences of falls can be various, including mobility impairment, disability, dependency, social isolation and psychological problems (Drootin, 2011; Olij *et al.*, 2017). After falls, many older adults require assistance on daily activities, which is a crucial indicator of poor prognosis. The loss of mobility will lead to bedridden which may cause hypothermia, dehydration, rhabdomyolysis, aspiration pneumonia and pressure sores (Kenny, Romero-Ortuno and Kumar, 2017). Injuries caused by falls are related with deterioration in physical abilities which may lead to physical frailty (Brown, 1999). It could result in loss of physical abilities, as well as many other factors could accelerate their frailty.

2.2.2 Psychological

Older adults who had a fall may experience psychological difficulties, such as, fear of falling (FOF), activity avoidance, loss of self-efficacy and self-confidence. Self-efficacy stands for "an individual's perception of capabilities within a particular domain of activities" (Bandura, 1978). The FOF belongs to part of post-fall syndrome and there are several researches regarding to this topic (Delbaere *et al.*, 2004; Van Der Meulen *et al.*, 2014; Kenny, Romero-Ortuno and Kumar, 2017; Rabia Mahmood, 2018). One third of older adults who never fall before also suggest the fear of future falls (Tinetti, Speechley and Ginter, 1988). The other one third older adults develop FOF after experienced a fall, people with FOF tend to perform worse on daily activities, self-efficacy and self-confidence (Kenny, Romero-Ortuno and Kumar, 2017). FOF is highly related with activity restriction, it will affect their day to day living (personal and instrumental), therefore, older people gradually start to avoid activities, which may undermine their quality of life and increasing institutionalization (Bensimon, G., Lacomblez, L., Meininger, V., 1994). In a research of fear-related symptoms, it states that avoidance of activities caused by FOF are significant variables in physical frailty (Delbaere *et al.*, 2004). The reason is lack of activities makes older adults have more difficulties in doing activities. This avoidance will accelerate the process of physical frailty because of the destructive consequences of physical inactivity (McAuley, Mihalko and Rosengren, 1997). FOF is not solely related to the general physical health condition, it is also connected to some physical function, such as, decrease in muscle strength in the knee, less hand grip strength. Older adults who avoid daily activities would experience declined muscle strength and have limitations during doing grocery,

taking a walk, walking around the house and bending down to pick something up (Van Der Meulen *et al.*, 2014). All of those fear and avoidance will further increase older people's insecurity and apprehension. Additionally, having low confidence in the performance of activities will result in older people's dependency (Vellas *et al.*, 1998).

2.2.3 Social Function

For older adults who had a fall, the reduction of social interaction can be caused by restricting activity, the mobility impairment reduces older adults' ability to leave home and leading to isolation (Roe *et al.*, 2009). Lack of social function may lead to feelings of frustration and anxiety (Gardiner *et al.*, 2017). Older adults who struggle with shrinking social networks would tend to remain their functional and independent (Tinetti and Williams, 1997). The research shows falls prevention programme which help older adults maintain a level of confidence, mobility, and independence in their daily functioning can reduce the risk of falls (Tinetti *et al.*, 1994).

2.2.4 Falls Prevention

The interventions and programmes which aim to prevent falls include exercise, environmental modification, educational interventions (Chang *et al.*, 2004). Training programmes includes general physical activity (e.g. walking, aerobic and endurance exercises), specific physical activities (e.g. balance, gait, muscle strength) (Tinetti, 2003). Environmental modification is often done by professionals, who can identify environmental hazards and recommend modifications (e.g. handrails, raised toilet seat, stair lift, pathway clear) (Peel, 2011). Educational interventions involve with pamphlets

and posters in groups or communities, for example, senior centres and nursing homes (Balzer *et al.*, 2012).

Throughout reviewing the literatures, the author discovered that most of the studies focused on older adults' mobility impairment after falls, indeed, some of them touch on social and psychological changes. However, it is difficult to identify enough research that use personal experience to verify the change, and very little information about the specific changes in older adults' daily life. Despite the fall prevention has been developed with various programmes, it rarely emphasizes on how to tackle the psychological effects in falls prevention strategy. Therefore, the author aims to explore individual's fall experience to perceive the actual consequences that changed older adults' day to day life, and try to provide more adequate solution to falls prevention.

3. Method

The purpose of this study is to identify the perceived physical and psychological changes after falls by conducting in-depth qualitative interviews. The study involves interviewing older adults with past falling experience and their obstacles after the fall. In addition to understand the type of mental and physical support older adults' need after the fall. Through conducting interviews, older adults are able to share their falling experiences on how these falls directly or indirectly affect their day to day life. Apply the qualitative method to identify common themes and issues. Participants will be

eligible if they are over 65 years and older, with at least one falling experience in the last 12 months prior to the interview. The research tries to answer the questions below:

-How these consequences of falls may affect older adults' day to day life?

-How to perceive the physical and psychological changes after falls?

-What kind of mental and physical support older adults' require after falls?

-How to reduce the incidence of older adults falling?

-What are the essential elements to develop and improve future falling prevention?

There are some approaches in qualitative analysis which derived from, a particular theoretical or epistemological position (Braun and Clarke, 2006). For example, grounded theory (Corbin and Strauss, 2015), discourse analysis (Smith, 2015), narrative analysis (Riessman, 1993). However, some approaches are independent from theory and epistemology, thematic analysis can provide understanding of an argument or the manifestation of an idea (Attride-Stirling, 1999). Applied thematic method on the project, allows the author to use a flexible approach to be more comprehensive, and allows insight into people's experiences. The author intended to have more comprehensive understanding toward the consequences that came after the fall, and hope to improve the future falls prevention and reduce the incidence of older adults falls.

3.1 Ethical considerations

The interview covers experience of falls, current activity limitation, concerns about the future, while care had been taken to design the questions and there were no sensitive topics in the discussion. This research has applied for a basic disclosure and has consulted with the PVG scheme who has advised that a basic disclosure is adequate. The research was reviewed by School of Social & Political Sciences Ethics Forum; however, it was rejected twice on 21st May, 12th June. Because older adult fallers will often experience themselves as more than usually vulnerable, after changing the interview place from participants' home to facilities with staffs present. The project was fully approved on 21st June. All participants signed the written consent form to take part in the study. All the interviews will remain anonymous and pseudonyms will be used to report the data.

3.2 Data collection

3.2.1 Participants

Six interviews were completed during 3rd to 14th July in Sinclair Integrated Day Service. Care inspectorate supported the recruitment, through the gatekeeper at the care inspectorate contacting potential day care centres and inform them about the project. Day care services in North Lanarkshire and Glasgow are identified as suitable facilities. However, Glasgow City Council has their own approval approach and it does not fit the time frame. Therefore, all the participants are service users from Sinclair Integrated Day Service in Coathill Hospital, North Lanarkshire. Older adults recruited in this research were those who are more independent. They live in communities and use day

care services on their preferred times. In day service, older adults receive health and social services, including individual assessments (suitable assistive device, mobility, balance and gait), treatments (medication, polypharmacy, physiotherapy referral), therapeutic activities and social care. The staffs from the day care centre identified the potential users who are eligible and capable to make the decision and consent, also solicited their willingness to participant. The researcher attended the day centre's activities and spent time to interact with the older adults to build the relationship. Prior to the interview, the researcher gave potential participants more information about the project (see appendix 1), as well as an opportunity to ask any questions they may have. Participants who were interested in taking part were all been given a participant information sheet and given time to think about whether they were desirable to take part. This research is only based on interview form. There is no any treatment, activities or medication involved that would affect older adults' health status. At the recruitment, two potential service users were excluded because one user has an established diagnosis of dementia and presented with cognitive impairment. The other user was excluded because the hearing impairment accompanied by severe communication barriers caused a special communication needs.

3.2.2 Interview Instrument

Semi-structured interviews were conducted in day care service using an interview topic guide (see appendix 2), which was developed with open-ended questions and prompts. The topic guide was designed to be delivered face-to-face verbally to elicit information about older adults' fall experiences, changes after a fall and how they feel about it.

There are four sections in the topic guide including general health, falls experiences and physical or environment changes. The first section began with participant's general health. The interview tries to understand older adults' health condition through some basic questions such as their age, disease diagnosis, medication history. By walking through participants' typically day before the fall, apply it as a contrast to the following questions. The second section leads participants to share the detail of falls, including injuries type, treatment, recovery time, and how they perceived the fall related to general health. The third part of the topic guide is on changes on physical and environment. In this section, the interview involves more about changes after falls. Focus on fallers' mobility, energy, living environment and if they ever seek help after a fall. In the last part of topic guide moves to mental health, social activities and life quality changes. The last section focused on participants' feeling after falls. Using serious of open questions to allow older adults express their psychological changes and other physical changes (sleep, appetite, energy) which can indicate their mental health condition. The topic guide was designed to be flexible, and after each interview the researcher would review the questions and modify it to be more adequate for participants and the project.

3.2.3 Interview Procedure

The interviews took place in a private room of the day care centre, each interview lasted about thirty minutes to one hour. The participants were encouraged to ask any questions they may have relating to the research. In addition, participants were also informed that they are free to withdraw at any time without giving a reason. Participants were advised

that if they feel uncomfortable to have the interview alone, they are given the option to invite someone who they feel comfortable to sit in the room during the interview and with members of staffs present on site. Researcher also observed participants' facial expression changes, emotional fluctuation, assistive products they use, balance and gait when they walked into the room. Interviews with Scottish older adults have challenges including strong accent, problems with memory and repetition. Interviews were audio recorded, researcher used VLC player to slow down the speed of audio. Through repeating the sentences, it increased understanding of the dialogue. All of the six interviews were conducted in the private room with the presence of day service's staffs. Participants were monitored by the staff and researcher to ensure they felt comfortable throughout the process. The staff did not involve with the interview unless participants need relevant hints to recreate the details and the scene of falls. The researcher managed to simplify question structure and gave older adults plenty of time for responses.

3.2.4 Data Analysis

The Interviews were transcribed verbatim and analysed using the thematic networks, which aims to examine the understanding of an issue (Attride-Stirling, 1999), by identifying and organizing different themes that derive from interviews. This methodology was chosen because the project's main purpose was to discover older adults' experiences of falls, and the meaning of that in their life. This method of analysis allows the researcher to explore the interviews to discover themes that are (1) Related to the research questions, and (2) Emerge from the data. All transcripts were coded manually by the researcher, because older adults often did not complete their sentence

or spoke slang. Due to participants' old age, some of them could not spoke clearly, it took time for researcher to make notes. The other reason that made the researcher decide to manually coded the data is there were only 6 interviews, and the researcher had to spend almost three weeks to transcribe them, during the time, the researcher immersed in each texts and segments, familiar enough to coded manually.

As suggested by Attride-Stirling (1999), the first stage in developing a thematic network is coding the texts. Codes were highlighted by researcher and made of meaningful and manageable word segments in interviews. A coding framework was devised by identifying recurrent issues in the interviews. Initial code development was captured by the researcher after reviewing the interviews line-by-line, wrote notes on the texts that had been analysed, and marked the potential patterns. Grouping the related codes and extracted the common and important themes from the coded text. Identified themes that required refined and interpretative as basic themes. Afterward, created similar, coherent clusters to rearrange them into organizing themes: (1) General health, (2) Mobility, (3) Environment, (4) Healthcare system, (5) Social life, (6) Self-awareness, (7) Primary caretaker. Lastly, deduced the global themes by summarizing core issues that underneath organizing themes, and placed related organizing themes under 2 global themes: (1) Quality of life, (2) Mental health. Each global theme developed a thematic network, all the interviews data supported and reflected the basic, organizing and global themes, figures 1 and 2 illustrate the process of building thematic networks.

Figure 1: Structure of quality of life in thematic networks.

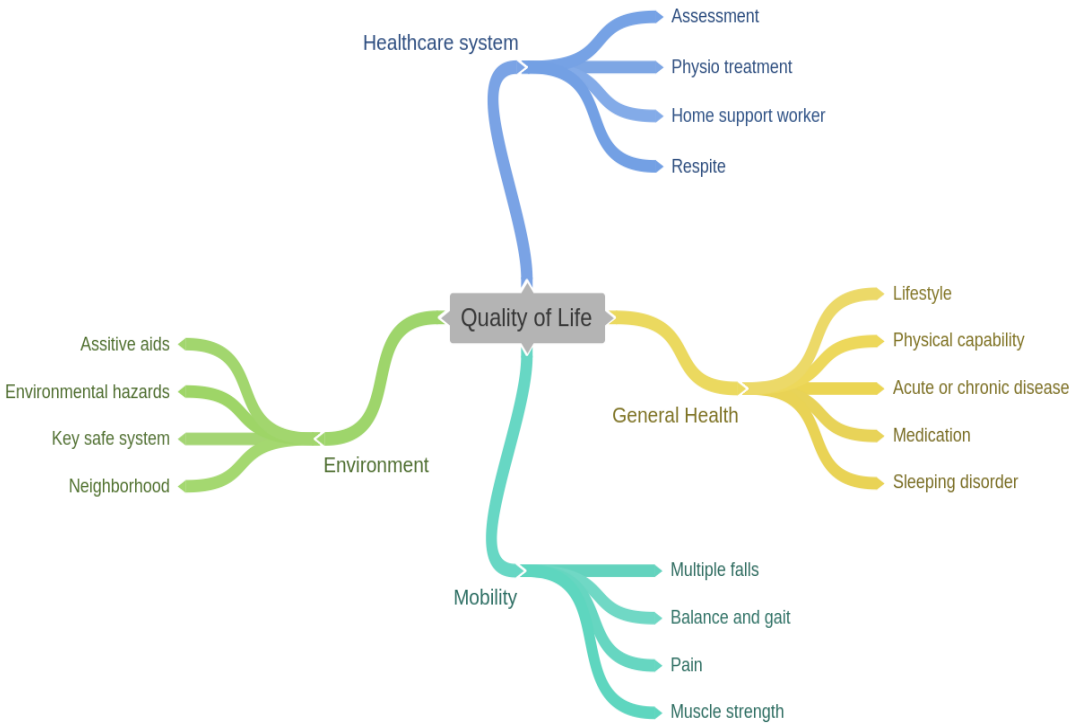
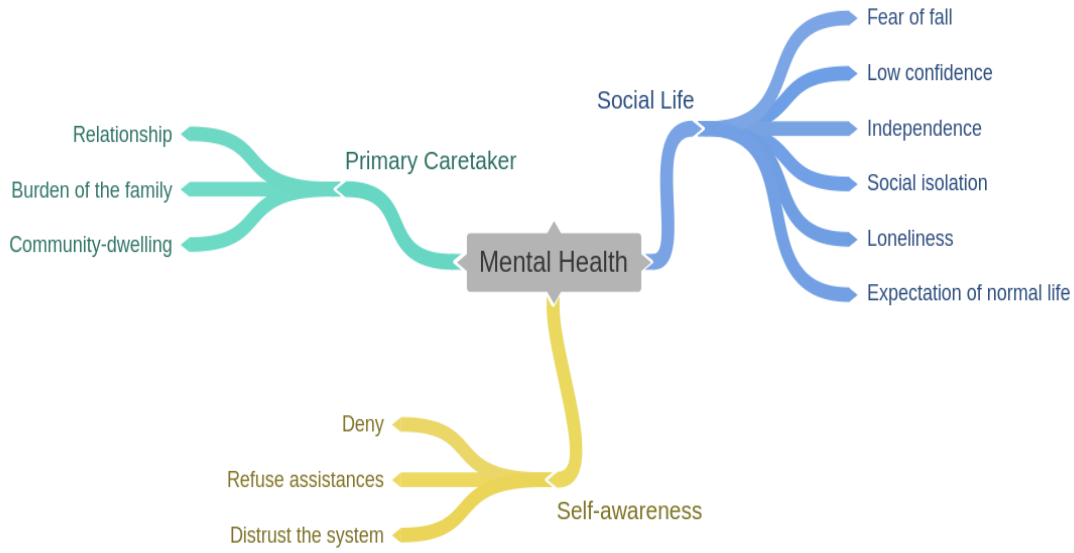


Figure 2: Structure of mental health in thematic networks.



4. Results

Participants were aged between 83 and 89 years and consisted 4 women and 2 men, 3 participants live alone, 2 male participants live with their spouse, 1 participant lives in the shelter housing. All of them are regular users in the day care service and had more than one fall in the past year. Multiple basic themes support each of organizing theme, findings are presented below discussing quality of life and mental health in turn. Pseudonyms have been used throughout.

4.1 Quality of Life

Quality of life as one of the global theme, it supported by four organizing themes, including older adults' general health, mobility, living and the healthcare system that they received (see figure 1.). Each of these will be discussed in the following sections.

4.1.1 General Health

Participants described their self-reported health condition. Some participants could not recall the full information of medical history and medication, the staff member present would provide the further detail for the researcher. Participants all stated that their daily life has changed after the fall. Participant 8 talked about how he tried to maintain his health before he fell, however, he felt incapable to exercise after the fall.

"I used to swim a lot, I used to play water polo, so that's in the bye and bye, with the health club, I used to go in, get a wash and steam shampoo, and have a swim, just keep myself

generally fit, there are sauna and the steam room. But they have gym too, if you are fit enough to do, I feel like I can't do exercises now." (Participant 8, Male, 86)

Lifestyle

Lifestyle had major impacts on participants' general health condition, it indirectly increased their possibility on falls. Participants who had health conditions (e.g. chest infection, chronic obstructive pulmonary disease) due to problematic life style (e.g. smoking) stated that they felt short of breath even when they walked short distance, it influenced their balance and gait which could induce a fall.

"I was short of breath, and that's what it turned into… nothing else, I mean I did smoke when I was younger. When I was in my teen, but I had no bother then, I need to start smoking again." (Participant 4, Female, 89)

"Sometimes I soil my undergarments, and that's got to be clean up. And very little control over it, if I need for the toilet, I got to… upstairs, very quickly." (Participant 8, Male, 86)

Physical Capability

Lack of physical capability was mentioned by six participants, they talked about some basic tasks, such as, house chores, shopping, cook, using toilet, most common reason they failed is due to lack of energy. During the interview, seven out of eight participants expressed the longing to do more but felt drained and listless to do so.

"I said no don't bother, if you stand, it's an easy thing to do if you can understand it [XBOX], but I have trouble with my balance and sort of things. I don't know if I can able to do that, but I can't do it you know. Wee simple things like that" (Participant 1, Female, 89)

"More things I could do, I have no strength and energy to do but I like to do. I have no strength left in me, I'll admit" (Participant 1, Female, 89)

"Well I can't hoover, but I can dust, I can make my bed up, I can do a lot wee things you know, but other things I can't get any of my housework, and it doesn't matter what my daughter does for me, it's not right. After being 25 years immobile, it's really hard, not be able to do it yourself." (Participant 6, Female, 83)

Two participants mentioned that they felt tired after walking a short distance, or at the end of day. Participant 3 cited that there were only 3 steps in the house. He could climb up the stairs with walking stick during the day time, but he was usually too tired at the end of the day, therefore he needed a machine to help him down the stairs.

"you haven't got the energy, you want to do it but you haven't got the energy to do it. That just it" (Participant 2, Female, 85)

"when I walk from the living room, through to the kitchenette, I mean there are not so much of space between them, soon as I get in the kitchenette, I had to sit down, before I start to do anything" (Participant 6, Female, 83)

Acute or Chronic Diseases

Almost all participants have different acute or chronic diseases, which impacted them in varying degrees. Some of the disease such as asthma weaken their energy, hearing impairment damaged the balance. Other disease, for instance diabetes, required participants to perform insulin injection to themselves, it could increase the risk of falls.

> *"But I was also attending the falls clinic, and she said it's a ball… I think it was a sand in my ear." (Participant 2, Female, 85)*

> *"I just got my balance and everything other than that you know what I mean… And I can't stand stuff between my ears, get my ears syringed, I mean the operation." (Participant 1, Female, 89)*

> *"I used to do it [insulin injection] myself, but it was once I come out the hospital from the cancer again and because I fell." (Participant 2, Female, 85)*

Medication

What comes with diseases are medication, all of the participants had multiple medical conditions and it resulted in multiple medications. All the participants were on at least one "fall-risk-increasing drugs", the definition of fall-risk-increasing drugs is medication that associated with impaired function in older adults which could lead to an increased risk of falls (Hilmer and Gnjidic, 2009). Three participants are using sleeping tablets, and five of participants are taking cardiovascular medicine. They

complained various side-effects induced by medication, sleeping tablet caused dizziness and cardiovascular pill increased the frequency of using toilet.

"I know the one of white tablet, I'm scare to run back and forth to the toilet." (Participant 1, Female, 89)

"I fell last year, in the house, because they blame some kind of tablet I was on, because I stoated to the… I got wee computer desk in the corner, I went to the bed, hit off the computer desk, hit off the bedside table, and then on the bed, and they blame the blood pressure tablet, they took me off most of them" (Participant 4, Female, 89)

"There were one day he gave me… was that a little blue pill for my heart, and it gives me terrible diarrhoea." (Participant 2, Female, 85)

Sleeping Disorder

Three of the participants had sleeping disorder. Sleeping disorder brought a drastic change in participant 4's life, she fell asleep during afternoon, she fell on the way to answer the phone, she lost an eye from this falling accident. Two participants addressed that after taking the sleeping medicines, they felt dizzy when they tried to get up from bed and use the toilet at night. It highly increased the chance for participants to fall at night.

"That just hitting it off the stair. That's how I lost my eye. I must fell asleep on the couch, and I woke up and the phone ringing, and I fell over my walking stick, I hit the handle in that door went into my eye. That's the only problem I've got, see if I had got a good sleep at night, that would be it, that problem shouldn't end like that, I can still get about, do things I know I can do." (Participant 4, Female, 89)

4.1.2 Mobility

All participants expressed the reduction in mobility after the fall were serious enough to result in day to day life changes. Throughout the interview, all the participants revealed they are not mobile as they were, and shared their decline in the ability to carry out daily and social activities, such as, housework, social interactions and sanitation.

Multiple Falls

All six participants stated they had at least more than one fall in the past one year. Five of them had three or more falls during the previous year. Multiple falls were experienced by every participant and resulted them more serious injuries.

"I've had lots [falls]… I couldn't tell you. Because I've had loads" (Participant 1, Female, 89)

"…but not now I fall so often" (Participant 6, Female, 83)

"Sometime I could get two or three [falls] in a row and then it could be months between it." (Participant 2, Female, 85)

Balance and Gait

Balance and gait are fundamental elements for older adults to walk properly (Rabia Mahmood, 2018), and it was mentioned repeatedly by all participants. Five participants said they are currently having problems with balance, and they learned to move more carefully. All the participants use different mobility aids to maintain balance, three of them use tri-walker, others use zimmer, walking stick and wheelchair, which influenced their perceptions around falling. The quote of participant 2 showed that balance problem had affected her daily and social activities.

"I was fine. I was out playing bowls and what not. But now I haven't got the balance to stand." (Participant 2, Female, 85)

The other two quotes indicated that poor balance could result in falling, and participants were aware of the associations between balance and falls, hence they started to have fear of falls.

"just my walking and balance. And I'm apprehensive now, I feel I gonna fall all the time now, you know, if I stumble on my feet." (Participant 8, Male, 86)

"Definitely, I'm afraid of any fall, because my balance is terrible, and that just accelerated recently." (Participant 1, Female, 89)

Pain

There was one unexpected finding relating to mobility, pain. Five out of six participants talked about how pain reduced their activities or produced negative impacts on daily functioning. The reason caused participant's pain are various, such as, illness, surgery, however, five participants said the pain was result of previous falls. The pain limited participants' movement and activities which increase the risk of falls.

"because the arthritis leg, I don't know, that cause me so much pain." (Participant 6, Female 83)

"it's painful and you can't… to lift it [arms] up" (Participant 3, Male, 83)

Muscle Strength

Two participants complained about they have weakness of extremities, especially lower limbs. Four participants explained the weakness of muscle strength with aging, and two participants recognized the issue due to their illness, Parkinson and arthritis. All the participants claimed that reduced of muscle strength has affected their walk and balance, they feel less mobile than they used to be. Lack of muscle strength increased participants' fall risk, and made them feel less confident to do any activities which brought negative psychological changes.

"I had a weakness leg, definitely weakness in my left side." (Participant 1, Female, 89)

"as time gone on it's getting worst, I know my legs are getting worst." (Participant 2, Female, 85)

"my legs don't want me to play golf anymore." (Participant 3, Male, 83)

4.1.3 Environment

In this theme, the participants discussed about their home environment and living conditions, and the modifications they made after the fall. Three participants considered their living environment as safe enough, and three participants have made efforts to diminish the environment hazards. In addition, participants also shared their experiences about how they move around the house, and what difficulties they have encountered.

Assistive Aids

The researcher observed every participants' walking aids while they entered the room, also their balance and gait when they were using the aids. Four participants are currently using one walking aids, one participant use a stick when he was home and tri-walker outdoor, the other one participant use zimmer in the house and wheelchair outdoor.

"I couldn't use the zimmer, see the zimmer, I was unsteady on the zimmer, I felt that [tri-walker] was more secure for me, than the likes of that. The zimmer is a big square thing I didn't like that at all." (Participant 1, Female, 89)

The most common *Assistive Aids* the participants reported using were fall pendant (alert system) and stair lift, some also mentioned other aids such as, handrail and bed aid.

"I need my bed aid so I can hold on to this to get up. Cause that's what can help me out, the bed aid is a great thing, that bed aid you know. They have me doing it in the hospital for practicing and physio therapy it was good and I'm not going to need this at home. But I was glad of it, it's to help me up too, it was great you know." (Participant 1, Female, 89)

There are two type of fall pendant, one is made as a necklace for older adults to activate it when they fall, the other one is a bracelet that can automatically activate the alarm when it detects a fall. The second is designed for wearers who might be unconsciousness or loss of mobility after they fall. Most noteworthy is that participants often reported taking off the necklace pendant and forgetting to put it on again; whereas bracelet pendant prone to stay on them.

"If I can't get up I'll use this… the alert button… that's what this call. around my neck, it's a white and black thing, because it's a falls alarm. I don't have it on today but it's lying in the table to put on when I go in. I don't like it hanging down." (Participant 2, Female, 85)

Environmental Hazards

Environmental hazards is a vital element in falling prevention project, however, only two participants thought they need to improve their housing environment, one out of two participant changed the environment in the household. Two participants have thought about adding some environmental aids in the house but never spoke to any caretakers or family, because they did not feel it is necessary to spend time or money to change the housing environment. Participants did notice some inconvenience in the house but they are used to it. They never used the aids therefore they thought it does not matter if they have it or not, until they witnessed or heard the benefit from the peers.

> *"I was with my friend when she was going home, and she has a rail right down her path on either side, and I thought that would be good for me, I can hold onto that going out." (Participant 2, Female, 85)*

> *"I hadn't had a shower for ages because one of the carers let me fall in it, and I've been terrified to take one. But I saw in a bath south of... some shop bath in it and had a carpet and it sort of woollen and it said you won't slip in it. But my daughter tried it she said that does slip, so I've been frightened to try it but I keep saying... I'm going to ask some if they'll try me in it again." (Participant 2, Female, 85)*

Some participants experienced difficulties in moving around the house after they lost their mobility due to a fall. Unable to function in their own house made participants felt frustrated, and began to worry about they might fall again in the house. All the

participants who received housing modification agreed that they felt much safer in the house now.

"Well… unfortunately, our toilet is up stair and I've got 13 steps up and 13 coming down, I can get up with my stick but it's not exactly, but you know… first class, I can do it difficult, and I've got rail, I've got a shower, I got a shower in my home… washing… I'll take the bath out." (Participant 8, Male, 86)

"if I'm buying a carpet, they pick a carpet but they don't pick the carpet I want, they pick one that's gonna be safer walking, and then get the floor done the way with the carpet in the hall, and put the floor down, and then the kitchen there lift the carpet so I'm getting flooring down." (Participant 4, Female, 89)

Key Safe System

The key safe system is a key pad outside the door, it allows frontline healthcare practitioners (usually paramedic, home support worker) to enter the house if participants fell and activated the pendant alert, all the password will be registered in the system for only healthcare practitioners accessed. Key safe system presented itself as a theme because this was been mentioned by every participant. Especially when the researcher asked the question about "safety". Most participants felt safe when they know healthcare practitioners have key number to enter their house if they fall and cannot get themselves up. Key safe system was most in demand for participants who live alone, they considered it is the crucial factor makes them feel safe in the house.

"There is key pad in the door, no one can get in unless they have the number. You feel safe enough in it you know." (Participant 1, Female, 89)

"I've got key box outside, if anything happened, they can get in through it." (Participant 6, Female, 83)

Neighborhood

Neighbourhood refers to housing condition, residential area. Two participants live alone with stair in the house, one participant lives with his wife but has stair in the front door, participant 6 lives in a shelter housing with warden. Participant 6 stated that having a good neighbourhood to look out for each other is a key reason that made her came so far. Participant 2 revealed that she always wanted to try electric wheelchair but the traffic in her area is too busy to allow her use it.

"Neighbour next door got key to get in, but he always has key, he comes in the morning with my paper and my rolls." (Participant 6, Female, 83)

4.1.4 Healthcare System

Assessment

Assessment is a significant theme with regard to fall prevention. Every service users received Level 1 falls screening to identify if they are at high risk of falling, this screening contains users' recently fall, walking balance, dizziness/light-headedness experiences, fear of falls. Service users who been identified as a high risk of faller

would undergo level 2 multifactorial falls assessment. Participant 2 were under the process of walking aid assessment, she was using a tri-walker, however, the staff would like her to have the access for more distance. Therefore, they referred participant 2 to local GP for a wheelchair that allows her daughter takes her to farer places.

"I go to… I used go to the falls clinic over there. You can get physio over there as well." (Participant 2, Female, 85)

"That's what I think I need, I got to be assessed. But the only thing I feel is I can get my legs working and I've seen some of the inmates here, with the tripod, that seems to be a good… helped them, when I walk with my stick, I can walk with it, but my wife wants me use two sticks, but I can't come down stair with two sticks, or I'll take a header down the stairs." (Participant 8, Male, 86)

Physio Treatment

The physio treatment can be refereed by GP or service. However, the first stage of training is six weeks, afterward required further assessment. Three participants had received physio training after the fall, and two of them thought its helpful. Physio treatment acts as a critical factor in fall prevention, it provides balance, gait and muscle strength training which are beneficial for fallers (Calhoun *et al.*, 2011).

"I think it's about six sessions [physio training] you get, six weeks" (Participant 2, Female, 85)

"They have me doing it in the hospital for practicing and physio therapy it was good and I'm not going to need this [tri-walker] at home. But I was glad of it, it's to help me up too, it was great you know." (Participant 1, Female, 89)

"Stretching exercises, I got went to the first physio." (Participant 8, Male, 86)

Home Support Worker

Home support worker (careers) is considered to be the most frequently mentioned theme. All the six participants have careers that come to their house three or four times a day. Home support worker provides flexible home help for older adults, and they are not all related to fall. The basic work of careers includes meal preparation, personal hygiene tasks and other special needs that participants required. For example, participant 3 fell a few times because he tried to use the toilet through the night without waking his wife up. After few falls, home support worker started over night service, they went to participant's house at 4 am and help him use the toilet.

"Well I get the careers in… sorry, they get my up in the morning and help me to get dress because this limit [my shoulder]." (Participant 1, Female, 89)

"they come in at night time for my dinner and then they come in about two hours after to get me undress to go to bed but I don't go to bed at 7 o'clock." (Participant 2, Female, 85)

Respite

Respite is a facility that can temporary look after participants, so the primary career (usually a spouse or relative) can have a break. This service offers a relief on both side of participants and their careers. Although only one, participant 8 had been to respite, he claimed that the times he spent there was like holiday, also he was glad that his wife can have some time of her own.

> *"It was for my wife, she got a break. She went to Cyprus, I think she's thinking ahead to some places. she went to Cyprus recently, she had a week in Cyprus in the sun and I had a week in respite." (Participant 8, Male, 86)*

4.2 Mental Health

Mental health of participants is hard to acquire through the interview. However, some participants presented different mental status through their expression and tone. The researcher discovered that participants often felt deprived from their original life style, it resulted in negative emotions, such as, anxiety, depression, and frustration. These negative emotions induced many different dimensions impacts on participants' mental health. Four organizing themes of mental health include social life, self-awareness, primary caretaker. (See figure 2.)

4.2.1 Social Life

Social activities characterize participants' way of living, most participants claimed that they feel alright to stay at home, however, all participants agreed they would have more

social activities if they didn't fall. The fall brought many changes in participants' life, some of changes are minor but influential, others are major and caused loneliness. Three of six participants expressed their expectation of wanting to have the old life back, one participant talked about the only social activity she has is coming to day care service.

"No, I could not go [visit my friend]. I don't even go down and visit them so they stop coming up to me." (Participant 2, Female, 85)

"I lost contact… I lost touch with them all. Want maybe to go to bowling club's bingo or something like that, we wouldn't go now." (Participant 2, Female, 85)

"I was more active then, I used to go and visit her through the week, I go there for my lunch. I don't go out much, I try to do a wee bit in the garden, just lifting the weeds up, can't keep up with them." (Participant 4, Female, 89)

Fear of Fall

Fear of fall caused multiple changes, four participants expressed that it has keeping them stay inside the house, or wouldn't go out without a company. When the researcher asked participants how did they try to prevent the next fall. All the six participants claimed that they start to be more apprehensive and slow when they move around the house. One participant mentioned she felt nervous and anxious when she needs to go out. Fear of fall has narrowed participants' daily life, followed by loneliness and social

isolation. Additionally, less activities participants had, could result more physical deterioration.

"Definitely it [my life] has changed. I'm frightened to go out now. I'm afraid to go for a cup of coffee. I don't go unless my daughter with me. And this is probably fears a lot of it but the thing is you never know when you're going down." (Participant 2, Female, 85)

"I have bother getting out the back door I don't know why, probably just nerves. Cause I was frightened to walk round the house come on the front door but eventually I made in I go in." (Participant 2, Female, 85)

"I know that… I just try to watch, I know… I try to stop them on, and I wouldn't turn around fast, I wouldn't do that, I know when I turn around I should do it slow, I'm not kind to rushing about you know." (Participant 1, Female, 89)

Low Confidence

Once participants' mobility declined, they gradually lost their confidence on daily tasks. At least four participants suggested falls has made them feel they are incompetent on doing anything. Participant 8 talked about having his wife to clean him up after toilet, made him feel embarrassed and low self-esteem.

"You lose your confidence. Cause it used to be able to, when I had it when I did fall outside after a couple of days it's alright, but not now I fall so often. That last one was a really bad fall and I thought I had broken my hip." (Participant 2, Female, 85)

"I got to wear pads and if I'm going to toilet you got to take down pads, it's annoying, it's the only way to do it. I fell off the bed once, and I was lying on the floor, and my wife couldn't lift me, and I couldn't get taken back into bed again" (Participant 8, Male, 86)

Independence

Participants explained they sometimes wish to be more independent, they want to be empowered to accomplish more things in day to day life. Almost all participants addressed that being independent is vital issue for them, including those who have fear of fall. At least two participants tried to walk without sticks knowing they might fall. Especially for those participants who lost their confident, they seemed to feel if it is possible to be in control of themselves, they would be able to regain their life and confident back.

"[Being independent] That's, that is the best thing. I just… nothing to shut me up now and again." (Participant 4, Female, 89)

"I thought oh I'm getting there, then I got caught my daughter comes in "where is your stick". Here she starts again, "do you want to go back to hospital, is that enough for you." No. "that what the stick is for" I thought to myself I know, I'm only going from there to there,

it's just from there to there, you can just slip and fall. I know I wouldn't say it's right, but I try myself, I think I'm that independent you know." (Participant 1, Female, 89)

"it doesn't matter what my daughter does for me, it's not right. After being 25 years immobile, it's really hard, not be able to do it yourself." (Participant 6, Female, 83)

Social Isolation

Four out of five participants mentioned they stayed at home more after the fall. The researcher noticed two main reasons for participants which made them less social. First is they considered home is a safer place for them.

"Most of the day I just sit and doing nothing anyway. I stop getting out, I don't bother getting out anywhere, I met a couple of women in here, do a wee bit show, and that's our day. As long as you get the money to spend, that's it." (Participant 4, Female, 89)

The other is they required assistance when they are out, which drastically reduced their willingness to go out, thus less social activities for participants and it's more likely to lead them to social isolation.

Loneliness

This negative emotion is brought by two participants, despite the fact other participants did not use the phrase "lonely", they would describe their relationship and interaction with family, friends and neighbours declined after the fall. Three participants live alone,

they spent most of their time at home, waiting for family or careers to come. After the fall, some participants were not mobile enough to leave the house without company. The accumulation of physical impairment, frustration and desperation contribute to more loneliness. One of the participant mentioned that coming to day services is her only social, and every participant seemed to cherish the opportunities to come in to day services, some of them even tried to come more days in a week.

"This is been a God send cause it's so lonely in the house, you know." (Participant 2, Female, 85)

"Four times a day [carers come in], not today because they come to the centre twice a week you know. That's the best thing ever coming here, I enjoyed it. I enjoyed their company." (Participant 1, Female, 89)

Expectation of Normal Life

After their falls, participants experienced a series of changes in their social and daily life activities. Three participants expressed their expectation for going back to their normal life again. They would talk about their previous life routine in detail, the tone and emotion that revealed during the interview, showed that participants longed for their way of living before they fell.

"No… I like to think I could go out more… Just for even shopping, I don't go out now, my daughter does it, I don't get out go around to shop. If there's anything on, in the church or that, I can't go now." (Participant 2, Female, 85)

4.2.2 Self-Awareness

Some participants had a lack of self-awareness and often denied their risk of falling or even denied they had a fall. Sometimes participants would refuse they needed help, or to use any assistive aids. There are two participants showed doubt and distrust in health care system, for example, doctor in accident and emergency room, physical therapist, social worker. Participants who had low self-awareness seemed either stop any daily activities or tried to do everything on their own, which are quite extreme cases.

Deny

Two participants denied they had a fall. They were happy to talk about what happened in the accident, however, they did not perceive it as "fall" rather than an accidentally mistake. Some participants would not recognize themselves as high-risk fallers, it did not reflect to them to take action preventing next falls. There are certain descriptions in their interview that contradicted each other.

"Nothing really happened, I just the same as I always have been. You canny do the same work about the house, you know, but otherwise I can get about, and that just the same, and you just feel the same, you know what I mean. Sometimes you maybe sit, and just come over

you, you just can't do anything, you know. But otherwise I'm alright." (Participant 4, Female, 89)

Refuse Assistances

Participants often tried to prove they can still live the same life, or they did not acknowledge they might have been exposed to a high-risk environment. Three participants discussed their opinion on why they declined assistances and refused to use aids. Participant 1 understood the function of alert pendant and she elaborated during the interview that she did not press the button when she fell, she waited on the floor until her daughter came in.

"Oh she comes in after about I was alright this time. I was up and about…" (Participant 1, Female, 89)

Participant 4 stated that she felt confident enough to do things on her own after the fall, she did not want others to recognized her as an older person who needs help. Compared to other participants, she is more mobile and functional in living and her social life. It is possible that her positive attitude and confidence prompted her to do more activities so that she could keep her mobility.

"I just forget about them, you know, I don't expect them to happen again. I'm quite confident come about, and the girls are here with the call machine, ask if you need anything, they will just say, they'll help you. I'm not afraid of anything." (Participant 4, Female, 89)

This is a case that opposite to participant 4, he had been through some depression issue after fall, the way he chose to cope his post-fall life is to give up doing anything.

"I realize I can't do it anymore, so you got to give in." (Participant 3, Male, 83)

Distrust the System

Three participants had bad experience with the health care system, all of them claimed that they were not willing to go back to hospital again. Additionally, participants who distrust the medical professional all had more than three falls in past one year.

"I won't go to the hospital, and I won't go to see the doctor. I have no faith in them, the doctors." (Participant 6, Female, 83)

4.2.3 Primary Caretaker

Primary caretaker can vary from participants themselves to family members or home support careers, the relationship between each other can bring positive or negative influences to participants. This is because primary caretakers spent most of their time with participants, some participants passed their emotions onto caretakers. Conversely, when caretakers underwent some negative emotions, such as, exhaustion, drained, restlessness, it can cause some influences toward participants.

Relationship

Most participants are grateful for their caretakers; however, they would sometimes talk about the expectation they had on them, participants usually hoped careers can take them out more, or allow them to live more independently. The relationship between caretakers and participants are not necessarily just positive or negative.

"I get on with everyone, especially my son. And my daughter just retired, she just had an operation herself and that's why took so much out of her. She stayed that night when we come home from Hairmyres and the carer comes in the morning to get me dressed and wakened her instead of me." (Participant 2, Female, 85)

"She was great and have done everything for me. And the house was great, but I just feel a bit more independent to do my own thing. There is always someone down visiting me, even yesterday I had a visitor, it's great that. A lot of folk won't get anybody at all." (Participant 1, Female, 89)

"If my wife is here, she can answer that question. She keeps telling me not to move at all, and I get frustrated." (Participant 3, Male, 83)

Burden of the Family

All the male participants shared their fears of being a burden of the family. Participant 8 who just started to attend day care service for few months. During the interview, he

revealed the reluctance to let his wife do all the work in the house. Participant 3 had few falls on his way to toilet because he did not want to disturb his wife at night.

"I feel like I'm a burden on her, she never stopped, when she's up in the morning, and put me in the shower, and dry me off, laid out my clothes, and she do all the house works and got messages things like that." (Participant 8, Male, 86)

"I try not to get her involved as much as I can. Because… she is very very caring my wife, she more or less doesn't want me to do anything without her, I would like to do things to help her out but I can't. Just let her sleep." (Participant 3, Male, 83)

Community-dwelling

Out of four participants, three of them live alone, and one of them live in sheltered housing. Two participants' family live nearby, but one participant's daughter lives in the city, an hour's drive away. Despite participants' claims that they had chosen to live alone, and careers come in every day, being alone in the house had brought them some inconveniences and increased the risk of falling. Being alone in the house could also cause participants loneliness and social isolation, since their interaction with society changed from active to passive after they lost mobility.

"I can sit out the front but at the back there's a bit in the shade, but it gets too warm at the front. And I try it other day in the back I thought, I am stuck here I'm not gonna get back in." (Participant 2, Female, 85)

"I couldn't sleep and the pain was terrific. So I phoned a doctor in the Sunday Morning I got no where. So I phoned my daughter just she stays in Edinburgh South Queensferry. And she would come through. So she was using the emergency number, the doctor came at 5 o'clock at night." (Participant 2, Female, 85)

"I don't do any cooking, don't make dinners, my son comes around and makes them, my daughter makes them and brings around." (Participant 4, Female, 89)

These results can be summed up in two themes (1) Quality of life, (2) Mental health, they each illustrated various consequences in older adults' life after the fall. In quality of life, the results suggested that participants' general health condition prior the fall is associated with their health status after fall. Mobility indicated the functional impairment participants had after a fall, and the changes it came after it (e.g. multiple falls, pain, fear of falls). Environment introduced several assistive aids that participants were currently using and their attitude toward those aids. Healthcare system demonstrated different services among community, and strategy in falls prevention. In terms of mental health, results reinforced the most vigorous changes, social life. It changed both physical and psychological characteristic in participants' life. Self-awareness explained participants' used denial as another way of coping post-fall life. Primary caretaker connected bonding between careers and participants, as well as the dependency on community-dwelling participants. The results elaborated the variety of consequences after fall, and the conclusion would be discussed in the next chapter.

5. Discussion

This study aimed to identify the changes and consequences that came after fall in older adults' daily life. By interviewing participants, the researcher discovered there were three main changes in their life: (1) Physical, (2) Psychological, (3) Social. Applied thematic analysis to process the data, the researcher concluded two issues (quality of life and metal health) which addressed the research questions. The aims of the study, its questions and results are discussed as below.

Consequences of Falls

The results of the research demonstrate that there are two main consequences affect older adults' daily life. The first change that participants notice is the deterioration of functional mobility. The injuries participants had after the fall are various. The two major injuries were participant 4 who lost an eye, and participant 6 who suffer by an open fracture. Other injuries such as, closed fracture, bruises and trauma. All the injuries above affected participants' life, because the injuries caused pain and therefore restricted their mobility, followed by limitations and inconveniences in their daily life activities. Additionally, mobility problem experiences in older adults are associated with lower extremity function (GURALNIK *et al.*, 1994), thus any injuries in lower extremity affect participants' walking and balance, which makes them lose the mobility to walk freely around the house. Many participants would complain how hard it is to just get up from the bed, make tea or use the toilet. They gradually began to rely on their caretakers, it drastically reduced participants' activities and led them to lose their self-efficacy. Despite some participants managed to keep moving as much as possible,

the research shows all six participants developed different levels of deterioration. These findings shared some similarities with studies (Brown, 1999; Scheffer *et al.*, 2008; Gardiner *et al.*, 2017).

The second change that participants realized later after immobility is the social isolation, which is caused by restricted activities and lost of confidence. Participant 8 who just had a fall in past six months, and went through the dramatic change in his life, he revealed the deepest loneliness and frustration during the interview. Many participants expressed the consequences they underwent after the fall, including lost contact with outside world, fear of next fall, lack of self-confidence on daily activities. Some participants were convinced that it would be safer if they do nothing, others insisted to try live life the way they used to be. However, without improving housing environment and fall prevention, it often resulted in another fall.

Previous studies have suggested older adults who experience functional decline, restricted activities, lost of confidence in mobility and activities, social isolation will exacerbate the time frame of long-term care facility replacement (Tinetti, Speechley and Ginter, 1988; Shuman *et al.*, 2016) or at the high risk of recurrent falls (Brown, 1999). Participants who has been in social isolation presented anxiety, depression and lose their interests in everything, it generates a substantial disruption on their mental health.

Physical and Psychological Changes

Participants who has been through intense and sudden changes after the fall face the same problem in declines physically and psychologically, which they often found it

challenging to process and perceive. The researcher discovered that how participants coped with the post-fall life would lead to different psychological effects. Because almost all the psychological changes (fear of falls, low confidence and self-esteem) came after the lost of mobility. Physical and psychological changes are highly related, therefore, “Mobility” and “Independence” became the most important issue for participants. A narrative synthesis of qualitative research in older people perceived risk of fall had a similar finding.

“Maintaining independence is a crucial motivator for individuals’ decisions in how they approach falls. Either an individual does not wish to be considered without independence or they are striving for it. It is their attitude towards their independence that defines their approach to the risk of falling. The concept of mobility is a common denominator when individuals were asked to define people who fall.” (Gardiner et al., 2017, p.7)

Participants in the research were all aware of an accident happened and caused them some injuries, whether they considered it is fall or not, after the falls, participants developed a mechanism that helped them reach a balance between falling again and mobility. The most frequently mentioned strategy is carefulness. When being asked about what they did to prevent the next fall, participants’ first answers were almost the same, they started to move slower and more careful in the house. Participants acknowledged that they need help and assistances, they began to pay attention to surrounding, put walking aids by their side all the time, unintentionally reduced outdoor activities. Older adults recognize that being extra apprehensive when they are moving is a safer way to maintain mobility, even if it will decrease their living space (Berlin

Hallrup *et al.*, 2009). Fear of fall might be the reason for participants to implement the strategy, however, it also diminishes the social interaction and lead to social isolation. Participants were torn between fear of fall and independence. Therefore, some of them insisted their life has not changed and emphasized they could still do the same thing as before, others accepted the fall and gradually stop doing anything in daily life. During the interview, when the researcher asked participants what is their typical day after the fall, most of the answer are nothing, sit in the house or watch television. Despite participants perceived physical and psychological changes with different attitude, it still contributed to negative effects on them. A study shows that fear of fall prompt older adults to reduce physical activity, and it forms a vicious cycle whereas when older adults prolong the time of inactivity, they lose the tolerance of mobility, it leads to social isolation, depression and greater inactivity (Rabia Mahmood, 2018).

Intervention and Support

Participants in this study all had more than one diagnosed condition before they fell, some conditions caused symptom such as light headedness, dizziness or pain that may have contributed to the fall. The researcher discovered that participants might have been unwell for some time before they fell, some participants did not report it earlier because they adapted and took it lightly. It is crucial for older adults and health professionals to identify the symptoms early to avoid the fall.

Lifestyle is a major factor that may influence participants' health condition. Problematic behaviour in life can be a risk factor of falls (e.g. smoking, poor diet, lack of physical activity), because personal characteristic is associated with some health-

related conditions (Scheffer *et al.*, 2008). A study showed that some illness for example, diabetes, ophthalmic disease, depressive symptoms, urinary incontinence, few hobbies, taking only necessary physical activity are positively related with falls (Luukinen *et al.*, 1996). Improving older adults' general health condition could elevate their physical capability, lower the possibility of acute or chronic disease, and reduce the risk of falls. Another issue that followed by general health is "fall-risk-increasing drugs", all participants are taking more than three different medication, the most common medications are cardiovascular, diabetes and sleeping drugs. Participants often had a vague impression about what kinds of tablet they are taking, without understanding the side effect which may increase their risk of fall. One female participant mentioned that she was on a medication which made her had diarrhoea severely, but later she noticed that the instruction from the pill box clearly stated the side effects. Some research suggested full medication review to stop unnecessary medications, switch to other safer alternatives (Durbin *et al.*, 2016; Dellinger, 2017). Moreover, front-line health care practitioners should inform older people regarding any side effect could cause them to fall.

Two participants who claimed that they do not have much social life before they fell, it became worse after they lost their mobility, sometimes they would sit in the house for the whole day. Social interactions are vital because it not only stimulate peer support, but also allow health professionals to encourage older adults to involve with exercise training to improve mobility (Gardiner *et al.*, 2017). In this research, social life was important for participants, because having connection with people made them feel less lonely; being able to engage some activities presented them more independence.

Encouraging social engagement may be one way to support older people to improve their lifestyle risk factor, adequate social interaction allows participants to perform more functional mobility and increased their confidence (Walker *et al*., 2011).

Falls Prevention

An effective fall prevention programme could decrease risk of falls among older adults (Tinetti, 2003; Calhoun *et al.*, 2011; Dellinger, 2017). However, there are two approaches for different older adults group: (1) Lifestyle mechanism, (2) Healthcare mechanism. For older adults who never had a fall, or do not have access to healthcare professionals prior to the fall, the author suggested community education for healthy, safe and active behaviour in life. Additionally, a quick and easy preliminary fall risk screening in local GP for older adults in the community might improve their self-awareness as at-risk group, and early identify for high risk falling older adults. For older adults who had a fall and seek for professional intervention, healthcare practitioner could start with a full assessment and refer them to suitable institutions (e.g. fall clinic). Conducting a full assessment allows healthcare professionals to acquire individual's mobility status, falls risk and current falls prevention strategy. After the assessment, refer older adults to different facility for further evaluation or physio treatment. The first stage is critical because this assessment includes individual's mental health status, social life, fear of falling. A complete assessment can effectively reduce the risk of falls, because it allows healthcare professionals to understand where and how to tackle different individual's issue (Scottish Government, 2014).

Despite older adults may be approached by different pathway, the principle of falls prevention is still similar, it constitutes from three elements: (1) Mobility, (2) Environment, (3) Social function. Some participants revealed that one reason they fell was due to unsteady walking balance. It would be beneficial if participants can attend training courses to help them improve muscle strength. There are various physio sessions, however, balance and gait training is the main one. There are evidence showing that exercise training programmes can demonstrate efficacy in fall reduction among older adults (Brown, 1999). During the interview, participants emphasized the advantage of using assistive aids, some of them use different walking aid when environment changed. Many assistive aids have been mentioned in the interview, however, it seemed too late for participants to use appropriate aids after they fell. One male participant wanted to change more suitable walking aid, however, he is still waiting for referral. In terms of health care system's role, individual who already had a fall or classified as high risk of falling should expedite the process. Environmental modification is a key issue especially for those who are community-dwelling. Three out of six participants live alone, although careers come in four times a day, participants still need to spend most of their time being alone in the house. Consequently, the primary condition for environmental modification should be reduced all the potential hazards in the house, and insert supporting aids which can improve their mobility and make the living space more secure. For example, stair lift, bed aid, enough lighting. For participants, most common place that fall happened was in bathroom, because using toilet or taking shower involved many wide range movement. Therefore, create a safe bathroom environment is crucial, install raised toilet seat, handrails next to toilet,

shower and bath, cover the floor with non-slip mat can decrease the risk for older adults to fall in the bathroom.

Participants shared some significant psychological changes in the interview, this draws the attention of the researcher on older adults' mental health status after they experienced physical changes. Assisting older adults to maintain social activities and social network could help them adapt to post-fall life changes. One of female participant cited that coming to day service is her only social activity. Avoiding social isolation and promote mental health wellbeing should not be left out in falls prevention.

6. Strengths and Limitations

The qualitative approach allowed the research to immerse in the descriptions, opinions and feelings in the interviews, and yielded the rich insights from participants. The thematic method provided a flexibility for research to modify the interview guide during the collection process, it provides a gradual growth of understanding in the issue. The limitation for the study would be the translation, it is difficult for the research to conduct interviews in second language, it created barriers between parties during the interview. The biggest challenge is transcribing the audio records, all the participants were in old age with thick Scottish accent, this situation increased the difficulty and prolonged the time on transcribing.

7. Conclusion

Older adults face not only physical changes, but also psychological changes after falls. These changes are far more influential than what appears on the surface. This research discovered older adults cope and adapt immobility through assistive aids and services that healthcare system provides. The research also explored the social isolation older adults experienced, and it becomes the reason why they longed for mobility and independence back to life again. As one participant pointed out a main expectation which had been mentioned in almost every interview, that is they want to walk freely again. Therefore, improving older adults' functional ability is the first focus in future falls prevention. Secondly, preserve older adults' social activities to achieve their mental wellbeing should be another essential element in falls prevention.

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9. Appendix

9.1 Appendix 1. Information Sheet

University of Glasgow

College of Social Sciences

Participant Information Sheet

Title of Project: Explore older adults experiences of falls and recovery from falls

Name of Researcher: Yi Chang

Supervisor: Dr Victoria Palmer

You are invited to take part in a research study. I am a postgraduate student studying MSc Global Health. I am conducting a research project which explores experiences of falls and the changes to your life after the fall. This project is being conducted as part of my Master dissertation. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the information below carefully and discuss it with others if you wish. Ask me if there is anything that is unclear or if you would like additional information. Take your time to decide whether or not you wish to take part.

Thank you for reading this.

What is the purpose of the study?

The study aims to discover more about older people's experiences of a fall and how it affects their day-to-day life. I would like you to share your falling experiences and its impacts on your health, well-being, quality of life.

Why have I been chosen?

I am looking for adults aged 65 or over and who have had a fall within the last year.

Do I have to take part?

Taking part in this study is voluntary. You will have the opportunity to ask questions about the project. If you decide to take part you can stop at any time without giving a reason.

What will happen to me if I take part?

I will schedule an interview with you for about an hour at your day care centre, it will be held in a private room. If you feel uncomfortable to conduct the interview alone. We can also do the interview in the common area of day care centre where member of staffs are around. The whole interview includes three parts. First I will start with asking you the fall experience you had, how and when it happened. I will ask you to describe the injury and recovery process you been through, and discuss the possible reason of the fall. Secondly, I will like you to think about how your daily life has changed by this fall accident. What kinds of activities you've stopped doing after the fall. The last part is about your mental health and wellbeing. I will ask some questions regarding your emotion, sleeping quality, social activities and appetite.

Will my involvement in this study be confidential?

Please note that confidentiality will be maintained, unless during our conversation I hear anything which makes me worried that someone might be in danger of harm, I might have to inform relevant agencies about this.

What will happen to the results of the research study?

The interviews are being used as part of this study's data collection. It will be analyzed and the results will be written up as a Master dissertation thesis.

What are the benefits of taking part?

There are no direct benefits of taking part, I hope that the interview will be enjoyable. By understanding your falling experience and its impact to your life and social activities I hope to be able to help others like you in the future.

Who has reviewed the study?

The study has been reviewed by College Ethics Committee for ethical approval and give the permission for us to conduct the study.

Contact for Further Information

If you have any concerns regarding the conduct of this research project, you can contact the School of Social & Political Sciences Postgraduate Ethics Administrator: Jakki Walsh, email: Jakki.Walsh@glasgow.ac.uk

Or if you wish to speak to the researcher directly, you can contact Yi Chang, email:

9.2 Appendix 2. Topic Guide

Elderly falling research Interview topic guide

Preamble

Today I am going to talk to you about your experience of falling.
I will ask you about detail of the fall, any injuries you might have had and how you felt.
I would like you to think about how the fall has influenced your life and any changes to your daily and social activities after the fall.
It is ok if you don't feel any differences or changes after the fall. We can just talk about your fall experience, so that you may share your opinion on falling accident.
There are no right or wrong answers, I may encourage you to talk about some things in more detail but please don't worry if you feel like you can't think of anything to say.
If you feel uncomfortable or would like to stop the interview at any time please let me know.

Section 1: General Health
The first section is about yourself. Don't worry about it, it will just be some very easy and basic questions, like your age, general health that sort of things.
1. Do you mind if I ask your age?
2. How is your general health?
    Prompt: Have you ever been diagnosis with any health conditions?
        For example, diabetes, hypertension.
        How long have you had this illness? Is it before or after the fall?
        Do you feel like the illness has influenced your health?
3. Can you walk me through your typical day before your fall?
If your daily life does not have that much changes after fall, you can just share with me any of your routine day to day life, is that that's alright.
    Prompt: Like house chores, have tea with friends and family, hobbies, outdoor activities.
4. Are you currently using any long-term medication?
    Prompt: Is there any discomfort after using the medication?
        Do you think this symptom may have caused your fall?
4.1 If you are not taking any medication currently. Can you tell me what do you do to maintain your health?

Section 2: Falls Experience

I'm now going to ask about your fall. And if it's possible, please describe it as detail as possible.

1. Can you tell me about the fall you had in the last year?

Prompt: Can you remember when it happened?

How did it happen?

Where did you fall?

Was anyone with you at that time?

What happened right after you fall?

2. Were you injured from the fall?

3. Can you please describe the injury?

4. What type of treatment or rehabilitation did you receive?

Prompt: Where did these treatments start?

Was it with your GP or in the hospital?

Did the treatment involve medication, bandages and slings?

4.1 If you didn't receive any treatment.

Can you tell me in your opinion what is it that resulted in this fall? (Skip Q5&6)

5. How long did it take you to recover?

6. Do you think it's possible that your general health resulted in your fall?

Prompt: Why do you think it is related? / it is not related?

If it is please tell me in what way?

How did your general health affect your fall?

7. Can you tell me how your daily life changed if at all after the fall?

Prompt: Do you require additional care after the fall?

Or maybe you start to avoid certain things that may cause you to fall?

8. You described a typical day for me previously. Are there things you find more difficult or reluctant to do now?

Section 3: Physical/Environment Changes

Thanks, following on from that I'd like to ask you a bit more about any changes that you may have made since the fall. If you haven't made any changes that's OK.

1. Since your fall, do you feel you have the energy to do things that you used to do every day?

Prompt: What was your energy like before fall?

How long does this lack of energy feeling last?

How often did it happen within a week?

Do you feel the feeling of lacking energy is related to your fall?

2. Since you fall, have you made any changes to prevent you from falling again?

Prompt: What are these? Why have you made them?

2.1 If you didn't make any changes. Can you tell me why?

Prompt: Has anyone suggested you to make changes?

3. Do you think you need help?

Prompt: Did you let anyone know that you need help?

Friends/Family/Carers

3.1 Why do you think that you don't need help? (Skip Q4)

Prompt: do you feeling embarrassed about the fall?

Is it because you only got minor injury?

4. Have you ever seek for help after the fall happened?

Prompt: Where?

5. Did you think about make some changes in your house to avoid the next fall?

Prompt: Anti-skid mat in the bathroom.

Wear skid-proof shoes.

Put on nightlight when you sleep.

Keep the floor clear so you won't get trip.

5.1 If you didn't. Do you consider your living environment safe?

6. Having had a fall, do you think you could prevent having another one like it?

Prompt: If yes how?

7. Can you think of any person or organization that can provide additional resources?

8. What kind of assistance or support you think will help you and others prevent future falls?

Prompt: Such as balance training.

Muscle strength exercise.

Change the house environment.

Use assist advice like crutch, walker, glasses.

Section 4: Mental/Social/Life Quality Changes

We've talked about your physical health, but I'd like to know about your mental well -being. I would like to know how do you feel about the fall and how you've felt since the fall.

1. How did you feel right after the fall?

Prompt: Did you feel ok? Or did you feel sad, down or less confident?

2. You mentioned that you meet your family and friends ___ (Depend on the prior answer). After the fall, do you think that you meet them less than before?

Prompt: Why do you think that you don't meet them as much as usual anymore?

3. How is your sleep lately?

Do you find yourself waking more or having trouble falling asleep?

Prompt: If you do, how long does it last? How often does it happen within a week?

4. Are you afraid of another fall happening?

Prompt: Do you think you have changed any daily routine to avoid the next fall?

5. We talked about your feeling right after the fall.

Since it has been ___ (Depend on the prior answer). Can you tell me how do you feel now about the fall?

Do you have any suggestion for me?

Thank you very much for your time, do you have anything else to add?