UNIVERSITY OF WALES TRINITY SAINT DAVID BIRMINGHAM

INSTITUTE OF INNER CITY LEARNING

MSc Public Health and social care Practice LCHS7004

TITLE:
The effects of depression on quality of life in the ageing population: A systematic literature review

NAME: SABINA KHANAM

STUDENT NUMBER: 1713883

SUPERVISOR NAME: AISHAT BAKRE

Dissertation submitted as part of the requirements for the award of MSc Public Health and Social Care in Practice
September 2024

DECLARATION

I, SABINA KHANAM declare that this dissertation has been composed by myself, that the work contained herein is entirely my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or qualification, in whole or in part, except as specified.

Signature:...S.KHANAM.....

Date: ……10/09/24…….....

ACKNOWLEDGEMENTS

I would like to acknowledge and give special thanks to the following people who have helped me on this journey of extreme knowledge, understanding and commitment to my work.

Firstly, my supervisor and tutor Aishat Bakre who has also made my journey easier. Her leadership, assistance and monitoring in delivering the correct method helped me fulfil my dissertation. With continuous feedback this allowed me to enhance my academic skills and motivate myself through areas I thought I could not achieve.

My family especially my husband has provided a long-term support and understanding in my duty to fulfil this Masters programme. My sisters for also understanding the impact of the pressure in this course and helping me mentally to provide that support. To support my understanding and knowledge a book by John Biggam called ‘Succeeding with your Masters Dissertation: A step by step handbook’ has also provided key points in areas of concern.

I would also like to thank my closest friend Sanara, who I have had the privilege to go on this journey with. She has helped me lift my spirits up on the days where I was struggling, and advising me where necessary, without her support I would not have advanced in my journey.

Finally, I want to thank my faith in God Allah swt, in fulfilling this opportunity through prayer and patience.

TABLE OF CONTENTS

ABSTRACT

Background/Aim: The overarching aim of this research is to examine the association of depression and quality of life in the ageing population. Depression is an ongoing mental disorder in the elderly which has negative outcomes on the quality of life (QOL). To enable effective health our quality of life is essential in all stages of life especially at older age, as it is becoming more of an issue due to the increase of ageing population.

Rationale: To the best of my knowledge, studies have explored the relationship between depression and quality of life however no systematic literature review has been established to determine the association of depression on quality of life in the ageing population. This can contribute to a better understanding and knowledge using existing research to summarize the literature. Understanding the negative impact psychologically and physically depression has on the ageing population will help adapt future practitioners on the needs of the population

Methods: The research methods used for this literature review consisted of three online databases (PubMed, ProQuest Central, EBSCO) collecting final articles of 25 studies relevant to the aim which included only cross-sectional studies, worldwide.

The *findings* outlined that depression is associated with QOL affecting negatively with poorer health. This affected socially, physically and environmentally, with an increase of depression if the condition was not maintained.

The *conclusion* issued from this review is that efforts need to be implemented in the healthcare systems including more funding to improve the long-term impact on the quality of life in the ageing population and mental disorder.

CHAPTER 1: INTRODUCTION AND BACKGROUND

Introduction to the topic

Mental health is an important aspect of our wellbeing which is determined by a range of factors including physical, mental and social wellbeing (World Health Organisation, 2022). Essentially mental health can be defined as emotional, psychological and social wellbeing, implying it is our overall health, affecting how we think, feel and act (Centers for Disease Control, 2024). It is important to maintain our overall health as it decreases the risk of any mental health problems occurring in the future (Gov.UK, 2018).

Depression, is a mood disorder also known as a mental health disorder that affects an individual in the way they think and feel and their day-to-day activities including their sleeping and eating regime (National Institute of Mental Health, 2024). To support this the World Health Organisation (2023) stated that it is a mental disorder affecting both men and women causing mood fluctuations. In the elderly this effects the quality of life with increased frequency of morbidity (Aziz and Steffans, 2017). The quality of life may include physical, mental and emotional functioning including economic situation, health and social aspects of life (Thacker et al., 2006; Stone and Mackie, 2013).

The focus and scope for this systematic literature review will be to combine all the existing research on the association of depression on quality of life in the ageing population. There is a relevance to study this scope as existing studies shows various aspects of their interpretations, which will be further elaborated due to the definition of how quality of life can be defined, therefore with recent research can explore what is known so far (Sivertsen et al., 2015).

1.1 Background and current context

1.2.2 Ageing Population

Sozeri-Varma (2012) states how peoples biological and psychological changes are decreased as we age, with social and economic influences that impose the determination of lowering the limit of elderliness. However, NHS England (2024) have specified that elderly or an older person is classed from the ages of 65 years and above and not by our biological changes.

The worlds population is ageing with an increase in life expectancy and lower fertility rates, thus the impact of increased numbers of individuals at the age of 60 years and over (Ismail et al., 2021). This will result in the future with more older people compared to younger, with many issues that is causing a direct influence as to why this is occurring (World Health Organization, 2010). There are over 11 million over the age of 65 years in the 2021 census that accounts for 18.6% compared to 2011 of 16.4%, this clarifies that more people are in the higher age groups based in the UK (Office of National Statistics, 2022).

Globally, in 2022 individuals from 65 years and over were estimated to rise from 10% to 16% by 2050 of individuals from 65 years and over globally (United Nations, 2022). This demonstrates that both developed and developing countries has become a distinctive demographic occurrence in the ageing population becoming a future concern (Ismail et al., 2021).

With the ageing population on a rise the risk of developing illnesses increases such as mental health problems, physical decline or deterioration (Mental Health Foundation, 2023). Developing countries have had major concerns with the percentage of older adults on the rise, this has resulted in the increase of chronic diseases and mental health issues such as depression (Sun and Li, 2023).

Mental health is a very important aspect in all parts of life that affects our emotional, psychological and social wellbeing, being able to control these factors creates a positive outlook (Gautam et al., 2024). However, with many life changes that people experience that go undetected this can lead to mental illnesses such as depression (Center for Disease Control, 2023). To support this, Lima and Ivbijaro (2013) stated that the increase of mental disorders will rise with ageing population, affecting mental health systems globally. This accounts to around 14% of adults that live with a mental disorder with many that go undetected or treated due to the sigma portrayed around this topic (World Health Organization, 2023a).

Age UK (2019) addressed that 1 in 4 older people live with a mental health problem with the prevalence higher in the ageing population, this accumulates to 22% men and 28% women in the UK. One in five people have reported experiencing mental health issue but those with depression tend to worsen as they get older (NHS

England,2017). However, globally the prevalence of people diagnosed with depression is 35%, which is over a third of the older populations (Cai, et al., 2023).

1.2.2 Quality of Life

Quality of life (QOL) is a concept of many factors in life affecting an individual wellbeing, this includes positive and negative elements within its existence and a certain point of time (Teoli and Bhardwaj, 2023). Additionally, Quality of life (QOL) can be measured by many factors such as environmental, social, personal health, experience of life, wealth and education status whereby the functional capabilities effectively define an individual's wellbeing (Eurostat, 2023). This differs from individual to individual based on the factors mentioned, which plays a major part of their life. Likewise, from the 20th century researchers have focused more on the assessment of subjective aspects of an individual's life such as their feelings and conditions of life involved, evaluating their overall life satisfaction (Kaur, 2023).

However, it is stated by Carr and Gibson (2001) that QOL has no specific definition but rather affected by the individual's subjective health. These can be defined from a range of holistic experiences being social, emotional and physical wellbeing.

Another term that can be defined as QOL could be associated to "life satisfaction", "health status" or "wellbeing" (Pinto et al., 2017). World health Organisation (2012) developed an assessment to measure QOL to assess the criteria of mortality and morbidity, this reinforces the need to improve healthcare and interventions.

Powell (1997) also recognised that QOL is a "*collection of dimensions*" broken down in various dimensions which are: objective (exterior to the individual i.e living at home, education, income) and subjective (psychological). The following are also measures which branches from the domains that are: Behavioural, perceived, psychological and health related (Teoli and Bhardwaj, 2023). The various definitions of QOL leads to believe that they all have similar explanations of this term.

According to Office of National Statistics (2023) high levels of life satisfaction in adults in the UK decreased from 25% to 23% in 2021, thus resulting in ageing population. Globally life expectancy has increased by more than 6 years from 2000 – 2019 from the ages of 66 years to 73 years (World Health Organization, 2024).

To support this, empirical studies have indicated by (Jones and Drummond, 2021) found that QOL has significant relations. An example are ‘Relationships’ that includes family, friends, intimate and interacting with others have found to be the most important of life conditions, thus creating close bonds that can impact a positive or negative effect on an individuals wellbeing (Brannan et al., 2012). Not to mention ‘Work’, this involves work conditions and psychological developments that develops in the work environment. This enhances on the stressors and support that determine peoples wellbeing (Monnot and Beehr, 2014).

In a recent systematic review, it was concluded that better QOL was associated to lower mortality risk, indicating that assessment tools should be implemented as screening in the general practice instead of weighing body mass and using blood tests (Phyo et al., 2020).

Wroblewska et al. (2021) studied that the quality of life in elderly with those who are diagnosed with depression all depends on the individuals health status and comorbidities. However, the study by Silversten et al., (2015) identified that quality of life can be defined as many concepts due to the assessment instruments that was used making the studies challenging to compare.

1.3 Rationale for research

To enable effective health peoples our quality of life is essential in all stages of life especially the ageing population, as it is becoming more of an issue due to the increase of ageing population as mentioned (Pocklington, 2017). There is confusion as to the meaning of quality of life as previously mentioned it is defined in many ways. To the best of my knowledge, studies have explored the relationship between depression and quality of life been established to determine the association of depression on quality of life in the ageing population. This can contribute to a better understanding and knowledge using existing research to summarize the literature. Understanding the negative impact psychologically and physically depression has on the ageing population will help adapt future practitioners on the needs of the population (NHS England, 2020).

To define the boundaries and limitations of this review using a systematic approach effectively will help establish the objectives. This will be accomplished by defining the key terms, using valid appropriate assessment tools such as geriatric depression

scale, establishing the demographics and taking into consideration any confounding factors that will influence the research question. In terms of limitations, acknowledging any bias or the reliability of the assessment tools used in studies (Hazell et al., 2019).

1.4 Research Question

What is the association between depression and quality of life among the ageing population?

1.5 Research Aim

The overall aim for this research is to examine the association between depression and quality of life in the ageing population from existing evidence

1.6 Research Objectives

The specific objectives for this research include the following:

- To identify the association between depression on quality of life among the ageing population
- To investigate the effects of depression on quality of life among older adults
- To provide recommendations for further research and improvement to practice

1.7 Summary

This chapter provides an understanding and a clear perspective of the topic of depression and quality of life in the ageing population. The chapter outlines the research question, aim and objectives.

The next chapter describes the literature review for this research where studies in relation to this topic are analysed.

CHAPER 2: LITERATURE REVIEW

2.1 Introduction to Literature Review Chapter

This Chapter will outline the first two objectives for this research which is to identify and investigate the association and effects of depression on quality of life in the ageing population. By exploring existing literature that is relevant to the objectives and provide key findings, synthesizing, evaluating the strengths and weaknesses within this context will help identify research that uncover the aims. By researching this area, it provides a key insight to the third objective stated which is to recommend further research and improvements that can be made in practice.

2.2 The Epidemiology of Depression

Depressive disorder commonly known as depression is a common mental disorder, globally affecting 5% of adults (World Health Organization, 2023b). It was reported to be the second leading cause of disability globally by 2020 (Kessler and Bromet, 2013). Depression effects all functioning of life either physical, mental, economic and social in the elderly, however symptoms may be masked due to culture (Shalchi, 2022). With many other chronic diseases, it can be difficult to diagnose, this results to 25% reporting symptoms but only 20-50% of the elderly have accurate diagnosis (Wrobleska et al., 2021). It is said to be associated with quality of life; however, the significance of severity needs to be determined. Although, (Bains and Abdijadid, 2023) stated that depression is more closely linked to interpersonal relationship among those that are divorced or separated.

With these data it is vital to learn and explore how depression can impact the ageing population, and what can be recommended to further enhance the improvement of practice.

2.2.1 Definition and Clinical Symptoms of Depressive Disorder

According to National Institute of Mental Health (2024) Depressive Disorder is a major mood disorder, affecting how an individual feels, thinks and behaves in their day-to-day life activities. It can be diagnosed with symptoms that have prolonged for over two weeks, and some of these symptoms include feeling sad, anxious, irritable, a lack of energy, loss of interest, changes in diet and thoughts of suicide. NHS (2023) stated that Depression effects individuals in different ways, with lasting symptoms of

unhappiness and incompetence with clinical symptoms being psychological, physical and social factors (Mayo Clinic, 2022; World Health Organization, 2023b).

2.2.2 Types of Depression

There are many types of Depression ranging from ‘major depressive disorder (clinical)’ where most days an individual feels very low and sad including having sleep difficulty and change in appetite. Another is ‘Persistent depressive episode’ that is mild to moderate committing from up to two years that is less severe to major depressive disorder. ‘Postpartum’ and ‘Prenatal’ depression occur during and after pregnancy. ‘Atypical depression’ that is a specifier describes a pattern of depression, with symptoms of sleeping more, oversensitive or heaviness in arms or legs. ‘Recurrent depressive episode’ which is having at least two reoccurring episodes of depression. ‘Reactive depression’ which occurs during a difficult event in an individuals life, ‘Cyclothymia’ that are unstable moods not as serious as bipolar or that long, ‘manic depression (Bipolar)’ often have episodes of depression in a manic expression, ‘psychotic depression’ experience hallucinations, delusions or paranoia similar to major depressive disorder. ‘Seasonal affective disorder’ is another major depressive disorder that occurs during winter but goes before spring. (Mental Health UK, 2024; Fazel, 2024).

2.2.3 Prevalence and Incidence of Depressive Disorder (worldwide and UK)

According to World Health Organization (2023b) there are about 280 million diagnosed with depression worldwide. It is a major mental health problem contributing to 13% of global burden of disease thereby making it the largest contributor by 2030, thus affecting the quality of life (Jacob, 2012). By 2030 it is estimated that one in six people will be over the age of 60 years with 14% living with a mental disorder, the most common being depression (World Health Organization, 2023a). There are many reasons why depression occurs in later life that has accumulated from earlier life ranging from abusive relationships, bereavement, financial issues, social isolation, loneliness and exposure to certain life experiences causing specific stress (National Institute of Ageing, 2021). It is more common in multimorbidity, with 80% with one chronic condition in the ageing population and 50% with two or more chronic conditions (Center for Disease Control, 2023; Lancet, 2021).

From 1993 to 2014 prevalence of depression has increased by one fifth in men and women in the UK, with the highest parts being in North England, midlands and south west (Baker and Wade, 2024). Additionally, 16% adults experienced reasonable to severe depressive symptoms who were economically inactive with a long-term sickness experienced reasonable to severe depressive symptoms (Office of National Statistics, 2022).

2.2.4 Risk Factors of Depression

The cause of depression is undetermined however it could be due to genetic, environmental, biological or psychological factors (Ferenchick and Ramanuj, 2019).

Risk factors that occur could be due to genetic vulnerabilities, neurobiological changes or cognitive matters (Fiske and Wetherell, 2009). According to National Institute of Health Care Excellence (2024) the risk factors include; age, sex, history, social, environmental, and personal factors, mental health conditions and any other functional impairements.

Barua (2010) stated that two non-modifiable risk factors that were associated with depression were older age and female, whereby the modifiable risk factors recognised are socio-economic factors, living alone, co-morbidities, cognitive impairment and bereavement. However, Cole (2003) mentioned that the risk factors were due to disability, new illness, poor health or prior depression diagnosis. This verifies that various studies have different results about the risk factors of depression.

2.2.5 Prognosis of Depression

The prognosis of depression all depends on the individual by means of length, number of times and pattern of incidents; a typical episode can last from 3-6 months with treatment, and majority recovering within 12 months (Malhi and Mann, 2018). The mental disorder prognosis is very much related with the occurrence of promoting factors.

Diagnosing depressive disorder can be done accordingly with DSM-IV (Diagnostic and statistical manual of mental disorders) or ICD-10 (International classification of diseases, tenth revision) with symptoms that have to be present for at least two weeks (National Collaborating centre of mental health, 2010).

However, the reoccurrence is at a very high risk of nearly 80% have a further episode within an individual's lifetime after being diagnosed (National Institute for Health and care Excellence, 2024). Around 10-15% commit suicide, with two thirds that contemplate that is why it is mandatory to diagnose and treat depression (Bains and Abdijadid, 2023).

2.2.6 Outcomes and cost of Depression (worldwide and UK)

NHS England (2022) have implemented for their outcomes that increased access to psychological therapy services are available especially those with depression, of 1.9 millions adults and older adults and a cost of UK economy of approximately 117 billion per year. However (Mental Health Foundation, 2023) stated that the cost in the UK as ranged between 70 – 100 billion per year on mental health problems.

Worldwide it is estimated that 12 billion production work days goes into the work of depression that are lost which is about 1 trillion USA dollars (World Health Organization, 2024a). Also, in America the number of outcome visits to the physician offices ranges from 15 million for diagnosis and those diagnosed are approximately 11% (Center of disease Control, 2024).

2.3 Relationship between depression and quality of life in ageing population

Silverston et al., (2015) systematic review of 74 studies found that depressed older adults had poor physical health related QOL than those who were not depressed. Eleven studies outlined a negative correlation between depression and QOL that used cross-sectional studies. Nineteen studies also reported that a depressive disorder created a higher depressive symptom impacting a poorer health QOL. However, this systematic review was a mixture of longitudinal, cohort and cross-sectional studies. The difference of all the instruments used made it difficult to make comparisons on the relationship of depression on QOL.

Evidence shows the association of depression on QOL summarized in two existing observational studies (Netuveli and Blane, 2008; Holhls et al., 2021). Hohls et al., (2021) using evidence of observational studies in longitudinal association whereby several databases were used to establish studies using key words. The findings established that using longitudinal studies helped to analyse trajectories over time. From 47 publications were used where most studies detected depression and comorbidity, this was evaluated by structured interviews and surveys. 8 studies

outlined that QOL had changed individuals with those that had depression and maintaining different types of depression over a small period of time. Disorders that were associated with depression reduced the QOL compared to healthy individuals. This indicates that majority of studies reporting on depression, therefore affecting QOL. Comorbidity alongside anxiety is another variable that affects depression, this undoubtedly indicates that having other conditions can have a negative influence on the health (Mezuk et al., 2013). Furthermore, social isolation was identified associated with QOL over time, which leads to loneliness (Ge et al. 2017).

The strengths compared to other studies mentioned is that a thorough methodological process was implemented which had two reviewers to screen all data and quality assess information, this indicated that literature would not be biased. The study was longitudinal which emphasized on data over a period of time which observed any new gaps initiated. However, a weakness is that there were no limits in the data conceived as all ages ranges was included, not being specific to older adults. Also, majority of data identified was all in the western countries which leads to believe that more studies need to be implemented in the developing countries.

Another review by Netuveli and Blane (2008) using observational studies investigating the association between depression and quality of life. Using the CASP-19 in a national survey of 999 individuals aged 65 years over, in the English longitudinal study of ageing found that 24% had a prevalence of depression. However, the effect was higher among the prognosis of CASP-19. Old age had outcomes of bereavement, social isolation, and physical decline which all has a influence to depression. QOL with depression acknowledges that it effects psychological, social and physical wellbeing, as previously mentioned above that comorbidities considerably reduce this domain. Socio economic status was concluded that the higher the economic status the improved QOL was determined. These are similar findings to (Silverston et al., 2015) that depression is prevalent in the instrument that was used however there are some weaknesses within this study.

Likewise, to support this (Lenze et al., 2005) review of longitudinal studies concluded that depression was associated with functional disability including cognition. The included cross-sectional studies identified higher depressive symptoms relating to lower QOL especially those with comorbidity. The longitudinal studies stated

depression being at baseline with poorer QOL, with a higher symptom score and less improvements on QOL were detected in the follow up. The association between depression and QOL seemed to be stable throughout but all impartial of whether global QOL or generic health QOL were considered.

The strengths to review Silverston et al., (2015) is that it was relevant to the research aim which was addressed, identifying studies by the abstract and titles that were relevant. It used a large scale of studies from various electronic databases reducing it down to the relevant articles via the abstract and inclusion key words. However, the literature search was only conducted by one reviewer but only discussed by co-authors which could be classed as bias. English published literature was only used which limits the articles of generalizability as there may have been relevant articles in different languages relevant to the objective. With different study designs and instruments used to assess depression this resulted in the quality of evidence concluded, as QOL has been defined differently thus effecting the validity of results.

Having a range of assessment instruments within these studies has made it difficult to compare and establish useful data for the relationship of depression and QOL, this outlines that there is a gap in using the right instrument tool which will identify the overall impact of depression on QOL. Also establishing that the definition of QOL needs to be one dimensional throughout the articles chosen as this reflects on the impact of the findings.

The literature review was only limited to one database which led to believe that not an overall wider result factor was included, and restricted itself with only emphasizing on certain studies. This can assume publication bias and researcher bias due to only certain selection of studies misinterpreting information.

To understand the gaps that have been determined within these literature it has been established that studies usually focus on a certain group such as hospitals or with COVID-19. Having a diverse population will develop generalizability, and create a wider knowledge (Silva et al., 2024). To further elaborate on this there are many studies that identify comorbidities alongside depression, this can effect the outcome of the QOL and depression. Another area which has been identified is that different studies use various measurement tools to measure QOL and depression, if a consistent tool was used throughout all the studies then reliability and the breakdown

of findings will provide a more comprehensive result (Hohls et al., 2019). Furthermore, QOL can be differentiated differently over many researchers, so trying to understand the full definition of this term and using this accordingly can help solve and analyse many research.

All the existing research has been outlined with the association between depression and quality of life in the ageing population. Studies have revealed that there is a consistency in the findings however gaps have been determined which shows the importance of research and where areas need to be improved on.

2.4 Chapter Summary

In summary it has been concluded that existing research has been outlined with the association of depression on quality of life in the ageing population. It began by discussing the epidemiology of depression, the different types of depression then moving onto the risk factors, prognosis, outcomes and costs. Finally, there was discussion into the studies of the relationship between depression and quality of life. There is a consistency in the findings however gaps have been determined which shows the importance of research and where areas need to be improved on. The next chapter ‘Methodology’ will outline how the final journals was chosen.

CHAPTER 3: METHODOLOGY

3.1 Introduction to Chapter

This chapter will outline the methodology to identify the association between depression on quality of life in the ageing population. This will include search strategy, inclusion/exclusion criteria, key words, databases used, PRISMA and PEO framework so that the validity is highlighted in a systematic review. The methodology section is a detailed, systematic and clear section enabling a visible step by step procedure in what was carried out. By establishing the procedures in a thorough, systematic way, this allows other researchers to assess the validity and if so, implement in their future research.

3.2 Systematic Literature Review (SLR)

A systematic literature review combines published research related to a certain topic, critically examining the resources providing a thorough perception (Jahan et al., 2016). In order for this to be achieved so that credibility is initiated a reliable process needs to be followed to bring together all types of articles. The first step a research question created that includes aims, objectives and the PEO protocol. Followed by the literature process where articles choose from such as electronic databases i.e. UWTSD Library, Medline, Mendeley, PubMed fulfilling the research question. The next step would be what articles were selected and why? By Using a critique tool such as CASP (Critical Appraisal skills Programme) or Coughlan to apply a methodical approach. The synthetising of data will be carried out once the articles have been reduced down to meet the selection criteria then individually studying the articles to extract data. Finally the findings which will be interpreting the data from the results and identify any limitations.

3.3. Search Strategy

Bramer et al., (2018) establishes that a step-by-step process is required in order to develop a systematic approach which is a search strategy. It is an organised systematic key word formation used to search in any databases (Ayeyard, 2019, p.73). This comprehensive search was achieved by using the library search that included relevant search terms that is related to the research question in order to retrieve appropriate results. The first step in order to accommodate this procedure was to complete a PEO (Population, Exposure, Outcome) framework.

PEO is a framework that helps develop the research question that explains the perceptions of interest (Capili, 2022).

The framework was used to breakdown the key entities within the question so that a structured approach could be used going forward when searching the appropriate databases key terms. Additionally, the time year frame that was used to capture literature was from 2005 onwards, as a 19-year research would have provided ample articles in relation to the topic.

3.4 Search terms

Search term is defined as key words that are applied into the search engines when information is gathered in relation to the research question (Grewal, 2016). These are important as it helps narrow down literature helping to focus on relevant information. If key search terms are not adapted professionally then the literature searched will not be relevant to the aims and objectives, therefore not answering the question.

Grewal (2016) stated that Synonyms is also important in searching as it indicates substitute search terms that can help produce key information in relation to the research question that is thorough and detailed. To support this, Schotter (2013) mentions that synonyms relatively share the same or comparable meaning. Table 3.1 shows synonyms related to the key terms.

Table 3.1: PEO Framework

PEO Framework	Key terms	Synonyms
POPULATION	Ageing Population	Elderly/ older adults
EXPOSURE	Depression	Depressive disorder / mental health /
OUTCOME	Quality of Life	life satisfaction / wellbeing / living conditions / level of comfort / socio economic / psychological / physical

The PEO framework was achieved by answering questions that applied to the research question. The benefit of this comprised of concentrating key terms that would be the centre of the research involved with the three key terms established were ageing population, depression and quality of life.

Based on the PEO framework the research question is ‘what is the association between depression (E) and quality of life (O) among the ageing population (P)?

The comprehensive database search was conducted using multiple health databases. This was an appropriate way to classify articles to allow efficient searching. Search terms were combined in the Advanced search using Boolean operators “OR” and “AND”. These allow standardized search terms and key words to be combined allowing a more narrowed literature (Atkinson and Cipriani, 2018). The search terms used for SLR along with key synonyms are as follows:

- Search 1 (P); “Ageing Population”, OR “Elderly”, OR “Older Adults”
- Search 2 (E); “Depression”, OR “Depressive Disorder” OR “mental health”
- Search 3 (O); “Quality of Life”, OR “Wellbeing”, OR “Life satisfaction”, OR “socio economic”, OR “Psychological” OR “Physical”
- Search 4: Search 1 AND Search 2 AND Search 3

An example, in ‘advanced search’ under ‘search filters’ the first row stating ‘any field’ will contain the key word from Search 1. Adding each row with a AND or OR operator to identify all necessary key words and synonyms as shown in table 3.1.

3.5 Key words

Keywords are words that are related to the topic, The importance of using keywords is to establish relevant literature that will identify important relevant articles in relation to the question (Mager, 2022). The main keywords used in the search strategy was; depression, ageing population, quality of life.

3.6 Databases

Three main online health databases have been used to search for information including ProQuest, EBSCO and PubMed as these are more subject specific. Google scholar has also been used but not as a primary source as it does not have access to majority of the journals. The importance of computerized databases is that it has a

vast index of journals that are specific and allow a researcher to undertake an advanced search (Ewald et al., 2022). This has allowed the 'snowballing' strategy on particular journals to accomplish a more comprehensive and effective search.

Using three databases allows a thorough search that can leave minimal gaps, an example is using PubMed that is a more generic database focusing on medical and life science journals. Different databases have different focuses with the type of evidence that is required. To support this Suarez-Almazor (2000) recommended that two or more databases are required for a thorough search, in order to retrieve a manageable result.

3.7 Inclusion/Exclusion Criteria

It is important for researchers to include inclusion and exclusion criteria as it will impact the validity of the results of the study which is planned during the early phases of research (Garg, 2016). Eligibility criteria should be adequately narrowed to ensure study rationality (Patino and Ferreira, 2018; Keung et al., 2020). Inclusion criteria is defined as the key characteristics or features of the target population required to answer the research question, this could be either demographic, geographic or clinical factors (Meline, 2006). In contrast, exclusion criteria are factors that would interfere with the validity of the study that is not relevant to answer the research question i.e. excluding from a certain date, or a comorbidity.

3.7.1 Inclusion Criteria

The Inclusion criteria is detailed below:

- Studies that focus on elderly / ageing population
- Studies that focus on Depression effects on quality life in ageing population
- Studies conducted worldwide
- Studies published in peer reviewed journals
- Studies that used quantitative and qualitative research methods in cohort, cross-sectional and case-controlled studies.
- Studies published in English language only
- 2005 onwards literature

3.7.2 Exclusion Criteria

The exclusion criteria are detailed below:

- Studies not published in English language.
- Studies that are Covid 19 related
- Pre 2005 due to old data
- Studies that focus on determinants of depression
- Studies that focus on risk factors of depression
- Randomized control trials studies

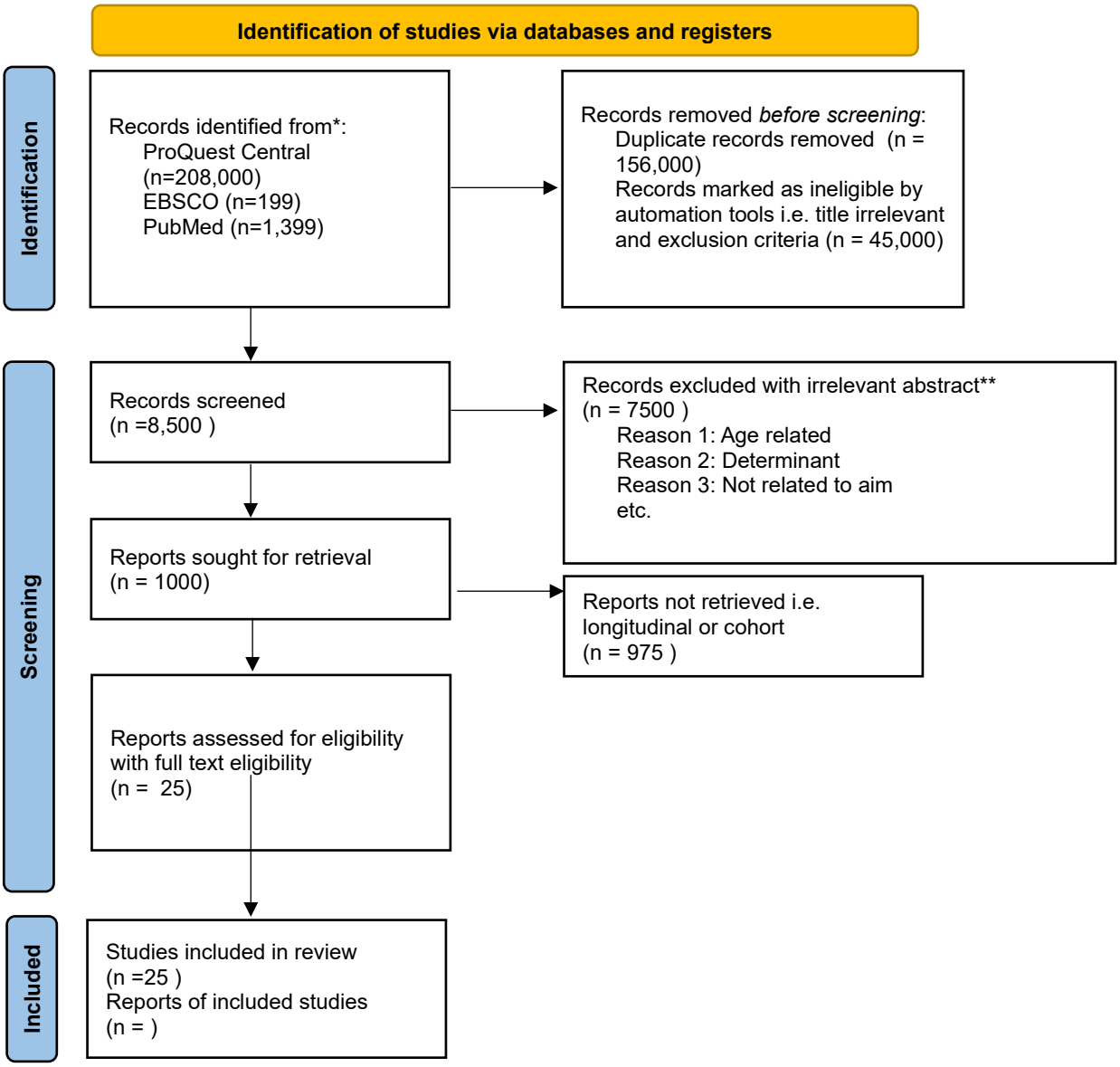
3.8 Search Results

Using three databases to identify the studies using the UWTSD website were ProQuest Central, PubMed and EBSCO. Going into these sites individually and adding the key terms using the search PEO as described above, gave the researcher a clear result of articles available. Certain filters were then used in order to access the correct articles similar to the aim required. This was carried out by going into the filter and successfully adhering to the inclusion and exclusion stated above. When these filters were applied 45,000 were removed. In the 'Identification' section as shown in the PRISMA flowchart, the results from each database were revealed. All the results were then moved into 'RefWorks' which is a reference management package that allows the researcher to control, organize and collaborate articles. This was carried out by highlighting all articles and moving them into Refworks. Once the results were moved the removal of duplication of articles had to be removed. This was completed by the left-hand side of the stating 'Duplicates' the drop-down button allowed you to press 'Find Duplicates', this would then filter out 156,000 of any double articles which then could be deleted. 8,500 was left for screening, where the researcher had to manually screen through each article and remove any that was irrelevant, concluding of around 7500 which was removed due to age related, determinants and the abstract not relevant to the aim. 1000 articles were sought for retrieval, however after reading the methodology 975 were removed due to the articles being longitudinal studies or cohort. 25 articles were used for the final review.

Figure 1: PRISMA Flowchart

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Effects of depression on quality of life on ageing population



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

3.9 Ethical Considerations

Ethics in research can be defined as norms of conduct focusing on the disciplines of a study by means of a method, procedure and perspective as it is acted in respect of investigating any issues (Resnik, 2020). Ethical consideration was taken into account when researching such as acknowledging the original data of the owner, with the analysis that data being collected is adequate, applicable to the question and not too disproportionate. Keeping the information safe so that unauthorized access cannot be permitted was also taken into consideration due to confidentiality and data management, also identifying that each journal has collected consent in the study in respect of its original purpose.

3.10 Summary

In summary the methodology has identified how a systematic search was conducted to answer the research question in a wide-ranging approach. To prevent any disorganized method all search was essentially addressed using the PRISMA flowchart, inclusion/exclusion criteria, key words and ethical consideration where applicable. Data extraction and evaluation will be carried out in the next chapter where key journals articles required to answer the research question will be evaluated.

CHAPTER 4: DATA EXTRACTION AND EVALUATION

4.1 Introduction to Chapter

This chapter will outline the extraction and evaluation on the association of depression and QOL in the ageing population. Critically appraising and quality assessing each journal using critical appraisal tools alongside the evaluation of qualitative studies, will help justify the importance of the tool used and review what has been found. Additionally, it showcases the validity and reliability of each of the journals used going forward, to provide an overall evaluation of the studies.

4.2 Data Extraction

According to (Taylor and Aronson,2020) data extraction is the process of identifying specific studies then analysing the data from them. This can either be qualitative or quantitative, obtaining characteristics from the studies to carry out a meta-analysis. To support this (Schmidt et al., 2021) clarifies that the process of data extraction is picking main characteristics from each article in a systematic approach.

Based on the studies that have been chosen the characteristics that will be extracted onto a table will be factors such as: author, date of publication, title, study design, age range, depressive assessment tool, QOL assessment tool, scores, key findings and limitations.

4.3 Introduction to critical appraisal and paper quality assessment

Critical appraisal is the process of systematically examining research studies to review its reliability, value and relevance in its background (Mhaskar et al., 2009). Additionally, it examines factors such as the legitimacy, generalizability and significance (CEBMa, 2024; CASP, 2024).

The importance of Critical appraisal is that it assists to ease the burden that allows the individual to focus on the articles that is relevant to the research question. This in return reduces the information overload, recognise the significant articles, assess the usefulness and notify any bias in the articles (Morrison, 2017).

Furthermore, Tod and Smith (2021) stated that appraisal identifies quality and bias, it enhances critical thinking skills due to the research, underlying the importance of decision making as the important studies will be picked in a efficient manner.

4.4 Critical Appraisal Tools

A critical appraisal tool is usually a worksheet form that identifies questions to help appraise the validity, importance and relevance of an article (Centre for evidence based medicine, 2024). Additionally, these tools are important for researchers and practitioners by selecting the right tool to understand its findings identifying any strengths and weaknesses as each tool has different characteristics for a speciality (Haile. 2022).

The hierarchy of evidence is a pyramid diagram that establishes the strongest type of study designs at the top of the pyramid with the weakest being at the bottom. The strongest identifies effectiveness these are systematic reviews, meta-analysis and randomized controlled trials. The weakest signifies case studies and opinion papers, however this all depends on the research question that is established to identify what type of study designs will be relevant (NSW Government, 2020; Clapton and Sami, 2023).

There are many different tools used to appraise different study designs, the most common ones are:

- CASP-12 (used for randomized controlled trials, systematic reviews, cohort studies, case-controlled studies, qualitative research, diagnostic tests)
- Cochrane Framework (used for randomized controlled trials)
- Coughlan (used for quantitative research)
- STROBE (cohort studies, case controlled, cross sectional studies).

Choosing the right appraisal tool against the correct study design is important as it establishes certain criteria's for each tool, this will enable validity and reliability. Coughlan framework will be used to validate each of the studies that have been selected. Using the wrong tool will provide incorrect findings which will not be reliable or valid (Katrak et al., 2004).

The critical appraisal tool will highlight questions on the abstract, writing style and aims/objectives to understand the believability of the study. It will also ask questions on the methodology, literature review, ethical considerations, data analysis and results, to create a systematic focus on how reliable its findings are. This ensures that critique steps are being taken create reliability with a 'yes' and 'no answer.

4.6 Evaluation of Quantitative Studies using an appropriate tool

Coughlan and Cronin (2007) framework was used for the selected quantitative studies as a tool to evaluate for critical appraisal. The importance of this critical appraisal tool is that it enables to critique each of the relevant steps, this is to assure the researcher of any implications concluded outlining the validity and reliability of each of the elements constructed. Coughlan and Ryan (2017, p.71) assesses the strength of the research of which components influences the method of the framework, thereby evaluating the credibility and integrity with the questions provided. With the systematic questions outlined it acknowledges any bias, consistency and practicality that enables to identify the quality of its findings. Compared to qualitative research, quantitative is useful for data evaluation, using statistics for the process of analysis (Martin and Bridgemon, 2012). They are more structured that have a immediate response rate with surveys and cross sectional studies being more effective, however this all depends on the research question achieved which will automatically implement the design of the study (Queiros and Faria, 2017).

Appendix B shows the appraisal table of all selected studies using the (Coughlan and Cronin, 2007) framework.

25 studies were used that were quantitative methodology for critical appraisal (Nobrega and Koyanagi, 2023; Lim and Chan, 2023; Tusa et al., 2023; Park et al., 2023; Olsen et al., 2023; Ajayi, 2022; Eunkyo et al., 2021; Damme-Ostapowicz et al., 2021; Wroblewska et al., 2021; Jemal et al., 2021; Hussenoeder et al., 2020; Wang et al., 2020; Voros et al., 2020; Rong et al., 2019; Kwon et al., 2017; Cao et al.,, 2016; Ilievova et al., 2016; Campos, 2014; Feng et al., 2014; Parker, 2014; Garin et al., 2014; Chen and Hicks, 2014; Akyol et al., 2010; Chachamovich et al., 2008; Chan et al., 2006). Quantitative methodology is used to examine the relationship among variables that contain numerical data (Creswell, 2018).

The overall aim understood from all of these quantitative studies was to determine the impact of depression on the quality of life in the elderly population. Looking at aspects and factors that was associated with depression and how it affects the health in the ageing population with all studies being cross-sectional. However, three studies stated no aim entirely but reflected in the background information that was produced, 1 study included a hypothesis (Voros et al., 2020) and 19 studies did not state their objective

(Nobrega and Koyanagi, 2023; Lim and Chan, 2023; Park et al., 2023; Ajayi, 2022; Eunkyo et al., 2021; Damme-Ostapowicz et al., 2021; Wroblewska et al., et al., 2021; Jemal et al., 2021; Hussenoeder et al., 2020; Wang; 2020; Rong et al., 2019; Kwon et al., 2017; Cau, 2016; Ilievova, 2016; Campos, 2014; Feng et al., 2014; Garin et al., 2014; Chen and Hicks, 2014; Chachamovich, 2008). (Feng et al., 2014; Hussenoeder, 2021; Ajayi, 2022). The importance of stating an aim and objective in a study is crucial as it outlines the purpose to the audience, and allows the researcher to understand its intended achievements (Thomas, 2023). Irrelevant if there was an aim stated all the information in the studies did reflect on the review that was undertaken. Nearly half of the studies did not state a research background that implemented the problem at hand this allowed the researcher to understand the issue (Nobrega and Koyanagi, 2023; Lim and Chan, 2023; Tusa et al., 2023; Park et al., 2023; Olsen et al., 2023; Ajayi, 2022; Eunkyo et al., 2021; Wroblewska et al., et al., 2021; Jemal et al., 2021; Hussenoeder et al., 2020). A reason why this may be presented is that the researcher may take on the theory that the reader is well aware of the context.

One study used a conceptual framework named the 'Wilson-Clearly' model to explain the relationship between health related QOL and its factors relating to this (Lim and Chan, 2023). The benefits of using a framework is that it creates a theory so that a research problem can be understood and developed, providing a structure and concept within the study (Singh, 2023).

Although, all the studies were a cross-sectional design, the screening was implemented via questionnaires or surveys either self-completion or by face to face interviews using the instrument tools instilled. 7 studies did not identify its research design but the information provided led to believe that they were cross -sectional studies as they indicated either a survey or questionnaire (Tusa et al., 2023; Park et al., 2023; Wroblewska et al., 2021; Hussenoeder et al., 2020; Voros et al., 2020; Ilievova, 2016; Campos, 2014). Inclusion and exclusion criteria were identified in some studies, was not identified in others but some only stated either exclusion or inclusion. The importance of inclusion and exclusion criteria is that that it reflects on the validity and reliability of the study (Connelly, 2020).

Tusa et al., (2023) methodology was appropriate through semi structured interviews that showed vigour and aligned with the research aim. Ayaji et al., (2022) also used a

mixed method analysis which required questionnaires and interviews that reflected the aim which was then used for thematic analysis. All studies showed an appropriate methodology in order for the objective and aim to be fulfilled.

Campos et al., (2014) was the only study that carried out a pilot study of 107 participants from their overall study sample. This led to believe that carrying this out tested the effectiveness on the instruments that was used, allowing to identify any issues (Hassan and Schattner, 2006).

Descriptive analysis was used as an instrument in the methodology for 16 studies (Lim and Chan, 2023; Tusa et al., 2023; Olsen et al., 2023; Ajayi, 2022; Damme-Ostapowicz et al., 2021; Jemal et al., 2021; Hussenoeder et al., 2021; Wang, 2020; Voros et al., 2020; Kwon et al., 2017; Ilievova, 2016; Parker, 2014; Garin et al., 2014; Chen and Hicks, 2014; Akyol et al., 2010; Chan et al., 2006). The simplicity of this is that it identifies patterns and trends from data presented which allows the reader to understand the information easier (Cooksey, 2020). Olsen et al., (2023) carried out their study in 28 countries examining the differences with men and women with the key findings of QOL decreasing with ageing and depressive symptoms increasing. Women were reported to have more depressive symptoms compared to men affecting their QOL (SD 34.5% vs 20%). However, the number of participants did not seem enough as there were less, especially with the number of countries that was used for participation. Ajayi (2022); Damme-Ostapowicz et al., (2021); Jemal et al., (2021); found similar correlations between the decreased of QOL due to finance and socio-economic status such as living along or not having any formal education affecting the outcome of depression. Both studies used valid instruments that were reliable which allowed the outcome to be more credible reducing bias.

Inferential analysis was used for 9 studies in the methodology section (Nobreba and Koyanagi, 2023; Park et al., 2023; Eunkyo et al., 2021; Wroblewska et al., 2021; Rong et al., 2019; Cau, 2016; Campos, 2014; Feng et al., 2014; Chachamovich, 2008). Stress, self-care, lack of mobility, comorbidities, lack of sleep, less educated were factors outlined be a negative impact on those with depression on their QOL in the inferential analysis.

There were studies that showed less participants that that undertook in the research, this concluded that the validity and quality of the results would be as sufficient (Park

et al., 2023; Wroblewska et al., 2021). Larger participant sizes shows that the results would be less biased, more consistent and more accurate in the results (Andrade, 2020).

However, studies that did show results that would have been sufficient non bias, including a majority of participants in their study adapted a reliable outcome (Nobrega and Koyanagi, 2023; Eunkyo et al., 2021; Rong et al., 2019).

4.8 Chapter Summary

This chapter created an understanding of the importance of critical appraisal tools and the various tools depending on the study designs. It outlined how using appraisal tools can evaluate a systematic process to acknowledge if a study is reputable or not. A breakdown of all relevant studies has been appraised using the Coughlan framework (2007), which has created an understanding of the quality of the research that was undertaken. The next chapter ‘Data analysis and Synthesis’ will outline the thematic analysis created, identifying characteristics of all the studies chosen.

CHAPTER 5: DATA ANALYSIS AND SYNTHESIS

5.1 Introduction to chapter

Data analysis and synthesis is important as it allows the reader to understand the importance of how data has been collected and analysed through its findings. Converting data from studies that will address the research objectives and question will enable a systematic overview of analysis. It will outline and provide information of themes that were created from the studies chosen, with a data analysis tool providing the importance of the framework. Characteristics will also be identified from the studies using a data extraction table to synthesize the emerging themes and subheadings that has been recognised.

5.2 Thematic analysis

According to (Dawadi, 2020) 'thematic analysis' is the process of qualitative method research that thoroughly organises, interprets intricate data. It allows the researcher to identify themes through data by reading to produce an insightful finding. This analysis is usually used from cross-sectional studies, surveys and interviews. When analysing this data which is usually secondary research becoming a 'thematic synthesis' in a narrative approach which is laid out in a stringing model effect article by article (Thomas and Harden, 2008). In some quantitative research the data in its findings can be interpreted using statistical data, if this is the case then thematic analysis can be used.

5.3 Data analysis tool

The process analysis tool that will be used will be a framework by Braun and Clarke (2006) that systematically describes and explains a set of research findings in six steps (Maguire and Delahunt, 2017). The first step 'familiarisation with the data', second step 'gathering initial codes', third step 'generating themes', forth step 'reviewing potential themes', fifth step 'defining and naming theme' and the final step 'producing the report'. The importance of this framework is that it addresses any issues of patterns in data, and help the researcher identify important aspects of the thematic analysis (Bryne, 2021).

5.4 Characteristics of the identified studies

Of the 25 studies there are 6 studies that were based in China (Wang, 2020; Rong et al., 2019; Cau, 2016; Feng et al., 2014; Chen and Hicks, 2014; Chan et al., 2006), 2 were based in Finland (Tusa et al., 2023; Garin et al, 2014), 3 were based in Korea (Park et al., 2023; Eunkyo et al., 2021; Kwon et al., 2017), 2 in Poland (Damme-Ostapowicz et al., 2021; Wroblesckwa, 2021), 1 in Malaysia (Lim and Chan, 2023), 1 in Nigeria (Ajayi, 2022), 1 in Ethiopia (Jemal et al., 2021), 1 in Germany (Hussenoeder et al., 2021), 1 in Hungary (Voros et al., 2020), 1 in Slovakia (Ilievova, 2016), 1 in Brazil (Campos, 2014), 1 in England (Parker, 2014) and 1 in Turkey (Akyol et al., 2010). However, there were 4 studies that carried out their methodology within many countries such as Nobrega and Koyanagi (2023) undertook in China, Ghana, India, Mexico, Russia and Africa. Olsen et al., (2023) undertook their methodology in 28 countries which were Denmark, Sweden, Finland, Austria, Germany, Netherlands, France, Switzerland, Belgium, Ireland, Luxemburg, Spain, Italy, Greece, Portugal, Cyprus, Malta, Czech Republic, Poland, Hungary, Slovenia, Estonia, Croatia, Lithuania, Bulgaria, Latvia, Romania and Slovakia. Garin et al., (2014) undertook in Finland, Poland and Spain. Chachamovich et al., (2008) have not directly listed all the countries that has been stated on their study; only specifying as 20 countries from 5 different continents. The researcher may have excluded this due to concentrating on the information with the key findings, and due to the vast data from the countries it was only limited by using the continents instead. Appendix A lists the characteristics table from all quantitative studies.

5.5 Emerging themes from included studies (Analysis/Synthesis)

The analysis of the emerging themes from the included studies identified a number of themes along with sub-themes that related to the association of depression and quality of life in the ageing population illustrated in Table 5.5.1. This can be seen illustrated in Appendix C. The association has been emerged consisting of physical, psychological and social factors which have been grouped in their rightful area.

Theme	Sub-theme	Related Studies
Mental health associated with depression on QOL	Cognitive decline Self-care Self-esteem	Nobrega and Koyanagi (2023); Hussenoeder et al., (2020); Voros et al., (2020); Park et al (2023); Feng et al., (2014)
Physical health associated with depression on QOL	Mobility Comorbidities Sleep Chronic Pain	Nobrega and Koyanagi (2023); Lim and Chan (2023); Tusa et al., (2023); Jemal et al., (2021); Wroblewska et al., (2021); Hussenoeder, et al., (2020); Rong et al., (2019); Kwon et al., (2017); Garin et al., (2014); Akyol et al., (2010)
Psychosocial factors associated with depression on QOL	Social support Marital status / Loneliness (isolation) Stress Gender	Nobrega and Koyanagi (2023); Olsen et al., (2023); Park et al., (2023); Lim and Chan (2023); Damme-Ostapowicz et al., (2021); Wroblewska et al., (2021); Eunkyo et al., (2021); Jemal et al., (2021); Wang et al., (2020); Hussenoeder et al., (2020); Ajayi (2022); Rong et al., (2019); Chen and Hicks (2014); Garin et al., (2014); Chan et al., (2006)
Socioeconomic and Environmental factors associated with depression on QOL	Income Education Access to services	Ajayi (2022); Eunkyo et al., (2021); Jemal et al., (2021); Wroblewska et al., (2021); Rong et al., (2019); Kwon et al., (2017); Cao et al., (2016); Chen and Hicks (2014); Feng et al (2014)

Table 5.5.1: Thematic Table

Mental health associated with depression on QOL

Five included studies found a positive association with mental health in terms of cognitive decline, low self-esteem and self-care. According to Nobrega and Koyanagi (2023) self-care (13.23), cognition (10.41) was worse with QOL with adjusted confounders. However, Park et al (2023) found self-esteem higher in private ($p<0.05$) than public housing ($p<0.01$) using independent sample t-tests. This outlines that the lower the depression the higher an individual's self-esteem improving their QOL. To support this, Voros et al (2020) mini mental state examination test indicated that there was a lower cognitive decline with depression. It meant that the less cognitive functions were related to having increased depressive symptoms. Depression research has demonstrated that the condition can worsen cognitive decline (including leading to memory deficits and decreased mental acuity) thus affecting day-to-day functioning. These studies also recognise that dementia is prevalent in the negative association of cognitive decline whereby the risk factors increase by age and vulnerability.

Although, Hussenoeder et al (2020) used a DemTect instrument to assess cognitive memory which provided a positive outcome, scoring a mean of 14.3 that was appropriate of their age with those diagnosed with depression. Cognitive decline can lead to dementia which effects an individuals own attitude providing a positive or negative outcome.

The lack of self-care using a bivariate analysis found a higher association with regards to depression(OR=4.22), even adjusting the confounders self-care was still affecting daily life (AOR=2.20).

Physical health associated with depression and QOL

Ten studies identified physical health that was associated with depression of which resulted to comorbidities of chronic diseases. Tusa et al (2023) identified that chronic diseases such as diabetes and chronic artery disease were associated with depression, with a deterioration of health related QOL. Using the 15D instrument 9 dimensions was identified in coronary diseases and 7 dimensions in diabetes. To support this (Nobrega and Koyanagi, 2023) had 11 chronic physical conditions using the multivariable linear regression analysis chronic conditions had a worse effect on QOL with sleep (b-coefficient 14.71), mobility (11.06) and pain (13.03). The most

effected chronic condition was hypertension (-13.90) on QOL, followed by hearing problems (-13.12) and stroke (-10.56). This recognises that chronic conditions do play a major part in depression on their QOL. However, Garin et al., (2014) concluded that hypertension was not associated with poor QOL indicating that anxiety and stroke were the greatest outcome. Although, 74% of participants in the study Rong et al., (2019) had two or more chronic diseases ($p<0.001$, OR=1.101) using correlation analysis that were associated with depression. With the increase of old age the vulnerability of diseases is more prominent thus difficult to cure.

Furthermore, Hussenoeder et al., (2020) outlined in the regression analysis with the control of all variables that chronic diseases had a negative impact on depression on QOL. The chronic diseases were not listed which if listed could have made the results more reliable. However, (Kwon et al., 2017) in their descriptive methods found that arthritis and depression as a comorbidity had a negative effect on the QOL. Pain was also recognised as a factor from arthritis which contributed in the decrease of QOL due to physical inactivity. Akyol et al., (2010) measured using 'Pain Visual Analogue Scale' the pain intensity which found a significant association between depression and QOL ($p<0.05$), this could be due to physical inactivity from ageing or disability.

Amongst the participants that carried out the study from Jemal et al., (2021) one forth (26%) had a chronic disease, this was identified that they were twice more likely to be diagnosed with depression than those with no comorbidities (AOR=2.27). They were also likely to score a low mark on the assessment undertaken of WHOQOL (World health organization quality of life), compared to those with no chronic disease (AOR=2.21). The study sample was just over 800 participants which indicated a good reliable result. However, Wroblewska et al., (2021) used a very small number of participants but the results showed just the same, that many had comorbidities such as diabetes and cardiovascular diseases (74%), with the QOL mean score identifying ($p<0.005$) lowest with three or more diseases. Depression has been related to deterioration in physical health, resting uncomfortable problems mostly chronic pain, exhaustion along with restricted movement.

A healthy lifestyle needs to be consistent in order for he risk of comorbidities to occur this could be exercise and diet which would therefore be a prevention of any other diseases.

Sleep assessment was carried out by Lim and Chan (2023) which claimed inverse relationships relating to poor quality of sleep (<0.001). To support this using the EURO-D scale, Olsen et al., (2023) found that sleep problem was one of the highest factors effecting depression.

Psychosocial factors associated with depression on QOL

Social support

In a study by Eunkyo et al., (2021) assessing the social support it was acknowledged that there were low scores in the support facility, affecting their wellbeing (p<0.001) this was more so in women than men (aOR: 0.77) using the Cronbachs instrument. This shows that the more social network an individual has around them then the increased QOL decreasing depression or risk. To support this Wang et al., (2020) concluded using the same instrument that there would be a poor QOL if there was not enough social support around an individual with depression such as family and friends (ab=0.0213). As social support as an independent variable (Jemal et al., 2021) established that two thirds of the elderly participants (66.9%) in their study had no social support. This also revealed that those with chronic diseases were more likely to have depression to those without including having lack of support. However, social support was also measured in the study of (Ajayi et al., 2022) using the Multidimensional scale of perceived social support, on correlation analysis, acknowledging that social interaction (r=0.210) is associated with depression. To support this (Wroblewska et al., 2021) revealed those with depression had an impact on social domains playing a key role in an individuals ageing. It has identified that social support is an important factor that decreases distress as this affects people psychologically, therefore domains such as family, provide a positive impact.

Although, using a small number of participants in a study based in China by (Chan et al., 2006) it was understood that the mean rating was 22 (SD=7.6) indicating a moderate level of social support with children being their main help. This study therefore outlines that social support was a positive correlation using the WHOQOL-BREF instrument. This is the only study that results in a positive outcome, maybe due

to the small amount of participants used. Alternatively, social relationships had a negative impact on another study in China outlining a negative output on their QOL. Using a social support rate scale as an instrument with a mean score of 30.5 (SD=6.1) this showed this factor had a significant relationship to depression on QOL, which is 68.8% of variance using ANOVA analysis (Chen and Hicks, 2014).

The overall pattern evolved through social support is that it is interlinked with loneliness, financial difficulty and comorbidities impacting negative mental health. Thereby it identifies that creating a positive social network and interventions are crucial in the ageing vulnerable groups.

Marital Status / Loneliness (isolation)

A small study of 140 participants outlined that loneliness and family support are a key factor in the ageing population for a better QOL. Furthermore, this integrates into depression, and more likely to get diagnosed with this disease. 16% of widows within a year after the death of their spouse have experienced significant loneliness (Wroblewska et al., 2021). In another study it was also identified that there was a consistent factor of low QOL in single elderly compared to those that were married (Jemal et al., 2021). This is leading to believe that the cause of psychological issues can be emerged thereby effecting an individual's mental health. (Lim and Chan, 2023) assessed demographic information using Lubben social network scale-6, identifying that male that were married had a better QOL than female who was not in a marital relationship diagnosed with depression.

Stress /Income

Nobrega and Koyanagi (2023) found that stress (8.35) was associated with depression on QOL, using a large number of participants whereby multivariable regression analysis was conducted. Although, three studies undertook their examinations in hospital settings which revealed that stress was identified due to the care that was experienced from the practitioners (Olsen et al., 2023; Wroblewska et al., 2021; Damme-Ostapowicz et al., 2021).

Gender

It has been analysed that women are more prone to have depression effecting their QOL irrelevant to the number of chronic conditions ($p<0.001$) in a study by Garin et

al., (2014). However, in another study it was outlined that there was no difference in gender with the mean scores of QOL scale (Voros et al., 2020). Logistic analysis was undertaken to find that female (OR=0.605) was associated with depression than male in a study by Rong et al., (2019). This leads to believe that female are more associated with depression in the ageing population.

Socioeconomic and Environmental factors associated with depression on QOL

Income

Income can result as an outcome from depression in terms of demographic areas whereby lower income in developing countries are an individuals main source of resolving their mental health. Ajayi et al., (2022) stated in their findings that income was a main source to improve their social support in return increasing their improvement on health and QOL. In a logistic regression analysis income had a significant OR for mental HRQOL (aOR=1.38) with depression of (Aor= 0.28) suggesting that income support is required to help improve mental health and mitigate any impact (Eunkyo et al., 2021). Another study by Jemal et al., (2021) whereby 43% of the participants had no income all based in the rural areas had help from families to travel for health services. However, they were three times more likely to have a low QOL than those who were not retired (AOR=3.76). Culturally family support is essential as this is relied on more so with the children. Additionally, Rong et al., (2019) stated that low income QOL affected medical services that was required, as it was evident that children were their main support financially. To support this in another small study it identified that income sources were important in elderly as this could help treat for their health concerns. If this is neglected then health is deteriorated impacting their mental health and QOL (Wrobleskwa et al., 2021). The strong connection between income can lead to stress with depression, thus limiting the access to mental health practitioners using their services.

Education

Education level has deemed to be a factor that influences depression on the QOL, due to them have more knowledge of the subject so the understanding is more prevalent (Ajayi et al., 2022). To support this those with a higher level of education had a good HRQOL (AOR=1.51) than those with less education (Eunkyo et al., 2022). This understanding shows that with a higher education level the precautions can be utilized,

so that the level of depression can be maintained. Using descriptive analysis by Kwon et al., (2017) it was outlined that lower education level ($p<0.05$) was associated with depression using the EQ-5D depressive scale. Alongside, Cao et al., (2016) it was also identified that depression was linked with education level using regression analysis ($p<0.05$), indicating that with higher levels of education can improve cognitive levels creating more options of employment improving stress, income and depression.

One of the many factors that is associated with depression impacting QOL in the elderly with a low education (87%) and those with no education (46%) leading to effects on depression (Chen and Hicks, 2014). After adjustments in confounders the results were still the same with education being a factor, associated with depression (Feng et al., 2014). This outlines that to prevent or maintain the level of depression the level of education is a crucial factor as this makes aware of the illness, in return indorsing healthy behaviours and increasing more chances of employment for income.

These studies detect that more health systems and better infrastructure in services need to be incorporated to create and improve the ageing population.

Access to services

Studies have acknowledged that the ageing population due to them being vulnerable are finding it hard to access services such as their demographic area, limited access to services, cultural and rural areas.

Garin et al., (2014) states how financial difficulty especially those with comorbidities is hard to access medication due to the income, also living in rural areas is difficult to move around due to complicated needs affecting their mobility. Those that have language barriers also find it difficult to use services due to communication. To support this Chen and Hicks (2014); Ajayi, (2022); Voros et al., (20200 also provide the same themes whereby the geographical area is complicated for individuals to use affecting access to services. Rong et al., (2019) underlines that interventions need to implemented such as specific transportation on a regular basis and creating accessibility for access to services, thereby improving overall health and the ageing population. Addressing these issues requires funding and a coherent approach so that access, and improvement of overall services will help in the long-term ageing population.

5.6 Chapter Summary

This chapter outlines the summary of the data analysis tool that was used alongside themes and sub themes that was generated from the articles chosen. The themes outline a broad understanding on the association of depression on QOL in the ageing population.

CHAPTER 6: DISCUSSION

6.1 Introduction to Chapter

This chapter will introduce the discussion of key findings using existing evidence that has already been published to find the association of depression on QOL in the ageing population. This will include the strengths and limitations of the systematic literature review to provide an understanding the validity and reliability of articles.

6.2 Discussion of Key findings

The objective of this review was to investigate the effects of depression on QOL in the ageing population. Articles was collected from 25 studies which generated themes of mental health, physical, psychosocial, socioeconomic and environmental factors, using face to face interviews or completed individual questionnaires or surveys.

Twenty-five of the studies that were examined had various instrument tool used however the instrument that was operated showed validity and reliability in relation to depression and quality of life (Salib, 2022). Due to the various instrument tools used the diversity of them could not potentially summarize the exact validity results of the association of depression on QOL in the ageing population. Nonetheless, the findings did show the association of depression on QOL in the ageing population.

Cross sectional studies were only used for this review as having a various study design would have required more time and input. Majority of the study designs were surveys and questionnaires that required to be filled in by themselves that already had a set of questions pre-designed. Nine of the studies also incorporated the face-to-face interview alongside the individual's self reported study, this allowed the researcher to observe the participant and their behaviour.

Defining QOL in the articles has had different versions of concepts, with the outcome not being consistent but described as a generic term (Bowling, 2005). To recognise the findings in accordance to the objectives it is important that each study used has identified the term QOL and used appropriate instruments. In this review the correct instrument tool for QOL was used to identify validity in all the studies.

It was also revealed that only one study used a theoretical framework (Lim and Chan, 2023) to identify their evidence whereby the outstanding studies was more related to geographical areas.

Mental Health

Mental health such as cognitive decline, self care and self-esteem has established strong evidence from current literature, this can be shown from past existing research. Five studies indicated that cognitive decline was associated with the effects of depression on QOL, with this deterioration it can lead to low self-esteem, less self-care, which are all feelings of helplessness (Nobrega and Koyanagi (2023); Hussenoeder et al., (2020); Voros et al., (2020); Park et al (2023); Feng et al., (2014). The largest participants from these study was Nobrega and Koyanagi (2023) with over 34,000 which indicates that the results are valid and reliable, thereby having an impact on the effects of depression.

To support this, Silverston et al., (2015) stated that mental health such as the cognitive impairment was found from at least 60% of the studies, indicating that depression is associated with cognitive decline in the ageing population. Also, levels of self-esteem increase with the increased level of depression (Sare et al., 2021). A cohort study based in Munich carried out a study at a primary care center, revealed that depression effects QOL with each of the factors from the instrument tool used of WHOQOL-OLD (Liegert et al., 2023). The results has established that mental health is associated with the levels of depression effecting the QOL in ageing population. Overall mental health can be described as all the other themes that was generated, thereby all studies had some form of impact (Public Health England, 2017).

However, Netuveli and Blane (2008) indicates that mental health does not influence the ageing population on QOL. A good QOL is possible all by how an individual perceives how QOL should be maintained, it is up to the individual to improve their own QOL.

Physical Health

Ten studies identified that physical health such as comorbidities, sleep, chronic pain and mobility were affected by depression. In term of comorbidities there was seven studies that identified that this factor was a major effect upon depression decreasing

the QOL (Nobrega and Koyanagi, 2023; Tusa et al., 2023; Jemal et al., 2021; Hussenoeder et al., 2020; Rong et al., 2019; Kwon et al., 2017; Garin et al., 2014). The data is identifying that comorbidities alongside sleep deprivation, chronic pain and mobility are factors that are interlinked with one another, if one physical issue is acknowledged then more symptoms occur. Lim and Chan (2023) did not specify that comorbidities effected depression but more so the quality of sleep increased the levels of depression thereby affecting their mobility and the emerging of chronic pain. The reliability was observed in one population only with those that had chronic diseases, this has been consistent from the findings. Although linear regression analysis was analysed to find the sleep quality, in a study based in south Korea resulted to have a positive correlation in the environmental domain (Park and Choi, 2022). This alternatively suggests that sleep can have a positive impact on depression.

Nobrega and Koyanagi (2023) findings was consistent as it observed physical health and depression was associated to QOL, it outlined that socioeconomic factors did play a part in the effect of depression and how these factors exhibit on the mental health. However, a unusual factor is that due to the countries whereby the study took place, many of them had different cultural expectations this could be disputed by some theories in terms of physical mental health. Additionally, Jemal et al., (2021) focused on comorbidities and how they are associated with depression, which creates a positive reinforcement in recent research to support this. Furthermore, women have been prone to experience depression physically affecting them than men, this has been consistent in the findings by Wroblewska et al., (2021). Comorbidities was focused more by Silverston et al., (2015) which research has suggested that the lack of physical health can lead to an increase of depression. Likewise, Mezuk et al., (2013) found that certain chronic illnesses can create a negative impact on an individuals physical health. (Hussenoeder et al., 2020; Rong et al., 2019; Kwon et al., 2017; Garin et al., 2014; Aykol et al., 2010) also found similar findings that backed up this research that sleep, comorbidities, chronic pain, and mobility are some of the key factors that contribute into the decrease of level of depression thus affecting the QOL in the ageing population.

The strengths into this research is that a wide range of articles was used from the year 2005, from various different geographical locations. This showed a inclusive approach in not being biased gathering as much information to understand the association of

depression on QOL in the ageing population. The approach of using articles from 2005 is that to understand the change that has been made throughout time. A limitation could be how the method was conducted such as included variables and confounders and with the various locations included. If one geographical area was used then findings could have been more consistent. Depending on the country of the study undertaken some may have difficulty with funding to carry out specific research, this could lead to gaps in the research that has been studied upon.

Psychosocial Factors

Social support findings were consistent with the existing research whereby the effects can be extortionate with negative health on depression (Nobrega and Koyanagi, 2023). Understanding that those who establish positive connections have a less impact on their mental health (Wang et al., 2020). Thereby, creating that strong bond for social support is profusely important as this impacts the emotional side of an individual. Rong et al., (2019) also established that within certain geographical areas it is important to have a social bond. To support this evidence recent research by Hohls et al., (2021) emphasized that social networks decrease the effects of depression which in return creates a positive impact on QOL.

Loneliness can also determine the outcome of depression due to either comorbidity which can result in establishing a negative impact on the individual (Olsen et al., 2023). It can also be classed as a risk factor on physical health thereby reducing and stabilising any deterioration in health (Hussenoeder et al., 2020; Ajayi (2022).

In terms of stress the research has outlined so far that managing stress is an important role in the impact of depression, thereby interventions to maintain the factor. Due to poor health stress can also become a risk factor thus managing this can influence depression (Park et al., 2023; Lim and Chan, 2023; Chen and Hicks, 2014).

Gender can be a factor which has been researched that women are more prone to establish depression than men this could be due to many reasons from social and psychosocial factors. There are differences in research which is linked to stress and social support combined together that affect depression in women (Damm-Ostapowicz et al., 2021; Wroblewska et al., 2021; Chan et al., 2006).

These factors show consistency in the findings from existing research that loneliness, social support and stress are a vital in adapting a healthy QOL. They are also shown to be risk factors especially with those with comorbidities, whereby Netuveli and Blane (2008) concluded how these psychosocial factors forecast an individual's QOL in the ageing population.

To critique the approach in certain studies it can be identified that where the geographical location such as Korea was set up, many of them already had certain cultural populations. As the research question was not aimed at cultural values it seems that this may have impacted on the findings (Lim and Chan, 2023; Park, 2023; Eunkyo et al., 2021). Another critique on a approach is that all studies were cross sectional based, this only outlined data at a given time, this therefore limits in confirming causation (Pandis, 2014).

A limitation is that some studies had a low number of participants that was carried forward such as (Ilievova et al., 2016) who had only 38 participants, therefore findings would not be as reliable. This was taken forward due to the aim of the study and the correct measurement tools taken which allowed the study to become more valid.

Socioeconomic Status and Environmental

There has been consistent findings in how lower education and income can become an impact on depression on QOL which reflects on the social determinants of health (Ajayi, 2022). In terms of environmental factors, the geographical area and housing conditions can also influence the levels of depression (Eunkyo et al., 2021), this therefore interlinks with stress and social levels. Psychosocial theories would be consistent in line with how income disparity can enhance a negative output on depression thereby influencing how social support (Rong et al., 2019). To support this, recent research has pointed out that low socio economic is associated with depression on QOL in the ageing population (Silverston et al., 2015; Netuveli and Blane, 2008). In relation to environmental factors if there are no access to general healthcare and support in lower deprivation areas this can influence on support and loneliness (Mezuk et al., 2013).

If an individual has had increased past education levels, then they are less likely to get diagnosed with depression or that is depression is diagnosed it can be successfully managed (Kwon et al., 2017). Consequently, the job title is an impact on an individual's

mental health, as it is related to income and education levels (Cao et al., 2016). Furthermore, research has specified that the poor environmental status is associated with negative health in the ageing population (Ge et al., 2017). Likewise, Holhls et al., (2021) summarized that the area an individual resides in can create either a positive or negative influence in the levels of depression.

A critique on the approach due to the studies being all quantitative whereby a standard set of questions is set out in the methodology, the details of an individuals experience has been unnoticed. Understanding their experiences can create a larger onset of data that would help these factors. Also, the confounders in the studies may have not been fully included which therefore affects the outcome of depression findings.

6.3 Strengths and Limitations

This systematic literature review limitations was only carried out by one research which could lead to bias, also articles was only used that was in English only that was published. Majority of studies did not include their inclusion or exclusion criteria which leads to believe that validity would not be as sufficient. QOL has been defined in various different was which could also impact the results on how they conceive the meaning. Many studies were conducted in many different geographical areas this has influenced culturally on findings, as one specific area was not focused on. Due to the studies collected from a range from 2006 their has been many changes environmental and socially that has impacted the outcome of interventions of depression. Also, the variations in sample size as some studies were low than others, which impacts on the population. However, some studies have strengths where the sample size were large which interpretated the findings. The findings of consistency to find the association of depression on QOL in the ageing population has been reflective on all the studies aims and objectives, with valid measurement tools.

6.4 Chapter Summary

This chapter has summarized the findings that has been achieved from all studies obtained analysing this from background research that has been obtained from the literature review. The approach and limitations were also been identified to create an understanding in existing research so that key findings can be evaluated.

CHAPTER 7: RECOMMENDATIONS AND CONCLUSION

7.1 Introduction to Chapter

In the Recommendations and conclusion chapter this will outline implications of findings, recommendations for any future research and conclude the section taking into consideration the key findings, the significance of the results and the researchers own thoughts.

7.2 Implications of findings

The implications that can be an important aspect in terms of policy, theory and future research is that allowing earlier interventions so that the analysis of depression and signs can be identified, this will help healthcare professionals so that it will improve the individual's quality of life in the ageing population. If the interventions are put into place before symptoms deteriorate then the correct treatment and behavioural plans can be implemented allowing the individuals to feel more confident within themselves emotionally and physically. Cognitive behavioural therapy will be an ideal solution to maintain an individual's quality of life and improve their social wellbeing.

Funding needs to be implemented throughout public health which will allow options and opportunities for those that are in need. Implementing programs and campaigns will allow individuals to broaden their knowledge especially in terms of education, as this will allow those cognitive development thus creating a positive impact on depression. In relation to research implications longitudinal studies would help improve how research is undertaken over a certain period of time, allowing more information in terms of creating interventions. When these are in place the long-term societal costs will decrease improving the healthcare systems.

7.3 Recommendations for Practice

In relation to improving the practice the healthcare professional need to instil regular depression screening tests such as the geriatric depression scale in all countries especially older adults so that it does not increase in symptoms in the ageing population, allowing professionals to identify earlier detection. Cognitive behavioural therapy needs to be implemented throughout practitioners in the primary sectors such as GP's and hospitals to allow treatment of social and psychological factors. If these therapies do not sustain the individual then allowing options of one to one development

plans that factors in lifestyle to create a positive impact on QOL. Allowing more social support by putting into practice interventions such as focus groups or educational courses that will help in long term improvement.

7.4 Recommendations for future research

Allowing more studies that undertake longitudinal methodology to understand how depression affects QOL will help understand research in the long term and how these progresses over a certain period of time. Also, more research needs to be adapted in how cultural and societal differences impact on how depression is impacted this will allow certain geographical areas to understand how it affects the individual.

Also, more technology related interventions such as mobile apps and online course will help adapt the ageing population, this in return can have certain policies be reevaluated. Adapting the population with technology may be difficult but implementing this strategy such as incorporating educational activities will help minimize future health risks and maintain their own individual health.

7.5 Conclusion

The research aim was to examine the association between depression and quality of life in the ageing population. The research objectives within this aim were as follows:

- To identify the association between depression on quality of life among the ageing population
- To investigate the effects of depression on quality of life among older adults
- To provide recommendations for further research and improvement to practice

This review aimed to identify the association of depression whereby the findings explained that these factors have a similar relationship reinstating that the increase levels of depression results to low QOL in the ageing population. The severity of depression has resulted in the increase of age, this includes the impact of environmental, psychosocial, physical and emotional factors on how QOL would be determined. The findings explains that the association of these factors are relevant and that this issue needs to be addressed to provide positive interventions as the ageing population is growing. The effects of depression have also resulted into a negative impact on the QOL whereby the above domains affect the individual

increasing more health issues, such as affecting their day to day activities and social wellbeing. The significant impact on the individual is growing whereby health practices and policies need to be updated so that health interventions such as educational workshops and the right care can be obtained, this will result in a better QOL and wellbeing. For future recommendations for the practice more funding needs to be provided in the healthcare system to allow long term improvement especially in the older population. Creating in advance testing for depression at the primary care centres so that symptoms can be caught earlier thereby maintaining the disease. Allowing more community-based setting for focus groups and psychological interventions to increase social wellbeing will decrease the effects of depression and incorporating educational activities will increase cognitive skills and knowledge.

These issues not only will help the individual mentally but also socially as the QOL is vital in the ageing population as the advanced age is growing.

It is clear to state that our mental health is very important in how we plan our day to day lives as this affects our QOL. Mental Health needs to be an important part of health checks around the world incorporating this into healthcare systems from an early age. This will decrease any implications as we age, encouraging a healthier QOL.

References

Age UK (2019) *Mental Health*. Available at: https://www.ageuk.org.uk/globalassets/age-uk/documents/policy-positions/health-and-wellbeing/ppp_mental_health_england.pdf/#:~:text=Older%20people%20are%20as%20likely,or%20over%2C%20followed%20by%20anxietyii. (Accessed: 20th June 2024).

Ajayi, S,M., Ukpoju, E,J. (2022) 'Psychosocial factors as predictors of quality of life among the elderly in a south western teaching hospital nigeria', *Gender and Behaviour*, 20(4), Available at: https://www.proquest.com/docview/2793115019?accountid=130472&sourcetype=Scholarly%20Journals (Accessed: 5th July 2024).

Akyol, Y., Durmus, D., Dogan, C., Bek, Y., Canturk, F. (2010) 'Quality of life and level of depressive symptoms in the geriatric population', *Turkish Journal of Rheumatology*, 25(4), pp. 165-173. Available at: doi: 10.5152/tjr.2010.23 (Accessed: 8th July 2024).

Andrade, C. (2020) 'Sample size and its importance in Research', *Indian J of Psychological medicine,* 42(1), pp. 102-103. Available at: https://doi.org/10.4103%2FIJPSYM.IJPSYM_504_19 (Accessed: 19th August 2024).

Atkinson, Z,L., Cipriani, A. (2018) 'How to carry out a literature for a systemtic review: a practical guide', *BJPsych Advances,* 24, pp. 74-82. Available at: https://www.cambridge.org/core/journals/bjpsych-advances/article/how-to-carry-out-a-literature-search-for-a-systematic-review-a-practical-guide/629E710311A566E54F951E5E83621122 (Acessed: 8th June 2024)

Aveyard, H. (2019) *Doing a Literature Review in Health and Social Care*. Open University Press: London.

Aziz, R., Steffans, D. (2017) ‘Overlay of late life depression and cognitive impairment’, Focus The journal of lifelong learning in psychiatry, 15(1), pp. 35-41. Available at: https://doi.org/10.1176%2Fappi.focus.20160036 (Accessed: 13th June 2024).

Bains, N., Abdijadid, S. (2023) *Major Depressive Disorder*. Treasure Island: Stat Pearls Publishing. Available at: https://www.ncbi.nlm.nih.gov/books/NBK559078/ (Accessed: 22nd July 2024).

Baker, C., Wade, K,E. (2024) *Mental Health Statistics: prevalence, services and funding in England*. Available at: https://researchbriefings.files.parliament.uk/documents/SN06988/SN06988.pdf (Accessed: 22nd July 2024).

Barua, A., Ghosh, K,M., Kar, N., Basilio, A,M. (2010) ‘Socio-demographic factors of geriatric depression’, *Indian J Psychol Med*, 32(2), pp. 87-92. Available at: https://doi.org/10.4103%2F0253-7176.78503 (Accessed: 26th June 2024).

Bowling, A. (2005) *Measuring Health*. 3rd Ed. Open University Press: England. Available at: https://books.google.co.uk/books?id=Mj0CHg0glMgC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false (Accessed: 28th August 2024).

Bramer, M,W., Jonge, D,B,G., Rethlefsen, L,M., Mast, F., Kleijnen, J. (2018) ‘A systematic approach to searching; an efficient and complete method to develop literature searches’, *J Med Libr Assoc*, 106(4), pp. 531-541. Available at: https://doi.org/10.5195%2Fjmla.2018.283 (Accessed: 6th June 2024).

Brannan, D., Biswas-Diner, R., Mohr, D,C., Mortazavi, S., Stein, N. (2012) ‘Friends and family: A cross-cultural investigation of social support and subjective wellbeing among college students’, *The Journal of Positive Psychology*, pp,65-75. Available at: https://doi.org/10.1080/17439760.2012.743573 (Accessed: 20th July 2024).

Bryne, D. (2021) ‘A worked example of Braun and Clarkes approach to reflexive thematic analysis’, *Quality and Quantity*, Available at: https://link.springer.com/content/pdf/10.1007/s11135-021-01182-y.pdf (Accessed: 19th August 2024).

Cai, H., Jin, Y., Zhang, Q., Su, Z., Ungvari, S,G., Tang, L,Y., Ng, H,C., Li, H,X., Xiang, T,Y. (2023) 'Global prevalence of depression in older adults: A systematic review and meta-analysis of epidemiology surveys', *Asian Journal of Psychiatry*, 80, 103417. Available at: https://doi.org/10.1016/j.ajp.2022.103417 (Accessed: 26th June 2024).

Cao, W., Guo, C., Ping, W., Tan, Z., Guo, Y., Zheng, J. (2016) 'A community based study of quality of life and depression among older adults', *Public health*, 13(7), Available at: DOI:10.3390/ijerph13070693 (Accessed: 6th July 2024).

Campos, A,C,V., Ferreira, E,F,E., Vargas, D,M,A., Albala, C. (2014) 'Ageing, gender and quality of life (AGEQOL) study: factors associated with good quality of life in older Brazilian community dwelling adults', *Health and quality of life outcomes*, 12, Available at: DOI:10.1186/s12955-014-0166-4 (Accessed: 7th July 2024)

Capili, B. (2022) 'How does research start?', *Am J Nurs*, 120(10), pp.41-44. Available at: https://doi.org/10.1097%2F01.NAJ.0000718644.96765.b3 (Accessed: 31st May 2024).

Carr, J,A., Gibson, B., Robinson, G,P. (2001) 'Is quality of life determined by expectations or experience?', *BMJ*, 322(7296), pp. 1240-1243. Available at: https://doi.org/10.1136%2Fbmj.322.7296.1240 (Accessed: 20th July 2024).

CASP (2024) *What is critical appraisal?.* Available at: https://casp-uk.net/what-is-critical-appraisal/ (Accessed: 30th July 2024).

CDC (2023) *Depression and Ageing*. Available at: https://www.cdc.gov/aging/olderadultsandhealthyaging/depression-and-aging.html (Accessed: 26th June 2024).

CDC (2024) *Depression*. Available at: https://www.cdc.gov/nchs/fastats/depression.htm (Accessed: 24th July 2024).

CEBMa (2024) *Critical Appraisal Questionnaires*. Available at: https://cebma.org/resources/tools/critical-appraisal-questionnaires/ (Accessed: 29th July 2024).

Center for Disease Control (2023) *Mental Health and Ageing*. Available at: https://www.cdc.gov/aging/olderadultsandhealthyaging/mental-health-and-aging.html (Accessed: 20th June 2024).

Centers for Disease Control (2024) *About Mental Health*. Available at: https://www.cdc.gov/mentalhealth/learn/index.htm (Accessed: 11th June 2024).

Centre for evidence based medicine (2024) *Critical Appraisal Tools*. Available at: https://www.cebm.ox.ac.uk/resources/ebm-tools/critical-appraisal-tools#:~:text=Critical%20appraisal%20worksheets%20to%20help,address%20a%20clearly%20focused%20question%3F (Accessed: 30th July 2024).

Chachamovich, E., Fleck, M., Laidlaw, K., Power, M. (2008) 'Impact of major depression and subsyndromal symptoms on quality of life and attitudes towards ageing in an international sample of older adults', *The gerontologist*, 48(5), pp. 593-602. Available at: https://doi.org/10.1093/geront/48.5.593 (Accessed: 8th July 2024).

Chan, S,W., Shoumei, J,I,A., Thompson, R,D., Yan, U,H., Chiu, K,F,H., Chien, W., Lam, L. (2006) 'A cross-sectional study on the health related quality of life of depressed Chinese older people in shanghai', *International journal of geriatric psychiatry*, 21, pp. 883-889. Available at: https://doi.org/10.1002/gps.1578 (Accessed: 8th July 2024)

Chen, Y., Hicks, A., While, E,A. (2014) 'Quality of life and related factors: a questionnaire survey of older people living alone in mainland China', *Quality of life research*, 23(5), pp. 1593-1602. Available at: https://www.jstor.org/stable/24726362 (Accessed: 9th July 2024).

Clapton, J., Sami, J. (2023). *Dissecting the literature: the importance of critical appraisal.* Available at: https://www.rcseng.ac.uk/library-and-publications/library/blog/dissecting-the-literature/#:~:text=Critical%20appraisal%20allows%20us%20to,%2C%20assumptions%2C%20misreporting%2C%20and%20belief (Accessed: 3rd August 2024).

Cole, G,M. (2003) Risk factors for depression among elderly community subjects: A systematic review and meta-analysis', *The American journal of psychiatry*, 160(6), pp.1147-1156. Available at: https://doi.org/10.1176/appi.ajp.160.6.1147 (Accessed: 26th June 2024).

Connelly, L. (2020) 'Inclusion and exclusion criteria', *Medsurg Nursing*, 29(2), Available at: https://www.proquest.com/docview/2388933304?pq-origsite=gscholar&fromopenview=true&sourcetype=Scholarly%20Journals (Accessed: 17th August 2024).

Coughlan, M., Cronin, P., Ryan, F. (2007) 'Step by step guide to critiquing research. Part 1: quantitative research'. *British Journal of Nursing*, 16(12), pp. 658-662. Available at: https://www.magonlinelibrary.com/doi/abs/10.12968/bjon.2007.16.12.23726 (Accessed: 2nd August 2024).

Coughlan, M., Ryan, F., Cronin, P. (2017) *Doing a Literature review in nursing, health and social care*. SAGE Publications: London. Available at: https://books.google.co.uk/books?hl=en&lr=&id=n6w5AwAAQBAJ&oi=fnd&pg=PP2&dq=coughlan,+cronin+and+ryan+2007+framework+benefits&ots=lhMLK5-NHd&sig=ihyDaOFtlYFhW3mG4atsxoarqgI#v=onepage&q&f=false (Accessed: 2nd August 2024).

Cooksey, W,R. (2020) 'Descriptive Statistics for summarizing data', *Illustrating statistical procedures; Finding meaning in qualitative data*, Available at: https://doi.org/10.1007%2F978-981-15-2537-7_5 (Accessed: 19th August 2024).

Creswell, W,J., Creswell, J,D. (2018) Research Design: Qualitative, Quantitative and mixed methods approaches. Fifth Ed. SAGE Publications: London. Available at: https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf (Accessed: 17th August 2024)

Damme-Ostapowicz, V,K., Mateusz, C., Monika, G., Elzbieta, K,K., Marek, S., Anna, Z. (2021) 'Life satisfaction and depressive symptoms of mentally active older adults in Poland: a cross-sectional study', *BMC Geriatrics*, 21, pp. 1-15. Available at: DOI:10.1186/s12877-021-02405-5 (Accessed: 5th July 2024).

Dawadi, S. (2020) 'Thematic analysis approach: step by step guide for ELT research practitioners', *Journal of NELTA*, 25(1-2), pp. 1-11. Available at: https://files.eric.ed.gov/fulltext/ED612353.pdf (Accessed: 5th August 2024).

Eurostat (2023) *Eurostat Statistics explained*. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quality_of_life_indicators (Accessed: 18th July 2024).

Eunkyo, K., Eun, Y,R., Soojeong, K., Jihye, L., Ho, Y,Y. (2021) 'Quality of life and depression in the general Korean population: Normative data and associations of the 12 item short form health survey (SF-12) and the McGill quality of life questionnaire (MQOL) with depression (Patient health questionnaire-9) and socioeconomic status',

Applied research in quality of life, 16(4), pp. 1673-1687. Available at: DOI:10.1007/s11482-020-09838-x (Accessed: 5th July 2024).

Ewald, H., Klerings, I., Wagner, G., Heise, L,T., Stratil, M,J., Lhachimi, K,S. Hemkens, G, L., Gartlehner, G., Olivo-Armijo, S., Streit-Nussbaumer, B. (2022) 'Searching two or more databases decreased the risk of missing relevant studies: a metaresearch study', *Journal Clinical Epidemiology*, 149, pp. 154-164. Available at: https://doi.org/10.1016/j.jclinepi.2022.05.022 (Accessed: 25th June 2024).

Fazel, F. (2024) *Depression Types*. Available at: https://www.healthcentral.com/condition/depression-types (Accessed: 22nd July 2024).

Feng, L., Li, P., Chen, L., Tang, W., Mahapatra, T., Wang, Y., Wang, X., Ma, Y., Yanli, B., Cao, X. (2014) 'Burden and correlates of geriatric depression in the Uyghur elderly population, observation from Xinjiang, China', *PLos One*, 9(12), Available at: e114139. DOI:10.1371/journal.pone.0114139 (Accessed: 6th July 2024).

Ferenchick, K,E., Ramanuj, P., Pincus, A,H. (2019) 'Depression in Primary care: part 1-screening and diagnosis', *The BMJ*, 365, Available at: https://doi.org/10.1136/bmj.l794 (Accessed: 22nd July 2024).

Fiske, A., Wetherell, L,J., Gatz, M. (2009) 'Depression in Older Adults', *Annu Rev Clin Psychol*, 5, pp. 363-389. Available at: https://doi.org/10.1146%2Fannurev.clinpsy.032408.153621 (Accessed: 21st June 2024).

Gautam, S., Jain, A., Chaudhary, J., Gautam, M., Gaur, M., Grover, S. (2024). 'Concept of mental health and mental wellbeing, its determinants and coping strategies', *Indian Journal of Psychiatry*, 66(2), Available at: https://doi.org/10.4103%2Findianjpsychiatry.indianjpsychiatry_707_23 (Accessed: 1st September 2024).

Garge, R. (2016) 'Methodology for research I', *Indian Journal of Anaesthesia*, 60(9), pp. 640-645. Available at: https://doi.org/10.4103%2F0019-5049.190619 (Accessed: 25th June 2024).

Garin, N., Olaya, B., Moneta, M,V., Miret, M., Lobo, A., Ayuso-Mateos, J,L., Haro, M,J. (2014) 'Impact of multimorbidity on disability and quality of life in the Spanish older population', *Plos One*, 9(11), Available at: e111498. DOI:10.1371/journal.pone.0111498 (Accessed: 8th July 2024)

Ge, L., Yap, W,C., Ong, R., Heng, H,B. (2017) 'Social isolation, loneliness, and their relationships with depressive symptoms: a population based study', *PLos One*, Available at: https://doi.org/10.1371/journal.pone.0182145 (Accessed: 28th July 2024).

Gov.UK (2018) *Health matters: reducing health inequalities in mental illness*. Available at: https://www.gov.uk/government/publications/health-matters-reducing-health-inequalities-in-mental-illness/health-matters-reducing-health-inequalities-in-mental-illness (Accessed: 11th June 2024).

Grewal, A., Kataria, H., Dhawan, I. (2016) *Indian J Anaesth*, 60(9), pp. 635-639. Available at: https://doi.org/10.4103%2F0019-5049.190618 (Accessed: 6th June 2024).

Haile, T,Z. (2022) 'Critical appraisal tools and reporting guidelines', *Journal of Human Lactation*, 38(1), pp. 21-27. Available at: https://doi.org/10.1177/08903344211058374 (Accessed: 30th July 2024).

Hassen, A,Z., Schattner, P., Mazzer, D. (2006) 'Doing a pilot study; why is it essential?', *Malays Fam Physician*, 1(2-3), pp. 70-73. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4453116/ (Accessed: 17th August 2024).

Hazell, M,C., Smith, E,H., Jones, J,C. (2019) 'The Blurred Line between physical ageing and mental health in older adults: Implications for the measurement of depression', *Clinical Medical Insights; Psychiatry*, 10, pp.1-5. Available at: https://doi.org/10.1177/1179557319885634 (Accessed: 27th June 2024).

Hohls, K,J., Konig, H,H., Quirke, E., Hajek, A. (2019) 'Association between anxiety, depression and quality of life: study protocol for a systematic review of evidence from longitudinal studies', *BMJ Open*, 9:e027218. Available at: doi: 10.1136/bmjopen-2018-027218 (Accessed: 26th July 2024).

Hohls, K,J., Konig, H,H., Quirke, E., Hajek, A. (2021) ‘Anxiety, depression and quality of life- A systematic review of evidence from longitudinal observational studies’, *International Journal of Environmental research and public health*, 18(22), 12022. Available at: https://doi.org/10.3390/ijerph182212022 (Accessed: 26th July 2024).

Hussenoeder, S,F., Jentzsch, D., Matshinger, H., Hinz, A., Kilian, R., Ridel-heller, G,S., Conrad, I. (2021) ‘Depression and quality of life in old age: a closer look’, *European Journal of ageing*, 18(1), pp. 75-83. Available at: DOI:10.1007/s10433-020-00573-8 (Accessed: 6th July 2024).

Ilievova, L., Zitny, P., Jakobejova, J. (2016) ‘The association between quality of life and depression of elderly in a nursing home institutional setting’, *Journal of health sciences*, 6(3), pp. 162-167. Available at: DOI:10.17532/jhsci.2016.364 (Accessed: 6th July 2024).

Ismail, Z., Ahmad, W,I,W., Hamjah, H,S., Astina, K. (2021) ‘The impact of population ageing: A review’, *Iranian Journal of Public Health*, 50(12), pp. 2451-2460. Available at: https://doi.org/10.18502%2Fijph.v50i12.7927 (Accessed: 20th June 2024).

Jacob, S.K. (2012) ‘Depression: a major public health problem in need of multi sectoral response’, *Indian J Med Res*, 136(4), pp. 537-539. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3516018/ (Accessed: 13th June 2024).

Jahan, N., Naveed, S., Zeshan, M., Tahir, A,M. (2016) ‘How to conduct a systematic review: A Narrative Literature Review’, *Cureus*, 8(11), e864. Available at: https://doi.org/10.7759%2Fcureus.864 (Accessed: 31st May 2024).

Jemal, K., Hailu, D., Tesfa, B., Lama, T., Tadele, K., Mengistu, E. (2021) ‘Geriatric depression and quality of life in North Shoa Zone, Oromia Region; a community cross sectional study’, *Annals of Geriatric psychiatry*, 20, pp.1 -10. Available at: DOI:10.1186/s12991-021-00357-z (Accessed: 6th July 2024)

Katrak, P., Bialocerkowski, E,A., Westropp, M,N., Kumar, S,V., Grimmer, A,K. (2004). ‘A systematic review of the content of critical appraisal tools’, *BMC Medical Research methodology*, 4(22), Available at: https://doi.org/10.1186/1471-2288-4-22 (Accessed: 30th July 2024).

Kaur, S. (2023) ‘Concept of quality of life in healthcare research: a review’, *International Journal of Community Medicine and Public Health,* 10(10), pp. 1-7. Available at: http://dx.doi.org/10.18203/2394-6040.ijcmph20232869 (Accessed: 22nd July 2024).

Kessler, C,R., Bromet, J,E. (2013) ‘The epidemiology of depression across cultures’, *Annu Rev Public Health*, 34, pp. 119-138. Available at: https://doi.org/10.1146%2Fannurev-publhealth-031912-114409 (Accessed: 22nd July 2024).

Keung, Z,E., McElroy, M,L., Ladner, P,E., Grubbs, G,E. (2020) ‘Defining the study cohort: Inclusion and exclusion criteria’, *Clinical Trials*, Available at: https://doi.org/10.1007/978-3-030-35488-6_5 (Accessed: 8th June 2024).

Kwon, M,K., Lee, S,J., Jeon, E,N., Kim, H,Y. (2017) ‘Factors associated with health-related quality of life in Koreans aged over 50 years: the forth and fifth korea national health and nutrition examination survey’, *Health and quality of life outcomes*, Available at: DOI 10.1186/s12955-017-0816-4 (Accessed: 6th July 2024)

Lancet (2021) ‘Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic’, 398, pp. 1-13. Available at: https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902143-7 (Accessed: 22nd July 2024).

Lenze, J,E., Schulz, R., Martire, M,L., Zdaniuk, B., Glass, T., Kop, J,W., Jackson, A,S., Reynnolds, F,C. (2005). ‘The course of functional decline in older people with persistently elevated depressive symptoms: longitudinal findings from the cardiovascular health study’, *J Am Geriatric Soc*, 53(4), pp. 569-575. Available at: https://doi.org/10.1111/j.1532-5415.2005.53202.x (Accessed: 28th July 2024).

Liegert, P., Pabst, A., Conrad, I., Bussche, V,D,H., Eisele, M., Hajek, A., Heser, K., Kleineidam, L., Weyerer, S., Werle, J., Pentzek., Weeg, D., Mosch, E., Wiese, B., Oey, A., Wagner, M., Maier, W. (2023) ‘The effect of depressive symptoms on quality of life and its different facets in the oldest age population: evidence from the AgeQualiDe prospective cohort study’, *Quality of life research*, 33, pp. 387-398. Available at: https://doi.org/10.1007/s11136-023-03526-7 (Accessed: 29th August 2024).

Lima, M,A,C., Ivbijaro, G. (2013) ‘Mental health and wellbeing of older people: opportunities and challenges’, *Mental Health in Family Medicine*, 10(3), pp. 125-127. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3822658/ (Accessed: 20th June 2024).

Lim, C,S., Chan, M,Y., Gan, Y,W. (2023) ‘Social and health determinants of quality of life and community dwelling older adults in malayisa’, *International Journal of environmental research and public health*, Available at: file:///C:/Users/sabin/Downloads/ijerph-20-03977%20(7).pdf (Accessed: 2nd July 2024)

Maguire, M., Delahunt, B. (2017) ‘Doing a thematic analysis: A practical, step by step guide for learning and teaching scholars’, *Dundalk Institute of Technology*, Available at: file:///C:/Users/sabin/Downloads/335-Article%20Text-1557-1-10-20171031.pdf (Accessed: 19th August 2024).

Malhi, S,G., Mann, J,J. (2018). ‘Depression’, *Lancet*, 392(10161), Available at: https://doi.org/10.1016/s0140-6736(18)31948-2 (Accessed: 22nd July 2024).

Mager, D. (2022) *How to choose keywords for research paper writing*. Available at: https://researcher.life/blog/article/use-of-keywords-in-research-paper/ (Accessed: 7th June 2024).

Martin, E,W. Bridgemon, D,K. (2012) *Quantitative and statistical research methods: from hypothesis and results.* Available at: https://www.wiley.com/en-us/Quantitative+and+Statistical+Research+Methods%3A+From+Hypothesis+to+Results-p-9780470631829 (Accessed: 2nd August 2024).

Mayo Clinic (2022) *Depression (Major Depressive Disorder).* Available at: https://www.mayoclinic.org/diseases-conditions/depression/symptoms-causes/syc-20356007 (Accessed: 22nd July 2024).

Mental Health Foundation (2023) *The cost of diagnosed mental health conditions: statistics*. Available at: https://www.mentalhealth.org.uk/explore-mental-health/mental-health-statistics/cost-diagnosed-mental-health-conditions-statistics (Accessed: 24th July 2024).

Mental Health UK (2024) *Types of Depression*. Available at: https://mentalhealth-uk.org/help-and-information/conditions/depression/types-of-depression/ (Accessed: 22nd July 2024).

Mezuk, B., Abdou, M,C., Hudson, D., Kershaw, N,K., Rafferty, A,J., Lee, H., Jackson, S,J. (2013) 'White Box Epidemiology and the social neuroscience of health behaviours: The environmental affordance model', *Soc Mental Health*, 3(2), Available at: https://doi.org/10.1177%2F2156869313480892 (Accessed: 28th July 2024).

Meline, T. (2006) 'Selecting Studies for Systematic Review: Inclusion and Exclusion Criteria', *Contemporary issues in communications science and disorders*, 33, pp. 21-27. Available at: https://pubs.asha.org/doi/pdf/10.1044/cicsd_33_S_21#:~:text=The%20concept%20of%20inclusion%20and,for%20the%20disorder%20under%20consideration. (Accessed: 25th June 2024).

Mental Health Foundation (2023) *Older People: Statistics*. Available at: https://www.mentalhealth.org.uk/explore-mental-health/statistics/older-people-statistics (Accessed: 20th June 2024).

Mhaskar, R., Emmanuel, P., Mishra, S., Patel, S., Naik, E., Kumar, A. (2009) 'Critical appraisal skills are essential to informed decision-making'*, Indian Journal of sexually transmitted diseases and AIDS,* 30(2), pp. 112-119. Available at: https://doi.org/10.4103%2F2589-0557.62770 (Accessed: 29th July 2024).

Monnot, J,M., Beehr, A,T. (2014) 'Subjective wellbeing at work: Disentangling source effects of stress and support on enthusiasm, contentment and meaningfulness', *Journal of Vocational Behaviour*, 85(2), pp. 204-218. Available at: https://doi.org/10.1016/j.jvb.2014.07.005 (Accessed: 20th July 2024).

Morrison, K. (2017) *Dissecting the literature: the importance of critical appraisal*. Available at: https://www.rcseng.ac.uk/library-and-publications/library/blog/dissecting-the-literature-the-importance-of-critical-appraisal/ (Accessed: 30th July 2024).

National Collaborating Centre for Mental Health (2010) *Depression with adults with a chronic physical health problem: Treatment and Management*. Available at: https://www.ncbi.nlm.nih.gov/books/NBK82926/#:~:text=In%20ICD%E2%80%9310%

20the%20patient,the%20first%20two%20(depressed%20mood (Accessed: 28th July 2024).

NHS England (2017) *News*. Available at: https://www.england.nhs.uk/2017/10/half-of-adults-aged-55-and-over-have-experienced-common-mental-health-problems-say-age-uk/ (Accessed: 26th June 2024).

NHS England (2022) *National Mental Health Programme*. Available at: https://www.england.nhs.uk/aac/wp-content/uploads/sites/50/2022/09/B1482_research-demand-signalling-national-mental-health-programme_september-2022.pdf (Accessed: 24th July 2024).

NHS England (2024) *Improving care for Older people*. Available at: https://www.england.nhs.uk/ourwork/clinical-policy/older-people/improving-care-for-older-people/#:~:text=Generally%2C%20someone%20over%20the%20age,healthier%20than%20someone%20aged%2060. (Accessed: 18th June 2024).

National Institute of Ageing (2021) *Depression and older Adults*. Available at: https://www.nia.nih.gov/health/mental-and-emotional-health/depression-and-older-adults (Accessed: 18th June 2024).

National Institute of Mental Health (2024) *Depression*. Available at: https://www.nimh.nih.gov/health/topics/depression#:~:text=What%20is%20depression%3F,sleeping%2C%20eating%2C%20or%20working. (Accessed: 3rd June 2024).

Netuveli, G., Blane, D. (2008) 'Quality of life in older ages', *British Medical Bulletin*, 85(1), pp. 113-126. Available at: https://doi.org/10.1093/bmb/ldn003 (Accessed: 26th July 2024).

Nobrega, F,M., Koyanagi, A. (2023) 'Health status and quality of life in comorbid physical multimorbidity and depression among adults aged <50 years and low income countries', *International Journal of social psychiatry*, 69(5), Available at: https://doi-org.ezproxy.uwtsd.ac.uk/10.1177/00207640231157253 (Accessed: 5th July 2024).

NSW Government (2020). *What is evidence hierarchy?* Available at: https://www.facs.nsw.gov.au/__data/assets/pdf_file/0007/789163/What-is-an-Evidence-Hierarchy.pdf (Accessed: 30th July 2024).

Office of National Statistics (2021) *Voices of our ageing population: Living Longer lives*. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/ageing/articles/voicesofourageingpopulation/livinglongerlives (Accessed: 20th June 2024).

Office of National Statistics (2021). *Quality of Life in the UK: May 2023*. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/qualityoflifeintheuk/may2023 (Accessed: 22nd July 2024).

Office of National Statistics (2022). *Cost of living and depression in adults, Great Britain: 29 September to 23 October 2022*. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/mentalhealth/articles/costoflivinganddepressioninadultsgreatbritain/29septemberto23october2022#:~:text=Around%201%20in%206%20(16,%2Dpandemic%20levels%20(10%25). (Accessed: 22nd July 2024).

Olsen, H,D,C., Moller, S., Ahrenfeldt, J,L. (2021) 'Sex differences in quality of life and depressive symptoms among middle-aged and elderly Europeans: results from the SHARE survey'*, Ageing and mental health*, 27(1), pp. 35-42. Available at: https://doi-org.ezproxy.uwtsd.ac.uk/10.1080/13607863.2021.2013434 (Accessed: 4th July 2024).

Pandis, N. (2014) 'Cross-sectional studies', *Statistics and Research design*, 146(1), pp. 127-129. Available at: https://doi.org/10.1016/j.ajodo.2014.05.005 (Accessed: 31st August 2024).

Park, J,H., Kim, R,Y., Jongsoon, C., Hee, S,L., Jae, H,K., Lee, H,H. (2023) 'The impact of depression, stress, and self-esteem on quality of life among older adults in south korea', *Pakistan Journal of medical sciences quarterly*, 40(4), pp.601. Available at: https://doi.org/10.12669/pjms.40.4.8912 (Accessed: 4th July 2024).

Park, E,J., Choi, R. (2022) 'Factors relating to depression and mental health that affect the quality of life in Elderly', *Journal of Environmental and Public Health*, 2022(1), pp. 1-11. Available at: https://doi.org/10.1155/2022/7764745 (Accessed: 29th August 2024).

Parker, L., Moran, M,G., Roberts, M,L., Calvert, M., McCahon, D. (2014) 'The burden of common chronic disease on health-related quality of life in an elderly community

dwelling in the UK', *Family Practice*, 31(5), pp. 557-563. Available at: https://doi.org/10.1093/fampra/cmu035 (Accessed: 7th July 2024)

Patino, M,C., Ferreira, C,J. (2018) 'Inclusion exclusion criteria in research studies: definitions and why they matter', *J Bras Pneumologia*, 44(2), pp. 84. Available at: https://doi.org/10.1590%2FS1806-37562018000000088 (Accessed: 8th June 2024).

Phyo, Z,Z,A., Freak-Poli, R., Craig, H., Gasevic, D., Stocks, P,N., Gonzalez-Chica, A,D., Ryan, J. (2020) 'Quality of life and mortality in the general population: a systematic review and meta-analysis', *BMC Public Health*, 20(1596). Available at: https://doi.org/10.1186/s12889-020-09639-9 (Accessed: 20th July 2024).

Pinto, S., Fumincelli, L., Mazzo, A., Caldeira, S., Martins, C,J. (2017) 'Comfort, wellbeing and quality of life: Discussion of the differences and similarities among the concepts', *Porto Biomedical Journal*, 2(1), pp. 6-12. Available at: https://doi.org/10.1016/j.pbj.2016.11.003 (Accessed: 1st September 2024).

Pocklington, C. (2017) 'Depression in older adults', *British Journal of Medical Practitioners*, 10(1), pp.1-7. Available at: https://www.bjmp.org/files/2017-10-1/bjmp-2017-10-1-a1007.pdf (Accessed: 27th June 2024).

Powell, L. (1997) 'Measures of quality of life and subjective wellbeing', *American society of ageing*, 21(1), pp. 45-47. Available at: https://research-ebsco-com.ezproxy.uwtsd.ac.uk/c/onvpsy/viewer/html/m73yfxq3vv?route=details (Accessed: 26th July 2024).

Public Health England (2017) *Psychosocial pathways and health outcomes: Informing action on health inequalities.* Available at: https://assets.publishing.service.gov.uk/media/5a74d3e440f0b65f613228d7/Psychosocial_pathways_and_health_equity.pdf (Accessed: 29th August 2024).

Queiros, A., Faria, D., Almeida, F. (2017) 'Strengths and limitations of qualitative and quantitative research methods', *European Journal of education studies*, 3(9), pp. 1-19. Available at: https://torontocentreforneonatalhealth.com/wp-content/uploads/2019/09/Article-Strength-and-Limitations-of-Qual-and-Quan-Research-Methods.pdf (Accessed: 4th August 2024).

Resnik, B,D. (2020) *What is ethics in research and is it important?*. Available at: https://www.niehs.nih.gov/research/resources/bioethics/whatis (Accessed: 10th June 2024).

Rong, J., Chen, G., Wang, X., Ge, Y., Meng, N., Xie, T., Ding, H. (2019) 'Correlation between depressive symptoms and quality of life and associated factors for depressive symptoms among rural elderly in anhui, china', *Clinical Interventions in ageing*, 14, pp. 1901-1910. Available at: DOI:10.2147/CIA.S225141 (Accessed: 6th July 2024).

Salib, V. (2022) *Deciding which depression screening tools to use*. Available at: https://www.techtarget.com/pharmalifesciences/feature/Deciding-Which-Depression-Screening-Tools-to-Use (Accessed: 28th August 2024).

Sare, S., Ljubicic, M., Gusar, I., Canovic, S., Konjevoda, S. (2021) 'Self-Esteem, Anxiety, and depression in older people in nursing homes', *Healthcare (Basel),* 9(8), Available at: https://doi.org/10.3390%2Fhealthcare9081035 (Accessed: 28th August 2024).

Schmidt, L., Mutlu, F,N,A., Elmore, R., Olorisade, K,B., Thomas, J., Higgins, T,P,J. (2021) 'Data extraction methods for systematic review (semi) automation: update of a living systematic review', *F1000 Research*, 10,401. Available at: https://doi.org/10.12688%2Ff1000research.51117.2 (Accessed: 3rd August 2024).

Schotter, R,E. (2013) 'Synonyms provide semantic preview benefit in english', *J Mem Lang*, 69(4), Available at: https://doi.org/10.1016%2Fj.jml.2013.09.002 (Accessed: 6th June 2024).

Shalchi, H. (2022) *Expressing depression differs across cultures*. Available at: https://blogs.bcm.edu/2022/11/10/expressing-depression-differs-across-cultures/ (Accessed: 12th August 2024).

Silva, C., Fonseca, C., Ferreira, R., Pinho, L., Schneider, C,B., Weidner, A., Morgado, B., Lopes, J,M. (2022) 'Depression in older adults during the COVID-19 pandemic: a systematic review protocol', *BMJ Open*, 12:e065610. Available at: doi: 10.1136/bmjopen-2022-065610 (Accessed: 26th July 2024).

Singh, S. (2023). *What is a conceptual framework and how to make it*. Available at: https://researcher.life/blog/article/what-is-a-conceptual-framework-and-how-to-make-

it-with-examples/#:~:text=A%20conceptual%20framework%20in%20research,within%20the%20field%20of%20study. (Accessed: 17th August 2024).

Sivertsen, H., Bjorklof, H,G., Engedal, K., Selbaek, G., Helvik, S,A. (2015) 'Depression and quality of life in older person: A review', *Dementia and Geriatric Cognitive Disorders*, 40(5-6), pp. 311-339. Available at: https://doi.org/10.1159/000437299 (Accessed: 20th June 2024).

Sozeri-Varma, G. (2012) 'Depression in the elderly: Clinical features and risk factors', *Aging and Disease*, 3(6), pp. 465-471. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3522513/ (Accessed: 18th June 2024).

Stone, A,A., Mackie, C. (2013) *Subjective Wellbeing*. Washington: The National Academic Press. Available at: https://doi.org/10.17226/18548 (Accessed: 17th June 2024).

Suarez-Almazor, E,M., Belseck, E., Homik, J., Ramos-Remus, C. (2000) 'Identifying clinical trials in the medical literature with electronic databases: MEDLINE alone is not enough', *Control Clinical Trials*, 21(5), pp. 476-487. Available at: https://doi.org/10.1016/s0197-2456(00)00067-2 (Accessed: 8th June 2024).

Sun, X., Li, X. (2023) 'Editorial: Ageing and chronic disease: public health challenge and education reform', *Frontiers in Public Health*, 11,1175898. Available at: https://doi.org/10.3389%2Ffpubh.2023.1175898 (Accessed: 26th June 2024).

Taylor, S,K., Mahtani, R,K., Aronson, K,J. (2020) 'Summarizing good practice guidelines for data extraction for systematic reviews and meta-analysis', *BMJ Journals*, 26(3), Available at: https://doi.org/10.1136/bmjebm-2020-111651 (Accessed: 29th July 2024).

Teoli, A., Bhardwaj, A. (2023) *Quality of Life*. StatPearls Publishing: Treasure Island. Available at: https://www.ncbi.nlm.nih.gov/books/NBK536962/#:~:text=Quality%20of%20life%20(QoL)%20is,a%20specific%20point%20in%20time. (Accessed: 18th July 2024).

Thacker, B,S., Stroup, F,D., Carande-Kulis, V., Marks, S,J., Roy, K., Gerberding, L,J. (2006) 'Measuring the Publics Health', *Public Health Reports*, 121(1), pp. 14-22.

Available at: https://doi.org/10.1177%2F003335490612100107 (Accessed: 17th June 2024).

Thomas, J., Harden, A. (2008) 'Methods for the thematic synthesis of qualitative research in systematic reviews', *BMC Medical research methodology*, 8(45), Available at: https://doi.org/10.1186/1471-2288-8-45 (Accessed: 5th August 2024).

Thomas, R. (2023) *Research aims and objectives; the dynamic dua for successful research*. Available at: https://www.enago.com/academy/research-aims-and-objectives/#:~:text=Research%20aims%20are%20broad%20statements,ultimate%20goal%20of%20the%20research. (Accessed: 17th August 2024).

Tod, D, Booth, A., Smith, B. (2021) 'Critical Appraisal', *International review of sport and exercise psychology*, 15(1), pp. 52-72. Available at: https://doi.org/10.1080/1750984X.2021.1952471 (Accessed: 30th July 2024).

Tusa, N., Kautiainen, H., Elfving, P., Sinikallio, S., Mantyselka, P. (2023) 'Depressive symptoms decrease health related quality of life of patients with coronary artery disease and diabetes; a 12 month follow up study in primary care', *Scandinavian Journal of primary health care*, 41(3), pp. 276-286. Available at: DOI:10.1080/02813432.2023.2233995 (Accessed: 3rd July 2024).

United Nations (2022) *World Population Prospects 2022*. Available at: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf (Accessed: 20th June 2024).

Voros, V., Gutierrez, M,D., Alvarez, F., Boda-Jorg, A., Kovacs, A., Tenyi, T., Fekete, S., Osvath, P. (2019) 'The impact of depressive mood and cognitive impairment on quality of life of the elderly', *The official journal of the Japanese psychogeriatric society*, Available at: https://doi.org/10.1111/psyg.12495 (Accessed: 6th July 2024).

Wang, J., Xue, J., Jiang, Y., Zhu, T., Chen, S. (2020) 'Mediating effects of depressive symptoms on social support and quality of life among rural older Chinese', *Health and quality of life outcomes*, 18, pp. 1-8. Available at: DOI:10.1186/s12955-020-01490-1 (Accessed: 6th July 2024).

World Health Organization (2010) *Ageing: Global Population*. Available at: https://www.who.int/news-room/questions-and-answers/item/population-ageing (Accessed: 20th June 2024).

World Health Organization (2012) *WHOQOL User Manual*. Available at: https://iris.who.int/bitstream/handle/10665/77932/WHO_HIS_HSI_Rev.2012.03_eng.pdf?sequence=1 (Accessed: 18th July 2024).

World Health Organisation (2022) *Mental Health*. Available at: https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response (Accessed: 11th June 2024).

World Health Organisation (2023) *Depressive Disorder (Depression)*. Available at: https://www.who.int/news-room/fact-sheets/detail/depression (Accessed: 3rd June 2024).

World Health Organization (2023a) *Mental Health of Older adults*. Available at: https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults (Accessed: 18th June 2024).

World Health Organization (2023b) *Depressive Disorder (Depression).* Available at: https://www.who.int/news-room/fact-sheets/detail/depression (Accessed: 22nd July 2024).

World Health Organization (2024) *GHE: Life expectancy and healthy life expectancy*. Available at: https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy (Accessed: 22nd July 2024).

World Health Organization (2024a). *Depression*. Available at: https://www.who.int/health-topics/depression#tab=tab_2 (Accessed: 24th July 2024).

Wroblewska, I., Bartyzel, M., Chmielowiec, B., Puscion, M., Chmielewski, P,J. (2021) 'The impact of depression on the quality of life in elderly people', *Medycyna Ogolina Nauki O Zdrowiu,* 27(2), pp. 199-204. Available at: https://doi.org/10.26444/monz/136243 (Accessed: 27th June 2024).

APPENDIX A: DATA EXTRACTION FOR QUANTITATIVE STUDIES (5.4)

Author, Publication Year and Location of study	Aim	Study design	Participant Age & sample size	QOL Assessment Tool	Depression Assessment Tool	Data analysis and Confounders adjusted	Key findings
Nobrega and Koyanagi 2023 (China, Ghana, India, Mexico, Russia, South Africa)	To determine the association of comorbid depression in physical multimorbidity with health outcomes & QOL	Cross-sectional (face to face interviews; standard questionnaire)	Age 50+ 34,129 participants	WHOQOL	DSM-IV	Multivariable linear regression analysis Adjusted; Age, sex, education level, wealth, marital status, employment status, social participation, PA, smoking, country	Comorbid depression associated with significantly worse health status in terms of sleep/energy (β=14.71), selfcare (β=13.23), pain (β=13.03), mobility (β11.06), cognition (β=10.41), stress (β=8.35) & lower QOL (β=-8.81)
Lim and Chan 2023 (Malaysia)	To determine the social &	Cross-sectional (face to face interviews;	Age; 60+	WHOQOL-OLD / Lubben social network	GDS	Stepwise aggression linear analysis.	Most predictive variable of low QOL; education, marital

	health predictors of QOL	structured questionnaire)	624 participants	scale / WHO-DAS		Adjusted; age, sex, ethnicity, socioeconomic status, PA, cognitive function, non-communicable disease	status, PA, function, sleep, depression (β=-0.422) followed by disability (β=-0.264). High QOL variable; income (β=0.119), social network (β=0.064)
Tusa 2023 (Finland)	To analyse depressive symptoms association with HRQOL with chronic disease	Cross sectional (questionnaire) semi structured	Age; 60+ 622 participants	15D	(BDI) Beck Depression Inventory	(Linear Regression) Adjusted; Age, gender, socioeconomic status, medication, comorbidities, sleep, lifestyle factors, psychosocial, history of depression,	Depressive symptoms impact a negative role on QOL. Significantly different between patients without and with depressive symptoms in CAD ($p < 0.001$) and DM ($p= 0.024$). In CAD with depressive symptoms, the change was -0.064 (95% CI: -0.094 to -

							0.035) and in DM -0.018 (95% CI: -0.037 to 0.001).
Park 2023 (South Korea)	To identify the effects of depression, stress & self-esteem	Cross – sectional (survey)	Age; 72 average 107 participants	WHOQOL-BREF	CES-D (Centre of epidemiology studies depression scale)	Multiple Linear regression analysis Adjusted; sex, age, comorbidities, education, BMI	Depression negative effect on QOL (β=-0.393), self-esteem positive effect on QOL (β=0.351), stress on QOL (β=-0.117)
Olsen 2023 (28 countries in Europe)	To examine sex differences in QOL & depressive symptoms	Cross sectional (survey)	Age; 50+ 118,119 participants	CASP-19	EURO-D	Linear and Logistic regression Adjusted; education, marital status, comorbidities, employment, age, region,	QOL decreased with ageing with depressive symptoms increasing. Average QOL for women lower than men (SD 6.6 vs 37.4), women reported more depressive symptoms than men (SD 34.5% vs 20%).

							Highest QOL with low depressive symptoms in northern Europe.
Ajayi 2022 (Nigeria)	To investigate the role of psychosocial factors of stress, anxiety, depression, social support on QOL.	Cross-sectional survey	Age; 60+ 96 Participants	OPQOL-BREF (Old people QOL brief questionnaire)	DASS-21	Correlation analysis Adjusted: age, gender, marital status, socioeconomic status, cognitive function, MH status,	Demographic variables such as age (r=-0.367), marital status (r=-0.225), socio economic status (r=0.488) associated with QOL.
Eunkyo 2021 (Korea)	To evaluate the relationship between socio demographic factors, multidimensional	Cross sectional (questionnaire)	Age; 40+ 1200 participated	SF-12 (Short form 12) / MQOL (McGill quality of life questionnaire)	PHQ-9 (Patient health questionnaire 9)	Statistical analysis Adjusted; age, gender, education, marital status,	Those educated above college suffered a worse mental HRQOL (aOR=0.70). Those educated at higher than college level or

	QOL and depression.					comorbidities, income, PA	were religious reported a worse mental HRQOL (aOR = 0.70). Women with high scores of depression
Damme-Ostapowicz 2021 (Poland)	To assess life satisfaction & depressive symptoms in mentally active older adults	Cross sectional (survey)	Age; 60+ 250 participants	SLLS (Satisfaction of life scale)	Beck depression inventory / geriatric depression scale / HADS (Hospital anxiety & depression scale)	Regression analysis Adjusted; age, gender, education, marital status, physical health, income	Level of depression increased- life satisfaction decreased. Significant correlations. People with worse finance had low life satisfaction & high depression.
Wroblewska 2021 (Poland)	To assess the impact of depression on QOL in elderly	Cross-sectional (questionnaire)	Age; 65- 88 years 140 participants	WHOQOL-BREF (World health organization quality of life short version)	GPS (Geriatric Depression scale)	(ANOVA) analysis Adjusted; age, socio economic status, marital	Statistical: Mild depression(37.86%), severe depression(12.14%), QOL good (42.14%), 40% not satisfied with health, 37.14%

						status, education, comorbidities	not satisfied with sleep, 22.14% pain influenced everyday life
Jemal 2021 (Ethiopia)	To assess geriatric depression, QOL & associated factors in low resource country	Cross sectional (questionnaire)	Age; 50+ 822 participants	WHOQOL-BREF	GDS	Logistic regression analysis Adjusted; gender, age, education	54% had depression, 20% had moderate symptoms, 11% had severe symptoms & 51% had low QOL. More age increased the more likely depression would develop with factors that caused this 2 times more likely; single (AOR=1.67), no formal education (AOR=1.79), living alone (AOR=1.58), comorbid (AOR=2.27),lack of social support (55%)

Hussenoeder 2021 (Germany)	To assess what specific aspects are affected by depression	Cross-sectional (face to face survey)	Age; 60 + (females) 1031 participants	WHOQOL-BREF & WHOQOL-OLD	IADL (Lawton & Brody scale) / DemTect screening	Regression analysis Adjusted; age, socio economic, health, gender, marital status, education	Statistical: 52% general population, 73% depression. General population (68.51)- depression population (63.51) – high score in general population undiagnosed. Depression low scores in physical health, psychological, social, QOL.
Wang 2020 (China)	To investigate the mediating role of depressive symptoms in association between social	Cross sectional (face to face)	Age; 60+ 420 participants	MOSS-SSS (medical outcome study of Social support survey) / WHOQOL-BREF	PHQ-9	Descriptive analysis Adjusted; gender, education, age, socio	Social support existed through depression to QOL (ab=0.0213). 4.8% variance in QOL indirectly effecting depression symptoms

	support and QOL					economic, marital status	
Voros 2020 (Hungary)	To analyse factors affecting their QOL	Cross sectional (Semi structured interview)	Age; 65+ 60 participants	OPQOL (Older people quality of life) / QOL-AD (Quality of life in Alzheimer's disease)	GDS & Beck depression inventory	Descriptive statistical analysis Adjusted; Age and symptoms	Results of depression shows significant negative correlation on QOL. Better QOL on lower age, lack of depressive symptoms
Rong 2019 (China)	To assess current status of depressive symptoms & QOL among rural elderly in China & explore correlation & associated factors or depressive symptoms	Cross sectional (face to face questionnaires)	Age; 60+ 3349 participants	EQ-5D	GDS-30	Partial correlation analysis Adjusted; Age, gender, education, socio-economic factors, poverty	GDS score (12.40), with poor group higher (14.045) than non poor group (11.472).Negative corelation between depressive symptoms and QOL (r=-0.400) Factors associated with depression: poverty, low EQ-5D score, female

							gender, older age, illiteracy, unemployed, chronic diseases.
Kwon 2017 (Korea)	To evaluate and analyse factors associated with HRQOL	Cross sectional (Survey)	Age; 50+ 17,937 participants	Euro-QoL-5D / KNHANES (Korean national health & nutrition Examination survey)	EQ-5D	Descriptive analysis Adjusted; age, socio economic, marital status, gender, location of residence, marital status, income	Health declined in ageing – low socio-economic status had negative associations with health. Chronic medical conditions, depression & arthritis had associations with health.
Cao 2016 (China)	To assess the QOL & depression & further insights into the relationship	Cross sectional (survey)	Age; 60+ 1168 participants	WHOQOL-BREF	GDS	Logistic regression analysis Adjusted; age, gender, education,	Those with depression were older, less educated. Negative correlations between physical health, psychological health,

	between QOL & depression					income, marital status, BMI	& environmental. Negative correlation between health (OR=0.928), psychological health (OR=0.906), environment (OR=0.966) & depression.
Ilievova 2016 (Slovakia)	To analyse the change of QOL & level of depression & possible associations of QOL & level of depression	Cross sectional (questionnaires)	Age; 62+ 38 Participants	Q-LES-Q-SF (QOL Enjoyment & satisfaction questionnaire)	GDS-SF	Descriptive analysis Adjusted: age, marital status	A strong negative correlation between depression and QOL(first medium= 8.5) and last measurement (medium=6.0). In 11 month stay significant difference in QOL in nursing home (first medium = 41.5) and last measurement (medium=46.0)

Campos 2014 (Brazil)	To examine the associations among QOL, gender, & physical & psychosocial health	Cross-sectional (questionnaire)	Age; 60+ 2052 participants	WHOQOL-BREF / WHOQOL-OLD	GDS-15	Ordinal Logistic regression Adjusted; age, gender, marital status, income, occupation and area of residence	Retired men had better QOL than non retired (OR=2.2). Women who did not carry out PA (OR=0.7) did have poorer QOL.
Feng 2014 (China)	To assess the burden & correlates of geriatric depression	Cross-sectional (face to face questionnaire)	Age; 50+ 1329 participants		Geriatric mental state schedule (GMS)	Logistic regression analysis Adjusted; age, gender, residence, education, income, marital status	Religious belief (AOR=3.92), satisfaction on QOL (AOR=0.53), income (AOR=0.75), chronic diseases (AOR=1.70), suffering from negative events (AOR=1.72), lack of self care (AOR=2.20) were all

							associated with depression.
Parker 2014 (UK)	To explore factors associated with HRQOL	Cross sectional (questionnaires)	Age; 65+ 5849 participants	Euro QOL EQ-5D	HADS	Descriptive analysis (multivariable) Adjusted: Age, gender, marital status, income, education, health	Impaired HRQOL associated with increase age, smoking, comorbidities, female gender – most observed being depression.
Garin 2014 (Finland, Poland, Spain)	To assess the combined impact of chronic physical & mental conditions on QOL	Cross sectional (survey)	Age; 50+ 3625 participants	WHOQOL-AGE	DSM-IV	Descriptive analysis Adjusted: gender, chronic conditions, age, marital status, income, education,	Chronic conditions associated with poor results in QOL – Depression greatest impact on outcomes – women suffered more. Depression showed lower disability but not significant (β; -6.54).

Chen 2014 (China)	To investigate QOL & its related factors among Chinese people who live alone	Cross-sectional (face to face questionnaire)	Age; 60+ 521 participants	OPQOL (Older peoples QOL)	GDS / SPMSQ / UCLA Loneliness scale / SSRS	Descriptive analysis. Adjusted; age, gender, income, education, health status	Living alone was low satisfaction in QOL. Also, dwelling conditions, health, functional ability, depression, economic level, social support, loneliness & health services relation to QOL.
Akyol 2010 (Turkey)	To investigate the effects of general state of health & personal characteristics on QOL & evaluate relationship between level of depressive symptoms	Cross sectional (face to face questionnaire)	Age; 65 + 120 participants	Short form-36	Geriatric depression scale (GDS) / Pain visual analogue scale (VAS)	Statistical analysis Adjusted; age, gender, marital status, BMI, occupation, education	Negative correlation in QOL and pain & level of depression ($p<0.05$). Difference in presence of chronic disease (physical, social, pain) of QOL and depression.

Chachamovich 2008 (20 countries)	To assess the association of major & subsyndromal depression on QOL & attitudes towards ageing	Cross sectional (questionnaire)	Age;60+ 4316 participants	WHOQOL-OLD	GDS	Statistical analysis (ANCOVA) Adjusted; age, gender, marital status, education,	Depression is associated with decrease in all QOL domains & pattern of negative attitudes towards ageing
Chan 2006 (Shanghai, China)	To investigate the self-related QOL diagnosed with depression	Cross-sectional (survey)	Age; 65+ 71 participants	WHOQOL-BREF	GDS / IADL / SSQ-6	Descriptive analysis Adjusted; age, gender, marital status, education, medication	Higher level of depression related to poorer health QOL. Least satisfied with physical health

Abbreviations: BMI (Body Mass Index), CAD (Coronary artery disease), DM (Diabetes), GDS (Geriatric Depression Scale), HA (Hypertension), MH (Mental Health), HRQOL (Health related quality of life), PA (Physical activity), QOL (Quality of life),

APPENDIX B: QUALITY ASSESSMENT FOR QUANTITATIVE STUDIES – COUGHLAN FRAMEWORK (4.6)

Questions	**Nobrega and Koyanagi (2023)**	**Lim and Chan (2023)**	**Tusa et al., (2023)**	**Park et al., (2023)**	**Olsen and Moller (2023)**	**Ajayi and Ukpoju (2022)**	**Eunkyo et al., (2021)**	**Damme-Ostapowicz et al., (2021)**
Writing style: is report well written	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Author: do researchers qualifications indicate a degree of knowledge?	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Report Title: is it clear, accurate & unambiguous?	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Abstract: does it offer a clear overview?	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Not clearly identified in overview	Presented and clear	Presented but not clear	Presented and clear
Purpose/ Research problem: is the purpose of the study/research problem clearly identified?	Presented but not clearly identified	Presented but not clearly identified	Presented but not clearly identified	Presented but not clearly identified	Not clearly identified	Presented but not clearly identified	Presented but not clearly identified	Presented and clear
Logical consistency:	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Literature review	Process in logical manner. Research from 2007-2010. Primary sources	Logically organized. Research from 2020. Primary sources	Logically organized. Research from 2017-2018. Primary sources	Logically organized. Research dates does not state. Primary sources	Logically organized. Research from 2004-2020. Primary sources	Logically organized. Research from 2019. Primary sources	Logically organized. Research in 2018. Primary sources	Logically organized. Research in 2019. Primary sources

Theoretical framework	No framework identified	Framework identified and described	No framework identified	No framework identified	No framework identified.	No framework identified	No framework identified	No framework identified
Aims/objectives/research question	Aim identified. No objective or research question identified. Reflects information presented	Aim identified. No objective or research question. Reflects information presented	Aim and objective identified. Reflects information presented	Aim identified. Objective and research question not identified. Reflects information presented.	Aim & objective identified. Research question not identified. Reflects information presented.	No aim, objective or research questions. Reflects information presented	Aim is identified. No objective or research question. Reflects information presented.	Aim identified. No objective or research question. Reflects information presented.
Sample: Target population identified? Sample selected? Adequate size?	Clear. Probability sample. Adequate size. Inclusion exclusion not identified	Clear. Probability sample. Adequate size. Inclusion exclusion not identified	Clear. Probability sample. Adequate size. No inclusion. Exclusion identified.	Clear. Probability sample. Not of adequate size. No inclusion exclusion identified.	Clear. Probability sample. Adequate size. No inclusion exclusion identified	Clear. Probability sample. Not of adequate size. Inclusion exclusion identified.	Clear. Probability sample. Adequate size. No inclusion exclusion identified.	Clear. probability sample. Not of adequate size. Inclusion exclusion identified.
Ethical considerations	Fully informed (written)	Fully informed (written)	Fully informed	Fully informed	Does not state	Fully informed	Fully informed	Fully informed
Operational definitions	Clearly defined	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified

Methodology	Research design clearly identified and appropriate. Instrument appropriate but not described. Validity & reliability testing not undertaken. Results discussed. No pilot study taken	Research design clearly identified and appropriate. Instrument appropriate. Validity & reliability testing not undertaken. Results discussed. No pilot study taken	Research design not identified however appropriate. Validity & reliability not identified. Results discussed. No pilot study taken	Research design not identified however appropriate. Validity & reliability identified. Results discussed. No pilot study taken	Research design clearly identified but not described. Validity & reliability identified. Results discussed. No pilot study taken	Research design identified not described. No validity but partially reliability applied. No pilot study	Research design identified & described. Instrument described. No reliability validity testing undertaken. No pilot study taken	Research design identified. Instrument described. No validity reliability testing. No pilot study taken.
Data analysis/ results	Multivariable linear regression analysis. Appropriate.	Stepwise linear aggression analysis. Appropriate.	Linear regression. Appropriate.	Multiple linear analysis (Regression). Appropriate.	Linear & logistic regression. Appropriate.	Regression analysis. Appropriate.	Statistical analysis. Appropriate.	Regression analysis. Appropriate.
Discussion	Strengths & limitations clearly identified. No recommendation	Strengths identified. No limitations identified. No recommendation	Strengths & weaknesses identified. No recommendation	No strengths identified. Limitations identified. No recommendation	Strengths & limitations identified. No recommendation	No strengths. limitations identified. Recommendations identified.	No strengths. Limitations identified. No recommendation	No strengths identified. Limitations identified. No recommendation
References	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified

APPENDIX B: QUALITY ASSESSMENT FOR QUANTITATIVE STUDIES – COUGHLAN FRAMEWORK (4.6)

Questions	**Wroblewska et al., (2021)**	**Jemal et al., (2021)**	**Hussenoeder et al., (2021)**	**Wang et al., (2020)**	**Voros et al., (2020)**	**Rong et al., (2019)**	**Kwon et al., (2017)**	**Cao et al., (2016)**
Writing style	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Author	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Report Title	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Abstract	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Purpose/ Research problem	Presented but not fully clear	Presented	Presented but not clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Logical consistency	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Literature review	Logically organized. Research from 2017-2019. Primary sources	Logically organized. Research in 2020	Logically organized. Research in 2012	Logically organized. Research in 2017	Logically organized. Research does not state dates.	Logically organized. Research in 2018	Logically organized. Research from 2007-2012	Logically organized. Research from 2014-2015
Theoretical framework	No framework identified	No framework identified	No framework identified	No framework identified	No framework identified	No framework identified	No framework identified	No framework identified

Aims/objectives/research question	Aim identified. No research question. Reflects information presented.	Aim identified. No objective or research question. Reflects information presented.	No aim, objective or research question however reflects information presented	Aim identified. No objective or research question. Reflects information presented	Aim identified. Hypothesis identified. Reflects information presented	Aim identified. No objective or question. Reflects information presented	Aim identified. No objective or question. Reflects information presented	Aim identified. No objective or question. Reflects information presented.
Sample: Target population identified? Sample selected? Adequate size?	Clear. Probability sample. Not adequate size. No inclusion exclusion	Clear. Probability sample. Not adequate size. No inclusion exclusion.	Clear. Probability sample. Adequate size. No inclusion exclusion.	Clear. Probability sample. Not of adequate size. No inclusion exclusion	Clear. Probability sample. Not of adequate size. No inclusion exclusion	Clear. Probability sample. Adequate size. No inclusion. Exclusion identified	Clear. Probability sample. Adequate size. No inclusion exclusion	Clear. Probability sample. Adequate size. No inclusion. Exclusion included.
Ethical considerations	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed
Operational definitions	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified

Methodology	Research design not identified. Instrument not described but appropriate. Validity reliability testing not undertaken. Results discussed. No pilot study taken.	Research design identified not described. Instrument not described but appropriate. Validity reliability testing not undertaken. Results discussed. No pilot study taken	Research design not described. Instrument described. No validity reliability testing undertaken. Results discussed. No pilot study taken	Research design identified but not described. No reliability validity testing undertaken. No pilot study	Research design not identified. No reliability validity testing. No pilot study	Research design identified. No reliability validity testing. No pilot study	Research design identified. No reliability validity testing. No pilot study	Research design identified. No validity reliability testing. No pilot study
Data analysis/ results	Inferential (ANOVA) analysis. Appropriate.	Logistic regression analysis. Appropriate.	Regression analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive statistical analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate	Logistic regression analysis. Appropriate
Discussion	Findings linked back to review. No strengths limitations. No recommendation	Findings linked back to review. No strengths. Limitations identified. No recommendation.	Findings linked back to review. No strengths. Limitations identified. No recommendation	Findings linked back to review.No strengths. Limitations identified. No recommendation	Findings linked back to review. No strengths. Limitations identified. No recommendation	Findings linked back to review. Strengths & limitations identified. No recommendation	Findings linked back to review. No strengths, limitations identified. No recommendation	Findings linked back to review. No strengths limitations. No recommendations
References	Clearly identified	Clearly identified.	Clearly identified	Clearly identified	Clearly identified	Clearly Identified	Clearly identified	Clearly identified

APPENDIX B: QUALITY ASSESSMENT FOR QUANTITATIVE STUDIES – COUGHLAN FRAMEWORK (4.6)

Questions	**Ilievova and Zitny (2016)**	**Campos (2014)**	**Feng (2014)**	**Parker (2014)**	**Garin (2014)**	**Chen (2013)**	**Aykol (2009)**	**Chachamovich (2008)**	**Chan (2006)**
Writing style	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Author	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Report Title	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Abstract	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Purpose/ Research problem	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and Clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Logical consistency	Presented and clear	Presented but not clear	Presented but not clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear	Presented and clear
Literature review	Logically organized. Research from 2014-2015. Primary sources	Logically organized. Research in 2012. Primary sources	Logically organized. Research in 2011. Primary sources	Logically organized. Research in 2002. Primary sources	Logically organized. Research from 2011 – 2012. Primary sources	Logically organized. Research from 2011-2012. Primary sources	Logically organized. Research in 2008. Primary sources	Logically organized. Research in 2005. Primary sources	Logically organized. Research in 2005. Primary sources
Theoretical framework	No framework identified	No framework identified	No framework identified	No framework identified	No framework identified	No frame work identified	No frame work identified	No framework	No framework

Aims/objectives/research question	Aim identified. No objective or question. Reflects information presented	Aim identified. No objective or question. Reflects information presented	No aim/objective/question. Reflects information provided	Aim and objective identified. No question. Reflects information provided	Aim identified. No objective or question. Reflects information provided.	Aim identified. No objective or question. Reflects information provided	Aim and objective identified. No research question. Reflects information provided	Aim identified. No objective or question. Reflects information provided	Aim and objective identified. Reflects information provided
Sample: Target population identified? Sample selected? Adequate size?	Clear. Probability sample. Not of adequate size. Inclusion identified no exclusion.	Clear. Probability sample. Adequate size. No inclusion exclusion	Clear. Probability sample. Adequate size. No inclusion exclusion	Clear. Probability sample. Adequate size. No inclusion exclusion.	Clear. Probability sample. Adequate size. Inclusion exclusion identified.	Clear. Probability sample. Not of adequate size. No inclusion exclusion	Clear. Probability sample. Not of adequate size. No inclusion exclusion	Clear. Probability sample. Not of adequate size. No inclusion exclusion	Clear. Probability sample. Not of adequate size. No inclusion exclusion.
Ethical considerations	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed	Fully informed
Operational definitions	Clearly identified	Identified	Identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified

Methodology	Research design not identified. Instrument described and appropriate. Validity reliability testing not undertaken. Results discussed. No Pilot study taken.	Research design not identified. Instrument described and appropriate. No reliability or validity testing. Results discussed. Pilot study taken with 107 participants.	Research design identified. Instrument described. No reliability validity testing. No pilot study	Research design identified. Instrument described. No validity reliability testing. No pilot study	Research design identified. Instrument described. No validity reliability testing. No pilot study	Research design identified. Instrument described. No validity reliability. No pilot study	Research design identified. Instrument described. No validity reliability. No pilot study.	Research design identified. Instrument described. No reliability validity. No pilot study.	Research design identified. Instrument described. No reliability validity. No pilot study
Data analysis/ results	Descriptive analysis. Appropriate.	Ordinal logistic regression. Appropriate.	Logistic regression. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate	Descriptive analysis. Appropriate
Discussion	Findings liked back to review. No strengths limitations. No recommendation	Findings linked back to review. No strengths. Limitations identified. No recommendations.	Findings linked back to review. Strength and limitations identified. No recommendation	Findings linked back to review. Strengths and limitations identified. No recommendation	Findings linked back to review. Strengths and limitations identified. No recommendation	Findings linked with review. No strengths but limitations included. No recommendation	Findings linked with review. No strengths limitations. No recommendation	Findings linked with review. No strength, limitations identified. No recommendation.	Findings linked with review. No strengths limitations identified. No recommendation.
References	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified.

APPENDIX C: THEMES MIND MAP