What are the most important factors that affect quality of life among elderly residents in long term care and how can we improve quality of life for future residents?

Carla Scalzo-Dees
What are the Most Important Factors that Affect Quality of Life among Elderly Residents in Long Term Care and How can we Improve Quality of Life for Future Residents?

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Introduction

As the elder population is constantly increasing over the years, quality of life (QoL) among the elderly is becoming a very important issue. Quality of life is a concept that theoretically consists of an individual’s functional capacity, health status, psychological wellbeing, social support, morale, dependence, coping and adjustment. It is based on previous research, which has shown that good health and functional ability, a sense of personal usefulness, social participation and good level of income have a positive impact on both psychological wellbeing and perceived quality of life among the elderly. On the other hand, even though quality of care for institutionalized care dependent clients has improved over the previous years and people’s life expectancy has increased, there is still a wealth of evidence which proves that the elderly may be becoming lonelier, more depressed and many are living with low levels of life satisfaction and wellbeing. One of the aims of future public policy is more likely to focus on maintaining the independence of the elder population, allowing them to play a part in society and to help them cope with the struggles of older age, such as the physical, psychological and social aspects of it; the overall aim is to add quality of life to years of life. Therefore, the focus of this project is to identify and assess some of the most important factors that may have an impact on the QoL of the elderly. I will perform a literature review in which I will focus on the following factors: health, social participation, activeness and competence. Based on this, I will attempt to suggest ways in which we can change aspects of institutionalized care in order to improve the wellbeing of future long-term care residents. However, quality of life is a hard concept to define. It is a multi-level and amorphous idea which takes into account a collection of objective and subjective factors that interact together. It is based on self-perception and is influenced by psychological entities. Thus, it is indisputable that this concept includes both social science as well as health related aspects of quality of life. Consequently, due to the absence of a prevalent definition of QoL, it has become a very challenging concept to measure. Research has indicated that subjective self-ratings of well-being and health are more suitable and effective when it comes to measuring QoL, in comparison to other approaches such as objective socio-demographic indicators. Hence, I will compare current universal subjective self-rating QoL questionnaires and will use the one that I believe is most

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appropriate in a small sample of residents living in a Spanish care home, in order to see whether my findings are consistent with previous research. Accordingly, based on my findings and earlier research, I will be able to propose ways in which we can improve institutionalized care in order to promote a better QoL for institutionalized care dependent clients.

Health and functioning

Health is claimed to be the most important determinant of happiness among the elderly. Former research into QoL among elder residents has reported that physical frailty and health related problems are closely associated with wellbeing. Many studies have found that the most common factors associated with QoL include social comparisons and expectations, psychological and personality related characteristics, level of income, as well as physical health and functional capacity. In other words, these variables explained the highest proportion of the variance between groups in their quality of life ratings. Ene-Margit Titt and Kai Saks performed a study where the findings obtained showed that physical frailty and poor functioning can also have a high impact on QoL of care-dependent people. The focus of the study was to compare QoL of elder people living at home and elder patients receiving long-term institutionalized care in the following European countries: Estonia, United Kingdom, Sweden, Finland and Germany. The results of the study showed that German clients had the highest level of functional dependency, yet there was no difference in QoL of German residents in comparison to Finland and Sweden. Furthermore, Estonian, Swedish and Finnish long-term care clients were found to have a similar functional level, however, the QoL for Estonian clients was particularly lower. The fact that the UK overall had the best ratings for QoL can be due to the fact that UK clients have better functional ability compared to other countries. One possible explanation for this is could be that people in the UK can easily access long-term care services compared to other countries. At the same time, those who have better functioning, and may not rely as much on the help of other people, are more capable of choosing the type of care they will be receive.

It is evident that people who have less functional ability may live in care homes which are adapted to suit their needs; their environment has been modified in order to support their disabilities. Nonetheless, this can be uncomfortable as it means that the surroundings are less homelike, in other words, the negative effect of non-home like surroundings may outweigh its positive influence so that the perceived quality of the environment in general is poor. In addition, with advances in scientific research, the number of surgical, pharmacological, and technological treatments have raised over the years, and often, those who receive these treatments may experience unfavourable side effects. One obvious issue that is raised in these situations is the discomfort that the patient receiving the treatment may experience. And so, the following question is raised: up to what extent are the unwanted side effects justified by the gains of therapy and life extension? It is indisputable that this will have an impact on an individual’s perceived QoL, and so, due to the ethical issues raised in these situations, treatments and frailty among old age appear to be the main focus of current research on QoL.

As I previously mentioned, there is a sizeable body of research evidence showing that physical health can have a severe impact on emotional wellbeing. Surr et al estimated that up to 70% of all new cases of depression among the elderly may be determined by ill health. Additionally, findings of previous studies have shown that, approximately, the rates of depression for elder patients who suffer from health-related problems are almost double the rate of those who don’t. “In the EU almost one in three people aged 85 or over say they are severely limited by physical or mental health conditions in the

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activities they normally do”. It is coherent that physical frailty and ill health are important determinants of depression, however, it has also been found that suffering from depression can also cause further physical disability. For example, a longitudinal study conducted by Kivelä and Pahkala in Finland showed that older individuals who suffer from depression were more likely to develop physical disabilities than those who did not. Moreover, elder people who have poor functioning due to ill health are more likely to limit their communication with friends and hence, tend to isolate themselves. They then tend to believe that they are no longer part of a family or a community due to lack of affection and closeness to their former friends, and thus, this could heighten isolation and could even lead to depression. A study which involved examining patients for more than 15 years through a national forum, found that those individuals who suffered from chronic illness felt more emotionally distressed by the impact their illness had on their social life, rather than the actual illness itself. On the other hand, the fact that these variables associate with each other does not mean that they are impossible to control. There are existing services which focus on helping these types of older individuals who suffer from poor physical and emotional wellbeing. Perhaps one key solution to this problem could be to introduce more community services to help these individuals cope with their disabilities and to increase their sense in the community. This therefore moves us onto the next factor: social participation, interactions and loneliness.

Social participation, interactions and loneliness

Social interactions and community participation are also regarded as some of the most important factors affecting the emotional wellbeing and quality of life of the elderly. Apart from those studies mentioned previously, there is a wealth of evidence which shows that the relationship between these variables exists. For example, this can be seen in the European study where QoL for residents receiving long term care was reported to be the highest in the UK, compared to the other countries. This could simply be because care institutions in the UK focus more on the social aspects of care, whereas other countries such as Finland, Sweden and Germany may focus more on the medical aspects of it; the UK has a more social model of care, whilst other countries have a more medical approach. And, as we previously discussed, those who are in a medical environment are more likely to feel uncomfortable and so perceive their QoL as being poor. Furthermore, Berkman’s and Syme’s study in 1979, which focused on examining the association between social and community ties with mortality, found that those who lacked social relationships were more likely to die within the next few years.

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years compared to those who had social ties. One possible explanation for this could be that having friendships and interacting with people can give us a sense of belongingness, purpose and can increase self-worth. These psychological elements are very important as they have a positive impact on us, increasing our motivation to care for ourselves and enhancing emotional wellbeing. On the other hand, like most research on QoL, the study focuses on an association, and so, a cause and effect relationship might not exist; a confounding variable could have an impact on the results. However, since the year of its publication in 1965, there have been many replications done along the years and across different populations which have shown the same results. For example, House et al found an association between social relationships and health using more objective and scientific assessments. As a result, Berkman and Syme’s study has encouraged more behavioural and medical research into the relationship between our social environments and health and has raised questions like the following: what relationships are beneficial and which ones are harmful? Furthermore, former research into this field has shown how social participation can have an influence on our biological systems, such as the endocrine, cardiovascular and immune system. Therefore, from this we can conclude that increased frequency of contact with our friends and relatives can reduce the risk of someone from suffering from conditions like depression and increases their perceived quality of life, as well as their life expectancy. However, after many years of excessive research on the topic, we still don’t fully understand the relationship between social integration, health and emotional wellbeing.

On the other hand, the disengagement theory, one of the three psychosocial theories of aging, states that individuals tend to gradually withdraw from social interactions as they age. Those who believe in this theory sustain the idea that this process is inevitable and that it is not influenced by ill health. It is also believed that older individuals who disengage have higher levels of happiness than those who still remain socially active. This is because restrictions in functioning prevent them from meeting the behavioural standards that apply to younger individuals, and so they feel less pressured and this is satisfying to them. However, one limitation of this theory is that it lacks research evidence, whilst there is a wealth of evidence which supports the fact that interactions with friends and neighbours in old age have a more positive impact on wellbeing than social withdrawal. It has been found that interactions with children and grandchildren, also known as kinship relationships, has no such effects. This can be due to the existence of a “generation gap”, in other words, their differences in

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experiences, values, life styles and interests can limit their communication.\footnote{Vern L. Bengston, ‘Generation and Family Effects in Value Socialization’, American Sociological Review, vol. 40, no. 3 (1975), pp. 358-371.} It is believed that, because such family relationships arise due to obligation and responsibility, they have no effect on morale. Whereas, interactions with friends are based on personal choice and mutual interest.\footnote{Beth Hess, ‘Friendship’, in Aging and Society, Volume3, ed. by Matilda White Riley, Marilyn Johnson, Anne Foner (New York: Russel Sage Foundation, 1972), pp. 357-396.} Some might argue that the activities than an individual might participate in with family members and friends are the same or similar, the only difference, however, is that the interactions with kin are based on obligation rather than affection. Having a friendship has a positive effect on an individual because it means that they have been chosen as a friend. The fact that they have been chosen over other possible alternatives shows that they have valuable characteristics, giving them a sense of belongingness and thus, enhancing their emotional wellbeing. “The most important thing is to feel wanted and needed by others”.\footnote{Y.K. Chan, Rance P.L Lee, ‘Network Size, Social Support and Happiness in Later Life: A Comparative Study of Beijing and Hong Kong’, Journal of Happiness Studies, vol. 7, no. 1 (2006), pp. 87-112.} Furthermore, elders appreciate the quality of their relationships with family members more than the frequency at which they are able to see them. Therefore, it has been found that, even though interacting with friends has a more positive effect on wellbeing than having contact with children, there is a stronger correlation between life satisfaction and quality of the relationship with family members in comparison to quality of the relationships with friends.\footnote{Martin Pinquart, Silvia Sorensen, ‘Influences of Socio-Demographic Status, Social Network, and Competence on Subjective Well-Being in Later Life: A Meta-Analysis’, Psychology and Aging, vol. 15, no. 2 (2000), pp. 187-224.} This research therefore suggests the importance of having contact with friends and family in old age and how it can affect quality of life.

**Activeness and Competence**

According to previous research, remaining active as an individual becomes older is important in order to promote better life satisfaction and wellbeing.\footnote{Gloria Fernandez-Mayoralas, ‘Active Ageing and Quality of Life: Factors Associated with Participation in Leisure Activities Among Institutionalized Older Adults, with and without Dementia’, Ageing & Mental Health, vol. 19, no. 11 (2014), pp. 1031-1041.} Gloria Ortiz analysed a sample of 525 IC in Spain without dementia, aged 60 and over. The findings showed that taking part in activities during old age can improve cognitive function and self-perception of health and functional status. There was also a relationship between these factors and frequency of contact with friends and family, in addition to educational level. They concluded that these variables, in the context of institutionalization, can interfere with the process of active aging and can have an impact on wellbeing and perceived quality of life. Therefore, this study supports the activity theory, another psychosocial theory of aging, which is defined by the iLifespan organisation as “a term used to describe the maintenance of positive subjective well-being, good physical, social and mental health and continued involvement in one’s family, peer group and community throughout the aging process”.\footnote{iLifespan, ‘Active Aging’, iLifespan: Integrative Lifespan Research, <https://www.ilifespan.org/?q=research/active_aging> [accessed November 2017]} Another study which supports the fact that remaining active during old age increases wellbeing is a randomized clinical trial conducted
by Mihalko. Women who took part in physical activities had improved their perception of their physical function. A positive association between muscle strength and psychological function was also found. This can be explained by self-concept or the perception of one self. If an individual increases their level of physical activity, their confidence about their functional ability will also increase, enhancing self-esteem, emotional wellbeing and improving their perceived quality of life. However, a question that arises from these findings is whether or not the increase in satisfaction is caused by the increase in level of activity or by other experiences that take place during the same process. Even though it is indisputable that this theory has face validity, there is still existing evidence which has shown that people who engage in leisure activities only gain a moderate level of satisfaction, challenging the importance of active aging.

Competence, the ability to perform something, is also considered to have an effect on active aging and wellbeing. It is a concept that can be defined in a variety of ways. Baltes et al identified three possible definitions of competence. It can be viewed from the skill perspective, which is based on the skills an individual possesses or what they are capable of doing. The self-efficacy perspective, which is self-perception of one’s abilities, and the adaptive-fit perspective, which is based on the relationship of one’s skills and the demands of the surroundings. The levels of competence and activeness an individual possesses has been found to influence wellbeing and self-perception. One possible explanation for this could be that, in individualist, western countries, there is a greater emphasis on the importance of the individual among a group; it is based on the self and it is believed that, in order to maximise one’s potential, independence and competence are of central importance. The activity theory of aging, which was previously mentioned, takes this into account. It is believed that, in order to promote positive subjective wellbeing, older people should remain active as they age and should continue to get involved in their community. It is also important to possess new roles whenever a former one has been lost. Those who lose their functional ability and independence due to ill health, are less competent to perform their role in society, affecting their self-concept and happiness. Therefore, this theory highlights the importance of maintaining one’s activeness and independence in older age as it enhances wellbeing. On the other hand, people against the activity theory of aging claim that the association between activeness and wellbeing does not exist. They suggest that those who have participated in low levels of activity during their life, do not experience lower levels of satisfaction if the number of activities they take part on during old age decreases. However, Courneya

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and Friedenreich studied elder cancer survivors and found that the lowest QoL reported were of those individuals who were active before treatment, suggesting that activeness does affect wellbeing indeed.\textsuperscript{33} Therefore, the effect that level of activeness has on wellbeing is undoubtedly influenced by factors such as individual differences and the type of activity. From this, we can conclude that increasing physical activity can promote an increase in competence, which can lead to a better perception of one self, enhancing emotional wellbeing and thus, perceived quality of life is better.

**Quality of Life Questionnaires**

As I previously mentioned, measuring QoL can be quite challenging as it is a concept that lacks general agreements on its definition. It is a multi-level concept, meaning that it is defined by many factors including physical health, psychological and psychosocial wellbeing, demographic factors, etc. Yet, what I believe is most important is the fact that it is based on self-perception, however, most researchers have based the factors that affect QoL on other investigator and expert opinions, instead of focusing on the opinion of people.\textsuperscript{34} This therefore indicates that there is a lack of research evidence which proves that the domains or questions used in these measurement scales have any meaning to the people concerned. Consequently, the use of self-assessed health instruments is becoming increasingly important, especially when it comes to evaluating QoL among the elder population. The continuous growth of the older population is resulting in a greater demand for health and social care. This is why we should focus on the impact that old age, as well as institutionalised care and current treatment programs, have on the perceived physical and emotional health of the elderly, so that we are then able to find the best way to assess QoL. Such measurement instruments should be multidimensional and should be able to apply to different populations, but most importantly, it should include those aspects of life and health that are relevant to the target population. Therefore, this section will focus on patient, or self-assessed instruments of QoL which can be applied on a cross-sectional and longitudinal level.

As I previously mentioned, even though it is indisputable that there is an increasing need for tools for evaluating subjective QoL of older care dependent people, there are still no instruments available which are being used consistently for this purpose. On the other hand, there are existing studies which have involved searching for and testing instruments to measure QoL in long term care. For example, QoL questionnaires such as the World Health Organization Quality of Life BREF questionnaire (WHOQOL-BREF)\textsuperscript{35} and the Philadelphia Geriatric Morale Scale (PGCMS)\textsuperscript{36} have been found to


\textsuperscript{36} Allison Smith, *Researching Quality of Life of Older People: Concepts, Measures and Findings* (Keele University, Centre for Social Gerontology, 2000), pp. 9-23.
work well among the general elder population, however, this has not been the case when it comes to long term care dependent clients. One possible reason for this could be that those individuals that are healthier and are able to remain at home have different needs to those receiving long term institutionalised care. Therefore, long term care clients may have different values and expectations about QoL than those receiving primary care. A study mentioned earlier which concerned the measurement of QoL in five different European countries, also involved the assessment of different QoL tools. The WHOQOL-BREF and the PGCMS were used in the study to evaluate the QoL of elder people receiving long-term care. The findings from the pilot study showed that the response rate for both instruments was satisfactory and that they were both suitable for the study. In addition, the response rate in the actual study was also adequate for both questionnaires. It was found that more than half of the people answered all questions and that more than 85% answered more than half of them. However, the following question found in the WHOQOL-BREF had to be removed from the questionnaire based on its low level of response in the pilot study: “How satisfied are you with your sexual life?”. This was also an issue in a study conducted by Hwang et al, which involved a sample of older people in Taiwan. The researchers concluded that both questionnaires are suitable tools for assessing QoL among long term care clients, despite the fact that some questions in both instruments had a fairly low level of response. Based on these findings, as well as accessibility, I have decided to use the WHOQOL-BREF, a 26-item questionnaire with four domains, on a small sample of Spanish people residing in a care home in Gran Canaria. The domains included in the questionnaire (physical health, psychological, environment, and social relationships) represent the facets related to QoL, which are also included in the WHOQOL-100. Even though the WHOQOL-100 allows for a more detailed assessment of QoL, it is much longer that the WHOQOL-BREF and would take more time to complete. Therefore, I have decided to use the Spanish version of the WHOQOL-BREF for more practical reasons.

My Study

I performed the WHOQOL-BREF on 9 individuals residing in a Spanish care home (3 males and 6 females). The results of the questionnaire are shown on the appendix. I decided to remove questions 12 (“Do you have you enough money to meet your needs?”) and 21 (“How satisfied are you with your sex life?”) because of the fact that they are quite intimate questions and have led to low levels of responses in previous research. The method used to analyze the data described by the WHOQOL-BREF, is only suitable for large sample sizes. It is a method that applies to the “law of large numbers”, a very important law in statistics which describes the result of performing the same

experiment a large number of times.\textsuperscript{41} It states that, as the number of experiments performed increases, the average score of the results will become closer to the theoretical or expected value. Therefore, the method described by the WHOQOL-BREF does not apply to small data sets, and so I am unable to use it. Instead, I used the Mann Whitney U test to see whether there is a statistically significant difference between males and females. The results presented in the appendix show that the calculated value for each domain is less than their critical values. This suggests that there is less than a 5% probability that the differences between both genders are due to chance, and so the test proves that there are significant differences in the opinions of each gender; the males and females used in the sample place different values on different facets of life. After performing the statistical test, I then calculated the mean value and standard deviation for each domain in both genders. If the mean and standard deviation for a domain is low, this suggests that people have a similar negative opinion about that domain, and so we should focus on this facet and try to improve it. In addition, if the mean for a domain is high and its standard deviation is quite low, then this tells us that most people have a similar positive opinion about that domain, and that we should keep aspects of this domain the same. However, if any mean has a large standard deviation, this suggests that people have very different opinions about that domain and it is something that we should be concerned about; we should continue to change aspects of this domain until we can reach a high mean and a low standard deviation.

The results presented on the graphs above show that the mean score for all the domains for both genders range between 2.8 and 3.7, and that there are relatively high standard deviations for all the domains. This is more likely to be caused by limitations associated with the study, which will be discussed later on. Something not apparent from the statistical test is that the relative spread in opinion among the domains is equal in males and females; they follow the same order. For example, the domain with the lowest standard deviation is social relationships, for both males and females.

whereas, the domain with the highest standard deviation is the psychological domain, for both genders as well. This suggests that males and females have similar opinions about their social relationships, whereas their psychological opinions vary the most. Another factor that can have an impact on QoL, which we did not discuss earlier on, is the environment. The results from my study show that the environment had the highest mean score and also had the second lowest standard deviation for both genders as well. This suggests that both genders are fairly satisfied with their surroundings. This could be due to the fact that the care home is situated on an island where there are moderate temperatures throughout the whole year or simply because the care home facilities are satisfactory.

Limitations of Study

As I already stated, the method that I used to perform the questionnaire resulted in several limitations that could have affected my findings. Firstly, when I arrived at the care home, I was only introduced to patients who were capable of answering my questions. This suggests that other patients with speaking difficulties, ill health or severe dementia were not included in my sample of participants and could be affected by different facets of life. In addition, it is also clear that my sample size is very small, and so this contributes to the same issue as before; the fact that my findings might not represent the true opinions of the target population. Furthermore, the questionnaire had to take place in the form of an interview; the patients were unable to write on the questionnaires and the nurses had to be present for each participant. Therefore, I believe that the findings may be subject to social desirability bias; the patients could have felt pressured by the nurse’s presence, and so felt as if they had to give a good impression of the care home, which caused them to give very similar answers to each question. In some occasions, the nurses would even interrupt the interview and would give their opinion about the care home and speak highly of it. This obviously reflects the fact that the participants’ responses weren’t genuine and that my study method lacks validity. Moreover, another limitation of my method is that some participants wouldn’t rate their answers on a scale of 1 to 5, in other words, they would just respond to my question by saying their opinion, such as “Ok” or “very good”. I would then have to rate the questions myself based on their opinions. This is evidently another disadvantage of my method as it suggests that it is subject to bias; the participants might have rated the questions differently and thus; my findings do not represent the real views of the target population. The findings presented above show that most participants did not respond to all questions. This could be due to several reasons, for example, the participant wouldn’t understand the question, or would get distracted or even interrupted by the nurse. All of these issues evidently challenge the generalisability and validity of my findings, and so, the results cannot be compared to those of previous research. However, one of the benefits of conducting this study is that I have been able to learn how difficult it is to conduct valid and reliable research; I have been able to clearly understand the implications and issues of using subjective tools to measure QoL, especially among older individuals.

Improving QoL

One possible approach for improving QoL among individuals receiving long term residential care, is to encourage active aging. As I previously discussed, active aging is said to enhance the opportunities for health, participation and security. It involves the continuous participation of social, economic, cultural and civic affairs, in order to promote, not only physical activeness and participation in the labour force, but also the contribution to families and societies. In other words, it encourages individuals to achieve their full potential for social and physical activities based on their needs and capabilities, whilst they are being provided with care and security. Remaining active during old age can promote a better QoL and can also increase life expectancy. Active aging is said to be determined by a number of factors. These include health and social services, economic, social, physical, personal and behavioural determinants, as well as culture and gender. A systematic review conducted by Van Malderen et al involved searching for studies for each of the 9 known determinants of active aging. The researchers concluded that that there are only a few existing studies which base their conclusions

about how to improve QoL on practiced evidence within institutionalized care. The researchers also found that most research focuses on behavioural and psychological determinants, resulting in a lack of research on other determinants. There are even several aspects of the different active aging determinants that were not taken into account in any of the studies. This clearly proves that there are missing gaps between aspects of the various active aging determinants and that, as a result, further research into it is required. Before any changes are introduced to long term care, there is still a lot of research which has to be conducted on interventions in long term care to promote QoL. As I said earlier, most research focuses on studying individual determinants, instead of focusing on all of them as a whole. This may therefore result in a lack of efficient effect on QoL. QoL is a multidimensional concept and so research should preferably focus on the different dimensions in a collective and holistic way. Previous research into QoL among the elderly has shown how different aspects of QoL affect each other and are inevitably interrelated.\(^{43}\) Therefore, promoting active aging can be considered a good approach to improve QoL, however, a lot of research on the different dimensions of QoL is still needed in order to increase our understanding of how to promote better QoL among the elderly. Ideally, QoL should be studied holistically and further multidimensional intervention studies are needed to give insight in the best evidence based practice to improve QoL in the long-term care.

**Conclusion**

The surge of research activity in QoL is increasing as the elder population continues to grow over the years. QoL is a multi-level concept which consists of an individual’s physical health, psychosocial wellbeing and functioning, independence, personal and external circumstances. Due to the fact that QoL is a multidimensional concept and lacks general agreements on its definition, it has been very challenging to find an appropriate method to operationalise it. Subjective, self-assessed QoL tools have been found to be more effective, compared to objective, socio-demographic indicators, as they include the different facets of life that are of most importance to the target population. Previous research on older individuals receiving long term residential care has shown that the most important factors that affect QoL include physical health, activeness and social interactions. Despite the fact that most research focuses on studying the different factors that affect QoL individually, most researchers have found that these factors are associated with each other and inevitably influence one another. Furthermore, current studies aimed at enhancing QoL among long term care residents are limited and mainly focus on physical and psychological interventions, when QoL is clearly a multidimensional concept. Therefore, in order to suggest ways in which we can improve QoL, it is essential to prioritize research into multidimensional intervention studies to suggest the best practices to improve QoL for long term care residents; despite the fact that intensive research has been carried out during the years, more studies are still required to understand the different factors that affect QoL.

**Bibliography**


Fernandez-Mayoralas, Gloria, ‘Active Ageing and Quality of Life: Factors Associated with Participation in Leisure Activities Among Institutionalized Older Adults, with and without Dementia’, *Ageing & Mental Health*, vol. 19, no. 11 (2014), pp. 1031-1041

Han, Ji-Sook and Patterson, Ian, ‘An Analysis of the Influence that Leisure Experiences have on a Person’s Mood State, Health and Wellbeing’, *Annals of Leisure Research*, vol. 10 (2007), pp. 328-351


Hwang H.F, Liang W.F, Chiu Y.N, Lin M.R, ‘Suitability of the WHOQOL-BREF for Community-Dwelling Older People in Taiwan’, *Age and Ageing*, vol. 32, no. 6 (2003), pp. 593-600


Smith, Allison, *Researching Quality of Life of Older People: Concepts, Measures and Findings* (Keele University, Centre for Social Gerontology, 2000)


Walker, Alan, ‘A European Perspective on Quality of Life in Old Age’, *European Journal of Ageing*, vol.2, no. 1 (2005), pp. 2-12


Wong M.A, ‘Examination of the Philadelphia Geriatric Morale Scale as a Subjective Quality of Life Measure in Elderly Hong Kong Chinese’, *The Gerontologist*, vol. 44, no. 3 (2004), pp. 408-417
Appendix

English Version of the WHOQOL-BREF questionnaire
The following questions ask about **how much** you have experienced certain things in the last two weeks.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>A moderate amount</th>
<th>Very much</th>
<th>An extreme amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(F1.4)</td>
<td>To what extent do you feel that physical pain prevents you from doing what you need to do?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4(F11.3)</td>
<td>How much do you need any medical treatment to function in your daily life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5(F4.1)</td>
<td>How much do you enjoy life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6(F24.2)</td>
<td>To what extent do you feel your life to be meaningful?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Mostly</th>
<th>Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td>7(F5.3)</td>
<td>How well are you able to concentrate?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8(F16.1)</td>
<td>How safe do you feel in your daily life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9(F22.1)</td>
<td>How healthy is your physical environment?</td>
<td>1</td>
<td>2</td>
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You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number 4 if you got a great deal of support from others as follows.

<table>
<thead>
<tr>
<th>Do you get the kind of support from others that you need?</th>
<th>Not at all</th>
<th>Not much</th>
<th>Moderately</th>
<th>A great deal</th>
<th>Completely</th>
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You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks.
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<th>Gender</th>
<th>Highest education received</th>
<th>Marital status</th>
<th>Help filling out form? (interviewed)</th>
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<th>Q3</th>
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<th>Q5</th>
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<th>Q15</th>
<th>Q16</th>
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<th>Domain 3 - social relationships</th>
<th>Domain 4 - Environment</th>
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