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“Do Social Factors act as a Buffer against the Impact of Depressive Symptoms on Life Satisfaction in Centenarians?”

Master of Science in Clinical Psychology and Psychopathology

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Abstract

Centenarians represent an understudied population despite its strong increase around the world. One of the fundamental components of well-being is life satisfaction. High levels of life satisfaction are related to psychological well-being, better health outcomes, and an increase in longevity. The present study aims at providing a greater understanding of key socio-demographic, social, and psychological aspects associated with centenarians' life satisfaction as well as the role of social factors in moderating the relationship between depressive symptoms and life satisfaction. This study is part of SWISS100, a national study on centenarians living in Switzerland that aims to identify the characteristics, challenges, and specific needs of Swiss centenarians. A total of 96 Swiss centenarians aged 100 to 107 living in private dwellings and residential care facilities were recruited. Higher life satisfaction was found to be associated with centenarians who lived at home, had more social contacts, and were less lonely. Regression analyses indicated that living situation, number of contacts per month, and depressive symptoms were associated with life satisfaction. No significant moderations were found in this study. On average, depression was below the cut-off and most centenarians reported being satisfied with their lives. These findings indicate the need for mental health promotion, as well as elevating social support in older adults with the objective of increasing life satisfaction.

Keywords: Centenarians, Life satisfaction, Depressive symptoms, Social resources

1. Introduction

Global life expectancy has considerably increased in the past 50 years and it is expected to continue to rise in the years to come. The Population Division of the United Nations (PDUN) (2019), counted an estimated 533,000 centenarians living across the world. Their expectations for the year 2050 are rising to 3,195,000 centenarians. This estimation would signify an increase of 83% between the years 2019 and 2050 of people aged over 100 years living across the world. Since this work studies specifically centenarians living in Switzerland, it is important to highlight that the PDUN counted 2,000 centenarians living in Switzerland in 2019. They also estimated that by 2050 this number will have risen to 7,000 centenarians.

Over the past ten years, centenarians have fascinated researchers with their demographic growth, patterns of health, genetics, as well as their adaptive capacity which indicates high levels of life satisfaction and subjective well-being. One of the main objectives of studying centenarians is discovering the key factors for longevity and successful aging (e.g., Stathakos et al., 2005; Velkoff, 2000; Willcox, Willcox & Suzuki, 2017).

Despite these growing numbers, centenarians remain an understudied population. Many theories and assessments have been standardized for individuals up until the ages of 80-85 years old (e.g., Franceschi & Bonafè, 2003), creating misleading results or even misdiagnosis of the very old. It is worth acknowledging that every life stage can encounter specific types of challenges. This leads us, as researchers, to continue to seek a better understanding of each age group within our

population, which in turn allows for specific adjustments and focus points adapted for each age group. Another reason that centenarians are understudied is due to the struggles encountered during the process of recruiting participants for studies (e.g. Jopp & al., 2016).

Life satisfaction is one of the fundamental aspects of subjective well-being, which represents a cognitive evaluation of one's global life (Diener, Suh, Lucas & Smith, 1999). High life satisfaction among older adults has been associated with greater longevity, psychological well-being, as well as better health outcomes (Diener & Chan, 2011; Xu & Roberts, 2010).

When elderlies are exposed to emotional distress, it can negatively impact their health and in some cases even increase mortality (Quatrin, 2014). Previously, depressive symptoms have been related to a decrease in the oldest-old's life satisfaction (e.g., Berger et al, 2006).

Some researchers maintain that social support, regardless of the stress presented in individuals, is favorable for psychological well-being and promotes positive affect, recognition of self-worth, as well as giving a sense of order and stability to their life (Krause, 1987). Other social factors like marital status, education, and housing conditions are also linked to life satisfaction (e.g., Jopp, Park, Lehrfeld, & Paggi, 2016).

Some of the objectives of this study include the exploration of the correlation between different socio-demographic and mental health factors, including depressive symptoms and life satisfaction. Additionally, it aims at identifying

potential buffers or exacerbating risk factors of the effects that depressive symptoms can have on life satisfaction.

The current study looks to contribute to our understanding of the centenarians that are living in Switzerland by investigating their life satisfaction, as well as factors that may maintain or increase life satisfaction in advanced old age. To achieve this, the thesis will first provide an overview of the importance of life satisfaction in very old age, the impact of depressive symptoms on life satisfaction, and the role that social factors play in this relationship.

Additionally, a detailed description of the methodology used for the present study will be explored, which includes the selection process, a brief description of the participants, and an explanation of the instruments used during the data collection.

Subsequently, the main findings of the study will be reported, as well as the limitations found during this process and future implications.

Afterward, these findings will then be discussed in conjunction with previous studies. In closing, the conclusion of the study will be examined.

1.1. Life Satisfaction

Life satisfaction has been defined as one of the three dimensions that create the subjective well-being of an individual. It is a cognitive evaluation of how a person judges their own life (Andrews & Withey, 1976; Diener, 1984; Veenhoven, 1996). More specifically, when asked how satisfied a person is with their life, they will evaluate various life domains which are significant to them, such as their health,

living situation, social aspects, and these evaluations will then be combined into an overall rating. Given this internal process, life satisfaction is also referred to as cognitive well-being and is used as an indicator of the quality of life (Cheng, Leung & Brodaty, 2022; Diener et al., 1985; Diener, Sapyta & Suh, 1998; Jopp & Rott, 2006; Samuelsson et al., 1997). Satisfaction with life reflects the expression of what a person thinks and how they contemplate their individual feelings about their past, present, and future (Hoyt & Creech, 1983).

Measuring life satisfaction (LS) is valuable since it provides insight into how one's life as a whole can be summed up, including individual aspects such as personal values (Diener, Lucas & Oishi, 2002). One of the instruments to measure LS is the Satisfaction with Life Scale which was developed by Diener and colleagues (1985). Researchers have claimed that life satisfaction remains rather stable over time compared to other components of subjective well-being, for instance, positive or negative affect (Diener et al., 2006).

1.1.1. Life satisfaction's paradox

Studies that investigate life satisfaction have revealed how well a person has been able to adapt to changes encountered during the latter period of their life (Collins, Glei & Goldman, 2009). This adaptability could be associated with the "well-being paradox", also known as the "stability-despite-loss" phenomenon, where researchers have demonstrated that older people tend to have a higher capacity to positively adapt to age-related constraints or loss (Jopp & Rott, 2006).

Researchers are astonished by this paradox and have tried to come up with different explanations to rationalize how one can maintain a high level of life

satisfaction despite the loss. A possible explanation would be related to the Socio-emotional Selectivity Theory (SST) (Cartensen, Fung, & Charles, 2003). SST explains that when a person becomes aware of the time left in their life, there is a motivational shift that can increase the investment in emotionally meaningful goals, including their social relationships. Empirical evidence suggests that there is a reduction in social contact in old age and that the elderly maintain emotionally meaningful relationships while discarding the relationships that are considered less important. SST suggests that even if physical and sociological changes are associated with aging, and even though these changes might negatively impact a person, people who achieve their most valued goals, will maintain high levels of emotional well-being and see their life satisfaction increase (Cartensen, Fung, & Charles, 2003).

On the other hand, McAdams and colleagues (2012) explain that temperamental dispositions might strongly define how sensitive or not life satisfaction is to life changes. What this tells us is that if two distinct individuals were living an identical life situation, they could both interpret it in completely different ways. While one may define it as a colorful experience, the other could live through it in gray scales. Personality traits, such as extraversion and neuroticism, can influence a person's interpretation of life, which has been associated with the level of life satisfaction (e.g., Pavot & Diener, 2008).

1.1.2 Associations with life satisfaction in old age

Many factors in older adults can predict their satisfaction with life. Prior results indicate that when it comes to socio-demographic factors, life satisfaction

has also been associated with education, showing that people with academic education had significantly higher life satisfaction compared to other groups (Papi & Cheraghi, 2021), and another correlated factor is their economic status (e.g, Li, & Xu, 2013; Papi & Cheraghi, 2021). Whereas, findings from Aquino and colleagues (1996) indicated that participants who had less social support, had lower educational and socio-economic levels were less satisfied with their lives.

Further findings demonstrate that adults that were still married, compared to those who were divorced or those who had lost their partner, also presented higher life satisfaction, which is believed to come from the additional emotional support received from their partners (e.g., Che, 2001; Li et al., 2013).

Psychological, health, and mood factors have also been linked to life satisfaction, some of these factors include cognitive status, emotional balance, and recent negative life events (e.g. difficulties walking, reduced recreation, loss of family and friends, and hearing/visual problems) (e.g. Abu-Bader et al., 2003). Greater functional capacity has been associated with higher life satisfaction (e.g., Blazer et al., 1992). Additionally, participants who reported experiencing more depressive symptoms have been found to have lower levels of life satisfaction (Adams et al., 2016; Berg et al., 2006).

It is important to identify factors that buffer the effects that have been found to have a detrimental impact on life satisfaction. As a result, we aim to expand and better comprehend what factors influence life satisfaction in Swiss centenarians.

In the next section, loneliness and depressive symptoms, as well as the impact they have on life satisfaction in centenarians, will be addressed. We will then

discuss how social factors may influence the effect of depressive symptoms on life satisfaction.

1.2. Loneliness, depressive symptoms, and life satisfaction

Loneliness has been proven to have substantial consequences in different areas of life during old age. It significantly impacts older adults in various aspects of their lives including physical aspects such as disability, cardiovascular disease, mortality, and some emotional aspects such as their cognition, their subjective health, and their quality of life (Berg-Weger & Morley, 2020).

The Leiden 85-plus Study presented by Puvill and colleagues (2016) studied 599 individuals who were 85 years of age. One of their main contributions suggested that the key factor to optimizing life satisfaction in older people would be linked to interventions that prevented depressive symptoms and loneliness compared to interventions that focused on physical health.

Depression can potentially have a major impact on people's lives and it is an important public health matter in late life that is often under-recognized or under-treated (Tafaro et al., 2002). Specific consequences have been linked to depression; some of them being a loss of autonomy, decrease in quality of life, functional decline, social isolation, frailty, worsening of chronic conditions, increase in the risk of dementia, and early death (e.g., Cheng et al., 2019; Collins et al., 2009; Ribeiro et al., 2018; Rigaud, 2008). Various factors that can increase the risk of depression include health-related conditions, medical treatments, and/or a change in their living situation (e.g. unexpectedly moving into an institution). Loneliness and the loss of

close relatives and friends are examples of psychosocial factors that also contribute to a higher risk of depression (Rigaud, 2008).

There is an increase in daily challenges that can be encountered in a centenarian's life, for example, the loss of independence, a decrease in health, and lower social resources through the death of loved ones. A loss in functional and social resources in younger populations have also been demonstrated to represent important risk factors for depression (Patel et al., 2007). Longitudinal studies have found that near-centenarians increase their depressive symptoms over time (e.g., Ailshire et al., 2011; Cheng et al., 2019).

Depressive symptomatology is an affective disorder in which a person's prevailing emotional mood is negatively impacted and is sustained over a period of time (Lacruz et al., 2016). There have been inconsistent results on the prevalence rate of depressive symptoms in centenarians across the world. The range varies from 12.8% found in Italy (Tafaro et al., 2002) up to 29% of the participants in a study that took place in Mexico (Pedro et al., 2017). To the best of our knowledge, the prevalence of depressive symptomatology among centenarians in Switzerland is unknown, even if it is considered the fastest-growing segment of the population (Gomes da Rocha et al., 2022).

A study conducted by Tafaro and colleagues (2002), examined a sample of 157 centenarians between the ages of 100 and 108 years old (M=101.7). The Geriatric Depression Scale (GDS) scores were found to be correlated to the educational level, Activities of Daily Living score, the number of chronic diseases,

the number of social contacts, social limitations, the satisfaction with how they spend their time, the use of glasses, and their mobility.

Studies have mentioned that depressive symptoms are negatively associated with life satisfaction in the oldest-old (Berg et al., 2006; Berg et al., 2009; Strine, et al., 2008). According to research conducted by Strine and colleagues (2008), within a period of 30 days, the mean number of days where poor mental health was present was negatively correlated to life satisfaction, additionally, depressive symptoms and anxiety also had a strong association with life dissatisfaction. Certain depressive characteristics such as worthlessness and negative self-appraisal are likely to influence a person's perception and interpretation of one's reality and global experiences (Adams et al., 2016).

1.3. Social factors and their impact on depressive symptoms and life satisfaction

Social factors seem to be most substantial for subjective well-being, and more specifically for life satisfaction. Uchino (2004) described the different functions that social support can have. The first function mentioned is emotional support, described as "an expression of comfort and caring" (p. 17), for example, feeling heard creates a sense of acceptance and may boost self-esteem during the challenges that life can present. Another function social support has is "informational support" (p. 17), referring to someone receiving guidance and advice when they are uncertain or experiencing difficulties. "Tangible support" (p. 17) is also mentioned and, as an example, it can be observed when a family member

provides financial aid. Finally, social support also provides a sense of social belonging.

Studies have shown that family plays a crucial role in life satisfaction. In the Fordham Centenarian Study, near-centenarians and centenarians were found to have higher levels of life satisfaction when they had more living children (Jopp et al., 2016). Sufficient support from family and friends may help to better adapt to the age-related changes in their health, their environment, and also by helping them cope with the depressive state that can be linked to these changes. This support has been found to reduce the impact that depressive feelings can have on their perceived well-being (Adams et al., 2016). Whereas, Krause (2004) established that receiving emotional support from close relatives/friends attenuates the impact of traumatic events on overall life satisfaction.

A population-based study conducted in Italy by Bianchetti and colleagues (2017) tested the association between social networks and the number of chronic diseases in a sample of 200 people over the age of 65 years (M = 77.7 years). They found that when having a higher social network, fewer diseases were observed, suggesting that social support has a positive impact on health.

Moreover, social support was found to have a moderating effect on the link between depressive symptoms and life satisfaction (e.g., Adams et al., 2016; Hu, 2009). In a sample of 80+ years (M = 80.8), Adams and colleagues (2016) found that higher levels of depressive symptoms were associated with lower levels of life satisfaction when the participants had less social support compared to when they had higher levels of social support. These findings are similar to work conducted by

Hashimoto and colleagues (1998) who examined the effect of social support on depressive symptoms in a sample of 60+ aged individuals (*M*=76.8, *SD*=6.7). Two of their main findings were that lower levels of support presented more depressive symptoms as well as identifying that social support had buffering effects on depressive symptoms.

1.4. Main objectives of the current study

Our study aims to better understand the life satisfaction of Swiss by examining factors that are associated with a high level of life satisfaction, understanding what predicts life satisfaction in centenarians that live in Switzerland, and determining what factors buffer or exacerbate the link between depression and life satisfaction. To be able to achieve our objectives, centenarians living in Switzerland have been subjected to a standardized questionnaire that includes questions about their life and the satisfaction within it.

As previously mentioned, studies have demonstrated how certain socio-demographic characteristics, self-rated health, and social factors impact the way the oldest-old judge their satisfaction with life. To our knowledge, there is limited information about centenarians living in Switzerland and their life satisfaction. Therefore, we can hypothesize that (H1) the socio-demographic situation of the centenarians living in Switzerland is correlated to their life satisfaction. We predict that higher life satisfaction will be associated with centenarians who live at home, who acquired greater years of education, who have higher self-rated health, who have living children, and who have more social contacts. Additionally, we predict

that centenarians who have lost a child and/or who experience more loneliness will have lower life satisfaction.

Our second aim is to understand how psychological factors can predict and correlate to life satisfaction in the centenarians living in Switzerland. Firstly, the evidence presented by Schwarz and Strack (1999) demonstrates how life satisfaction can be influenced by "temporary mood states" (p. 62). They explain how "individuals in a sad mood are more likely to recall negative information" (Schwarz and Strack, 1999, p.75), which can impact one's judgment of their life satisfaction. Furthermore, it is due to this that when "thinking about one's life while in a good mood may result in a selective retrieval of positive aspects of one's life, and therefore in a more positive evaluation" (Schwarz and Strack, 1999, p.75). Depressive symptoms can likely influence an individual's interpretation of their life experiences. We can therefore consider the direction of the effect for the analyses within this thesis to be of depressive symptoms on life satisfaction, similar to the direction used by Adams and colleagues (2016). Secondly, the Socio-emotional Selectivity Theory (Cartensen, Fung, & Charles, 2003) mentions how a motivational shift has been linked to higher life satisfaction. Depressive symptoms have been linked to a lack of motivation (Miller & Markman, 2007), leading us to think that depressive symptoms affect life satisfaction. Accordingly, we can therefore hypothesize that (H2) depressive symptoms (GDS scores) will have a negative effect on life satisfaction. We predict that having higher levels of depressive symptoms will decrease life satisfaction scores.

Finally, the third aim tries to fill an important gap in the literature by investigating the possibility of replicating previous findings, that were based on older adults, in the centenarians living in Switzerland. This aims to examine if the results found by Adams and colleagues (2016), where social support had a significant buffering effect on the link between depressive symptoms and life satisfaction, and whether it would have a similar effect on centenarians living in Switzerland. This would allow us to understand if social support has the same protective effect in centenarians compared to a younger population (M = 80.8). To further extend the previous findings, we will also test a moderation effect on all the variables that are significantly associated with life satisfaction and depressive symptoms. This would allow us to identify whether other factors protect life satisfaction or other factors that exacerbate the effects that depressive symptoms have on life satisfaction. We hypothesize that (H3) the number of contacts per month and the informal support that the centenarians receive will have a buffering effect on the effects of depressive symptoms on life satisfaction. We also hypothesize that (H4) loneliness and having lost a child will exacerbate the effects that depressive symptoms have on life satisfaction. Lastly, we hypothesize that (H5) the number of living children will have no effect on the link between depressive symptoms and life satisfaction.

2. Methods

2.1. SWISS100

The current study was part of a larger project called SWISS100 that is taking place in Switzerland. SWISS100 is the first nationwide centenarian study in Switzerland, taking place in all three language regions. The study led by Professor Daniela Jopp at the University of Lausanne started in 2020 and is ongoing until 2024. It is a multidisciplinary study conducted by different experts in the fields of psychology, sociology, psychiatry, biology, and medicine. SWISS100 is a collaboration between the University of Lausanne, the University of Geneva, the University of Zurich, the University of Applied Sciences and Arts of Southern Switzerland, the Lausanne University Hospital, and the Geneva University Hospital and is founded by the Swiss National Science Foundation and the Swiss Centre of Expertise in Life Course Research. The general goal of SWISS100 is to identify the challenges, needs, and specific characteristics of Swiss centenarians. SWISS100 allows centenarians and their families to share their experiences. It aims to foster understanding within the general public and policymakers about the challenges that are associated with very old age. Altogether, it seeks to ensure the quality of life of centenarians and the people that are closest to them.

2.2. Data collection method

SWISS100 divided the data collection process into two phases. The first phase was a telephone data collection during the Covid period from December 2020 until June 2022. This phase consisted of a phone interview where the estimated time

of the interview was around 45 minutes. The second phase of the study consists of in-person data collection and is currently ongoing. When this study refers to telephone interviews, it is referring specifically to the first phase of the study, on which this analysis will be conducted.

The FSO (Federal Statistical Office, 2022) provided SWISS100 with a list of all the current living centenarians in Switzerland. Centenarians living in the cantons of Geneva, Vaud, Fribourg, Neuchâtel, Jura, Valais, Zurich, Berne, Basel, Thurgau, and Ticino were selected in a randomized order to participate in the study.

After the selection, an invitation letter was sent to the address provided by the Federal Statistical Office (FSO), so the participants could receive information about the ongoing study. After sending the invitation letter, one of the interviewers would establish contact via telephone, previously provided by the FSO. Some centenarians had invalid phone numbers, in this case, a letter providing information on how to contact the team in case they were willing to participate was included in the invitation letter.

Subsequently, if a centenarian was living at home, they would be contacted by one of the team members to clarify potential questions and also to identify the willingness of taking part in the study as well as the health and cognitive capacity to participate. If a centenarian was living in a nursing home, the first contact would be with people responsible for the nursing home or the centenarian. This would allow a better understanding of the living situation of the centenarian in addition to when would be the best moment to get in contact directly with the centenarian.

Out of 611 participants that were invited to participate in the study, SWISS100 managed to successfully contact 372 centenarians indicating a 61% response rate. One hundred and fifty-six decided to participate (42%) including centenarians and proxies. Some of the reasons for non-participation included health or cognitive issues, hearing problems, hospitalization, amongst other particular situations. If a Centenarian was not able to participate due to cognitive or physical difficulties, a close relative or healthcare assistant could answer a proxy questionnaire.

Considering the fact that life satisfaction questions are subjective and a self-rated scale, they were only present in the centenarian's questionnaire. Solely the questionnaires answered directly by the centenarians were taken into consideration for this analysis.

2.3. Participants

The population of interest in this study is the Swiss centenarians. The present sample consists of 96 participants who participated in the telephone interview. Study participants were based in the Swiss-German, French, and Italian-speaking regions of Switzerland; interviews were thus conducted in French (57.3%), Swiss-German (36.5%), and Italian (6.3%).

The socio-demographic information available in our sample can be found in Table 1. This table indicates that of all respondents (96), 66 were females (69%) and 30 participants were males (31%). The age range was between 100 years and 107 years, with an average age of 101.7 years (*SD* = 1.56). Out of the sample, 74 centenarians were widows/widowers (77.1%), 12 centenarians were single (12.5%),

eight centenarians were still married (8.3%) and two centenarians were separated/divorced (2.1%).

The educational level that centenarians achieved was quite varied: 13 of the participants did up to six years of education (14.3%), 13 finished nine years of education (14.3%), 46 centenarians studied between 12 and 13 years (50.5%), and 19 centenarians studied for over 15 years (20.9%).

2.4. Measures

2.4.1. Socio-Demographic Variables

The sex of the participants was dichotomized as male/female, the age of the participants was measured in years and education was measured on the highest level of education accomplished. The education level was divided into 6 different categories: “primary school”, “lower secondary school”, “basic professional training or apprenticeship”, “high school or upper secondary school”, “technical or higher vocational school (ex. nurses, social workers)”, “university or Federal Institute of Technology studies”. Education level was then transformed into years of education based on the Swiss school system as followed, “primary school” = up to six years, “lower secondary school” = nine years total, “basic professional training or apprenticeship” and “high school or upper secondary school” = 12-13 years, “Technical or higher vocational school” and “University or Federal Institute of Technology studies” = 15+ years.

2.4.2. Self-rated Health and Memory

Self-rated health was measured with a single question where participants were asked “How would you describe your health in general?” the possible answers were “excellent” (=5), "very good” (=4), “good” (=3), “fair” (=2), or “poor” (=1).

Self-rated Memory was measured with a single question where participants were asked “How is your memory?” the possible answers were “excellent” (=5), "very good” (=4), “good” (=3), “fair” (=2), or “poor” (=1).

2.4.3. Social Variables

The centenarian’s marital status was divided into four different categories “single”, “divorced/separated”, “married” and “widowed”. The living situation was first categorized into “living at home” and “living in a nursing home”. To further understand in more detail, centenarians living at home were then asked if they lived alone or with someone else; the response options were “living alone”, “with spouse”, “with children”, “with grand-son/daughter”, “with brother or sister”, “with other family members”, “with friends”, “with private caretakers”, “other”.

Participants were further asked if they had children using a dichotomous item that they could answer by “yes” or “no”; if they indicated to have children, they were later asked for the number of children they currently had and interviewers would also write down if they mentioned any of their children’s passing.

Centenarians were also asked if they received help or care from their family members, friends, or neighbors and they could answer “yes” (= 1) or “no” (= 0).

The frequency of social contact was assessed with the question: "Now think about your family, friends, acquaintances, and neighbors. How many people do you see or hear from at least once a month? You can choose between the following options: None (=1), One (=2), Two (=3), Three or four (=4), Five to eight (=5), and "Nine or more" (=6).

Loneliness was assessed by a single question "How often do you feel alone? You can choose from the following options" Never (=1), Rarely (=2), Sometimes (=3), Often (=4), or Always (=5).

2.4.4. Depressive Symptoms

The depressive symptoms analyzed in this study were assessed by using the short version of the Geriatric Depression Scale (Sheikh & Yesavage, 1986), a 5-item self-report scale that helps screen psychological and emotional aspects of depression that the elderly might experience during their late adult life. The items are dichotomized into a "yes" (= 1) or "no" (= 0). Higher values indicated a higher frequency of depressive symptoms (range: 0–5). The total score represents the sum of all of the item responses; the highest possible score to obtain is 5 which would indicate high levels of depressive symptoms. The cut-off was proportionally based on the cut-off for the 15-item questionnaire. The reliability in the present sample was acceptable (Cronbach's alpha = .66).

2.4.5. Life Satisfaction

Life satisfaction was assessed by using the Satisfaction with Life Scale (SWL; Diener et al, 1985), which is a 5 item self-report measure of the global satisfaction. For this study, two out of the five items were used. The answering

format is a Likert scale that ranges from “strongly disagree” (= 0) to “strongly agree” (= 4), where a higher rating indicated higher life satisfaction. The two items used in the questionnaire were: “Are you satisfied with your life?”, “Do you think that your living conditions are excellent?”. The total score was the sum of the item responses, the lowest possible score was 0, and the highest being 8. The scoring interpretation was proportionally based on the original SWLS. The reliability of the current sample was good (Cronbach’s alpha = .70).

2.5 Statistical Analyses

All of the statistical analyses have been performed using IBM SPSS Statistics (version 28.0.1.1). A multiple imputation was performed to handle missing data. First, a multiple imputation generated five different data sets, which included missing data of dependent variables. Afterward, a pooled method was used to select the final imputed data set to be used for this study. A statistical test (z-scores) was performed to identify any possible outliers in the dependent variable. Afterward, Mahalanobis distance was used to help find any possible multivariate outliers amongst the independent variables. There were no outliers identified in the sample used. After scanning for possible outliers, a basic descriptive analysis included frequencies, means, and standard deviations. A general correlation among all the variables was examined. To identify the predictors of life satisfaction, a multiple regression analyses was produced on different models including a socio-demographic model, a social resources model, and a health/mental health model. To finalize the data analyses, moderation analysis was used to identify if any of the

significant correlations, including the social factors, had a buffering effect on depressive symptoms and life satisfaction.

3. Results

3.1. Socio-demographic characteristics

The socio-demographic characteristics and living situation of the centenarians who participated in the SWISS100 telephone study and who are part of the sample can be observed (Table 1). A total of 96 centenarians participated in the SWISS100 telephone study. These centenarians were between 100 years and 107 (*M*= 101.7) and the majority of them were females representing 69% of the sample. Since the study was divided into different regions, the interview took place in three different languages. More than half of the participants spoke French (57.3%) indicating that at least half of the sample lived in French-speaking regions in Switzerland. Out of 96 participants, 74 had been married and were now widows or widowers (77.1%), 12 participants were single (12.5%), 2 centenarians were divorced (2,1%) and 8 of the participants were still married (8.3%).

The majority of the sample was living in nursing homes with it representing 52.1%, the other 47.9% of the sample lived at home. Out of the 46 centenarians that were living at home, six lived with their spouse or partners (15%), six with their children (15%), and the other 28 off them lived on their own (70%). The majority of the participants had children during their lives (82.3%).

Table 1. *Socio-Demographic characteristics of the sample*

		Count	*N %*	*Mean (SD)*	*Min.*	*Max.*
Age		96		101.7 (1.56)	100	107
Gender						
	Male	30	31%			
	Female	66	69%			
Language						
	French	55	57.3%			
	German	35	36.5%			
	Italian	6	6.3%			
Marital status						
	Single	12	12.5%			
	Married	8	8.3%			
	Separated, divorced	2	2.1%			
	Widow,widower	74	77.1%			
Living situation						
	Nursing Home	50	52.1%			
	Home	46	47.9%			
	Living Alone	28	70%			
	Living with Spouse, partner	6	15%			
	Living with Children	6	15%			
Children						
	No	17	17.7%			
	Yes	79	82.3%			
Years of Education		91		2.78 (.94)	1	4
	Up to six years	13	14.3%			
	Nine years	13	14.3%			
	12-13 years	46	50.5%			
	15+ years	19	20.9%			
Self-rated Health		92		2.76 (0.97)	1	5
	Poor	6	6.6%			
	Fair	33	35.9%			
	Good	35	38%			
	Very good	13	14.1%			
	Excellent	5	5.4%			
Self-Rated Memory		93		3.0 (0.96)	1	5
	Poor	5	5.4%			
	Fair	21	22.6%			
	Good	39	41.9%			
	Very good	23	24.7%			
	Excellent	5	5.4%			

The average years of education achieved by the participants was between nine years of education and 13 years (*M*=2.78). Participants reported on average to consider their health between fair and good (*M*=2.76) and on average they also considered their memory to be good (*M*=3), five of the centenarians considered their

health as poor (5.4%), 21 centenarians reported considering their memory as fair/average (22.6%), 39 considered their memory as good (41.9%), 23 reported considering it as being very good (24.7%) and five centenarians reported having an excellent memory (5.4%).

3.2. Social and psychological resources

The mean score of living children can be observed (Table 2) indicating that centenarians on average reported having 1.72 ±1.4 living children. Seventeen participants had lost one child (17.2%) and two centenarians had lost two children (3.1%). On average participants reported having between three to four close relatives, friends, or neighbors that they can talk to or see at least once a month (*M*=4.68 ±1.27). Out of 89 participants, 70 of them reported receiving help or care from relatives and friends (78.7%). On average, the centenarians reported hardly ever feeling lonely (*M*=2.07 ±1.1).

The descriptive of the GDS scores can be observed (Table 3) where 36.5% of participants presented a positive screening for possible depression and 63.5% of the participants presented a negative screening for possible depression. On the other hand, in the descriptive table concerning life satisfaction (Table 4), 69 centenarians are satisfied with their life (71.88%), 25 are neutral (26.04%) and 12 centenarians are not satisfied with their life (12.5%)

Table 2.

Social and psychological factors description of the sample

			Count (%)		
		N	*Mean (SD)*	*Min.*	*Max.*
Living Children		93	1.72 (1.4)	0	6
	0		20 (21.5%)		
	1		25 (26.9%)		
	2		24 (25.8%)		
	3		14 (15.1%)		
	4		6 (6.5%)		
	5		3 (3.2%)		
	6		1 (1.1%)		
Deceased Children		96		0	2
	None		76 (79.2%)		
	One		17 (17.2%)		
	Two		3 (3.1%)		
Contact per month		90	4.64 (1.27)	1	6
	None		1 (1.1%)		
	One		7 (7.8%)		
	Two		6 (6.7%)		
	3-4		25 (27.8%)		
	5-8		23 (25.6%)		
	9 or more		28 (31.1%)		
Informal care		89			
	No		19 (21.3%)		
	Yes		70 (78.7%)		
Loneliness		96	2.07 (1.1)	1	5
	Never		39 (40.6%)		
	Hardly ever		25 (26%)		
	Some of the time		19 (19.8%)		
	Often		12 (12.5%)		
	Always		1 (1%)		
GDS score		96	1.36(1.44)	0	5
	0		34 (35.4%)		
	1		27 (28.1%)		
	2		16 (16.7%)		
	3		8 (8.3%)		
	4		7 (7.3%)		
	5		4 (4.2%)		
Life satisfaction		96	5.78 (2.11)	0	8
	0		3 (3.1%)		
	1		1 (1%)		
	2		6 (6.3%)		
	3		2 (2.1%)		
	4		12 (12.5%)		
	5		13 (13.5%)		
	6		16 (16.7%)		
	7		18 (18.8%)		
	8		25 (26%)		

GDS Geriatric Depression Scale

Table 3.

GDS descriptive

	N	*Mean (SD) Yes (n%)*	*Min.*	*Max.*
GDS total score	96	1.36(1.44)	0	5
Do you feel that your life is empty?		23 (24%)		
Do you often get bored?		25 (26%)		
Do you often feel helpless?		37 (38.5%)		
Do you feel that your situation is hopeless?		21 (21.9%)		
Have you often felt dejected or sad?		25 (26%)		
Positive screening of DS Score ≥ 2 (cut-off)		35(36.46%)		

GDS Geriatric Depression Scale

Table 4.

Life satisfaction descriptive

		N	*Mean (SD) N (%)*	*Min.*	*Max.*
Life satisfaction total score		96	5.78 (2.11)	0	8
Do you think that the conditions of your life are excellent?					
	Not at all		9 (9.4%)		
	A little		5 (5.2%)		
	Moderatley		16 (16.7%)		
	Quite a bit		35 (36.5%)		
	Very much		31 (32.3%)		
Are you satisfied with your life?					
	Not at all		4 (4.2%)		
	A little		10 (10.4%)		
	Moderatley		11 (11.5%)		
	Quite a bit		28 (29.2%)		
	Very much		43 (44.8%)		
Sense of life satisfaction based on two items					
0-3 Dissatisfied			12 (12.5%)		
4-5 Neutral			25 (26.04%)		
6-8 Satisfied			69 (71.88%)		

Scoring was adapted based on the SWLS 5-item scoring (Diener et al., 1985)

3.3 Correlations Among Key Study Variables

A correlation analysis was done to identify possible associations between the central study variables (Table 5). General correlations indicate that age is associated with gender (r= 0.22, p<0.05) indicating that female centenarians who participated were associated with older age. Also, centenarians that had been married, were most likely to have children during their lives (r= 0.64, p<0.00), to have lost a child (r= 0.22, p<0.05) and to still have living children (r= 0.34, p<0.00). Participants who lived in an institution or a nursing home were associated with feeling lonelier (r= 0.29, p<0.00). The years of education of the participants were correlated to the number of living children they had (r= 0.23, p<0.05) and also to the number of contacts they had per month (r= 0.34, p<0.00). The number of living children was also associated with the number of contacts they had per month (r= 0.24, p<0.00). Participants who were lonelier were associated with having lower self-rated health (r= -0.26, p<0.05).

Lower GDS scores, indicating fewer depressive symptoms, were associated with the living situation of the centenarians (living at home) (r= -0.23, p<0.05), to having a higher number of years of education completed (r= -0.21, p<0.05), also to having more people to talk to per month (r= -0.36, p<0.00), and to a higher level of self-rated health (r= -0.27, p<0.00). On the other hand, higher GDS scores were correlated to having lost a child (r= 0.21, p<0.05) and with the feeling of loneliness (r= 0.64, p<0.00).

Subsequently, life satisfaction was associated with the living situation of the centenarians (r= 0.30, p<0.00), this indicates that centenarians at home had a higher

level of life satisfaction. Additionally, having a higher number of contacts to talk to during a month was associated with higher levels of life satisfaction (r= 0.30, p<0.00). Loneliness was negatively linked to LS, indicating that the more a person felt lonely, lower life satisfaction was reported (r= -0.42, p<0.00).

Finally, a link between depressive symptoms and life satisfaction was made, which indicated that having higher levels of depressive symptoms was linked to lower levels of life satisfaction (r = -0.56, p <0.001).

Table 5.

Zero-order Correlations among central study variable

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Background Variables															
1. Age	-														
2. Gender (0= Male, 1= Female)	**0.22***	-													
3. Marital status	0.10	0.11	-												
4. Residence (1= Home, 0= Nursing Home)	0.05	0.06	-0.06	-											
5. Years of education Education	-0.05	-0.15	0.07	0.14	-										
Social Resources															
6. Children (1= yes, 0= no)	0.10	-0.14	**0.64****	0.06	0.13	-									
7. Deceased Children (1= yes, 0= no)	0.03	-0.04	**0.22***	-0.08	0.07	**0.24***	-								
8. Number of living children	0.12	-0.12	**0.34****	0.02	**0.23***	**0.59****	-0.12	-							
9. Number of contacts per month	0.05	-0.11	0.02	0.11	**0.34****	0.01	0.00	**0.24***	-						
10. Informal care (1= yes, 0= no)	0.11	-0.12	0.16	0.03	0.06	0.11	0.06	0.15	0.20	-					
11. Loneliness	0.19	0.17	0.19	**-0.29****	-0.11	0.08	0.13	-0.05	-0.18	0.12	-				
Health and Mental Health															
12. Self-rated health	-0.16	-0.12	-0.03	0.09	0.01	-0.02	0.12	-0.04	0.14	-0.02	**-.026***	-			
13. Self-rated memory	0.02	0.09	0.04	-0.07	0.15	-0.11	-0.04	-0.08	0.18	0.03	-0.13	-0.14	-		
14. GDS	0.20	0.08	0.17	**-0.23***	**-0.21***	0.16	**0.21***	0.01	**-0.36****	0.20	**0.64****	**-0.27****	-0.19	-	
15. Life satisfaction	-0.14	-0.08	-0.13	**0.30****	0.15	-0.14	-0.07	-0.05	**0.30****	0.01	**-0.42****	0.11	0.19	**-0.56****	-

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

GDS Geriatric Depressive Scale.

3.4. Predictors of Life Satisfaction

To proceed with the analysis, multiple regression models were created based on previous findings to examine what predicts life satisfaction in this sample. Table 4 includes a summary of multiple regression analyses.

We examined which variables predicted life satisfaction. Table 5 summarizes multiple regression analyses. The first model was the socio-demographic model and included age, gender, marital status, residence, and years of education. This model explained 18% (p <0.05) of the variance but only the type of residence (p < 0.00) was a significant predictor in the model. The second model is a model based on the social resources previously described. The social model explained 23% (p <0.05) of the variance with number of the contacts per month (p =0.01) and loneliness (p <0.00) being significant predictors in this model. A health and mental health model was tested composed of variables GDS score, self-rated health, and self-rated memory which explained 30% of the variance. From this model, GDS score was a significant predictor (p <0.00).

A combined regression model was then created based on a selection that included the variables with a p-value lower than or equal to 0.20. This model included age, residence, number of contacts per month, loneliness, and GDS. This final regression model explained 36% of the variance with a statistically significant *p-value* (p < 0.00). Out of the four models, the combined model explained more of life satisfaction's variance. In this model, only GDS was statistically significant (p < 0.00).

Table 6.

Summary of multiple regression analyses

	B	*β*	*p*	R^2
Socio-Demographic Model (N= 91)				.18*
Age	-0.22	-0.17	0.10	
Gender	-0.03	-0.01	0.95	
Marital status	-0.11	-0.06	0.55	
Residence (1= Home, 0= Nursing Home)	1.55	0.37	0.00	
Years of education	0.15	0.07	0.52	
Social resources Model (N=82)				.23*
Children (1= yes, 0= no)	-0.58	0.71	0.42	
Deceased Children (1= yes, 0= no)	0.30	0.55	0.58	
Number of living children	-0.09	0.19	0.64	
Number of contacts per month	0.49	0.18	0.01	
Informal care	0.22	0.51	0.67	
Loneliness	-0.58	0.19	0.00	
Health and Mental Health Model (N=91)				.30**
GDS	-0.73	0.14	0.00	
Self-rated health	-0.02	0.20	0.92	
Self-rated memory	0.24	0.20	0.23	
Combined Model (N= 90)				.36**
Age	-0.9	-0.07	0.46	
Residence	0.72	0.17	0.07	
Number of contacts per month	0.21	0.13	0.20	
Lonelines	-0.18	-0.09	0.43	
GDS	-0.57	-0.40	0.00	

a. Dependent Variable: Life satisfaction

b. Variable selection for combined model was based on including all variables from domain-specific models with p≤0,20.

c. **p<0,001; *p<0,05

d. GDS Geriatric Depression Scale

3.5. Links Between Depressive Symptoms and Life Satisfaction: Testing Moderation Effects

For these next analyses, we investigated if social factors buffered the effect that depressive symptoms have on life satisfaction or if they exacerbated these effects. All social variables were included.

Table 7.

Regressions examining the role of social factors on life satisfaction.

		B	*SE*	*β*	*p*	R^2
Model 1. Children (N=96)						0.31**
	GDS	-0.77	0.45	-0.53	0.09	
	Childern	-0.32	0.52	-0.06	0.54	
	GDS*Children	-0.03	0.47	-0.02	0.94	
Model 2. Number of living children (N=93)						0.32**
	GDS	-0.81	0.13	-0.55	0.00	
	Number of living children	-0.07	0.13	-0.04	0.62	
	GDS*living children	0.05	0.11	0.04	0.64	
Model 3. Contacts per month (N=90)						0.32**
	GDS	-0.71	0.15	-0.50	<0.00	
	Number of contacts per month	0.19	0.16	0.12	0.22	
	GDS*Number of contacts per month	0.03	0.11	0.03	0.79	
Model 4. Informal Care (N=89)						0.31**
	GDS	-1.35	0.36	-0.93	0.00	
	Informal care	0.93	0.50	0.19	0.07	
	GDS*informal care	0.64	0.40	0.40	0.12	
Model 5. Deceased children (N=93)						0.34**
	GDS	-0.68	0.16	-0.46	<0.00	
	Deceased children	0.40	0.47	0.08	0.39	
	GDS*deceased children	-0.49	0.28	-0.19	0.09	
	Actual living children	-0.10	0.13	-0.06	0.49	
Model 6. Loneliness (N=96)						0.32**
	GDS	-0.66	0.22	-0.45	0.00	
	Loneliness	-0.19	0.21	-0.10	0.38	
	GDS*Loneliness	-0.10	0.12	-0.09	0.39	

a. Dependent Variable: Life satisfaction

b. **p<0,001

c. GDS Geriatric Depression Scale

A linear regression analysis (Table 7) that included all the social variables. These six additional analyses considered the interaction of social factors and depressive symptoms on life satisfaction. From all the models tested, two of the models (models 4 and 5) are close to significant interaction effects.

Model 1 tested the interaction between having had children and GDS on life satisfaction. It showed no statistically direct or indirect significant effects on life

satisfaction. Indicating that having had children did not moderate the effects of depressive symptoms on life satisfaction.

Model 2 tested the interaction between the number of living children and GDS on life satisfaction. The main effect showed a statistically significant value (p <0.00) where there was a negative direct effect on life satisfaction. The interaction between the number of living children and GDS was not statistically significant.

Model 3 evaluated if the number of contacts a centenarian had per month moderated the effects of depressive symptoms on life satisfaction. The interaction effect showed the interaction of depressive symptoms and contacts per month on life satisfaction, where no statistical significance was found. Thus, demonstrating that for this sample number of contacts per month does not attenuate the impact of depressive symptoms on life satisfaction. The main effect of this moderation showed a significant (p <0.00) negative effect on life satisfaction.

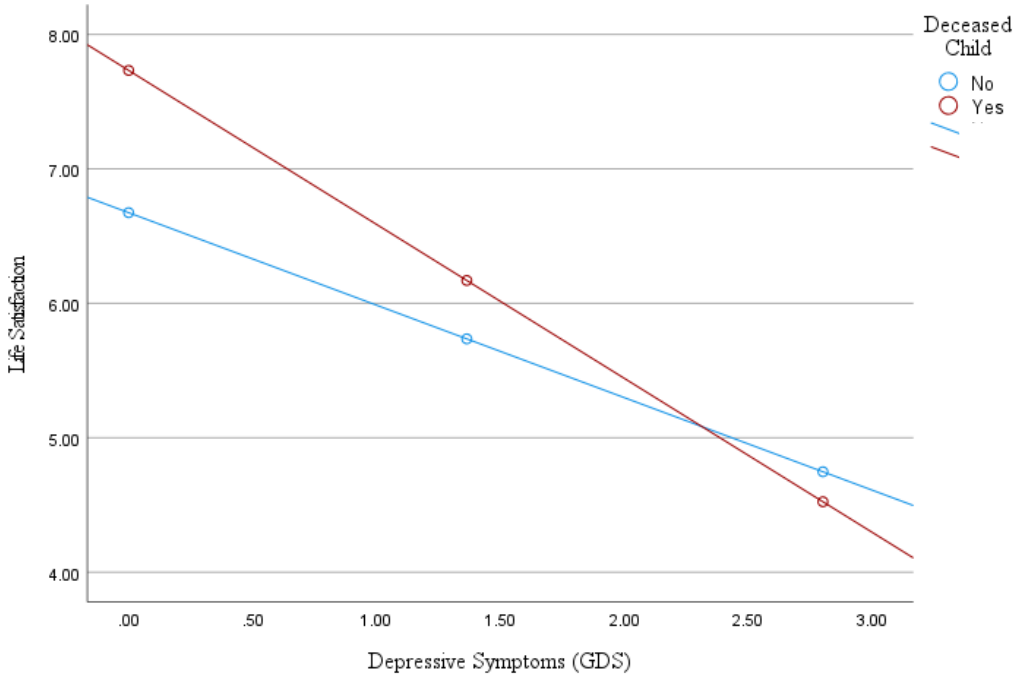
Model 4 showed that there was a statistically significant main effect of depressive symptoms on life satisfaction, this being a negative direct effect. The interaction effect of depressive symptoms and informal care was not statistically significant but it was close to a statistically significant *p value*. This would have indicated that receiving informal care from a family member or close friend would buffer the effects that depressive symptoms had on life satisfaction.

Model 5 evaluated if having lost a child would exacerbate the effect of depressive symptoms on life satisfaction. In this model, actual living children was added as a covariate. There is a negative direct effect that is statistically significant (p < 0.00) and an interaction effect demonstrated that there was a negative effect but

was not significant (p = 0.09). Because the p value was close to being significant and it could be due to a marginal effect where the sample size had to be larger, an interaction graphic was created to present a better visual representation of this interaction, indicating that having lost a child exacerbates the effects of depressive symptoms on life satisfaction.

Figure 1.

Interaction of having lost a child and depressive symptoms on life satisfaction



Note. The graphic demonstrates the interaction of having lost a child and depressive symptoms with life satisfaction. GDS Geriatric Depression Scale. (N=96)

Model 6 tested the interaction between loneliness and GDS on life satisfaction. The main effect showed a statistically significant value (p<0.00) where there was a negative direct effect on life satisfaction. The interaction between loneliness and GDS was not statistically significant to influence the effect of depressive symptoms on life satisfaction.

3.6. Moderating analysis for significant variables

For these next analyses, we investigated if the variables that were associated with GDS and life satisfaction buffered the effect that depressive symptoms have on life satisfaction or if they exacerbated these effects (Table 8). All variables that were significantly correlated to GDS or LS, and predictors of LS were included.

Table 8.

Regressions examining the role of significant variables on life satisfaction.

	B	*SE*	*β*	*Sig.*	R^2
Model 1. Residency (N=96)					0.35**
GDS	-0.82	0.16	-0.56	0.00	
Residence	0.79	0.36	0.19	0.03	
GDS*Residence	0.16	0.26	0.07	0.55	
Model 2. Education (N=91)					0.33**
GDS	-0.85	0.14	-0.57	0.00	
Education	0.03	0.20	0.01	0.89	
GDS * Education	-0.18	0.13	-0.12	0.17	
Model 3. Self-rated health (N=92)					0.29**
GDS	-0.78	0.13	-0.55	0.00	
Self-rated health	-0.10	0.20	-0.05	0.62	
GDS*Self-rated health	0.44	0.12	0.03	0.71	

a. Dependent Variable: Life satisfaction

b. **p<0,001

c. GDS Geriatric Depression Scale

Model 1 (found in Table 6) examined if the residency moderated the effect of depressive symptoms on life satisfaction. The main effect shows a significant negative effect on life satisfaction. On the other hand, the interaction between depressive symptoms and residence type on life satisfaction was not statistically significant.

Model 2 showed the interaction of depressive symptoms and years of education on life satisfaction, where no statistical significance was found. Thus,

demonstrating that for this sample the years of education did not attenuate the impact of depressive symptoms on life satisfaction. The main effect on this moderation shows a significant negative effect on life satisfaction.

Model 3 showed that there was a statistically significant main effect of depressive symptoms on life satisfaction, this being a negative direct effect. The interaction effect of depressive symptoms and self-rated health was not statistically significant. This indicated that self-rated health does not buffer the effect of depressive symptoms on life satisfaction in this sample.

4. Discussion

4.1. Main results

The present study aimed to deepen our knowledge of life satisfaction in centenarians living in Switzerland. More specifically, what factors were associated with life satisfaction and examine if social factors buffer or exacerbate the link between depressive symptoms and life satisfaction.

The study hypothesized that socio-demographic factors would be associated with life satisfaction. More explicitly, it predicted that higher life satisfaction would be related to centenarians living at home, to more years of education, higher self-rated health, having children, having not lost a child, having more social contacts, and a lower level of loneliness. The results partially confirmed the predictions and proved that people who lived at home had more social contacts, and lower loneliness feelings were significantly associated with higher life satisfaction, but found however no association with self-rated health, years of education, and the number of living children. These results align with previous findings where greater loneliness was strongly and significantly associated with lower life satisfaction (Puvill et al., 2016), the number of family support contacts with life satisfaction (Jopp et al., 2016), and elderly who lived in a family environment had higher life satisfaction compared to residential homes (Özer, 2004). In contrast with the study's findings, Berger and colleagues (2006) found a statistically significant relation between self-rated overall health and life satisfaction in a sample of 315 participants with a mean age of 83 years. In addition, Jopp and colleagues (2016) reported that high self-rated health and the number of living children were linked to higher life

satisfaction in the Fordham Centenarian Study. The existing literature highlights the importance that social support has on life satisfaction. This life stage is known for it being a period which is accompanied by constant changes, a need for adaptation, and deterioration in many aspects of life. Being surrounded by a strong social network where the centenarian feels the support of their relatives, friends, and professionals, may help them adjust to the way they face the challenges they are presented with and maintain a positive mindset.

The GDS scores presented in the sample indicated that 36.5% of the participants presented a positive screening for possible depression. An important fact to consider is that the interviews for this study took place during the COVID-19 pandemic which may have influenced the prevalence of depressive symptoms in this sample. Nonetheless, this outcome is consistent with a study of older adults in Japan that investigated if there was a difference in the prevalence of depressive symptoms before and during COVID-19 and indicated a slight augmentation and reported a prevalence of 32% in younger old adults (*M*= 77.6).

The second hypothesis suggested that depressive symptoms would have a negative effect on life satisfaction. The results showed firstly that there is a strong correlation indicating that high levels of depressive symptoms are associated with lower levels of life satisfaction. Furthermore, two different regression models demonstrated that depressive symptoms played a significant role in life satisfaction. The findings, therefore, indicate that higher life satisfaction was linked and can be explained by having fewer depressive symptoms. This finding is consistent with the known and essential role that depressive symptoms play on life satisfaction (Puvill et al., 2016). A possible explanation for this finding could be linked to the evidence

presented by Schwarz and Strack (1999), where their study mentions that life satisfaction is based on temporarily accessible information of a person. If a person is currently experiencing depressive symptoms, this could affect their judgment when reflecting on their life's satisfaction, hence creating a negative association between depressive symptoms and LS.

This study aimed to explore the possibility of social factors buffering or exacerbating the effect of depressive symptoms on life satisfaction. During the examination of the buffering effect of having lost a child on life satisfaction, it was observed that the effect of depressive symptoms on life satisfaction was more severe for centenarians who had lost a child. This finding was not significant and could be due to a marginal effect. Safa and colleagues (2021) directed a study to have a better understanding of the meaning of losing an adult child. Participants mentioned that it was one of the most difficult losses in their life, leading to incomprehension among people that surround them, limiting their communication, and consequently increasing the probability of social isolation. No correlation between having lost a child and levels of life satisfaction where found, which could potentially be explained by the fact that centenarians still had living children to offer support but further investigation would be needed to confirm this hypothesis.

The life satisfaction of centenarians who participated in the study was high, more than 70% indicated being satisfied with their life. This could have created a ceiling effect by decreasing the variability of this measure and limiting the analyses. When comparing this study's lack of significant moderations, two important factors could have influenced the difference in the results. The first being the variability of the sample's life satisfaction. Adam's and colleagues '(2016) sample presented more

variability in their life satisfaction results compared to our findings. The other possibility to consider is that perhaps the amount social factors available to octogenarians and centenarians have may differ from each other. Both Adam's and colleagues' (2016) and Hashimoto and colleagues (1998) both found significant results in samples that had a similar mean age were M = 80.8 and M=76.8 respectively.

Nonetheless, the high levels of life satisfaction in this study can confirm the "well-being paradox" or "stability-despite-loss" (Jopp & Rott, 2006). Life satisfaction has previously revealed how well a person can adapt to changes they are faced during the latter stage of life (Collins, Glei & Goldman, 2009). These findings confirm that on average centenarians who participated in this study lived the "well-being paradox".

4.2 Limitations

Firstly, the telephone study took place during the unexpected COVID-19 pandemic. Because this is the first national dataset on centenarians living in Switzerland, there was no possibility of comparing these findings to data previously collected and identify if the answers could have been impacted by the sanitary crisis. In addition, because it was a telephone study, a higher selectivity was effectuated, excluding people who had severe difficulties understanding the interview or a higher possibility for them to have misunderstood certain questions (thus leading to incomplete answers), stopped interviews (that led to missing data) or even refused to participate. In addition, COVID-19 also played a potential role on the response rate of centenarians living in a nursing home. Nursing homes were faced with a

reduction in staff and thus overloading the workers could have potentially made our telephone study not a priority for them.

Secondly, it is important to mention that the data used for this study was part of the first national study in Switzerland that focused on centenarians and it is highly valuable and unique information. When reflecting on a limitation encountered when using this database, the issue would be related to the size of the sample. For the analyses for this study, a much larger sample could have impacted the regression analysis findings by giving more power to them. It is essential to understand that more research has to be done to better understand this fascinating phase of life. In addition, the study analyzed cross-sectional data, limiting our knowledge of the causal directions of the effects shown.

When reflecting on limitations encountered during the analyses phase was sample size. There were results close to being significant and maybe the sample size influenced these results. Compared to the study that inspired us, our sample size was two times smaller than their sample size.

4.3 Future Implications

For future researchers, it would be recommended to take these findings one step further and test the same predictions but with the addition of a social support scale. This will allow having more variability giving room for more interaction. While the research considered social factors as individual variables, a scale could have more statistical power and strengthen the results.

In addition, to deepen the knowledge of the possible differences in social factors between the middle-old, the oldest-old, and the centenarians. Understand what are the differences and similarities and how they impact their life satisfaction.

5. Conclusions

In conclusion, this study demonstrates the importance of key elements associated with high life satisfaction in centenarians living in Switzerland, notably how social factors play a significant role in life satisfaction. Interestingly, depressive symptoms tend to be related to what people are experiencing in the present moment, compared to life satisfaction which is a more global measure of their life. This raises the importance of identifying depressive symptoms and emphasizes the need to care for their mental health. Depressive symptoms among centenarians should be more systematically screened allowing healthcare professionals to develop best practices.

Most centenarians who participated in this study showed satisfaction with their lives. Undoubtedly, they are faced with age-related changes, but it is remarkable how, despite this, centenarians look at their overall life and still evaluate it positively.

Expanding our understanding of this understudied population leads to new insights and perspectives. This should encourage our society to focus on creating safe and supportive environments for mental health, where centenarians and the oldest-old are encouraged to build meaningful connections and strengthen those most important to them.

6. References

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