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Review

The Effects of Loneliness on the Aged: A Review

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Abstract

Social support has been shown to have many positive effects on our lives, health, and ability to grow and flourish. Lack, or diminished social support results in loneliness. This thematic review focuses on the elderly, and the loneliness that is part of the life of many of them. The review highlights the social connections and the expectations that the elderly may have of them, and how being connected to others may alleviate, loneliness. Loneliness is known to negatively affect one's health, social life, familial relationships, and feelings, and their effect on the elderly is described. We all yearn for social support, and the review examines what are the elderly's expectations from their social support network. Expectations which will significantly affect their commitment to that network, and feeling fulfilled by it. The review concludes with a focus on successful aging and how they can control and minimize their loneliness and feelings of isolation.

Keywords

Loneliness; old age; causal factors; consequences; coping

Loneliness in the Aged: A Review

> *The terror of sickness and old age is not merely the terror of the losses one is forced to endure, but also the terror of the isolation. As people become aware of the finitude of their lives, they do not ask for much. They do not seek more riches. They do not seek more power. They ask only to be permitted, insofar as possible, to keep shaping the story of their life in the world - to make choices and sustain connections to others according to their own priorities ([1], pp. 146-147).*

1. Introduction

Humans are wired to belong and live in a community. When that does not materialize, they experience loneliness. This review highlights the negative effects that loneliness is reported to have, particularly on the elderly. Since Fromm-Reichman [2] highlighted the issue of loneliness, in 1959, much research has been done in order to understand, describe, and characterize loneliness. Peplau and Perlman [3] defined loneliness as a discrepancy between the kind and quality of social relations that one's wants and their actual social relations. This discrepancy leads to tress, and feeling socially isolated. Experiencing loneliness does not, necessarily, mean that the person is geographically isolated, since one may experience loneliness being in an intimate relationship [4]. As social animals we need to be with others with whom we can interact, play, work and prosper, and feel connected to and cared for by them [5]. Though loneliness and depression share some characteristics, they are distinct and different experiences [6]. Chu and Chan [7] asserted that loneliness is associated with depression, melancholy, low spirits, and emptiness, which they saw as encompassing separation and isolation where one's personal and social needs are not met.

To reiterate, humans are, essentially, a social species whose well-being and even its mere survival greatly depends on the quality of their social relationships. When a discrepancy is noted between one's desired and achieved levels of social connection, one experiences loneliness, and may consequently suffer the mental and physical health effects it may have on one's well-being [8]. Loneliness stems from the perception that the quality and quantity of an individual's interpersonal relationships are insufficient to meet one's needs or desires [6]. Loneliness can affect individuals of all ages, though all age groups are not similarly susceptible. In addition to its high prevalence in adolescents and young adults it is also quite significant in the elderly subgroup [9]. Research found higher rates of depression, stress and lower levels of physiological resilience in lonely people and those socially isolated. Lonely individuals also experience disturbed sleep, complain more of pain, are more susceptible to cardiovascular and coronary heart disease, and even to dementia in later life. Understandably, loneliness has been deemed a public health crisis in the United States and many other countries around the world. The British government added, some years ago, a minister of loneliness, and by that highlighted the need to address this epidemic, giving the population the hope that it can, indeed, be addressed and controlled [8].

1.1 Social Connection Which We All Yearn For

"'Social relationships' is arguably the most common term for the connections and intersections among human beings, and it derives from and is employed in broader common usage. The term "social networks" has been used for some time as a similarly broad rubric for the connections among

human beings and also other creatures, but it is also used more specifically to refer to the structure and way of analyzing relationship data… Social support is defined as the actual or perceived availability of resources (e.g., informational, tangible, emotional) from others, typically one's social network" ([10]; p. 1-12). "Social connection" is an umbrella term which encompasses the variety of approaches to this concept. It highlights the many ways that connection between people is possible including physical, behavioral, social- cognitive, and emotional dimensions. One may be connected to others via (1) [structural aspects] relationships and their functions; (2) [functional aspects] a sense of being connected which provides one a sense of inclusion; and (3) [qualitative aspects] the sense of connection to others that is based on positive and negative qualities [11].

1.2 Social Isolation, Loneliness, and Mortality in Old Age

Social isolation, meaning being geographically away from others, and loneliness, being not included, are serious public health risks that large portion of the population are affected by. Approximately 25% of Americans aged 65 and older are considered to be socially isolated, and a significant proportion of adults (43%) report being lonely [9]. Various estimates have been made regarding the prevalence of social isolation and loneliness in the United States. For example: Data from the National Health and A In a 2018 survey it was revealed that 35% of adults age 45 and older in the United States report feeling lonely [12]. And Hawkley and colleagues [13] found that 19% of adults aged 62–91 report frequent loneliness while an additional 29% experienced occasional loneliness. The demographic trends which contribute to loneliness includes such factors as an increase in those who live alone, decreased marriage rates, higher rates of childlessness, or decreased community involvement [14]. Social isolation and loneliness occur unequally across age groups. For example, the 2018 survey found that 59% of the respondents who reported feeling lonely were under age 50 [15]. A study by Hawkley [13] found that "loneliness decreased with age through the early 70s, after which it increased" (p. 1144). Several studies have found that those who report lower income and assets, are usually lonelier, have poorer health and are not married [12, 15]. Hawkley et al. [13] further emphasized that "loneliness is not significantly more prevalent in the oldest old adults, nor in minority groups relative to whites, nor in women relative to men" (p. 6). Cudjoe et al. [9] found that having low education and low income along with being unmarried are associated with social isolation.

2. Health Consequences of Social Isolation and Loneliness

There are serious health consequences of such isolation and loneliness, particularly in the elderly population. Before reviewing the various studies, it is noted that the relationship between loneliness and health consequences is not unidirectional. In other words, one may suffer negative health consequences due to loneliness, as research repeatedly demonstrates, but may also experience loneliness due to restricted mobility and inability to partake in social intercourse. It was found that social isolation significantly increases a one's risk of dying from all causes, a risk that may rival the risks of smoking, obesity, and physical activity [16]; Social isolation has been correlated with a 29% increased risk for mortality and a 25% increased risk for cancer mortality [17, 18]; Loneliness has been associated with significant depression, anxiety, and suicidal thoughts [19]; Loneliness has been found to contribute to functional decline and increased death by 45% [20]; Poor social relationships, which may result in social isolation and loneliness have been associated with a

29% increased risk of incident coronary heart disease and a 32% increased risk of stroke [21]; Patients who have experienced heart failure and have experienced loneliness, have been found to be nearly four fold at risk of dying, 68% at increased risk of hospitalization, and 57% with increased risk of needing the help of emergency departments [22]; and social isolation has been associated with a significant increase of developing dementia [23, 24]. Social Isolation and loneliness were associated with major causes of death. For example, those elderly with a history of acute myocardial infarction or stroke, are at increased risk of death if they are socially isolated or lonely [25]. Being married, on the other hand, was associated with a lower risk of cardiovascular death amongst the old [26]. Manemann et al. [22] found that among the 18,000 patients with chronic heart disease that they surveyed, living alone increased by four time their risk to die, if they experienced great loneliness. The next several sections highlight the way ill health contributes to loneliness.

2.1 Cardiovascular Disease, Stroke and Loneliness

A meta-analysis of 23 studies revealed that poor social relationships, which resulted in social isolation and loneliness, significantly increased the risk of developing heart disease and stroke [21]. Other studies support these findings. For instance, research on patients after heart attacks have consistently found low social support was clearly associated with poor prognosis, while increasing the risk of mortality, readmission, and re-infarction rates [27, 28]. Additionally, Cuffee et al. [29] found low social involvement to be correlated with increased risk for hypertension. A study of heart failure patients who experienced loneliness, found an increase of hospitalization, of emergency department visits, and of outpatient visits compared with patients reporting low perceived social isolation [22].

2.2 Dementia and Cognition and Their Relation to Loneliness

A 2015 meta-analysis found high level of loneliness to be significantly associated with an increased risk of dementia, with, infrequent social contacts, and low-level group participation. That risk was comparable to such dementia risk factors as physical inactivity, low education, Type 2 diabetes mellitus, and late-life depression [23, 30-32]. Similarly, another meta-analysis which reviewed studies on more than 2.3 million participants, showed that living alone, having a limited social network, infrequent social contacts, and having poor social support contributed to increased risk for dementia [24]. Moreover, it was found that social contact reduces the risk of dementia, which indicates that high social engagement may serve as a protective factor against cognitive decline [24]. Research also examined whether cognitive decline may be affected by social isolation and loneliness [33, 34]. And indeed, limited social contacts and not participating in community groups were found to be associated with declines in global cognition, processing speed, executive function, and visuospatial abilities [35, 36]. It was found that increased loneliness in older adults, is associated with worsening performance on measures of global cognition as well as on specific tests of immediate and delayed recall [37, 38]. Social interactions are known to enhance cognitive capacity by activating and maintaining the efficiency of brain networks [39-41]. In older adults, greater emotional support, which one commonly gets from the community or close friends, has been associated with both higher serum levels of brain-derived neurotropic factor and a reduced risk of dementia, suggesting that enriching relationships may also promote neurogenesis and synaptic plasticity [42]. It was found that increased loneliness in mid-late life has been associated

with elevated cardiovascular and neuroendocrine markers of stress, impaired sleep, and pro-inflammatory physiological effects, effects which may speed up neurodegeneration in the hippocampus and in other brain regions vulnerable to Alzheimer's disease and vascular cognitive impairment [43, 44]. Alarmingly, in adults who have normal cognitive functioning, increased loneliness was correlated with higher levels of brain amyloid and regional accumulation of tau protein, linking loneliness with the pathological changes of early Alzheimer's disease [45, 46].

2.3 Depression, Anxiety and Loneliness

In various studies conducted with older adults, an association was found between loneliness with both depression and anxiety. A study which included more than 15,000 German adults aged 35−74 years, found a positive correlation between loneliness and depression, anxiety, and suicidal thoughts, and that was independent of age, sex, partnership, and socioeconomic status [19]. Choi et al. [47] conducted a systematic review of adults aged 60 and older. It was found that loneliness was significantly and positively associated with depression. In a cross-sectional study which was conducted in the U.S. on 314 older adults living in retirement communities, these results were echoed [48]. A systematic review by Schwarzbach and colleagues [49] found that social support, and the quality of relations which people develop and engage in, were most consistently associated with the presence or absence of depression, when lack of social support resulted in increased depression. Taylor et al. [50] researched this topic and found that it is not the quantity, but the quality of one's social relations that is strongly related to depression than the quantitative aspects when the depression and social relationships were measured at the same point in time. Similar results relating to the effect of low social support and loneliness, were also reported from studies conducted in Ireland, the Netherlands, and Germany. Together, these studies establish that social support, social isolation, and loneliness are strongly linked to depression and anxiety [51-54].

2.4 Loneliness and Chronic Physical and Health Conditions

A Swiss study on a large sample of 20,007 participants, lonely individuals were found to be more likely to be affected by chronic diseases, to have high cholesterol levels, diabetes, and impaired health [55]. In a Danish sample, loneliness was associated with a high risk for poor self-rated health, of limited physical abilities, and a higher risk of multiple diagnoses [56]. In the United States a longitudinal study on 1,604 participants age 60 and older, clearly demonstrated the association between loneliness and functional decline or death [20]. Participants who were lonely were more likely to experience a reduced level of daily activities, like eating or bathing, in mobility, upper extremity tasks which may include pushing or pulling large objects, resulting in an increased risk of function loss [57]. Brinkhues et al. [58] found that individuals with a smaller social network size were more likely to have type 2 Diabetes Mellitus, complications of which may limit mobility, and that may limit one's social involvement, resulting in increased loneliness [59]. Interestingly, social connections may even influence susceptibility to colds. LeRoy et al. [60] found that loneliness was related to increase in reporting of cold symptoms. Sociability, as assessed by one's extraversion, agreeableness, and positive relationship style, has been linearly associated with a decreased probability of developing a cold [61].

Various aspects of social connection seem to affect health-related behaviors such as, smoking, substance use, exercise, diet or sleep patterns, to mention a few, in either positive or negative ways.

Studies that were conducted in the late 20th century suggested that marriage or parenting helped inhibit behaviors such as drinking, smoking, or illicit substance use, because having a partner for instance helped one regulate these health behaviors. Meaning that one's levels of alcohol and tobacco use may be affected by their social support, which is negatively correlated to these unhealthy behaviors [62, 63]. Research on older people pointed out that those who are isolated and lonely, are more likely to have less healthy behaviors such as poor diets, tobacco use, heavy alcohol use, and a lack of physical activity [64]. Other studies found a positive correlation between loneliness and lowered physical activity, being overweight, increased smoking, and greater alcohol consumption [65, 66].

3. The Effect of Loneliness on One's Quality of Life

Social isolation and loneliness negatively affect quality of life among older adults. Quality of life definitions vary across the available research which makes it difficult to interpret these studies. Quality of life is commonly defined as health-related quality of life (HRQL), which offers a multi-dimensional picture of a person's health and well-being [67]. Holmén et al. [68] observed that emerging definitions were generally more expansive in that they allowed for subjective dimensions such as overall life satisfaction. Evidence suggests that social isolation negatively affects the quality of life of older adults. Hawton et al. [69] researched older adults and found that social isolation has a significant negative effect on health-related quality of life [HRQL]. In that study, older adults who were severely socially isolated and lonely, were found to have particularly low HRQL. Golden et al. [67] found social isolation was associated with decreased satisfaction with one's life, with feelings of hopelessness, more depressed mood, and less happiness. Chappell and Badger [70] interviewed 743 older adults aged 60 years or older and found that companionship and confidants, were more closely related to an older person's well-being than whether he is married, living alone or has children. Golden et al. [67] found that hopelessness, indicating a lower quality of life, was higher among older adults who did not have an integrated social network.

Factors Related to Increased Loneliness. As was previously indicated, various physical health factors are known to be affected by social isolation and loneliness. These include common chronic diseases, impairments, and geriatric syndromes. And while loneliness may increase the chances of developing a chronic health condition, that condition may, in turn, enhance one's loneliness by interfering with the quality, quantity, or structure of one's relationships. It is thus clear, for instance, why social functioning is limited, or even non-existent, when multiple chronic conditions exist [71]. Recent surveys pointed out that about 60% of all adults and more than 80% of those aged 65 and older have at least one chronic disease (e.g., heart disease, diabetes, cancer, stroke), while 77% of them have at least two chronic diseases [72]. It was found that cardiovascular disease and stroke can increase the risk of social isolation and consequently loneliness [73]. A stroke may bring about visual field deficits and dysphagia, which can impair an individual's ability to interact with others; chronic obstructive pulmonary disease, and advanced heart failure may also increase the risk of loneliness. It was also found that chronic pain may result in social isolation and loneliness [74-76]. Research revealed that older adults who were infected with HIV may face greater social isolation and loneliness as a result of the social stigma of HIV, and later due to their deteriorating health [77]. Other conditions that may influence social isolation and loneliness include Parkinson's disease, multiple sclerosis, cancer, and spinal cord injury [78-82]. It was observed that geriatric syndromes

and impairments, such as oral-health-related issues or frailty, may also enhance loneliness as a result of the embarrassment and possible stigma regarding deficits in communication or comprehension [83]. The English Longitudinal Study of Aging, which collected data over a period of six years, found that loneliness predicted frailty for men and women, while social isolation predicted frailty only for men. Some other geriatric syndromes, such as urinary and fecal incontinence, contributes as well to social isolation and loneliness [84]. Loneliness predicts long-term care admission, independent of functional status, which may include difficulties in daily activities [85]. Perceiving that they are socially isolated and lonely, may moderate for patients the degree of functional impairment that they experience due to chronic conditions such as lower back pain or other chronic illnesses, or even fear of falling which may cause the elderly not to leave their homes [86, 87].

3.1 Sensory Impairment

Hearing loss whether completely or gradually, especially of the elderly, enhances social isolation and loneliness. Those suffering from hearing loss are less willing to engage socially, which may lead to greater isolation, feeling apart from others and since they do not feel comfortable to partake in social exchange, end up lonely [88]. Generally, communication disorders were found to be associated with social isolation, lower level of social participation, and higher rates of loneliness [89]. Visual impairment deserves a brief description, as it is fared by many. It refers, generally, to those who have developed problem with their sight, when they have previously not had one. “Blind” is used for those who have no seeing capability at all. Visual acuity is the level of detail that can be seen by an individual. The poorer it is, the less sight one has [90-92]. Visual impairment was also found to be associated with loneliness [90]. vision and hearing impairment, was found to increase the risk of loneliness [91]. Chronic illness, such as sight problems often are, is often related to psychological issues, mobility limitations, limitation in transportation, and strained social relationships [93].

Individuals with functional impairment or a disability, which may include physical, mental, intellectual, or sensory disability, face unique challenges that leave them especially susceptible to being socially isolated or lonely [94]. The manner in which a person’s disability influences their life, and whether they need to depend on others to fulfill their daily needs, were found to correlate with increased feelings of loneliness or vulnerability [95]. The social networks of those afflicted with functional impairment can affect their loneliness. For instance, those with functional limitations who are not married, or those who are living in strained marriages, experience higher loneliness than happily married individuals with comparable limitations [96].

The Group one Belongs to. It is difficult to define all the sub-populations whose risk of loneliness is heightened, so the two major ones will be mentioned.

3.1.1 Immigrants

Immigrants, and especially older ones, are more likely to experience social isolation and possibly loneliness than non-immigrants. In general, immigrants face many stressors that can increase their social isolation. These may include language and communication barriers; differences in community or family structure; and new relationships that lack depth or history [97]. A study in England found that immigrants, including those from China, Africa, the Caribbean, Pakistan, and Bangladesh,

experienced social isolation and loneliness to a higher rate than their non-immigrant peers [98], a study on immigrants in Holland yielded similar results [99].

3.1.2 Gay, Lesbian, and Bisexual Populations

Research found that an individual's sexual orientation may contribute to the loneliness or social isolation that this individual faces. In general, it was found that gay, lesbian, and bisexual individuals tend to experience more loneliness than their heterosexual peers [100]. Several studies have looked at the factors that contribute to loneliness among gay, lesbian, and bisexual populations, and suggested that perceptions of discrimination felt by that community are related to their increased loneliness [101]. Experiences of homophobia, racism, financial hardship, and low resiliency all predicted loneliness [102].

4. Gender Differences in Elderly Loneliness

Dahlberg et al. [103-109] investigated the predictors of loneliness in old age. They observed that one of the most significant socio-demographic factors associated with loneliness includes gender; women commonly reported higher levels of loneliness than men [110]. One of the possible reasons for that is that there is a larger number of widowhood amongst women [111]. Dahlberg et al. [109] indicated that women are at greater risk of loneliness than men are, and it therefore is expected that the predictors of loneliness vary by gender. For example, women have better social contacts with family, friends and neighbours (e.g. [112]) and that may assist in alleviating some of the negative effects of widowhood which women are more prone to than men.

Single adults. Single adults, who may be unmarried, widowed, or divorced, may experience social isolation or loneliness differently than those who have intimate partners. Whether the adult chose to remain single, was forced to it, or hopes to find a partner, loneliness is often a companion of this group [105]. Living alone does not necessarily mean that the person is sequestered from society. For some, periods of solitude represent opportunities to reenergize, relax, or engage in other pursuits [108].

5. The Contribution of Older Adults' Expectations Regarding Social Relationships to Loneliness

The old-old are amongst the loneliest groups in our society [113]. Aging has been aptly described as "an iterative, socially embedded process that requires adaptation to specific sociocultural contexts" ([114]; p. 102). One of the important factors which defines loneliness at that age is related to what are the elderly's expectations of their social relationships and support. "People's expectations for their social relationships, as well as their success at realizing their expectations, are contingent on a variety of external factors, such as living arrangements (e.g., long-term care institutions vs. aging in place), resources (e.g., abundance of activities vs. scarcity), and structural changes that may cause migration or displacement (e.g., war or climate change). Furthermore, there are certain changes to contextual factors that are likely to accompany old age, such as a decline in physical health, losses to social networks, and shifts in cultural expectations resulting from retirement, filial piety, and ageism in people's environments" ([115]; p. 3). Personal, health and familial situations change as we age, and consequently people's expectations from their support network change. A change that affects their perception and experience of loneliness. We should

bear in mind that cultural expectations and norms influence all aspects of older adults' social relationships, including expectations about aging and preferred living arrangements [116]. For example, older adults in Northern European countries expect to be interdependent, and so when they live alone they do not experience loneliness, while those in Southern European countries, have more expectations to co-reside with their children [117]. And a study conducted in four European countries found that cultural norms that valued the creation of new relationships, resulted in less loneliness [118]. A limited future time perspective, such as the older people often have, results in their prioritizing their relationships and focusing on pursuing of meaningful interactions. For example, they expect more intimacy in their relationships compared to younger people [7].

6. Social Support and its Blessed Effects

The term "social support" has many different meanings. For example, support may be instrumental, emotional, or informational; it may also be received, perceived (as helpful or available if needed), or provided to others. When the effect of social relationships on mortality was examined, perceived support predicted 35 percent increased odds of survival, though the effect of received support, was non-significant [103]. The kind, and characteristics of social support one has, may significantly affect one's sense of isolation and loneliness.

Society's customs, lifestyles, and values, can affect an individual's everyday interactions with family members, friends, or complete strangers. It may also influence how people live their lives and connect to society. One's social network, such as family members, friends, spouse, and neighbors, can play important roles in the person's life and reduce his experienced social isolation or loneliness. The effect of the social support network relies more on the quality of the relationship one has with those around him, than on the quantity. Supportive relationships can decrease self-reported loneliness, while loneliness can be increased by unfulfilling relationships [104]. Let's examine several of those relationships, and their impact on loneliness.

6.1 Family and One's Spouse

Family can be an important source of social support, particularly for older adults, since it can provide social and emotional connection in addition to contributing to an individual's financial and physical well-being [105]. Those who lack a family, are naturally lonelier than those who have a supportive one. Marriage may protect against loneliness, enhancing overall quality of life, and one's health. However, we need to remember that the spousal relationship can be either beneficial or detrimental. In particular, remaining in an unhappy relationship can negatively affect an individual's health and well-being and can add to one's emotional distress [106]. It has been found that close family bonds provide social, economic, physical, and other forms of support, with the amount of support depending on each person's willingness to be emotionally and personally invested in maintaining mutually beneficial relationships [105, 107]. Parent–child relationships can range in their quality and level of support. Virtual interactions are becoming more common, but it is unclear yet whether they provide the support and closeness that the older person needs.

7. Universal Expectations by Older Adults Regarding Social Contact and Support

Social contacts need to be available. Older adults expect that social contacts are easily available and that those in their support network interact with them frequently [119]. That expectation reflects a universal wish to be embedded in a community of others, and indeed, most intervention programs focus on this social expectation of proximity, aiming to increase the number of social contacts that elderly have [116].

Feeling supported and cared for. - Older adults expect their social relationships, to provide care and support, which are both predictive of the elderly's sense of meaning in life [120]. Interestingly, a recent study by ten Kate et al. [119] found that older adults' loneliness was not related to actual support received, but to their unfulfilled expectations for support. An interesting finding of this study was that healthy elderly were lonelier than sick ones. Interestingly, the sick had lower expectations for support, did not expect their expectation for support fulfilled, and were therefore less disappointed. These expectations are shaped and affected by the culture one lives in, though modernization and urban migration, may result in older adults who have lower expectations for support from their families and social network [121]. Older adults expect to have intimacy and closeness in their social relationships. Essentially, they expect to be loved and understood by close others, where there is trust and interest shown by others regarding their lives and situation [122]. Sexual intimacy is often overlooked by older adults although they value sexual intimacy and see it as an important part of their romantic relationships. It should be remembered that age related changes in their health and mobility may hamper the actualization of their expectations [123].

All in all, it is imperative for us to understand the elderly's expectations of their social network, as those will determine the presence and depth of the loneliness they may experience. Interventional approaches need to focus on such expectations, and find way of fulfilling them, or if impossible, at least readjusting them. Successful aging may assist the elderly to minimize their loneliness and leave a more fulfilling and rewarding years as they approach death.

8. Achieving Successful Aging and Reducing Loneliness

There is a "positive aging" approach which focuses on individual responsibility for satisfaction with life and happiness in the old age. Such responsibility seeks to create a desirable and attractive future for older people, aiding them in transmitting goals and values of aging to others and to the younger generation [124]. There are several models for the empirical study of positive aging, and the following stand out: Positive aging is perceived as active, optimal, healthy and successful aging [125]. High subjective well-being (such as life satisfaction, absence of negative emotions, and positive emotions) results in better health and a longer life [126, 127]. People who are able to engage in positive aging are usually those who can maintain a positive perspective on life, have goals which are meaningful to them, keep a close social relationship and show a proactive attitude [124]. The most internationally studied model of successful aging is the one by Rowe and Kahn [128]. This model proposes three pillars of a good aging: absence of disease, cognitive and physical function which are age appropriate, social capital, and social activity and spirituality (see also [129]). There is evidence that spiritual beliefs positively affect psychological well-being and life satisfaction in the old age [130]. Successful aging is significantly affected by life satisfaction which comes despite the various losses that the elderly are familiar with. Life satisfaction is the cognitive aspect of subjective well-being and is a major factor of mental health [131, 132]. Among the wide range of factors which

contribute to life satisfaction are good health [133], self-care, aiming at restoring or improving one's health and well-being and that includes taking care of one's physical, psychological, emotional, cognitive, social, cultural, and spiritual dimensions. Social support affects life satisfaction [134]. For example, Gow et al. [135] estimated the percentage of life satisfaction explained by social support to be 23%. Regarding personality traits, conscientiousness seems to be a main one [134, 136]. A stronger self-discipline and orientation towards objectives, predicts health behaviors and negatively relates to mortality during the lifespan. It was pointed, that there is a positive correlation among self-care behaviors and having more social contact which directly affects loneliness, by reducing it [137].

9. Social Connection as a Contributor to Health and Longevity

Since the mid 1970s, John Cassel and Sidney Cobb, independently linked social support to health [138, 139]. Both highlighted the finding that social support can protect, or at least moderate the adverse effects of risk factors to health across a wide range of health outcomes. By the early 1980s, researchers mentioned various issues relating to research on social support and health, including (1) what the causal associations between social support and health were, (2) "whether social relationships and supports [only or mainly] buffered the impact of stress on health or had more direct effects, and (3) how consequential the effects of social relationships on health really were" ([140]; p. 541).

A comprehensive meta-analysis by Holt-Lunstad and colleagues [103] included 148 prospective studies that followed participants over an average of 7.5 years, in order to determine the predictive association with mortality. This analysis, which was based on data from more than 300,000 participants, found that having a stronger social connection was associated with greater odds of survival. These findings transcended age, gender, cause of death, and country of origin. Other meta-analyses replicated these results. There is strong evidence that not having social connections has been correlated with increased risk for premature death. There is evidence that the magnitude of that effect on mortality risk of dying may be comparable to or greater than smoking, obesity and physical inactivity [141, 142]. Evidence is emerging on the association between mortality and loneliness. A causal link between loneliness and health was examined, and predictive correlations between loneliness and mortality have been found [20, 143]. In a recent meta-analysis, which included 35 studies with 77,220 participants, it was concluded that loneliness significantly increases the risk percent of dying ([142] Rico-Uribe et al., 2018). Holt-Lunstad et al. [18] also found, some years earlier results that were consistent with the Rico-Uribe's [142] findings. They observed that loneliness increases the risk for death by 26%.

10. Health-related Behaviors

Heath-related behaviors can mediate the relationship between social isolation or loneliness and health outcomes. Social isolation and loneliness may affect health-related behaviors, which in turn can affect one's health. Health related behaviors may deepen or, alternatively, alleviate loneliness. For example, physical activity which is performed in the house while doing household chores, was associated with reduced social isolation. Practicing tai chi was found to reduce loneliness, partly due to the social nature of the program [144]. Sleep appears to be vitally important to health. Sleep influences cardiovascular disease, weight gain and obesity, and even diabetes. Poor sleep has been

associated with an increased mortality risk, and with lower social support. Loneliness can negatively affect sleep, lowering sleep quality and increasing sleep fragmentation. Thus, social isolation and loneliness may influence health via poorer sleep, while greater social support may result in improved sleep and thus in better health [145]. Social relationships influence health also by increasing one's adherence to medical advice. Adherence, or basically following medical advice may significantly improve treatment results. Supportive intimate relationships, or those with significant others, can encourage greater responsiveness to medical recommendations [146]. While social relationships can have various positive characteristics, and have a good influence on one's health, there are relationships which may hold negative attributes (e.g., conflict, insensitivity, jealousy, burden, rejection, neglect, or even abuse) and may be harmful to one's wellbeing [147]. Research has demonstrated that negativity in social relationship predicts greater risk of dying. Research which focused on women with breast-cancer, found that women with small social networks and low levels of social support [148]. When relationship quality is ignored in medical settings, as it often does, it may lead to higher risk to the patient. A good marriage has protective effects in terms of reducing risk for mortality and loneliness, while distressed marriages harm immune outcomes [149] and increase morbidity and mortality risk [150].

To conclude, this review focused on the elderly, their loneliness, and what contributes to it. It clearly demonstrated that loneliness may contribute to ill health, but also be caused by it. Loneliness, particularly in one's older years is never welcome. The review indicated that while it can never be completely eradicated, there are a variety of approaches to minimize the frequency of loneliness. Successful aging, community involvement, social support, and intimacy have all been shown to not only enhance quality of life, but increase the years that one may live.

Author Contributions

The author did all the research work of this study.

Competing Interests

The author has declared that no competing interests exist.

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