Master thesis

The relative contribution of marital status, social and emotional loneliness, preference for solitude, and emotional dampening to wellbeing in late life

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ABSTRACT - This study examined the unique and combined ability of marital status, social and emotional loneliness, preference for solitude, and emotional dampening to predict wellbeing in late life. Regression analyses were conducted using a Dutch sample of adults aged 70 and older (N = 170). Findings indicated that emotional loneliness was the best predictor of both life satisfaction and depressive symptomatology. Other proposed predictors (i.e. marital status, social loneliness, preference for solitude, and negative emotional dampening) did not predict life satisfaction nor depressive symptomatology. However, marital status did show an indirect effect on life satisfaction and depressive symptoms through emotional loneliness, full mediation was achieved. These findings lend further credence to the relevance of Bowlby's attachment theory and Weiss' relational theory of loneliness. Although this study had several limitations, these findings implicate that clinical interventions and eldercare should focus on alleviating emotional loneliness in order to be effective in improving wellbeing in late life.

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Contents

Preface

This thesis is submitted in partial fulfillment of the requirements for a Dutch Master's Degree in Clinical and Health Psychology at the Utrecht University. I was engaged in researching and writing this thesis from October 2015 to February 2016. I conducted this study in association with Aafke Heude, Ashley van Geel, and Amber van der Staak. Together, we have looked at the relationship between loneliness, preference for solitude, emotional dampening, depressive symptoms, and life satisfaction in older adults. In addition, each of us choose an extra variable of interest, I choose to study the role of marital status.

When I rang the first doorbell, I could never have realized how enjoying the upcoming 50 interviews would be. Interviewing the participants has been a fantastic learning experience and I am thankful for the skills I have acquired. I met a plethora of interesting people while collecting data for this study, who had only one thing in common: their age. Some interviews lasted only 15 minutes, while others took almost three hours. Some interviews made me feel happy, others made me feel sad, and some made me feel powerless. I could write a novel full of the hilarious and heartbreaking stories I have encountered. I could write about cursing parrots, the Dutch Indies, and life lasting romances, but instead I will provide you with scientific literature and statistics. It has been a pleasure working on this thesis and I hope you will enjoy the reading as much as I have enjoyed the writing.

I wish to thank all of the participants, without whose cooperation I would not have been able to conduct this study. I also would like to thank our supervisor, Anneke Vedder, and her colleague, dr. Henk Schut, for their support, ideas, and comments. Additionally, I wish to express my gratitude to my fellow colleagues, Aafke, Ashley, and Amber, for their pleasant and inspiring collaboration. Finally, I would like to thank all the wonderful people who helped me with the recruitment of participants. Most of all, I thank my lovely grandfather, Matthé Moons, who arranged over 40 interviews with his acquaintances. I dedicate this thesis to him.

Eline van Basten

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1. Introduction

In a classic study, Larson, Csikszentmihalyi, and Graef (1982) showed that younger adults spend less than 30% of their waking time alone, while people over 65 years spend 48% of their waking time alone. This increase in time spent alone might be explained by older adults' growing risk of losing their peers through death, the loss of social roles after retirement, residential relocation, limitations of mobility, and the loss of financial means (Pinquart & Sörensen, 2001). Given these unique characteristics of late life, older adults are vulnerable to loneliness, and loneliness is considered an important risk factor for depression (e.g. Holvast et al., 2015). Notwithstanding, older adults do not seem to suffer from feelings of loneliness and depressive symptoms any more than younger adults (Tiikkainen & Heikkinen, 2005), and overall life satisfaction does not appear to decline with age (McAdams, Lucas, & Donnellan, 2012). Potential explanations for these surprising findings may be found in older adults' preference for solitude or in the phenomenon of emotional dampening.

Hence, the current study tried to elucidate the association between marital status, loneliness, preference for solitude, emotional dampening, depressive symptomatology, and life satisfaction in older adults. Because it is rare that all of these different factors are examined within the same study, little is known about the relative effects of these factors on wellbeing in late life. The present study attempts to specify more precisely the importance of these factors by examining their combined and unique predictive power in explaining older adults' life satisfaction and depressive symptomatology. A cross-sectional study was conducted in which 170 participants aged 70 and over were interviewed about their wellbeing. The specific hypotheses tested are outlined below after a brief overview of the literature.

1.1 Attachment theory

The loss of a spouse almost always produces distress and requires extensive readjustment (Nieboer, Lindenberg, & Ormel, 1999), largely irrespective of the quality of the marriage (Weiss, 1976). Moreover, widowhood has been consistently linked to experiences of loneliness in a variety of different cultures and contexts (Victor, Scambler, Bond, & Bowling, 2000). While stress theorists postulate that supportive family members and friends can compensate for the loss of a spouse, attachment theory argues that social support cannot alleviate the distress of widowhood (Bowlby, 1969 in Stroebe, Stroebe, Abakoumkin, & Schut, 1996). Bowlby theorized that the absence or loss of an attachment figure can only be substituted by another close and intimate bond. Weiss (1973) elaborated Bowlby's ideas in his relational theory of loneliness, in which he suggested that there are two types of loneliness

that can co-exist or occur independently: Loneliness through social isolation and loneliness through emotional isolation.

The dominant feeling of social loneliness is boredom, while emotional loneliness is described as a sense of utter aloneness (Weiss, 1973). Weiss' conceptualization of loneliness may be particularly relevant for studies among older adults (Van Baarsen, Snijders, Smit, & Van Duijn, 2001), because aspects of late life may be differentially associated with social and emotional loneliness. While social loneliness occurs through social isolation, and may be experienced following relocation or as a consequence of mobility limitations, emotional loneliness occurs because of an absence of an attachment figure, such as after the death of a spouse. Interestingly, it has been found that depressive symptoms are strongly associated with emotional loneliness, but not with social loneliness (Peerenboom, Collard, Naarding, & Comijs, 2015; Stroebe et al., 1996), while both social and emotional loneliness were found to be negative predictors of life satisfaction (Salimi, 2011). Moreover, Stroebe et al. (1996) showed that the association between widowhood and depressive symptomatology was fully mediated by emotional loneliness. While social loneliness could be best resolved by initiating new activities and acquiring new contacts (Van Baarsen et al., 2001), emotional loneliness may be experienced while the companionship of others is in fact accessible and is, therefore, harder to resolve (Weiss, 1973).

1.2 Socioemotional selectivity theory

Another relevant theory to the present study was proposed by Carstensen. Her socioemotional selectivity theory addresses the influence of time on the social and emotional goals that people pursue (Carstensen, Isaacowitz, & Charles, 1999). Carstensen posits that the reduction in social contact in late life is not an inevitable consequence of the aforementioned characteristics of late life, but that older adults are deliberately less socially active. Older adults become increasingly selective in their social choices (Carstensen et al., 1999) and typically require less social stimulation and interaction than younger adults to maintain wellbeing (Adams, Sanders, & Auth, 2004). So while researchers have generally looked at social isolation in late life as the result of life circumstances, older people may actually choose to be alone, because they come to prefer solitude towards the end of the life span. This preference for solitude may account for the finding that, although older adults generally experience a decline the frequency of social contact, they do not suffer from feelings of loneliness and depressive symptoms any more than younger adults (Tiikkainen & Heikkinen, 2005).

Additionally, Carstensen postulates that late life is associated with qualitative changes in emotional experience. Older adults' awareness of limited time provides a sense of perspective that dampens negative emotional experiences and enhances the appreciation of positive aspects of life (Carstensen et al., 1999). Consequently, depression in late life might not be characterized by intense negative emotions. This could explain why a very large proportion of older adults suffers from depressive symptoms without meeting the formal criteria for major depressive disorder (George, 2011). In concordance with socioemotional selectivity theory, empirical studies that have examined emotional experience in late life suggest that emotional experiences become less intense, and thus more dampened, with age, and that emotional experiences become more mixed as people get older (Carstensen et al., 2011).

1.3 Confounders

To minimize the effects of confounding variables, the literature was searched for variables that might affect the association between marital status, loneliness, preference for solitude, emotional dampening, and wellbeing in late life. First of all, there is strong evidence for gender differences in the experience of both loneliness and depressive symptoms (Pinquart & Sörensen, 2001; Victor et al., 2000). For instance, the association between marital status and depression is greater for men than for women (Umberson, Wortman, & Kessler, 1992), and being male was highly correlated with social loneliness after conjugal bereavement (Dahlberg & McKee, 2014). Second, marital status is often confounded with living arrangement (George, 2011). Married people usually live together, while widow and widowers are more likely to live alone. This gives rise to the question of whether it is living alone or being widowed that accounts for marital status differences in, for instance, depression rates (George, 2011). Third, a high social economic status (SES) seems to be associated with a more diverse social network, which is not restricted to family members and neighbors (Pinquart & Sörensen, 2001). Lastly, physical health is considered an important variable. Poor self-perceived health was found to be the most significant predictor of depression (Heikkinen & Kauppinen, 2004), and poor health was more highly correlated with social than emotional loneliness (Dahlberg & McKee, 2014).

1.4 Hypotheses

This study aimed to identify the relative contributions of marital status, social loneliness, emotional loneliness, preference for solitude, and emotional dampening to life satisfaction and depressive symptoms in a representative sample of people aged 70 and over in the Netherlands. The following hypotheses were tested: Guided by Bowlby's attachment theory, it

was postulated that widowhood will be the best predictor of emotional loneliness, that emotional loneliness will be the best predictor of depressive symptomatology, and that the association between widowhood and depressive symptomatology will be mediated by emotional loneliness. Second, in line with Carstensen's socioemotional selectivity theory, it was proposed that negative emotional dampening will predict less depressive symptomatology. Third, since Carstensen postulated that older adults require less social stimulation and interaction to maintain wellbeing, it was expected that this preference for solitude will predict higher life satisfaction and less depressive symptoms. Lastly, based on Salimi (2011), both social and emotional loneliness were expected to predict lower life satisfaction.

2. Methods

2.1 Sample

One-hundred-seventy individuals aged 70 and over, were recruited in four regions in the Netherlands (i.e. in and around Den Bosch, IJsselstein, Roosendaal, and Utrecht) between October, 2015 and December, 2015. In each city, participants were recruited by handing out promotional flyers in public places and nursing homes, and by convenience sampling. The study was advertised among acquaintances of the researchers who were asked to recruit potential respondents in their wider circles of contacts. Additionally, participants were asked to inform other potential respondents about the study. Exclusion criteria were insufficient Dutch language skills and marked cognitive problems.

2.2 Measures

A structured interview was developed that addressed all factors of interest. Instruments were selected on the basis of available information on reliability and validity in the older population, successful use in comparable studies, and instrument brevity. The interview schedule fully specified all questions and probes to be used, and could be self-administered or presented as a structured interview. The complete interview can be found in the appendices.

Loneliness. Loneliness was assessed using a self-report version of the De Jong Gierveld Loneliness Scale (De Jong Gierveld & Kamphuis, 1985 in De Jong Gierveld & Van Tilburg, 1999). This questionnaire encompassed two subscales based on Weiss' (1973) relational theory of loneliness, namely emotional loneliness (e.g. I experience a general sense of emptiness) and social loneliness (e.g. I can call on my friends whenever I need them). Participants were required to rate eleven statements on 3-point scales (i.e. yes, more or less, no). The word loneliness was not used and the items did not refer to age-specific situations or

behavior (De Jong Gierveld & Van Tilburg, 2010). The De Jong Gierveld Loneliness Scale had a maximum score of 11, with higher scores indicating greater loneliness. Norm scores were developed in an interview study with a Dutch population of adults aged 54 and older (De Jong Gierveld & Van Tilburg, 1999). Generally, adequate construct validity and good scale reliability is observed ($\alpha > .80$; Van Tilburg & De Leeuw, 1991). In the current study, both subscales had acceptable internal consistency with alpha coefficients of .79 and .70 for the Emotional Loneliness Scale and the Social Loneliness Scale, respectively.

Preference for solitude. Preference for solitude, defined as a person's preference for aloneness as opposed to preference for company, was measured with a translated version of the Preference for Solitude Scale (PSS; Burger, 1995). Participants were presented with twelve pairs of statements and were required to select the one that best described them (e.g. I enjoy being around people vs. I enjoy being by myself). The questionnaire had a maximum score of 12 with higher scores indicating greater preference for solitude. Several studies support the psychometric adequacy of the PSS, with internal consistency estimates reasonable for research purposes (Cramer & Lake, 1998). In the current study, the PSS had acceptable internal consistency ($\alpha = .70$).

Emotional dampening. Since no suitable instrument was available for assessing emotional dampening, item/scale development was carried out by the research team. As a summary measure of emotional dampening, a single item was used. In addition, a questionnaire was developed, which assessed emotional dampening using multiple Visual Analogue Scales (VAS; Albersnagel, 1988). This self-developed Emotional Dampening Scale (EDS) was composed of six positive and six negative day-to-day situations (e.g. I have to wait a long time). The participant was required to indicate how he or she would feel in the described situation by placing a vertical mark on a 15-cm line, anchored at 0 and 100% with opposing labels (i.e. very unhappy to very happy). Secondly, the participant was asked to indicate how he or she *used* to feel in the described situation (i.e. at the age of 40) by placing a mark on a second line. Scores were computed by subtracting the present and past VAS-scores, which resulted in a total score between -1200 and 1200. Higher scores indicated greater emotional dampening, and negative scores indicated the absence of emotional dampening. Unfortunately, the Negative EDS, composed of the six negative situations, had poor internal consistency ($\alpha = .50$), and the Positive EDS, composed of the positive situations, had questionable internal consistency ($\alpha = .63$). The complete EDS can be found in the appendices.

Depressive symptoms. The 15-item Geriatric Depression Scale (GDS-15; Yesavage et al., 1983) was administered as a measure of depressive symptomatology. The GDS-15 was developed to assess depressive symptoms and screen for depression among older adults, and can be used as a pen-and-paper survey and as an interview (Conradsson et al., 2013). Somatic symptoms, such as weight loss, were not assessed in the GDS, because these symptoms can be related to aging itself (Conradsson et al., 2013). The questions had a yes/no format in order to be easy to understand for older people (e.g. Do you think that most people are better off then you?). The GDS-15 had a maximum score of 15, with higher scores indicating more depressive symptoms. The GDS-15 has been validated within the Leiden 85-plus Study (Van der Mast et al., 2008) and the reliability of the GDS-15 was found to be acceptable ($\alpha = .75$; Friedman, Heisel, & Delavan, 2005). In the current study, the GDS-15 had acceptable internal consistency ($\alpha = .70$).

Life satisfaction. Life satisfaction was measured using a single item asking participants to rate their life on a scale from 1 to 10.

Additional variables. The interview included 20 additional questions to obtain sociodemographic information and information about potential confounding variables, namely age, sex, family status, living situation, marital status, nationality, income, former occupation, level of education, self-perceived general health, and religious attendance.

2.3 Procedure

Participants took part in this study voluntarily. Potential participants were contacted to establish whether this person was willing to participate in the study and, if so, to make an appointment for the interview. Subsequently, the interviewer visited the participant at home to conduct the interview. All participants provided informed consent before beginning any study procedures. Participants could choose between a structured interview, self-administration, or a combination of both. The majority of the interviews was conducted alone with the interviewee, while the rest were carried out with the interviewee accompanied, usually by a family member or nurse. Each interview lasted on average 60 minutes.

2.5 Statistical analyses

Power analysis indicated that a sample size of 107 was deemed sufficient to have 95% power for detecting medium sized effects when employing the traditional .05 criterion of statistical significance. In preliminary analyses, Spearman correlations were used to explore relationships between variables of interest. The relative contributions of marital status, social

loneliness, emotional loneliness, preference for solitude, and negative emotional dampening to life satisfaction and depressive symptoms were examined using multiple logistic regression analyses. Covariates used in the analyses were self-rated health, age, gender, living arrangement, income-based SES, and level of education. The mediating role of emotional loneliness in the association between marital status and depressive symptomatology was examined using mediation analysis by regression using the PROCESS tool by Hayes (2008). All analyses were performed with the IBM Statistical Package for Social Science (SPSS) version 20.0 for Windows.

Table 3.1 *Sociodemographic characteristics of the study sample*

Characteristic	*n* (%)
Gender	
Women	111 (65.3%)
Men	59 (34.7%)
Living arrangement	
Alone	85 (50.0%)
With others	85 (50.0%)
Marital status	
Never married	10 (5.9%)
Married or cohabiting	81 (47.6%)
Widowed	70 (41.2%)
Divorced	9 (5.3%)
Education level	
Primary education	27 (15.8%)
Lower vocational education	86 (50.5%)
Medium vocational education	29 (17.0%)
Higher vocational education/university	28 (16.4%)
Socioeconomic status (SES)	
Low	44 (25.9%)
Medium	103 (60.6%)
High	23 (13.5%)
Religious affiliation	
None	25 (14.7%)
Roman-Catholic	114 (67.4%)
Protestant	30 (17.7%)

3. Results

3.1 Descriptive analyses

Participants' sociodemographic characteristics are summarized in Table 3.1. All 170 participants had the Dutch nationality and were Caucasian. Participants were between the ages of 70 and 96 years (M = 79.18, SD = 5.91 years). Widowed participants lost their partners on average 14.4 years (SD = 12.3 years) ago. Women differed from men in their marital status, being more likely to be widowed (58.7%) than men (22.2%).

3.2 Preliminary analyses

Spearman correlations were used to explore relationships between variables. Table 3.2 presents intercorrelations among all assessed variables. Several findings are worth noting. First, both age and gender correlated significantly with living arrangement (r_s = -.38, p < .01; r_s = -.39, p < .01) and marital status (r_s = .31, p < .01; r_s = .41, p < .01). Also, living arrangement and marital status were very strongly correlated (r_s = -.83, p < .01), indicating overlap between these factors. Due to this substantial overlap, it was decided to eliminate living arrangement as a control variable in the regression analyses. Second, contrary to my expectations, preference for solitude and negative emotional dampening did not significantly correlate with any of the variables of interest. Third, marital status correlated with both life satisfaction (r_s = -.19, p < .05) and depressive symptomatology (r_s = .20, p < .05). Finally, both emotional loneliness and social loneliness correlated with life satisfaction (r_s = -.30, p < .01; r_s = -.28, p < .01) and depressive symptoms (r_s = .38, p < .05; r_s = .36, p < .01).

3.3 Assumptions of the linear model

Before conducting regression analyses, the distributional shapes of the main variables were examined to determine the extent to which the sample data met the assumption of normality. The histograms provided sufficient evidence of normality of the EDS, the PSS, and life satisfaction, but the histograms of the GDS-15 and the De Jong Gierveld Loneliness Scale were positively skewed. While the current sample size was rather large, no transformations were applied to the skewed data. Second, scatterplots provided sufficient evidence of linearity. Furthermore, standardized residuals and Cook's distance did not suggest the presence of any influential outliers. Mahalanobis distance did identify an outlier, which was inspected and subsequently ignored. The assumption of independent errors was tested using the Durbin-Watson test, which did not indicate any violations. Finally, the assumptions of homoscedasticity and multicollinearity were checked, which were both not violated.

Table 3.2. *Intercorrelations for all assessed variables*

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.	Gender	-												
2.	Age	.12	-											
3.	Living arrangement	-.38**	-.39**	-										
4.	Education level	-.29**	-.16*	.13	-									
5.	Socioeconomic status	-.13	-.11	.05	.27**	-								
6.	Self-rated health	.01	-.11	.14	.19*	.27**	-							
7.	Marital status	.31**	.41**	-.83**	-.18*	-.08	-.14	-						
8.	Emotional loneliness	.12	.22**	-.33**	-.18*	-.15	-.22**	.27**	-					
9.	Social loneliness	.05	.29**	-.26**	-.18*	-.10	-.18**	.21**	.61**	-				
10.	Negative emotional dampening	-.21**	-.06	.01	.16*	-.05	.01	-.01	-.02	.03	-			
11.	Preference for solitude	.03	.01	-.09	.05	-.04	-.05	-.01	-.07	.02	.00	-		
12.	Life satisfaction	-.001	-.30**	.20**	.09	.14	.33**	-.19*	-.30**	-.28**	-.08	.06	-	
13.	Depressive symptoms	.08	.22**	-.15*	-.13	-.22**	-.43**	.20*	.38*	.36**	.01	.03	-.35**	-

*$p < .05$; ** $p < .01$

3.4 Regression analyses

In order to examine the unique and combined ability of marital status, social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening to predict depressive symptoms and life satisfaction, hierarchical regression analyses were conducted separately for each outcome. Since this study primarily looked at the differences between married and widowed older adults, participants were excluded from the analyses when they did not fit in the categories married/cohabiting or widowed (i.e. never married or divorced participants were excluded). In the first step, six control variables were entered, namely self-rated health, age, gender, income-based SES, and level of education, followed by marital status in the second step. Finally, in the last step, the remaining independent variables were entered, namely social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening. The results of the regression analyses are summarized in Table 3.3.

It was proposed that negative emotional dampening would predict less depressive symptomatology, but negative emotional dampening was not a significant predictor of depressive symptoms ($\beta = .04$, $t(143) = 0.60$, $p = .55$). It was also expected that preference for solitude would predict higher life satisfaction and less depressive symptoms. However, preference for solitude was not a significant predictor of life satisfaction ($\beta = .04$, $t(143) = 0.52$, $p = .60$), nor was it a predictor of less depressive symptoms ($\beta = .05$, $t(142) = 0.76$, $p = .45$). Furthermore, both social and emotional loneliness were expected to predict lower life satisfaction: While social loneliness was not a significant predictor of life satisfaction ($\beta = -.00$, $t(143) = -0.014$, $p = .99$), emotional loneliness did significantly predict life satisfaction ($\beta = -.38$, $t(143) = -3.90$, $p < .001$). Additionally, it was expected that emotional loneliness would be the best predictor of depressive symptomatology. Whereas social loneliness did not significantly predict depressive symptoms ($\beta = .14$, $t(143) = 1.54$, $p = .13$), emotional loneliness was a significant predictor of depressive symptoms ($\beta = .37$, $t(143) = 4.18$, $p < .001$). Finally, self-rated health turned out to be a significant predictor of both life satisfaction ($\beta = .33$, $t(143) = 4.18$, $p < .001$) and depressive symptomatology ($\beta = -.40$, $t(143) = -5.17$, $p < .001$).

3.5 Mediation analyses

To test the hypothesis that the association between marital status and depressive symptomatology was mediated by emotional loneliness, a mediation analysis was performed.

Table 3.3. *Results of regression analyses: predicting life satisfaction and depressive symptoms*

	Life satisfaction			Depressive symptomatology		
Step/Predictors	*b*	β	ΔR^2	*b*	β	ΔR^2
1. Controls			.17***			.21***
Gender	0.05	.09		0.43	.09	
Age	0.04	.14		0.06	.14	
Education level	-0.08	.04		0.09	.04	
Socioeconomic status	0.10	-.09		-0.35	-.09	
Self-rated health	0.24***	.33***		-0.66***	-.40***	
2. Marital status	0.11	-.12	.01	0.48	.11	.01
3. Additional factors			.13***			.19***
Emotional loneliness	-0.30***	-.38***		0.68***	.37***	
Social loneliness	-0.00	-.00		0.26	.14	
Negative emotional dampening	0.00	-.02		0.00	.04	
Preference for solitude	0.01	.04		0.04	.04	

*** $p < .001$

As expected, there was a significant indirect effect of marital status on depressive symptoms through emotional loneliness (b = 0.62, p < .01), which represents a medium effect ($_K^2$ = .15). Perfect mediation was indicated by the fact that the impact of marital status on depressive symptoms was totally eliminated when controlling for emotional loneliness. Even when the analysis was performed with self-rated health, age, gender, income-based SES, and level of education as covariates, there was a significant indirect effect of marital status on depressive symptoms through emotional loneliness (b = 0.39, p < .05).

Additionally, some explorative mediation analyses were performed. First, it was tested if the association between marital status and life satisfaction was mediated by emotional loneliness. There was a significant indirect effect of marital status on life satisfaction through emotional loneliness (b = -0.23, p < .01), which represents a medium effect ($_K^2$ = .12). Second, while health problems could seriously affect opportunities for social interaction, it was tested if the relationship between self-rated health and wellbeing was mediated by loneliness. There was a significant indirect effect of self-rated health on depressive symptoms through loneliness (b = -0.13, p < .05), which represents a medium effect ($_K^2$ = .09), and there was a significant indirect effect of self-rated health on life satisfaction through loneliness (b = 0.05, p < .01), which also represents a medium effect ($_K^2$ = .07).

4. Discussion

4.1 Main findings

The unique and combined ability of marital status, social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening to predict depressive symptoms and life satisfaction was studied using hierarchical regression analyses. The models explained 30.8% and 41.6% of the variance in life satisfaction and depressive symptoms, respectively. Overall, it seemed that emotional loneliness was the best predictor of both life satisfaction and depressive symptoms in late life. Other proposed predictors (i.e. marital status, social loneliness, preference for solitude, and negative emotional dampening) did not predict life satisfaction nor depressive symptomatology. However, marital status did show an indirect effect on life satisfaction and depressive symptoms through emotional loneliness, full mediation was achieved. Finally, explorative analyses showed that self-rated health predicted wellbeing partially through loneliness.

The present findings regarding emotional loneliness align with previous studies on the subject (Peerenboom et al., 2015; Salimi, 2011; Stroebe et al., 1996), lending further credence to the

relevance of Bowlby's attachment theory and Weiss' relational theory of loneliness. However, the hypotheses derived from Carstensen's socioemotional selectivity theory were not confirmed. In the current study, negative emotional dampening did not predict less depressive symptomatology, and preference for solitude did not predict higher life satisfaction nor less depressive symptoms. An explanation for the former finding can be found in the inadequate psychometric properties of the self-constructed EDS. However, an alternative explanation for these results could be the absence of emotional dampening in real-life. Recent studies on emotion and aging have left the idea of emotional dampening, and have been focusing on age-related changes in cognitive processing instead. For instance, it has been found that, compared to younger adults, older adults attend to and remember more positive than negative information (Reed & Carstensen, 2011). A potential explanation for the latter finding was offered by Goossens and Marcoen (1999a), who suggested that measures of a person's preference for solitude may contain items which tap a reactive rather than an active desire to be alone. Moreover, a person's preference for solitude may only predict improved wellbeing when a person is in fact frequently alone, but not when someone is frequently accompanied by others.

4.2 Strengths, limitations, and future directions

To my knowledge, this is the first study that investigated the relationship between marital status, social loneliness, emotional loneliness, preference for solitude, negative emotional dampening, depressive symptoms, and life satisfaction among older adults. Although the current study was carefully designed, some limitations need to be addressed. First, and foremost, due to the cross-sectional nature of the current study, causal inferences cannot be inferred, and reciprocal and reverse effects are possible. It would be worthwhile to explore the relative contributions of marital status, social loneliness, emotional loneliness, preference for solitude, and emotional dampening to wellbeing in a longitudinal design.

Second, in the current study, different modes were used for data collection, namely structured interviewing, self-administration, and a combination of both. It was chosen to combine these modes, because it was found that offering a more private mode for sensitive questions within a face-to-face interview has positive effects on data quality (De Leeuw, 2005). However, while data collection procedures can influence participants' self-disclosure, accuracy and motivation to answer questions (Tilburg & De Leeuw, 1991), this inconsistent procedure may have biased the obtained data. Therefore, future studies should offer only one mode for data collection, preferably self-administered questionnaires.

Third, the assumption of independent observations was violated. The current sample included married couples of which both spouses were interviewed. Since spouses share the same environment, they cannot be regarded as independent subjects. The violation of the assumption of independence of observations is a serious flaw of the present study. To overcome this flaw, future studies should employ multilevel models, or should refrain from interviewing both spouses of a couple.

Additionally, participants were recruited by convenience sampling, applying a snowball method. This technique was selected because of a number of advantages, including accessing difficult to reach participants, and establishing trust as referrals were made by acquaintances (Atkinson & Flint, 2001). However, the snowball method may have resulted in an unrepresentative sample, potentially accounting for the skewed distribution of loneliness and depression scores, and limiting the external validity of the findings. Furthermore, this sampling strategy may have resulted in the ignorance of socially isolated older adults, which is a weakness of the present study. Future studies with large randomly selected samples, including both socially embedded and socially isolated older adults, would help to establish the generalizability of the present findings.

Fifth, while the used instruments had been shown to have adequate psychometric properties reasonable for research purposes (Cramer & Lake, 1998; Friedman et al., 2005; Van Tilburg & De Leeuw, 1991), the psychometric properties of the self-constructed EDS were substandard. Therefore, it remains for future research to uncover the ability of emotional dampening to predict wellbeing using a more reliable measure of emotional dampening.

Finally, self-reported data, especially when obtained through face-to-face interviewing, are subjected to possible social desirability. Social desirability bias may have led to underreporting of loneliness and depressive symptoms, and exaggerated reports of life satisfaction, despite the efforts to assure participants that all data would be confidential. However, depression and loneliness rates in the current study were comparable to prevalence rates found in previous studies. In the current sample, 21.2% of the participants could be classified as moderately lonely and 1.8% as severely lonely, and 11.8% scored in the depressed range of the GDS-15. In comparison, in the Leiden 85-Plus Study, 23% of the participants scored in the depressed range of the GDS-15, and loneliness was present in 25% of the participants (Stek et al., 2014).

4.3 Implications

Notwithstanding these limitations, the current results have a number of implications for clinical interventions and eldercare. The current study highlights that emotional loneliness, the sense of utter aloneness, is the best predictor of wellbeing in late life. Emotional loneliness may be experienced while the companionship of others is in fact accessible (Weiss, 1973), so increasing the number of social relationships will not prevent or reduce emotional loneliness, and will not improve wellbeing. Since most interventions focus on alleviating loneliness by improving the number of relationships or the quality of existing relationships (Fokkema, & Van Tilburg, 2007), it is not surprising that current loneliness interventions do not seem to produce the desired effects.

Current loneliness intervention programs fall into four broad categories, namely those that focus on improving social skills, those that enhance social support, those that increase opportunities for social interaction, and those that address maladaptive social cognition. In a recent review, Cacioppo, Grippo, London, Goossens, and Cacioppo (2015) conclude that interventions focused on social support generally produce small reductions in loneliness, whereas interventions focused on social interaction and social skills training were not effective in reducing loneliness. On the other hand, interventions focused at maladaptive cognitions, like cognitive behavioral therapy, *did* lead to a decrease in the level of loneliness and improved wellbeing among older adults. These findings reinforce the aforementioned notion that increasing social contact is not an effective way to address emotional loneliness and suggest that cognitive interventions may be especially worth pursuing (see Cacioppo et al., 2015, for discussion).

Since the current results suggest that emotional loneliness and depressive symptoms are closely associated, interventions designed to alleviate depression may be effective in reducing emotional loneliness. First of all, cognitive therapy as an intervention for both depression and emotional loneliness, may be especially worth pursuing. Additionally, animal studies that have looked at the effects of SSRIs on loneliness found promising results (Cacioppo et al., 2015). Another intervention which has shown to be effective in reducing depressive symptoms among older adults, is behavioral activation. By encouraging older adults to become more active, behavioral activation helps to reduce depressive symptoms (Yon & Scogin, 2008). While interventions focused on social interaction did not alleviate emotional loneliness, behavioral activation that alternatively focus on a broader range of activities, may

be effective. Future studies should look into the possible applications of depression interventions to address emotional loneliness and improve wellbeing in late life.

4.4 Conclusion

In summary, the current study aimed to unravel the unique and combined ability of marital status, social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening to predict depressive symptoms and life satisfaction. It was found that emotional loneliness was the best predictor of wellbeing, and social loneliness, preference for solitude, and negative emotional dampening did not predict wellbeing in late life. This study adds to the body of research linking emotional loneliness to wellbeing in late life. Appropriate interventions have to be developed, and future studies are necessary to elucidate how to prevent and reduce emotional loneliness in older adults.

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Appendices

I. Interview scheme

Proefpersoonnummer:				
Allereerst wil ik u heel hartelijk bedanken dat u mee wilt werken aan ons onderzoek naar ouderen en welzijn. Zoals u misschien al weet bestaat het onderzoek uit een aantal vragen, welke ik in de vorm van een interview aan u ga stellen. Het interview zal ongeveer een uurtje duren. Voordat we beginnen, wil ik u vragen om een toestemmingsverklaring in te vullen. In dit formulier geeft u aan dat u op de hoogte bent van uw recht om het onderzoek ten allen tijden vroegtijdig te beëindigen, en dat wij de plicht hebben om uw gegevens geheel anoniem te verwerken. U mag tussendoor gerust vragen om een pauze, dat is echt helemaal geen probleem. Heeft u vooraf nog vragen, voordat we gaan beginnen? Grijze vragen niet stellen, maar zelf invullen. De vragenlijsten op pagina's 3 en 4 kunnen de participanten eventueel zelf invullen.				
Geslacht:	Man		Vrouw	
Woonsetting:	Thuis	Verzorgingshuis	Verpleeghuis	Anders, namelijk:
1. Heeft u kinderen en hoeveel? Leven zij nog?				
2. Heeft u kleinkinderen en hoeveel?				
3. Heeft u broers of zussen en hoeveel? Leven zij nog?				
4. Bent u getrouwd?				
5a. Leeft uw partner nog?				
5b. Hoelang geleden is hij of zij overleden?				
6. Woont u alleen of met andere mensen? Met wie?				
7. Wat is uw hoogst genoten opleiding?				
8. Wat is de hoogst genoten opleiding van uw partner?				
9. Wat was uw beroep?				
10. Wat was het beroep van uw partner?				
11a. Waaruit bestaat uw maandinkomen?	AOW	Aanvullend pensioen (of individuele pensioensregelingen)	Inkomen uit vermogen (rente, aandelen, e.d.)	Sociale toeslagen (zorg- en huurtoeslag, e.d.)
11b. Sociaaleconomische status:	Laag (alleen AOW of er is sprake van sociale toeslagen)	Middel (er is sprake van aanvullend pensioen)	Hoog (er is sprake van inkomen uit vermogen)	
12. Wat is uw geboortedatum?				
13. Wat is uw nationaliteit?				
14a. Heeft u een godsdienst of levensovertuiging? Welke?				

14b. Hoe vaak bezoekt u een bijeenkomst of dienst?	N.V.T	Meer dan 1 keer per week	1 keer per week	2 keer per maand	1 keer per maand	Minder dan 1 keer per maand

Aanvullende informatie:

Als u uw gevoelens van nu vergelijkt met die van vroeger, heeft u dan het idee dat deze afgevlakt zijn of zijn er evenveel pieken en dalen als vroeger?	Meer pieken en dalen	Geen verschil	Minder grote pieken en dalen	Geen pieken en dalen meer
	0	1	2	3

Ik beschrijf zo meteen 12 dagelijkse situaties en dan mag u aangeven hoe u zich in deze situatie voelt. Vervolgens mag u aangeven hoe u zich vroeger zou voelen in deze situaties. U geeft dit aan door een streepje te zetten op een lijn, waarbij de linkerkant van de lijn staat voor een zeer negatief gevoel en de rechterkant staat voor een zeer positief gevoel.
Bijvoorbeeld. 'Ik krijg een snoepje', daar word ik nu een beetje blij van, dus ik zet een streepje op ongeveer de helft van de lijn. Als kleuter zou ik daar echter heel erg blij van worden van een snoepje en dus zet ik een streepje helemaal rechts van de lijn. Snapt u hoe dit werkt? We willen echter niet vergelijken met de situaties in de kindertijd, maar we willen kijken naar hoe u zich zou hebben gevoeld bij de situatie rond uw 40^{e} levensjaar.
Laat de participant zijn antwoord geven op het losse invulformulier. Vertaal de streepjes op de schaal naar een getal tussen de 0 en 100. Verschilscore = Score van vroeger - score van nu

	Nu		Vroeger		Verschil score
1. Ik krijg een (leuk) cadeautje					
2. Iemand zegt iets aardigs					
3. Er wordt een (grappige) grap gemaakt					
4. Er komt aangenaam bezoek					
5. Ik kijk mijn favoriete tv-programma					
6. Het is mooi weer					
7. Ik zie iets vervelends op het journaal	100 -	=	100 -	=	
8. Ik laat een pot appelmoes kapot vallen	100 -	=	100 -	=	
9. Iemand zegt iets onaardigs over mij	100 -	=	100 -	=	
10. Het is slecht weer en ik moet naar buiten	100 -	=	100 -	=	
11. Ik moet lang wachten	100 -	=	100 -	=	
12. Iemand laat mij niet uitpraten	100 -	=	100 -	=	
Totaalscore:					

Er volgen nu enkele uitspraken. Deze uitspraken zijn opgetekend uit de mond van een groot aantal mensen met wie eerder uitgebreid over hun situatie is gesproken. Wilt u van elk van de volgende uitspraken aangeven in hoeverre die op u, zoals u de laatste tijd bent, van toepassing is? Zet een kruisje bij het antwoord dat op u van toepassing is.

	Ja	Min of meer	Nee
1. Er is altijd wel iemand in mijn omgeving bij wie ik met mijn dagelijkse probleempjes terecht kan			
2. Ik mis een echt goede vriend of vriendin			
3. Ik ervaar een leegte om mij heen			

4. Er zijn genoeg mensen op wie ik in geval van narigheid kan terugvallen			
5. Ik mis gezelligheid om mij heen			
6. Ik vind mijn kring van kennissen te beperkt			
7. Ik heb veel mensen op wie ik volledig kan vertrouwen			
8. Er zijn voldoende mensen met wie ik mij nauw verbonden voel			
9. Ik mis mensen om me heen			
10. Vaak voel ik me in de steek gelaten			
11. Wanneer ik daar behoefte aan heb, kan ik altijd bij mijn vrienden terecht			
Totaalscore:			

Dit gedeelte van het interview bevat vragen waarop u met ja of nee kunt antwoorden. U geeft het antwoord dat het beste weergeeft hoe u zich de afgelopen week, met vandaag erbij, heeft gevoeld. Bij het door u gekozen antwoord zet u een kruisje.

	Ja	Nee
1. Bent u innerlijk tevreden met uw leven?		
2. Bent u met veel activiteiten en interesses opgehouden (gestopt)?		
3. Hebt u vaak het gevoel dat uw leven leeg is?		
4. Verveelt u zich vaak?		
5. Hebt u meestal een goed humeur?		
6. Bent u wel eens bang dat u iets naars zal overkomen?		
7. Voelt u zich meestal wel gelukkig?		
8. Voelt u zich vaak hopeloos?		
9. Blijft u liever thuis dan uit te gaan en nieuwe dingen te doen?		
10. Hebt u het gevoel dat u meer moeite heeft met het geheugen?		
11. Vindt u het fijn om te leven?		
12. Voelt u zich nogal waardeloos op het ogenblik?		
13. Voelt u zich energiek?		
14. Hebt u het gevoel dat uw situatie hopeloos is?		
15. Denkt u dat de meeste mensen het beter hebben dan u?		
Totaalscore:		

Het volgende gedeelte bestaat steeds uit twee uitspraken. Het is de bedoeling dat u de uitspraak kiest die het beste omschrijft hoe u bent. In sommige gevallen passen geen van beide uitspraken bij u of vindt u beide uitspraken juist wel bij u passen, kies dan voor de uitspraak die het meest op u van toepassing is. Zet een kruisje onder het antwoord dat het beste bij u past.

1. Ik vind het fijn om onder de mensen te zijn.	Ik vind het fijn om alleen te zijn.
2. Ik zorg er altijd voor dat ik wat tijd voor mijzelf heb op een dag.	Ik zorg er altijd voor dat ik wat tijd doorbreng met andere mensen op een dag.

3. Een belangrijk aspect bij het kiezen van een hobby, vind ik contact met interessante mensen.	Een belangrijk aspect bij het kiezen van een hobby, vind ik dat ik alleen kan zijn.
4. Nadat ik een aantal uren heb doorgebracht met andere mensen, voel ik mij gestimuleerd en energiek.	Nadat ik een aantal uren heb doorgebracht met andere mensen, heb ik meestal de behoefte om alleen te zijn.
5. Als ik alleen ben, besteed ik mijn tijd vaak productief.	Als ik alleen ben, verspil ik vaak mijn tijd.
6. Ik voel vaak de behoefte om er alleen op uit te gaan.	Ik voel zelden de behoefte om er alleen op uit te gaan.
7. Ik hou van vakanties op plaatsen waar veel mensen zijn en waar veel te beleven is.	Ik hou van vakanties op plaatsen waar weinig mensen zijn en waar sereniteit en rust is.
8. Wanneer ik uren alleen moet zijn, vind ik dat saai en onaangenaam.	Wanneer ik uren alleen moet zijn, vind ik dat productief en aangenaam.
9. Als ik meerdere uren in een vliegtuig zou moeten zitten, zou ik graag naast iemand zitten waar ik een aangenaam gesprek mee kan voeren.	Als ik meerdere uren in een vliegtuig zou moeten zitten, zou ik deze tijd graag in stilte door willen brengen.
10. Tijd doorbrengen met andere mensen is vaak saai en oninteressant.	Tijd alleen doorbrengen is vaak saai en oninteressant.
11. Ik heb een sterke behoefte om andere mensen om mij heen te hebben.	Ik heb geen sterke behoefte om andere mensen om mij heen te hebben.
12. Er zijn vaak momenten dat ik graag alleen ben.	Er zijn zelden momenten dat ik graag alleen ben.
Totaalscore:	

Ik wil u vragen om een rapportcijfer aan uw lichamelijke gezondheid te geven. Hoe tevreden bent u met uw gezondheid op een schaal van 1 tot 10?	
Tot slot wil ik u vragen hoe tevreden u in het algemeen met uw leven bent. Welk rapportcijfer zou u aan het leven geven?	

Lantaarnpaalaantekeningen:

II. Emotional Dampening Scale

Voorbeeld: Ik krijg een snoepje

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

1. Ik krijg een cadeautje

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

2. Iemand zegt iets aardigs

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

3. Er wordt een grap gemaakt

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

4. Er komt aangenaam bezoek

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

5. Ik kijk mijn favoriete tv-programma

Nu: ☹ ——————————— ☺

Vroeger: ☹ ——————————— ☺

6. Het is mooi weer

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

7. Ik zie iets vervelends op het journaal

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

8. Ik laat een pot appelmoes kapot vallen

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

9. Iemand zegt iets onaardigs over mij

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

10. Het is slecht weer en ik moet naar buiten

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

11. Ik moet lang wachten

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

12. Iemand laat mij niet uitpraten

Nu: ☹ ——— ☺

Vroeger: ☹ ——— ☺

III. SPSS Syntax

```
DATASET ACTIVATE DataSet1.
CORRELATIONS
  /VARIABLES=V1 MS_b V8_a V9 V13 leeftijd EmoEenz SocEenz V22_totaal V23 V24
NegEmDemp V21_totaal
  /PRINT=TWOTAIL NOSIG
  /STATISTICS DESCRIPTIVES
  /MISSING=PAIRWISE.
NONPAR CORR
  /VARIABLES=V1 MS_b V8_a V9 V13 leeftijd EmoEenz SocEenz V22_totaal V23 V24
NegEmDemp V21_totaal
  /PRINT=SPEARMAN TWOTAIL NOSIG
  /MISSING=PAIRWISE.

FREQUENCIES VARIABLES=V1 MS_b V8_a V9 V13 V21_totaal V22_totaal V23 V24 leeftijd
EmoEenz SocEenz
    NegEmDemp
  /STATISTICS=STDDEV VARIANCE MINIMUM MAXIMUM MEAN MEDIAN SKEWNESS
SESKEW KURTOSIS SEKURT
  /ORDER=ANALYSIS.

DATASET ACTIVATE DataSet1.
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT V24
  /METHOD=ENTER V1 V9 V13 leeftijd V23
  /METHOD=ENTER MS_b
  /METHOD=ENTER EmoEenz SocEenz NegEmDemp V22_totaal
  /PARTIALPLOT ALL
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(2)
  /SAVE PRED ZPRED ADJPRED MAHAL COOK LEVER ZRESID DRESID SDRESID SDBETA
SDFIT COVRATIO.

DATASET ACTIVATE DataSet1.
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT V21_totaal
  /METHOD=ENTER V1 V9 V13 leeftijd V23
```

```
  /METHOD=ENTER MS_b
  /METHOD=ENTER EmoEenz SocEenz NegEmDemp V22_totaal
  /PARTIALPLOT ALL
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(2)
  /SAVE PRED ZPRED ADJPRED MAHAL COOK LEVER ZRESID DRESID SDRESID SDBETA
SDFIT COVRATIO.
```

Note: Syntax for the mediation analyses was not included since the PROCESS tool by Hayes did not support this function.

IV. Memorie van toelichting

Two separate regression analyses were conducted: The first regression analysis was done with depressive symptomatology as the dependent variable. The second regression analysis was done with life satisfaction as the dependent variable. Both dependent variables were of interval level of measurement. In the first step, six control variables were entered, namely self-rated health, age, gender, income-based SES, and level of education, followed by marital status in the second step. Finally, in the last step, the remaining independent variables were entered, namely social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening. Self-rated health, social loneliness, emotional loneliness, preference for solitude, and negative emotional dampening were of interval level of measurement and age was of ratio level of measurement, so those predictors could be directly entered into the regression model. However, gender, income-based SES, level of education, and marital status were categorical variables. Since categorical variables cannot be entered directly into a regression model, income-based SES and level of education were recoded into dummy variables. Gender and marital status were dichotomous variables already, so those predictors did not need any recoding.