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Research Article

Self-Reported Changes in Personal Development and Meaning in Life among Older Adults during the COVID-19 Pandemic: Results from the Longitudinal Aging Study Amsterdam

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Objectives. The aim of this study was to explore self-reported changes in personal development and meaning in life of older adults in the Netherlands during the COVID-19 pandemic and characteristics of the groups that reported these changes. *Methods*. Older adults from the Longitudinal Aging Study Amsterdam completed a questionnaire on the impact of the COVID-19 pandemic. Participants were asked to rate changes in personal development and meaning in life. These variables were descriptively analysed and logistic regression analyses were used to explore characteristics of the groups that reported these changes. *Results*. Of the 1099 older adults (aged 62–102 years), 25.7% paid more attention to things one enjoys doing in spare time, 36.6% reflected more on important things in life, and 16.8% made less future plans during the COVID-19 pandemic. Self-reported changes in meaning in life and personal development differed between specific subgroups of older adults. The largest changes in aspects of personal development and meaning in life were reported by older adults who experienced personal adverse experiences such as death of a loved one (ORs 2.03) and/or health problems such as functional limitations (ORs ranging from 1.59 to 2.84) and depression (ORs ranging from 1.69 to 2.77). *Discussion and Implications*. A substantial share of the participants reported changes in specific aspects of personal development and meaning in life. This was especially true for certain subgroups of older adults. Relatives and caregivers should be aware of changes in personal development and meaning in life since lower scores are known to be associated with poor physical, psychological, and social well-being outcomes.

1. Background

During the COVID-19 pandemic, many older adults were infected with COVID-19, were hospitalised, or even died due to this disease. This was especially true during the first wave of the pandemic [1, 2]. In response to the outbreak, the Dutch government put an increasingly strict lockdown in place from mid-March 2020 to May 2020. This lockdown consisted of several measures, such as asking people to stay at home, closure of many public facilities, and keeping 1.5 meter distance [3]. Especially older adults were encouraged to isolate themselves [4].

The lockdown measures may have had a profound impact on older adults' psychological well-being [5]. Two important dimensions of psychological well-being are meaning in life and personal development [6]. These concepts are closely related to the concepts of purpose in life and personal growth, as defined by Ryff [7]. Meaning in life is about having goals in life and a sense of directedness, feeling there is a meaning to present and past life, holding beliefs

that give life purpose, and having aims and objectives for living. Personal development is about feeling continued development, seeing self as growing and expanding, being open to new experiences, having sense of realizing his or her potential, seeing improvement in self and behaviour over time, and changing in ways that reflect more self-knowledge and effectiveness [7].

Two recent longitudinal studies in the UK and Europe from before COVID-19 have shown that there is a bi-directional relationship between meaning in life and several physical, psychological, and social functioning related factors [8, 9]. Greater meaning in life is related to more favourable well-being outcomes, such as the reduced risk of depression, less pain, fewer functional limitations, and even reduced mortality risk [8–10]. In addition, during the COVID-19 pandemic, a stronger sense of meaning in life was associated with lower anxiety and stress levels [11] and greater intentions to engage in COVID-19 protective health behaviours [12]. Furthermore, factors such as no chronic pain, few depressive symptoms, greater physical activity, close relationships, and ability to help others are associated with subsequent greater meaning in life [8, 9, 13, 14]. During the first months of the pandemic, the circumstances people lived in changed severely. Due to the strict lockdown measures and the high mortality rates, especially applicable for older adults, people might have become more anxious, depressed and/or lonely, and might have experienced more physical health problems, such as a COVID-19 infection but also worsened health due to postponed or cancelled visits to healthcare professionals. This might all in turn have affected personal development and meaning in life. So far, little is known about whether these changed circumstances affected personal development and meaning in life of older adults, either positively or negatively. As these dimensions of psychological well-being are correlated with many of the previously mentioned well-being outcomes, it is important to understand whether and how personal development and meaning in life have changed among older adults during the COVID-19 pandemic and for which subgroups of older adults this counts most. This enables relatives and caregivers to become more alert for and, if needed, to act upon these changes.

The current study aimed to explore the self-reported changes in meaning in life and personal development experienced by older adults in the Netherlands during the first months of the COVID-19 pandemic and the demographic, physical, psychological, social, and COVID-19-related characteristics of the subgroups that reported these changes.

2. Research Design and Methods

2.1. Study Design and Population. In this cross-sectional study, data from the Longitudinal Aging Study Amsterdam (LASA) were used. LASA is a nationwide ongoing longitudinal study on physical, emotional, cognitive, and social functioning of older adults in the Netherlands, with follow-ups every three years [15]. The study started in 1992 with a nationally representative sample of older adults aged 55–84 years. Exactly 10 and 20 years after the baseline measurement, refresher cohorts aged 55–64 years were added to the study. In June 2020, just after the first COVID-19 wave, an extra assessment was added in between the regular LASA measurement cycles of 2018-2019 and 2021-2022. This extra assessment consisted of a postal questionnaire including measures on the impact of the COVID-19 pandemic, as well as a number of measures from regular LASA measurement cycles covering the physical, psychological, and social domains of functioning. The questionnaire was sent to 1,485 LASA participants. Participants were also given the opportunity to fill out the questionnaire online or participate via a telephonic interview. Data from 1,128 (76%) participants aged 62–102 years were recorded between June 9, 2020, and October 8, 2020. Only participants who had data for at least one of the outcome measures of interest were included in this study. More details on the sampling and data collection of this extra LASA assessment have been reported elsewhere [16]. The Medical Ethics Committee of the VU University Medical Center approved the study (IRB numbers: 92/138, 2002/141, 2012/361, and 2016.301), and written informed consent was obtained from all participants.

2.2. Measures

2.2.1. Personal Development and Meaning in Life. Participants were asked to rate five statements to assess how the COVID-19 pandemic changed their personal development and meaning in life: (1) paying attention to the things I enjoy doing in my spare time; (2) paying attention to my religion; (3) making future plans; (4) paying attention to my personal development; and (5) reflecting on what is really important in life. The statements had to be rated on a 5-point Likert scale as follows: much more than before the pandemic, more than before the pandemic, not more and not less, less than before the pandemic, and much less than before the pandemic. The five statements related to personal development and meaning in life were newly formulated for this study and were analysed individually.

2.2.2. Independent Variables. A selection of measures was included in the statistical analyses as independent variables to explore which groups of older adults reported changes in personal development and meaning in life (justification for variables in Supplementary file S1). These variables can be categorised into five different groups: (1) demographics (age, sex, education level, and partner status); (2) physical functioning (self-perceived health and functional limitations); (3) psychological functioning (depression, anxiety, and mastery); (4) social functioning (loneliness); and (5) COVID-19 related factors (quarantine, COVID-19 infection, hospitalisation, having a family member who tested positive on COVID-19, having a family member who was hospitalised for COVID-19, and having a family member who died from COVID-19).

First, several variables on demographics were included. Three age groups were distinguished: <70, 70–79, and ≥80 years. The highest level of completed education was categorised in three groups: low (elementary school or less),

medium (lower vocational or general intermediate education), and high (intermediate vocational education, general secondary school, higher vocational education, college, or university). The partner status was also categorised into three groups: no partner, coresiding partner, and partner outside the household. Second, two variables related to physical functioning were used. Self-perceived health was dichotomised into excellent/good health and less than good health. Functional limitations were assessed by asking the participants about difficulties in performing seven basic activities of daily living: climbing the stairs, dressing and undressing, sitting down and getting up from a chair, cutting one's own toenails, walking 5 minutes outdoors without resting, using public transportation, and bathing (internal consistency: Cronbach's alpha 0.89). Functional limitation scores were categorised into three groups: no limitations, 1-2 limitations, and 3–7 limitations. Third, multiple variables on psychological functioning were included in the analysis. Depressive symptoms were operationalised using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D-10), which results in total scores from 0 to 30 (Cronbach's alpha 0.83). A commonly used cut-off of ≥10 was applied to indicate the presence of depressive symptoms [17]. Anxiety symptoms were examined by the Hospital Anxiety and Depression scale (HADS-A, 0–21), using a cut-off of ≥8 to identify anxious participants (Cronbach's alpha 0.82) [18]. Mastery was measured by an abbreviated version of the Pearlin Mastery scale, consisting of the 5 negative items of the Pearlin Mastery scale with a scale score of 5–25 (Cronbach's alpha 0.87) [19]. Fourth, one variable on social functioning was included. Loneliness was measured by the De Jong Gierveld Loneliness scale (0–11) (Cronbach's alpha 0.87), which has two subscales for emotional and social loneliness that contain six and five items, respectively. For both, subscales scores ≥3 were indicative for emotional/social loneliness [20]. The scores on the two subscales were combined into four groups as follows: not lonely, only emotionally lonely, only socially lonely, and both emotionally and socially lonely. The last group of measures, COVID-19-related, were mostly newly developed questions for the purpose of the COVID-19 data collection and were not derived from the existing studies [16]. Quarantine was examined by combining the answers on whether the doctor told the participant to self-quarantine (yes/no) and whether the participant him/herself decided to self-quarantine (yes/no). COVID-19 infection was based on self-report, i.e., whether a doctor or other healthcare provider told participants they probably had COVID-19 (yes/no) or whether they were tested positive on COVID-19 (not tested/positive/negative). COVID-19 infection was then dichotomised: (probably) yes and no. Finally, the participants were asked whether a family member (partner/parent/child/sibling/grandchild/other family) tested positive on COVID-19, was hospitalised for COVID-19, or died from COVID-19.

2.3. Statistical Analyses. IBM SPSS Statistics 26 was used for the statistical analyses. Sample characteristics were reported as median (interquartile range, IQR) for continuous variables and proportions for categorical variables.

Logistic regression analyses were performed to identify demographics, physical, psychological, social, and COVID-19-related factors that are associated with self-reported changes in meaning in life and personal development. To carry out binomial logistic regression, each of the five dependent categorical variables was dichotomised to create one variable for self-reported positive change and one variable indicating self-reported negative change. Response categories "more" and "much more" were merged to indicate positive change (all other response categories were the reference group), while "less" and "much less" were merged to indicate negative change (with again all other response categories as reference group). This resulted in ten dependent variables, of which only those variables with ≥15 per cent of the participants self-reporting positive or negative change were analysed to allow for sufficient variation in the analyses. All independent variables were analysed individually in age- and sex-adjusted logistic regressions. Logistic regressions were performed for either positive (more than before the COVID-19 pandemic) or negative (less than before the COVID-19 pandemic) self-reported changes in the dependent variables. The number of missing observation is reported in the footnotes of the tables.

3. Results

Of the 1,128 participants who filled in the LASA COVID-19 questionnaire, 29 participants were excluded from the analysis because of missing values on all dependent variables. This resulted in a total study population of 1,099 participants. The age range of the sample was 62–102 years (mean age = 73.8; SD = 7.5), with the majority of the participants being 70 years or older (64.9%). Of the participants, 52.9 per cent was female, 70.9 per cent were medium or higher educated, and 69 per cent had a coresiding partner (Table 1). The majority of the participants were reported to be in excellent/good health (77.6%) and had no functional limitations (56.1%). Relatively few participants had been in quarantine (11.8%), had been infected with COVID-19 (2.2%), or were hospitalised for COVID-19 (0.3%).

Nonresponse analysis showed that people who did not fill in the LASA COVID-19 questionnaire ($n = 357$) or were excluded from the analysis ($n = 29$) were lower educated ($p < 0.01$) and were more often single ($p < 0.001$) compared to those who participated and met our inclusion criteria. There were no statistically significant differences in age or sex between the participants in the study sample and the excluded participants.

3.1. Self-Reported Changes in Personal Development and Meaning in Life. Figure 1 shows that for all five aspects related to personal development and meaning in life, the majority of participants reported no change compared to before the COVID-19 pandemic. For three of the five aspects of personal development and meaning in life, ≥15 percent positive or negative self-reported changes were found: (1) paying *more* attention to things I enjoy doing in my spare time (more + much more: 25.7%); (2) making *less* future

Table 1: Study sample characteristics ($n = 1{,}099$).

	n (%)
Demographics	
Age	
Below 70 years	386 (35.1)
70–79 years	476 (43.3)
80 years or older	237 (21.6)
Sex, female	581 (52.9)
Education level	
Low	320 (29.1)
Medium	444 (40.4)
High	335 (30.5)
Partner status	
No partner	286 (26)
Coresiding partner	758 (69)
Partner outside household	55 (5)
Physical, psychological, and social well-being	
Self-perceived health	
Excellent/good	774 (77.6)
Less than good	223 (22.4)
Functional limitations	
No limitation	591 (56.1)
1-2 limitations	296 (28.1)
3–7 limitations	167 (15.8)
Depressive symptoms (cut-off: ≥10)	197 (18)
Anxiety symptoms (cut-off: ≥8)	114 (10.4)
Mastery (5–25), median (IQR)	20.0 (5.0)
Emotional and/or social loneliness	
Not lonely	619 (57.3)
Only emotionally lonely	178 (16.5)
Only socially lonely	143 (13.2)
Both emotionally and socially lonely	141 (13)
COVID-19-related variables	
Having been in quarantine	124 (11.8)
(Probable) COVID-19 infection	24 (2.2)
Hospitalised for COVID-19	3 (0.3)
Have a family member who tested positive for COVID-19	105 (9.6)
Have a family member who was hospitalised for COVID-19	45 (4.1)
Have a family member who died from COVID-19	49 (4.5)

Note. IQR = interquartile range. Missing observations: self-perceived health 102 (9.3%), functional limitations 30 (2.7%), depressive symptoms 5 (0.5%), anxiety 7 (0.6%), mastery 32 (2.9%), loneliness 18 (1.6%), quarantine 45 (4.1%), and COVID-19 infection 22 (2.0%).

plans (less + much less: 16.8%); and (3) reflecting *more* on what is important in life (more + much more: 36.6%). These three variables were, therefore, further explored in logistic regression analyses to analyse which factors were associated with self-reported changes in personal development and meaning in life. Table 2 shows the results of the logistic regression analyses (data on explained variance of the models in Supplementary file S2).

3.1.1. Paying More Attention to the Things One Enjoys Doing in His/Her Spare Time. Logistic regression analyses, adjusted for age and/or sex, showed that for three independent variables, there was sufficient statistical support for associations with paying more attention to the things one enjoys doing in his/her spare time: being female (OR 1.63), high level of education (OR 1.67), and having a family member who died from COVID-19 (OR 2.03).

3.1.2. Reflecting More on What Is Important in Life. Many characteristics appeared to be associated with the likelihood of reflecting more on what is important in life. Being female (OR 1.46), having medium/high level of education (OR 1.57; OR 1.80), having depressive symptoms (OR 1.69), anxiety symptoms (OR 1.92), having a higher sense of mastery (OR 0.96), being emotionally lonely (OR 1.51), being both emotionally and socially lonely (OR 1.53), having had a COVID-19 infection (OR 3.45), having a family member who tested positive on COVID-19 (OR 1.63), having a family member who was hospitalised for COVID-19 (OR 1.90), and having a family member who died from COVID-19 (OR 2.03) were all statistically significantly associated with reflecting more on important things in life. Although an association for the oldest age group was not supported by sufficient statistical evidence, the point estimate (OR 1.41) did suggest that people aged

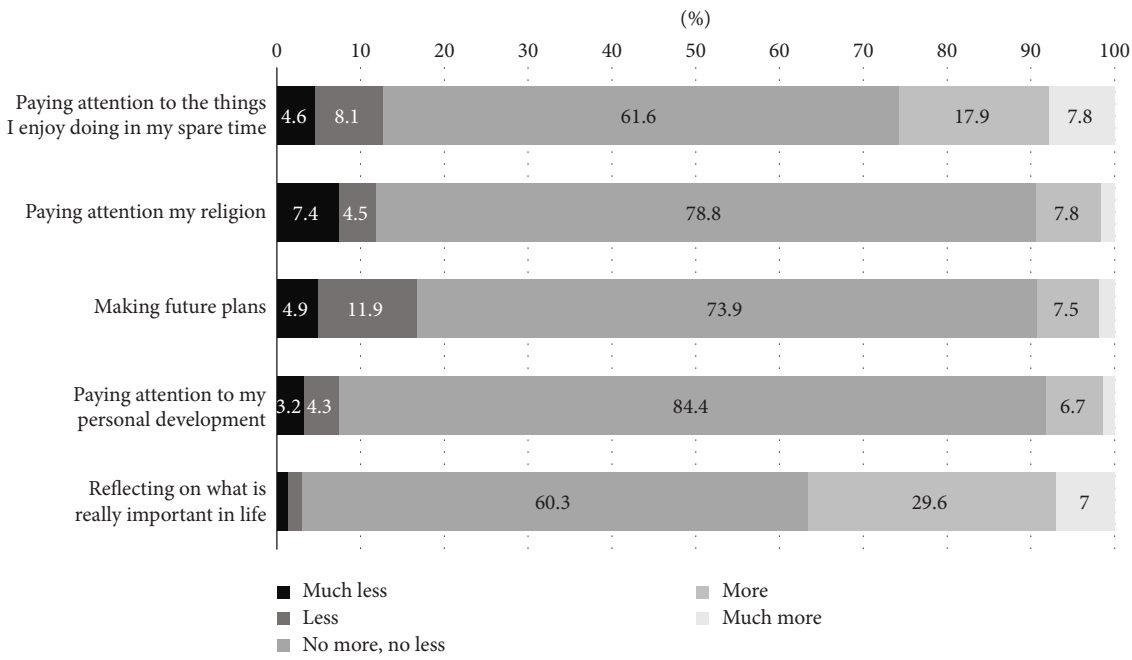

Figure 1: Self-reported changes in personal development and meaning in life compared to those before COVID-19 ($n = 1{,}099$). *Note.* Missing observations from top to bottom: 7 (0.6%), 82 (7.5%), 12 (1.1%), 11 (1.0%), and 7 (0.6%) values of answering categories below 2% were not displayed.

80 years and older tended to reflect more on what is important in life as compared to the youngest age group.

3.1.3. Making Less Future Plans. Making less future plans was associated with independent variables from multiple categories (e.g., demographics, physical, psychological, and social functioning), yet for none of the COVID-19-related factors, there was sufficient statistical support for associations. Nevertheless, the point estimate of being in quarantine (OR 1.43) in particular suggested that people who experienced it were relatively likely to make less future plans. Associations for being female (OR 1.81), good or excellent self-perceived health (OR 0.54), functional limitations (1-2 limitations OR 1.59, 3–7 limitations OR 2.84), depressive symptoms (OR 2.77), anxiety symptoms (OR 2.74), being emotionally lonely (OR 2.25), and being both emotionally and socially lonely (OR 2.28) with making less future plans were supported by sufficient statistical evidence.

4. Discussion

While the majority of older adults in our study reported no changes in personal development and meaning in life in the early stages of the COVID-19 pandemic in the Netherlands, we did observe a notable share of the participants who did report changes in specific aspects of personal development and meaning in life. One in four older adults reported that one paid more attention to the things one enjoys doing in his/her spare time compared to before the outbreak of the pandemic (25.7%) and more than one in three older adults reported that one reflected more on what is important in life (36.6%). A smaller but substantial share of the participating older adults (16.8%) stated that they made less future plans compared to before the pandemic. Additionally, we noted differences in self-reported changes between specific groups of older adults. In particular, older adults with depressive symptoms, with anxiety symptoms, who are emotionally and/or socially lonely, with functional limitations, and who know someone who died from COVID-19 were characteristics of older adults who reported the largest changes in personal development and meaning in life.

In line with what we found, a recent study in the Netherlands among older adults indicated that the majority of participants reported that their meaning in life remained unchanged during the beginning of the COVID-19 pandemic [21]. This suggests that many older adults were resilient and adaptive during the COVID-19 pandemic, which might have helped them to cope with the crisis situation. Additionally, it could be that there is a time-lag effect, meaning that changes in personal development and meaning in life might take more time to become apparent. Also, we know from previous coronavirus pandemics (e.g., SARS) that the psychological and social effects can persist for years post-outbreak [22]. Further research is needed to explore how meaning in life and personal development develop in the future among older adults, both during the ongoing COVID-19 pandemic as well as post-outbreak.

Our results point to a differential impact of the COVID-19 pandemic on these dimensions of psychological well-being. One of the subgroups from our study that was relatively likely to pay more attention to the things one enjoys doing in one's spare time and to reflect more on what is important in life were older adults who experienced a personal adverse event, such as having a family member who was hospitalised and/or died from COVID-19. This

Table 2: Logistic regression: positive and negative changes in personal development and meaning in life.

	Paying more attention to spare time		Reflecting more on important things in life		Making less future plans	
	Row %[a]	Adjusted (age, sex) OR (95% CI)	Row %[a]	Adjusted (age, sex) OR (95% CI)	Row %[a]	Adjusted (age, sex) OR (95% CI)
Demographics						
Age[b]						
Below 70 years ($n = 386$)	28.1	1.00	39.7	1.00	15.7	1.00
70–79 years ($n = 476$)	25.5	0.89 (0.65–1.20)	36.7	0.89 (0.67–1.17)	15.5	1.00 (0.69–1.45)
80 years or older ($n = 237$)	22.2	0.71 (0.49–1.04)	30.9	0.67 (0.47–0.94)	21.0	1.41 (0.92–2.15)
Sex[b]						
Male ($n = 518$)	21.0	1.00	32.1	1.00	12.4	1.00
Female ($n = 581$)	30.0	1.63 (1.24–2.15)	40.5	1.46 (1.13–1.87)	20.6	1.81 (1.30–2.53)
Education						
Low ($n = 320$)	20.8	1.00	28.4	1.00	16.8	1.00
Medium ($n = 444$)	26.9	1.36 (0.96–1.92)	39.4	1.57 (1.15–2.15)	14.4	0.86 (0.58–1.30)
High ($n = 335$)	28.9	1.67 (1.15–2.41)	39.9	1.80 (1.28–2.51)	19.8	1.49 (0.98–2.26)
Partner status						
No partner ($n = 286$)	26.1	1.00	39.9	1.00	21.9	1.00
Coresidence ($n = 758$)	25.7	1.06 (0.75–1.48)	35.7	0.82 (0.60–1.12)	14.3	0.76 (0.51–1.11)
Outside household ($n = 55$)	23.6	0.98 (0.49–1.96)	30.9	0.70 (0.37–1.32)	23.6	1.39 (0.69–2.80)
Physical, psychological, and social functioning						
Self-perceived health						
Less than good ($n = 223$)	24.4	1.00	38.7	1.00	25.4	1.00
Good/excellent ($n = 774$)	26.3	1.08 (0.76–1.54)	37.5	0.91 (0.67–1.25)	14.6	0.54 (0.37–0.78)
Functional limitations						
No limitations	26.5	1.00	36.9	1.00	12.3	1.00
1-2 limitations	27.9	1.11 (0.80–1.55)	41.2	1.28 (0.95–1.72)	18.0	1.59 (1.07–2.39)
3–7 limitations	21.3	0.78 (0.49–1.22)	32.1	0.90 (0.60–1.34)	28.7	2.84 (1.78–4.53)
Depressive symptoms						
No ($n = 897$)	25.2	1.00	34.6	1.00	13.6	1.00
Yes ($n = 197$)	28.1	1.15 (0.81–1.65)	46.1	1.69 (1.22–2.34)	31.9	2.77 (1.92–4.00)
Anxiety symptoms						
No ($n = 978$)	25.3	1.00	34.9	1.00	14.8	1.00
Yes ($n = 114$)	29.5	1.17 (0.76–1.81)	51.3	1.92 (1.30–2.87)	33.6	2.74 (1.78–4.23)
Mastery		0.99 (0.97–1.02)		0.96 (0.94–0.99)		0.98 (0.96–1.00)
Emotional and/or social loneliness						
Not lonely ($n = 619$)	25.1	1.00	34.6	1.00	12.8	1.00
Only emotionally lonely ($n = 178$)	31.4	1.39 (0.96–2.02)	43.5	1.51 (1.07–2.13)	25.6	2.25 (1.48–3.42)
Only socially lonely ($n = 143$)	21.0	0.83 (0.53–1.30)	28.9	0.80 (0.54–1.20)	14.2	1.18 (0.69–2.01)
Both emotionally and socially lonely ($n = 141$)	27.1	1.13 (0.75–1.73)	43.8	1.53 (1.05–2.24)	25.4	2.28 (1.45–3.60)
COVID-19						
Quarantine						
No ($n = 930$)	24.8	1.00	36.1	1.00	15.9	1.00
Yes ($n = 124$)	31.1	1.32 (0.87.2.00)	42.3	1.26 (0.86–1.86)	22.8	1.43 (0.90–2.28)
COVID-19 infection						
(Probably) no ($n = 1053$)	25.2	1.00	35.3	1.00	16.8	1.00
(Probably) yes ($n = 24$)	25.0	0.91 (0.36–2.34)	66.7	3.45 (1.46–8.17)	16.7	0.97 (0.33–2.91)
Have a family member who tested positive on COVID-19						
Not mentioned ($n = 994$)	25.6	1.00	35.5	1.00	16.6	1.00
Mentioned ($n = 105$)	26.9	1.09 (0.79–1.73)	46.7	1.63 (1.08–2.45)	18.1	1.11 (0.65–1.89)
Have a family member who was hospitalised for COVID-19						
Not mentioned ($n = 1054$)	25.7	1.00	35.9	1.00	16.7	1.00
Mentioned ($n = 45$)	27.3	1.09 (0.55–2.16)	51.1	1.90 (1.04–3.47)	17.8	1.01 (0.46–2.23)
Have a family member who died from COVID-19						
Not mentioned ($n = 1050$)	25.1	1.00	35.8	1.00	16.6	1.00
Mentioned ($n = 49$)	39.6	2.03 (1.11–3.72)	36.5	2.03 (1.13–3.66)	20.8	1.21 (0.59–2.51)

Note. a = % of participants who responded yes; b = sex is only adjusted for age, and age is only adjusted for sex. Missing observations: spare time 7 (0.6%), reflecting important things 7 (0.6%), future plans 12 (1.1%), self-perceived health 102 (9.3%), functional limitations 30 (2.7%), depressive symptoms 5 (0.5%), anxiety 7 (0.6%), mastery 32 (2.9%), loneliness 18 (1.6%), quarantine 45 (4.1%), and COVID-19 infection 22 (2.0%).

first-hand experience may have made the threat of COVID-19 more concrete for this group. As people are confronted with the finitude of life, they may increasingly engage in meaning making.

Other groups of older adults that showed particular self-reported changes in some of the dimensions of meaning in life and personal development consisted of older adults with depressive symptoms, anxiety symptoms, and/or loneliness. These groups were especially likely to reflect more on what is important in life and/or to make less future plans. Reflecting on what is important in life can be positive but also holds a potential for overthinking. Excessive repetitive negative thinking and reflecting, also referred to as rumination, has been found to be associated with depressive and anxiety symptoms [23]. In line with two longitudinal studies, it was found that depression and loneliness were associated with subsequent decrease in a sense of meaningful life [8, 9]. Possibly, older adults with depressive symptoms, anxiety symptoms, and/or loneliness were more likely to overthink about what is important in life during the COVID-19 pandemic, potentially resulting in some sort of existential crisis. In turn, this overthinking might impede someone to actually pursue a goal or engage in activities, which is supported by the finding that the same subgroup of older adults made less future plans. Future studies would be needed to examine what older adults precisely reflect on, what mechanisms are at play, and how they experience this increased reflection.

Finally, a subgroup that we would like to highlight are older adults with poor self-reported health and/or functional limitations, who seemed to be especially prone to make less future plans compared to before the pandemic. This possibly stems from the fact that especially older adults and vulnerable people were encouraged to be very careful and to isolate themselves [4]. Also, before the pandemic, it was already established that both functional limitations and poor self-rated health were associated with a reduced likelihood of activities that involve leaving the home and social engagement [24, 25]. Our results suggest that this might be reinforced during the COVID-19 pandemic. A tentative explanation is that older adults with functional limitations and/or poor self-rated health are likely to require more help in performing activities, and the availability of this assistance (both formal and informal) may have been severely reduced during the COVID-19 pandemic due to the stay-at-home orders and social distancing for example. Considering the reduced availability of assistance, older adults might in turn make less future plans than before the pandemic.

4.1. Strengths and Limitations. The current study has several strengths. First, this study used a large representative community-based sample. Second, meaning in life has most often been researched as a buffer or coping mechanism for illness and adverse events (see, e.g., [11, 26]), while our study is one of the few that examined the self-reported changes in meaning in life as an outcome of an adverse event; in this case, the COVID-19 pandemic.

The current study also has several limitations that need to be acknowledged. Since questions on meaning in life and personal development were not included in previous LASA waves, the changes compared to before the outbreak were self-reported. Additionally, our dependent variables were treated as individual items and not as a scale; so, we could not calculate a sum score on self-reported changes in meaning in life and personal development. However, the individual items covered a broad spectrum of aspects of meaning in life and personal development. Also, the cross-sectional design impeded to explore possible mechanism underlying the self-reported changes.

Usually a substantial part of the LASA data is collected in face-to-face interviews and only part is collected in a written questionnaire, whereas for the COVID-19 questionnaire, data could only be collected through a written or digital questionnaire or via a telephonic interview due to the lockdown measures. This might have resulted in non-participant bias. The nonresponse analysis showed, for example, that people with lower education are underrepresented in our sample, while they report little changes in meaning in life and personal development compared to participants with medium or higher education. This might have led to an overestimation of the self-reported changes. The multiple administration modes could also have resulted in a mode effect; however, we felt it was important to reach as many older adults as possible and therefore offered multiple administration modes.

5. Conclusion

To conclude, a substantial share of older adults reported changes in personal development and meaning in life compared to before the pandemic, especially those with personal COVID-19-related adverse experiences and/or physical and mental health problems. Since lower meaning in life is known to be associated with subsequent detrimental well-being outcomes, relatives, (informal) caregivers, and policymakers should be aware of the possible changes and act upon them if needed.

Data Availability

The datasets used to support the findings of this study have not been made available because of confidentiality, but the data underlying the results presented in this study are available from the Longitudinal Aging Study Amsterdam (LASA). Data of LASA, including data from the LASA COVID-19 questionnaire, may be requested for research purposes. More information on data requests can be found on the LASA website: https://www.lasa-vu.nl.

Ethical Approval

The LASA study (including the data collection of the COVID-19 questionnaire) is conducted in line with the Declaration of Helsinki and received approval from the Medical Ethics Committee of the VU University Medical

Center (IRB numbers: 92/138, 2002/141, 2012/361, and 2016.301).

Disclosure

The writing of the manuscript was performed as part of the employment of the authors at Amsterdam UMC.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Authors' Contributions

All authors conceptualised the study. SCR analysed the data, assisted by the four other authors. Data were interpreted by all authors. SCR drafted the article, which was critically revised by all the authors. All authors read and approved the final manuscript.

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Supplementary Materials

Supplementary file S1: Rationale for factors included as independent variables possibly associated with changes in personal development and meaning in life. Supplementary file S2: Nagelkerke R2 indicating explained variance of the univariable models (adjusted for age and sex). (*Supplementary Materials*)

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