RESEARCH PAPER

How Do Late Adults Experience Meaning During the COVID-19 Lockdown? The Role of Intrinsic Goals

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Abstract
Late adults differ in the degree to which their mental health is impacted by the COVID-19 crisis, with interindividual differences in their capacity to mobilize coping resources playing an important role. Therefore, the search for inner sources of resilience is important to understand late adults' adaptation to this crisis. Based on Goal Content Theory, a mini-theory within the broader Self-Determination Theory, this study aimed to examine whether older adults' valuation and attainment of intrinsic goals represent such a source of resilience. Intrinsic goals would form a solid foundation to experience a sense of meaning during this crisis, which, in turn, relates to higher well-being (i.e., life satisfaction and vitality) and lower ill-being (i.e., symptoms of depression, anxiety, and loneliness). During the second month of the lockdown period in Belgium, 693 older adults (Mage=70.06, SD=4.48, range: 65–89 years, 62.1% female) filled out online questionnaires concerning the study variables. Structural equation modeling showed that intrinsic goal attainment and goal importance related positively to experiences of meaning in life which, in turn, were related to higher levels of well-being and lower levels of ill-being. No evidence was found for an interaction effect between intrinsic goal attainment and goal importance. Supporting late adults' pursuit and attainment of meaningful intrinsic goals relates to their well-being and may potentially strengthen their resilience in times of crisis.

Keywords Late adults · Intrinsic goals · Meaning · Self-Determination Theory · Psychological functioning

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1 How Do Late Adults Experience Meaning During the COVID-19 Lockdown? The Role of Intrinsic Goals

The rapid outbreak of the SARS-CoV-2 virus on a global scale has posed medical, economic, and social concerns (Gruber et al., 2020), not the least for citizens' mental health and well-being (Brooks et al., 2020). People from different age groups were impacted in different ways and to different degrees. Together with adolescents and young adults, late adults (older than 65 years) were found to be at elevated risk for the adverse consequences of this pandemic, as indicated by a higher mortality risk (WHO, 2020), reduced physical activity (Di Santo et al., 2020), a loss of meaning in life (Verhage et al., 2021) and more psychological problems, such as feelings of anxiety, depression, and loneliness (Gustavsson & Beckman, 2020; Lee et al., 2020; Sepulveda-Loyola et al., 2020; Stolz et al., 2021; Zaninotto et al., 2022). Although being portrayed as a homogeneously vulnerable group during the pandemic (i.e., COVID ageism; Kessler & Bowen, 2020), not all older adults suffered to the same extent under the conditions of this crisis (Parlapani et al., 2021). Some studies even showed that late adults reported better mental health compared to other age groups (Garcia-Fernandez et al., 2020; Klaiber et al., 2021; Pieh et al., 2020; Sterina et al., 2022) and experienced similar or even higher levels of well-being compared to pre-COVID-19 times (e.g., Kivi et al., 2021; Losada-Baltar et al., 2021; Van Tilburg, 2020; Van Winkle et al., 2021; Xiong et al., 2020).

This inconsistent evidence may be attributed to within-group variance in older adults' adjustment. That is, some late adults suffered greatly when confronted with the challenges posed by the COVID-19 crisis, while others responded more resiliently (e.g., Gustavsson & Beckman, 2020). In light of this, it is critical to identify targetable psychological characteristics that may serve as a source of resilience. Based on Goal Content Theory (GCT; Kasser & Ryan, 1996; Vansteenkiste, Niemiec, & Soenens, 2010), a mini-theory within the broader Self-Determination Theory (SDT; Ryan & Deci, 2017), the overall aim of this study was to examine whether both the importance and the attainment of intrinsic goals are related to late adults' psychological functioning amid the COVID-19 crisis. As a second aim, the current study examined late adults' meaning in life as a possible explanatory mechanism in the relation between intrinsic goals and mental health.

1.1 The Potency of Late Adults' Intrinsic Life Goals

Considerable research has been conducted on individuals' ability to create opportunities to experience psychological well-being and life satisfaction (e.g., Smith et al., 2000; Welzel & Inglehart, 2010). A critical aspect of this proactive capacity involves the type of life goals people pursue (Schwartz, 1992). Within GCT, it is argued that not all life goals can be treated equally (Kasser & Ryan, 1996; Vansteenkiste, Soenens, & Duriez, 2008). GCT distinguishes between two broader categories of life goals, namely intrinsic and extrinsic goals. Intrinsic life goals are characterized by an inward orientation, allowing people actualize their growth potential better. The pursuit and attainment of such goals is conducive to the satisfaction of people's basic psychological needs for autonomy (i.e., experiencing a sense of volition), competence (i.e., feeling capable), and relatedness (i.e., experiencing a sense of belonging; Unanue et al., 2014). Examples of intrinsic life goals are helping others, contributing to the community, being physically healthy, and developing one's skills.

Extrinsic life goals, on the contrary, are characterized by an outward orientation, focused on instrumental outcomes. These goals do not satisfy or may even hamper people's basic psychological needs. Examples of extrinsic life goals are gaining wealth and prestige or appearing physically attractive.

A key proposition within GCT is that attaching high importance to intrinsic life goals would promote well-being and life satisfaction, whereas valuing extrinsic life goals would not affect or even decrease well-being. Cross-sectional (e.g., Dittmar et al., 2014; Martela et al., 2019; Schmuck et al., 2000; Vansteenkiste et al., 2006), longitudinal (e.g., Kasser et al., 2014; Hope et al., 2019), and experimental (Kasser et al., 2014) research has provided evidence for this claim, replicating these results across cultures (e.g., China: Lekes et al., 2010; see Bradshaw, 2019 for an overview). Research on older adults in particular is limited, but points towards similar conclusions. For instance, Burr et al. (2011) found that the pursuit of intrinsic goals related to more positive affect, whereas the pursuit of extrinsic goals related to negative affect. In addition, a recent study in a sample of older adults in Iran showed that attaching importance to intrinsic goals was related to more vitality and less depressive symptoms, whereas no relation with extrinsic goals was observed (Behzadnia et al., 2020).

Late adults differ not only in terms of the importance they attach to intrinsic goals but also in the degree of goal attainment, that is, the degree to which individuals are successful in reaching these goals. Research on goal setting and goal progress stresses the importance of goal attainment and has repeatedly shown that attaining personal goals contributes to subjective well-being (for an overview, see Klug & Maier, 2015). However, again not all goal attainment is beneficial, and the content of the goals attained by people matters. Studies have shown intrinsic goal attainment to be a more robust and stronger predictor of well-being compared to extrinsic goal attainment (e.g., Kasser & Ryan, 2001). To illustrate, in two samples of older adults, Van Hiel and Vansteenkiste (2009) asked participants to rate to what extent they have been able to attain both intrinsic and extrinsic goals in their life. They also assessed participants' current subjective well-being, sense of ego integrity, that is the extent to which late adults accept and feel satisfied when reflecting on their life, and despair as its counterpart, namely not being able to accept or even regretting the life path one has taken. The results showed that only past intrinsic goal attainment was related to higher subjective well-being and ego integrity, and less despair, whereas extrinsic goal attainment was unrelated to subjective well-being and was positively related to despair.

Only few studies investigated intrinsic goal importance and attainment simultaneously in the prediction of psychological functioning. These previous findings showed that intrinsic goal importance and attainment are moderately to highly correlated (e.g., Ryan et al., 1999; Sheldon & Krieger, 2014; Toth-Bos, 2020) and pointed consistently towards a more critical role for intrinsic goal attainment (compared to importance) in the prediction of subjective well-being (e.g., Kasser & Ryan, 2001; Sheldon & Krieger, 2014; Tóth et al., 2018). Besides the unique role of intrinsic goal importance and attainment, few studies have examined the possible interplay between these two concepts. A critical question is whether even older adults who do not strongly value intrinsic goals would benefit from intrinsic goal attainment. From a match-perspective, the fit between what one values and attains is considered crucial for individuals' adjustment (Sheldon, 2004). From a match-perspective then, intrinsic goal attainment would relate to better mental health only among people who attach importance to intrinsic goals (see Mouratidis et al., 2013). The few studies that examined this match hypothesis have yielded somewhat mixed findings. Sheldon and Krieger (2014)

found, among students and lawyers, that when individuals reported both a high level of intrinsic goal importance and a high level of intrinsic goal enactment, they experienced less depression (students and lawyers) and more positive affect (lawyers). However, these effects were small and inconsistent, and no effect on anxiety was observed. Tóth et al. (2018) observed that adults with a high congruence between intrinsic goal importance and attainment reported a higher level of satisfaction with life.

Because the COVID-19 crisis posed several challenges, pursuing and attaining intrinsic life goals may have acted as an important source of resilience (Weinstein & Ryan, 2011; Ling et al., 2016). To illustrate, experimental research during the COVID-19 pandemic has shown that intrinsic goal importance related to more life satisfaction, even after being induced with thoughts about one's own death (Sonmez, 2022). Exploring intrinsic goal importance and attainment as resilience factors is highly relevant for late adults in particular, since evidence was obtained that throughout life, older adults tend to increasingly focus on intrinsic, rather than extrinsic goals (Kasser & Ryan, 1996; Morgan & Robinson, 2013). This finding aligns well with socioemotional selectivity theory (Löckenhoff & Carstenen, 2004), that states that when people age, they increasingly focus on the present and emotionally important relationships.

These intrinsic goals may inspire late adults to engage in behaviors (e.g., volunteering, seeking contact with friends through digital media, or learning a new language) that are truly conducive to well-being. Based on previous research, we expect that both intrinsic goal importance and intrinsic goal attainment relate positively to well-being, with intrinsic goal attainment showing the most pronounced associations. It should be noted, however, that individuals' intrinsic goal attainment was probably hampered during the COVID-19 crisis. The public health measures to control the spreading of COVID-19 posed many restrictions to individuals' daily life (i.e., social isolation), and many late adults might not have been able to attain their intrinsic goals (i.e., maintaining close relationships, doing volunteering work) to the same extent as during pre-pandemic times. As such, the COVID-19 conditions may set limits to the beneficial effects of intrinsic goal attainment on well-being. Under these conditions, it is even possible that intrinsic goal importance and attainment interact in unique ways. When people have important goals without being able to attain them, they may experience considerable frustration. As such, a combination of high intrinsic goal importance and low attainment may relate to more mental health problems. Illustrative for this view, Avery et al. (2023) conducted two longitudinal studies with college students, one before and one during the pandemic. The results show that in the pre-pandemic sample, intrinsic goal importance predicted less depressive symptoms over time, whereas in the pandemic sample an increase in depressive symptoms was observed. Interestingly, higher experienced need frustration accounted for that increase.

1.2 The Explanatory Role of Late Adults' Sense of Meaning

Although the pursuit and attainment of intrinsic goals may allow one to experience more well-being, a key question is which mechanisms may underlie this relation. Herein,, we considered the role of meaning in life, which refers to "the degree to which people experience their lives as comprehensible and significant and feel a sense of meaning or mission in their lives that transcends the mundane concerns of daily life" (Steger et al., 2008, p. 661). Li et al. (2020) showed in a meta-analysis involving 147 studies that meaning in life

related positively to various indicators of subjective well-being (e.g., positive affect and life satisfaction). In a large study among almost 9000 individuals aged between 18 and over 65 years old, Steger et al. (2009) showed meaning in life to be positively associated with life satisfaction, happiness, and positive affect and negatively associated with negative affect and depression. Also later in life, experiencing a sense of meaning relates to higher levels of well-being and quality of life, and even to a lower mortality risk and risk for cognitive impairment (Hupkens et al., 2018; Weziak-Bialowolska & Bialowolski, 2022).

However, finding meaning in life can represent a challenge among late adults, who are often confronted with important physical, psychological, and relational changes (Kroger, 2002). Extant research about age trends in meaning in life provides mixed findings, with some studies indicating older adults to experience a higher degree of meaning compared to younger adults (Steger et al., 2009), whereas other studies found an age-related decline in experienced meaning in life (e.g., Pinquart, 2002).

According to Baumeister et al. (2013), one of the functions of meaning in life is the integration of experiences from the past, present, and future. By viewing one's life as coherent, significant, and meaningful, individuals obtain a broader perspective on their current life problems. Such a perspective can support individuals in understanding that their current problems are only temporary. Further, late adults who are better at creating meaning from their life experiences, are also expected to more easily find meaning in the face of challenging conditions, including the COVID-19 pandemic. Indeed, research has found that meaning in life enables individuals to better cope with traumatic events (e.g., cancer) and promotes posttraumatic growth (Park, 2010), and studies performed during the COVID-19 pandemic showed that older adults experience a stronger sense of meaning, which related to better mental health (Toussaint et al., 2021) or less feelings of covid-related distress (Humphrey & Vari, 2021).

Given the importance of meaning for late adults' well-being, it is imperative to investigate the sources of meaning. Research has shown that sociodemographic (e.g., having a higher education degree), personal (e.g., emotional functioning) and relational (e.g., being married) factors all contribute to a higher level of meaning (Hupkens et al., 2018; Pinquart, 2002). Strikingly, few studies have investigated the possible role of intrinsic goals in meaning. The goals that people strive for and obtain likely influence their experienced sense of meaning, with intrinsic goals potentially contributing to a sense of meaning to individuals' lives (Ryan & Deci, 2017; Vansteenkiste et al., 2008). Research performed during the COVID-19 pandemic particularly showed that intrinsic goal importance and sense of meaning were positively related (Humphrey & Vari, 2021). Further, both the importance and attainment of intrinsic goals have been found to relate positively to a sense of meaning, with people displaying particularly elevated levels of meaning when they simultaneously score high on the importance and attainment of intrinsic goals (Sheldon & Krieger, 2014). The relation between the importance of intrinsic goals and meaning was even found to become stronger with increasing age, indicating that especially for late adults intrinsic goals represent an important source of meaning in life (Morgan & Robinson, 2013).

1.3 The Present Study

The COVID-19 pandemic poses a risk for individuals' mental health, with some late adults being considerably more vulnerable during these challenging times. Other late adults fare

relatively well, raising questions about individual differences in late adults' adjustment to the COVID-19 crisis. Therefore, the primary objective of the current study was to examine whether the importance and attainment of intrinsic goals would serve as predictors of late adults' subjective well-being (i.e., life satisfaction, vitality) and ill-being (i.e., depression, anxiety, loneliness). Additionally, because meaning in life has been found to enable individuals to cope more effectively with stressors (Miao et al., 2017), the intervening role of sense of meaning in the associations between intrinsic goals and mental health during the COVID-19 pandemic was considered, resulting in three key study hypotheses. First, we expected that the importance and attainment of intrinsic goals would relate positively to well-being and negatively to ill-being, with intrinsic goal attainment yielding the strongest associations (Hypothesis 1). Second, we expected that late adults' sense of meaning would play an intervening role. More specifically, the importance and, more strongly, the attainment of intrinsic goals would relate to a higher sense of meaning, which would in turn be related to more well-being and less ill-being (Hypothesis 2). Third, we sought to explore the possible interplay between the importance and attainment of intrinsic goals. Based on the match-perspective (Sheldon, 2004), intrinsic goal attainment could relate more strongly to more well-being and ill-being among late adults high on intrinsic goal importance. In contrast, as individuals' possibilities for intrinsic goal attainment might be limited during the COVID-19 crisis, it could be that high intrinsic goal importance and low intrinsic goal attainment relate to lower well-being and more ill-being (Hypothesis 3). Because the current study is among the first to examine these potential interactions between intrinsic goal pursuit and goal attainment among late adults and in the context of a historical crisis, this interplay was examined in a more explorative fashion.

2 Method

2.1 Participants and Procedure

This study was conducted in Belgium, where the first infection of the SARS-CoV-2 virus was registered on February 3rd, 2020, eventually resulting in a violent national outbreak and stringent lockdown measures to contain further spreading of the virus. During the first lockdown in Belgium (i.e., March 19th till April 24th, 2020), a heterogeneous group of citizens participated in the national 'motivation barometer' study, an online survey that was organized to monitor citizens' wellbeing and motivation to adhere to the measures taken by the government to contain the SARS-CoV-2 virus. A link to the survey was distributed online by multiple organizations (e.g., sport clubs, organizations for late adults) and the media (e.g., online newspapers) and a paid advertising campaign was conducted on Facebook to recruit participants. Before finishing the 'motivation barometer' survey, participants were asked if they were willing to participate in a second survey. Those who agreed to participate a second time were divided across different types of surveys based on sample characteristics (e.g., students, parents), with one of those surveys focusing on late adults. The second survey took place between April 24th and May 5th 2020. For the purposes of the present study, a subset of 693 participants (62.1% female) were included who were 65 years or older (Mage = 70.06; SD = 4.48; range: 65–89 years) and who agreed to participate in this

second survey[1]. The present study mainly reports data from that second survey with the ability to control for initial levels of some of the ill-being measures measured in the 'motivation barometer' survey (i.e., depressive and anxiety symptoms). Since these surveys were administered online, a selective sample of late adults may have participated. Regarding participants' marital status, 55.3% was married, 16.5% was divorced, 14.4% was a widow(er), 8.2% was single, and 5.6% was cohabiting. Almost all participants lived at home (98%). On average, participants reported having two children and three grandchildren. In terms of educational level, 18.9% obtained a master's degree, 39% obtained a bachelor's degree, and 38% did not attend higher education. Most of the participants (84.7%) indicated having a sufficient income to pay the monthly costs. Compared to the general population of Belgium, the present sample consisted of less widowed and more educated participants (Statbel, 2022).

Participants were also asked to indicate whether they had a medical condition that put them at risk for the consequences of COVID-19 (e.g., lung disease, cancer, etc.). A minority of the participants (40.7%) reported having one of the listed medical conditions. The research procedure of the current study was approved by the ethics committee of the faculty of psychology and educational sciences of Ghent University (nr. 2020/37).

2.2 Measures

All measures were administered in Dutch. A limited set of items was used to reduce the participant's burden during this period and to increase the response rate.

Intrinsic goals Five intrinsic goals from the Aspiration Index (Kasser & Ryan, 1993; Vansteenkiste et al., 2006) were used to assess intrinsic goal importance and attainment. For each of the intrinsic goal domains, the most face-valid item was selected: (1) to continue to grow as a person and develop my personality and talents, (2) to help people (in need) and help improve society, (3) to build warm and close friendships with others, (4) to be physically healthy and live a healthy lifestyle, and (5) to feel safe and not have to worry that bad things could happen to me. Assessing the degree to which participants attach *importance* to each of these intrinsic goals in their life during the corona crisis, they were asked to score these five goals on a scale from 1 (*not important*) to 5 (*very important*). The internal consistency of this 5-item intrinsic goal importance scale was good ($\alpha=0.73$) and factor analysis showed that item loadings were all above 0.59. Assessing the extent to which participants succeed in putting the following goals into practice during the corona crisis (i.e., intrinsic goal *attainment*), they had to rate each goal on a scale from 1 (*not at all*) to 5 (*very well*). The internal consistency of this 5-item intrinsic goal attainment scale was good ($\alpha=0.78$), with item loadings of 0.69 or above.

Sense of meaning Participants' sense of meaning in life was measured with the three most face-valid items from the Presence-subscale of the Meaning in Life Questionnaire developed by Steger et al. (2006; e.g., "I have a good idea of what makes my life meaningful"). Participants were asked to rate these items on a scale ranging from 1 (totally disagree) to

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[1] The outcomes addressed in the present study (i.e., late adults' well- and ill-being) were also published in a paper written by Van der Kaap-Deeder et al. (2022).

5 (totally agree). The internal consistency of the scale was 0.80 and factor loadings were above 0.83 for all items.

Well-being To measure life satisfaction and vitality, the most face valid item of the Satisfaction with Life Scale (Pavot & Diener, 1991) and the Subjective Vitality Scale (Ryan & Frederick, 1997) was selected. Participants were asked to what extent they were satisfied with their life (i.e., life satisfaction) and felt lively (i.e., vitality) during the past week, using a scale going from 1 (*Seldom or never, less than 1 day*) to 4 (*Mostly or all the time, 5 to 7 days*). A single-item assessment for life satisfaction has been used in previous research (e.g., Fujita & Diener, 2005) and has shown to be equally valid as a multi-item measure (Cheung & Lucas, 2014).

Ill-being Depressive symptoms were assessed through a shortened 6-item version of the Center for Epidemiological Studies – Depression scale (CES-D; Radloff, 1977) as successfully used in previous research (Van Hiel & Vansteenkiste, 2009), whereas anxiety symptoms were assessed with the short form of the State Trait Anxiety Inventory (STAI; Marteau & Bekker, 1992), to which we added the most face valid item of the long form of the STAI (i.e., "I feel anxious"). Following the item stem (i.e., "During the past week"), participants responded to six items relating to depressive symptoms (e.g., "I felt sad") and five items tapping into to anxiety symptoms (e.g., "I felt tense") on a scale ranging from 1 (*Seldom or never, less than 1 day*) to 4 (*Mostly or all the time, 5 to 7 days*). Loneliness was measured with four items of the UCLA Loneliness Scale (Russell, 1996) (e.g., "During the past week, how often did you feel that you had a lack of companionship"). Items were rated on a scale ranging from 1 (*Never*) to 5 (*Always*). Cronbach's alpha was.81 for depressive symptoms,0.82 for anxiety symptoms, and 0.74 for loneliness. In the initial assessment, participants also filled out the measures for depressive symptoms ($\alpha = 0.80$) and anxiety ($\alpha = 0.86$) and we used these scores in the main analyses to examine whether the presumed predictors variables (intrinsic goals and meaning in life) would relate to rank-order change in ill-being.

2.3 Plan of Analysis

With regards to the preliminary analyses, first, descriptive statistics and bivariate Pearson correlations among the study variables were calculated. Second, in order to control for relevant background variables in in the structural analyses, a MANCOVA was conducted to examine whether late adults' gender, marital status, age, education level, income, the number of children and grandchildren, and number of medical conditions were related to any of the outcomes. In case of a significant multivariate effect of one of the background variables, post hoc univariate analyses were performed.

For the main analyses, structural equation modeling (SEM) with latent variables was employed, thereby using MPlus 8.3 (Muthén & Muthén, 1998–2017) with a robust maximum-likelihood approach. Latent variables measured with more than three items were represented by parcels instead of items as it provides both psychometric and estimation advantages compared to the use of items (Little et al., 2002, 2013). We combined stronger loading items with weaker loading items according to the recommended item-to-construct balance method (Little et al., 2002, 2013) in order to avoid bias. All study variables were

represented by three parcels, except for life satisfaction and vitality (which were assessed with only one item). We inspected several indices to evaluate the fit of these path models, namely the χ^2 test, the Comparative Fit Index (CFI), the Standardized Root Mean square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). An acceptable model fit was indicated by a χ^2 /df ratio of 2 or below, CFI values of 0.95 or above, SRMR values of 0.08 or below, and RMSEA values of 0.06 or below (Hu & Bentler, 1999; Kline, 2005). Little's (1988) MCAR test indicated that missing data (i.e., 0.53%) were missing completely at random, $\chi^2(28)=20.03$, $p=.86$. Therefore, the use of the full information maximum likelihood (FIML) procedure was appropriate to estimate these missing data (Schafer & Graham, 2002). To test the significance of the indirect relations, we used bootstrapping (1,000 draws) (Preacher & Hayes, 2008). Finally, to control for the background variables, all outcome variables were first regressed on the background variables and the unstandardized residual scores derived from these regressions were used as variables in the SEM models.

3 Results

3.1 Preliminary Analyses

Descriptive statistics and bivariate correlations among the study variables are displayed in Table 1. Intrinsic goal importance and intrinsic goal attainment related positively to one another and to a sense of meaning, life satisfaction and vitality and negatively to depression, anxiety and loneliness. In addition, sense of meaning was related to more life satisfaction and vitality and less depression, anxiety and loneliness. Further, the results of the MANCOVA showed that all but one background variable (i.e., number of children, $F(8,635)=0.98$, $p=.23$, $\eta^2=0.02$) were significantly related to the outcomes (see Table 2). Based on these findings, we controlled for all background variables, except for the number of children, in the main analyses.

3.2 Main Analyses

The Direct Relations from Intrinsic Goal Attainment and Goal Importance to Psychological Functioning In a first structural model (i.e., Model 1a), we entered intrinsic goal attainment and importance as predictors of all outcomes (i.e., depressive symptoms, anxiety symptoms, loneliness, life satisfaction, and vitality), resulting in a good fit (χ^2/ df=3.55; CFI=0.94; SRMR=0.05; RMSEA=0.06). As displayed in Fig. 1, only intrinsic goal attainment (but not goal importance) related to all outcomes, with higher levels of intrinsic goal attainment being related to lower levels of depressive and anxiety symptoms, and loneliness, and a higher degree of life satisfaction and vitality. Further, intrinsic goal attainment and goal importance were moderately positively correlated. The outcomes were all significantly related to one another, in the expected direction.

Subsequently, we examined the interaction between intrinsic goal attainment and goal importance in the prediction of the outcomes, by adding the interaction term between these two latent variables as a predictor (i.e., Model 1b). Results showed that this interaction did not predict any of the outcomes (βs ranging between −0.03 and 0.04; ps≥0.21). Finally,

Table 1 *Descriptives of and Correlations between the Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Age	-													
2 Number of children	0.17***	-												
3 Number of grandchildren	0.20***	0.55***	-											
4 Number of medical conditions	0.10*	-0.01	-0.02	-										
5 Intrinsic goal attainment T2	0.10**	0.08	0.10**	-0.12**	-									
6 Intrinsic goal importance T2	0.01	0.10*	0.04	-0.06	0.47***	-								
7 Meaning T2	0.13**	0.12**	0.15***	-0.04	0.42***	0.42***	-							
8 Depressive symptoms T2	-0.05	-0.03	-0.08*	0.11**	-0.30***	-0.10**	-0.39***	-						
9 Depressive symptoms T1	-0.07	-0.05	-0.10**	0.09*	-0.25***	-0.11**	-0.41***	0.77***	-					
10 Anxiety T2	-0.02	-0.06	-0.13**	0.04	-0.27***	-0.10**	-0.38***	0.77***	0.65***	-				
11 Anxiety T1	-0.04	-0.05	-0.11**	0.07	-0.25***	-0.07	-0.35***	0.69***	0.73***	0.73***	-			
12 Loneliness T2	-0.06	-0.04	-0.07	0.05	-0.37***	-0.15***	-0.36***	0.59***	0.56***	0.51***	0.49***	-		
13 Life satisfaction T2	0.03	0.09*	0.12**	-0.01	0.27***	0.11**	0.37***	-0.59***	-0.53***	-0.70***	-0.51***	-0.49***	-	
14 Vitality T2	0.01	0.10**	0.12**	-0.08*	0.32***	0.19***	0.37***	-0.60***	-0.56***	-0.66***	-0.54***	-0.51***	0.69***	-
M	70.06	2.10	3.20	0.89	3.65	4.21	3.86	1.46	1.50	2.30	2.30	1.81	2.64	2.91
SD	4.48	1.50	3.02	0.86	0.73	0.58	0.78	0.51	0.54	0.69	0.73	0.89	0.98	0.99

Note. $*p<.05$, $**p<.01$, $***p<.001$ (two-tailed)

building on the first model without the interaction term, we added the T1 scores of depressive and anxiety symptoms as predictors of, respectively, depressive symptoms and anxiety symptoms at T2 (i.e., Model 1c). By doing so, we were able to examine the predictive value of intrinsic goal attainment and importance in changes in these outcomes. Results were similar to the first model. Specifically, whereas intrinsic goal attainment significantly predicted decreases in depressive symptoms ($\beta = -0.33$; $p < .001$), decreases in anxiety symptoms ($\beta = -0.45$; $p < .001$), loneliness ($\beta = -0.63$; $p < .001$), life satisfaction ($\beta = 0.49$; $p < .001$) and vitality ($\beta = 48$; $p < .001$), intrinsic goal importance was unrelated to all the outcomes (β ranging between -0.17 and 0.22; $ps > 0.11$). These findings indicate that attaining intrinsic goals not only relates to lower levels of internalizing symptoms but also to decreases in these symptoms over time.

The Intervening Role of Meaning Building on the initial model (i.e., Model 1a), in a second structural model (i.e., Model 2a) we added meaning as an intervening variable between intrinsic goal attainment and goal importance on the one hand and the indicators of well-being and ill-being on the other, while retaining two significant direct effects from intrinsic goal attainment to loneliness and from intrinsic goal importance to vitality. This model had a good fit ($\chi^2/df = 3.05$; CFI $= 0.94$; SRMR $= 0.06$; RMSEA $= 0.05$). As displayed in Fig. 2, both intrinsic goal attainment and goal importance related positively to meaning. Meaning, in turn, related to lower levels of depressive and anxiety symptoms, and loneliness, and to a higher degree of life satisfaction and vitality. All these indirect relations were found to be significant. That is, intrinsic goal attainment related through meaning to the indicators of well-being (95% CI [0.033; 0.183]) and ill-being (95% CI [-0.217; -0.057]). Similarly, intrinsic goal importance related via meaning to well-being (95% CI [0.062; 0.189]) and ill-being (95% CI [-0.224; -0.054]). Additionally, intrinsic goal attainment related also directly and negatively to loneliness, whereas intrinsic goal importance related to vitality directly and positively. Similar to the previous models, results showed that intrinsic goal attainment and goal importance were moderately and positively correlated. Finally, the outcomes were all significantly related to one another, in the expected direction.

In a subsequent step, we examined the interaction between intrinsic goal attainment and goal importance in the prediction of meaning and all outcomes, by adding these paths from the interaction term to the model (i.e., Model 2b). Results showed that this interaction did not predict meaning or any of the outcomes (βs ranging between -0.05 and 0.05; $ps \geq 0.10$). Finally, building on Model 2a (without the interaction term), we added the T1 scores of depressive and anxiety symptoms as predictors of, respectively, depressive symptoms and anxiety symptoms at T2 (i.e., Model 2c). Results were similar to the previous models, with both intrinsic goal attainment ($\beta = 0.36$; $p < .001$) and intrinsic goal importance ($\beta = 0.32$; $p < .001$) predicting meaning. Meaning, in turn, related to decreases in depressive symptoms ($\beta = -0.29$; $p < .001$) and decreases in anxiety symptoms ($\beta = -0.40$; $p < .001$), loneliness ($\beta = -0.26$; $p < .001$), life satisfaction ($\beta = 0.39$; $p < .001$) and vitality ($\beta = 33$; $p < .001$). Also, intrinsic goal attainment related directly to loneliness ($\beta = -0.25$; $p < .001$), whereas intrinsic goal importance related to vitality directly ($\beta = 0.11$; $p = .02$).

Table 2 Mean-level Differences in Study Variables as Function of Background Characteristics

	Gender			Education level				Marital status						Income level		
	Men	Women	F (η_p^2)	No higher education	Bachelor	Master	F (η_p^2)	Married	Cohabiting	Divorced	Single	Widowed	F (η_p^2)	Insufficient	Sufficient	F (η_p^2)
Intrinsic goal importance	3.99_a	4.24_b	26.97^{***} (0.04)	4.11	4.08	4.16	1.60 (0.01)	4.18	4.01	4.17	4.04	4.14	0.97 (0.01)	4.09	4.14	0.64 (0.00)
Intrinsic goal attainment	3.59_a	3.79_b	11.11^{**} (0.02)	4.01_a	3.57_b	3.49_b	5.12^{**} (0.02)	3.73	3.81	3.67	3.61	3.64	0.69 (0.00)	3.60_a	3.79_b	5.21^{*} (0.01)
Sense of meaning	3.60	3.70	2.68 (0.00)	3.67_{ab}	3.56_a	3.73_b	3.47^{*} (0.01)	3.83_a	3.75_{ab}	3.53_b	3.44_b	3.70_{ab}	4.79^{**} (0.03)	3.51_a	3.80_b	11.16^{**} (0.02)
Life satisfaction	3.03	2.92	2.01 (0.00)	2.93	2.92	3.08	1.92 (0.01)	3.08_a	3.19_a	2.94_{ab}	2.77_b	2.89_{ab}	1.96 (0.01)	2.74_a	3.21_b	18.21^{***} (0.03)
Vitality	2.68	2.64	0.26 (0.00)	2.65_{ab}	2.57_a	2.75_b	2.57 (0.01)	2.85_a	2.92_a	2.66_{ab}	2.41_b	2.45_b	5.03^{**} (0.03)	2.45_a	2.87_b	15.43^{***} (0.02)
Depression	1.58	1.64	2.36 (0.00)	1.56_{ab}	1.69_a	1.57_b	4.84^{**} (0.02)	1.44_a	1.42_a	1.65_b	1.77_b	1.76_b	12.08^{***} (0.07)	1.74_a	1.48_b	23.26^{***} (0.04)

Table 2 (continued)

	Gender			Education level				Marital status						Income level		
	Men	Women	F (η_p^2)	No higher education	Bachelor	Master	F (η_p^2)	Married	Cohabiting	Divorced	Single	Widowed	F (η_p^2)	Insufficient	Sufficient	F (η_p^2)
Anxiety	2.26	2.36	3.46 (0.01)	2.30$_{ab}$	2.38$_a$	2.24$_b$	4.00* (0.01)	2.24$_a$	2.21$_{ab}$	2.23$_a$	2.41$_{ab}$	2.45$_b$	2.71* (0.02)	2.52$_a$	2.10$_b$	34.29*** (0.05)
Loneliness	2.86	2.85	0.02 (0.00)	2.74	2.94	2.88	0.67 (0.00)	2.61$_a$	2.78$_{ac}$	2.73$_a$	3.16$_b$	2.99$_{bc}$	6.83*** (0.04)	3.05$_a$	2.66$_b$	15.75*** (0.02)

Note. A distinct subscript means that groups significantly differ from each other. For the non-significant differences, no subscripts were added

$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$
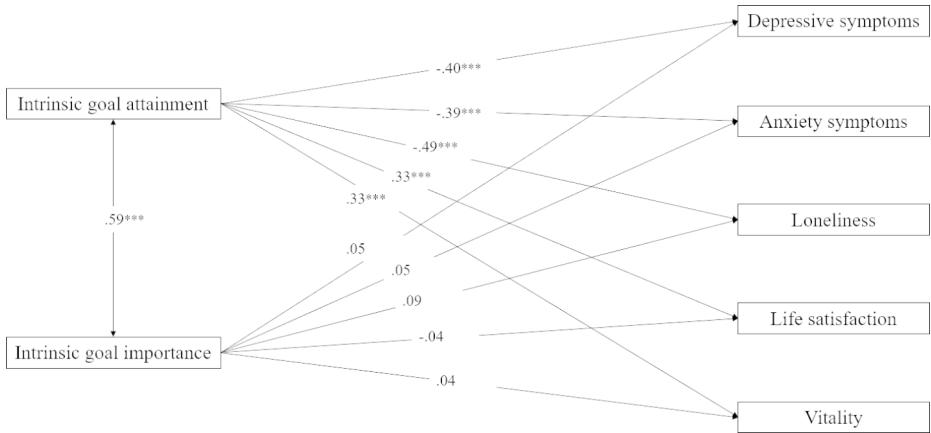
Fig. 1 Structural Model Depicting the Direct Relation from Intrinsic Goal Attainment and Intrinsic Goal Importance to Well- and Ill-being
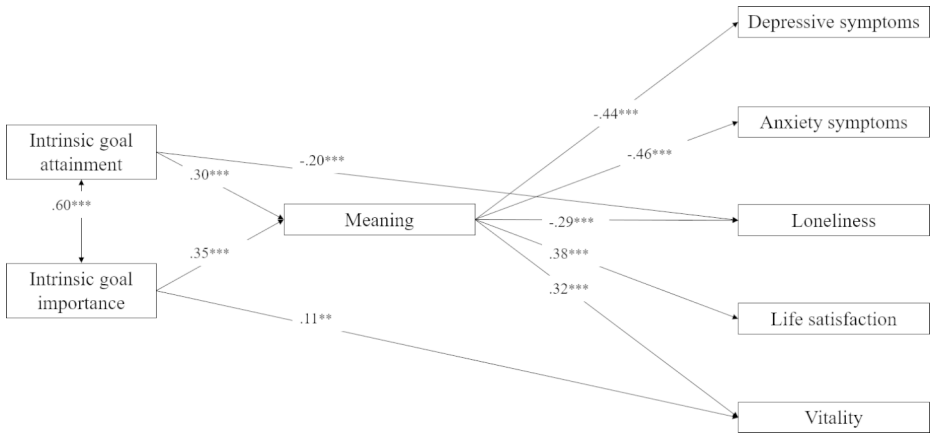

Fig. 2 Structural Model Depicting the Intervening Role of Meaning in the Relations from Intrinsic Goal Attainment and Intrinsic Goal Importance to Well- and Ill-being

4 Discussion

The COVID-19 crisis is an unprecedented and challenging historical period characterized by intrusive restrictions interfering with daily life. Whereas some late adults are especially vulnerable during this crisis, due to health risks and social isolation, other late adults adjust well to this crisis and maintain high levels of well-being. It is therefore imperative to examine possible sources of resilience during this pandemic within this age group. Based on Goal Content Theory (Kasser & Ryan, 1996; Vansteenkiste et al., 2010), we examined the role of the attainment and importance of intrinsic goals as possible resources for mental health among late adults. Additionally, we aimed to shed light on the possible underlying mechanism behind these associations by examining meaning in life as an intervening variable.

A first aim of this study was to determine the role of intrinsic goal attainment and importance in late adults' psychological functioning during the COVID-19 crisis. At the correlational level, both attainment and importance related to higher levels of well-being and lower levels of ill-being, although the effects of intrinsic goal importance were substantially smaller. Interestingly, when examining both intrinsic goal attainment and importance in one model, only intrinsic goal attainment remained a unique predictor of individuals' mental health. Moreover, the current study found evidence that attaining intrinsic goals accounted for shifts in subjective ill-being over time. These findings indicate that actually realizing intrinsic goals, and not the mere importance attached to these goals, is conducive to a decrease in symptoms of anxiety and depression. This finding is in line with previous research showing no or only a minimal unique role of intrinsic goal importance in the prediction of psychological functioning over and above effects of intrinsic goal attainment (e.g., Sheldon & Krieger, 2014).

However, given that intrinsic goals importance and attainment were strongly interrelated in this study, the significance of intrinsic goal importance might be underestimated. Intrinsic goal importance might indeed serve as the fuel to achieve these goals. Supportive of that reasoning, research showed that when people are truly convinced certain goals are important to them, they more quickly move towards achieving these goals (Koestner et al., 2008). Future research would therefore do well to examine which factors contribute to the achievement of the intrinsic goals deemed important by older adults.

Given the importance of intrinsic goal attainment in particular for late adults' psychological functioning, an important next step was to examine what mechanisms underlie this relation. On a theoretical level, one would expect that when individuals attain goals that are conducive to their psychological growth and satisfy their psychological needs, individuals would be more likely to perceive their life as meaningful (Martela et al., 2018; Ryan & Deci, 2017). For instance, engaging in volunteering as a way of contributing to society (i.e., an intrinsic goal), contributes to experiencing life as significant and enables individuals to transcend everyday concerns (i.e., experiencing meaning in life). Indeed, results showed that older adults who reported to have obtained intrinsic goals experienced a higher level of meaning, which, in turn, related to better psychological functioning. Additionally, there remained a direct effect from intrinsic goal attainment to lower loneliness. Perhaps attaining intrinsic goals that have direct relevance for one's social functioning (such as community contribution), has an immediate buffering effect against feelings of loneliness. Alternatively, it could be the case that other mechanisms might play a role here, with previous research showing psychological need satisfaction to mediate the effect of intrinsic goal attainment on well-being (Niemiec et al., 2009). In addition, there might be an inverse relation between loneliness and intrinsic goal attainment, such that late adults who feel lonely lack the social support to turn their goals into actions.

Although intrinsic goal importance did not relate directly to the indicators of mental health, we did find an indirect relation from intrinsic goal importance through meaning to the outcomes. Perhaps the mere valuation of intrinsic goals gives a sense of direction and maps a clear path to follow towards what individuals find inherently important, providing them with a sense of meaning.

Finally, no evidence was obtained for moderation effects between intrinsic goal importance and attainment, indicating that intrinsic goal attainment yields beneficial effects on subjective well-being, regardless of how these goals are valued. This finding contrasts with

a couple of previous studies (e.g., Sheldon & Krieger, 2014; Toth et al., 2018) that did observe some synergistic effects between intrinsic goal importance and attainment. Our findings also do not confirm the explorative possibility that, due to COVID-19, older adults would experience more frustration and ill-being because they felt restrained to attain the intrinsic goals they find important. However, because the mean scores for intrinsic goal attainment were rather high in this sample, participants may have experienced relatively few limitations to achieve their intrinsic goals due to COVID-19 or they may have found alternative ways to do so. Further, also the scores on intrinsic goal importance were rather high, showing that, in absolute terms, the late adults in this sample value these intrinsic goals rather highly, thereby reducing the chance of detecting an interaction effect. A true test of moderation would therefore require a more heterogeneous sample of older adults in terms of intrinsic goal attainment and importance.

In sum, the present study highlights the importance of intrinsic goals in the prediction of late adults' sense of meaning and well-being. From an applied perspective, the results suggest that interventions targeting intrinsic goals can potentially be a lever for late adults' well-being. Indeed, both experimental studies and micro-intervention studies around value affirmation (e.g., Creswell et al., 2005; Vansteenkiste et al., 2006; Yeager et al., 2014) in adolescents and young adults have shown that priming intrinsic goals like self-transcendence fosters resilience and mental health. It is important for future research to extend these experiments and micro-interventions to the age group of older adults.

4.1 Limitations and Future Directions

This study had several important limitations. On a methodological level, this study had a cross-sectional design, limiting the examination of possible reciprocal effects. For instance, when feeling anxious or depressed, late adults might lack the energy (Corfield et al., 2016) or focus to reflect on and pursue their intrinsic goals. In addition, late adults suffering from mental health problems might rely more on the attainment of extrinsic goals in order to obtain a short-term gain in well-being and sense of meaning. Second, two of the outcomes (i.e., life satisfaction and vitality) were assessed with single items and all constructs were measured by means of self-reports, which can cause same-source bias, shared method variance and retrospective bias. Third, although we used different approaches to recruit a diverse sample of older adults (i.e., online newspapers, organizations, social media campaign), because we used an online survey, only a selective sample of late adults could participate, thereby limiting the generalization of the results. That is, late adults who are single, female, retired, with a lower education level, and who report more depressive symptoms and lower health are less likely to participate in web surveys (Kelfve et al., 2020). Indeed, the present sample consisted of less widowed participants and participants were more educated compared to Belgian older adults in general (Statbel, 2022).

Further, on a theoretical level, this study did not distinguish between different types of intrinsic goals, due to the limited set of items used in this study. It is important for future studies to examine whether certain intrinsic goals are more important in the prediction of meaning or are more salient during late adulthood. Previous research has shown that late adults are more preoccupied with maintaining close relationships than with knowledge acquisition (e.g., Penningroth & Scott, 2012), making the intrinsic goal of affiliation perhaps more important than the goal of personal growth in late adulthood. In view of this, an

interesting finding in the present study involves the observation that the number of grand-children related positively to intrinsic goal attainment, sense of meaning and well-being and negatively to ill-being. Including relationship quality with the broader family context in the prediction of intrinsic goal attainment seems therefore an important track to explore further. Moreover, including extrinsic goals could be of added value as well, especially in the prediction of ill-being (e.g., Niemiec et al., 2009; Unanue et al., 2014). Additionally, whereas the present study focused on the presence of meaning, the search for meaning may serve as a complimentary mediating mechanism. Given the distressing nature of the COVID-pandemic, the valuation of intrinsic goals and its striving may allow one to seek out more meaning, a critical outcome of itself when coping with uncertainties.

Finally, based on GCT, this study focused on intrinsic goals (the "what" of goal-directed behavior; Ryan & Deci, 2017), without shedding light on the different underlying motives to pursue these goals (the "why" of goal-directed behavior). Although intrinsic goals are more frequently autonomously motivated (Deci & Ryan, 2000), previous research has shown that both the type of goals and their underlying motivations independently predict individuals' well-being (Sheldon et al., 2004). Future research should therefore examine the unique predictive value of both the what and why of goal-directed behavior among late adults.

5 Conclusion

Previous research has shown that there are large differences in the extent to which late adults adjust to the COVID-19 crisis. The present study showed that attaining intrinsic goals during this pandemic was related to late adults' adaptive psychological functioning. Further, pursuing intrinsic goals related to experiencing life as significant and meaningful, even during the COVID-19 crisis. Although attaching importance to intrinsic goals related positively to finding meaning, it did not directly relate to late adults' psychological functioning nor did it moderate the effects of intrinsic goal attainment. Prevention efforts supporting late adults' pursuit and attainment of meaningful intrinsic goals may have the potential to strengthen their resilience in times of crisis.

Declarations

Conflict of interest No potential competing interest was reported by the authors.

Ethics approval and consent to participate Informed consent was obtained from all participants.

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