

Routledge
Taylor & Francis Group

Self and Identity

ISSN: 1529-8868 (Print) 1529-8876 (Online) Journal homepage: www.tandfonline.com/journals/psai20

A dynamic structural equation modeling examination of meaning-making dynamics across daily events

Michela Zambelli, Semira Tagliabue & Emilio Ferrer

To cite this article: Michela Zambelli, Semira Tagliabue & Emilio Ferrer (06 Nov 2026): A dynamic structural equation modeling examination of meaning-making dynamics across daily events, Self and Identity, DOI: 10.1080/15298868.2026.2758632

To link to this article: https://doi.org/10.1080/15298868.2026.2758632

© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

View supplementary material

Published online: 06 Nov 2026.

Submit your article to this journal

Article views: 33

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=psai20

SELF AND IDENTITY
https://doi.org/10.1080/15298868.2026.2758632

Routledge
Taylor & Francis Group

OPEN ACCESS Check for updates

A dynamic structural equation modeling examination of meaning-making dynamics across daily events

Michela Zambelli [a], Semira Tagliabue [a] and Emilio Ferrer [b]

[a]Department of Pyschology, Università Cattolica del Sacro Cuore, Milan, Italy; [b]Department of Pyschology, University of California Davis, Davis, CA, USA

ABSTRACT

This study examined daily meaning-making dynamics in a sample of Italian emerging and young adults (18–34) who participated in a two-week diary study conducted during the COVID-19 pandemic in 2020. Using Dynamic Structural Equation Modeling, we investigated how the occurrence of positive and negative events affected the reciprocal within-person dynamics between the daily perception of *presence* and *search* for meaning in life. For the first time, we compared these dynamics across the three domains of *comprehension*, *purpose* and *mattering/significance*. Results revealed domain-specific patterns: a reciprocal predictive relationship between *presence* and *search* for meaning emerged for *comprehension*; a prospective *search-to-presence* effect emerged for *mattering/significance*; while no significant temporal dynamics were found for *purpose*. Positive daily events predicted increases in both *presence* and *search* for meaning across all domains, providing novel evidence that positive experiences serve as catalysts also for the process of *search* for meaning. Negative events produced a flow in the daily *presence* of meaning and a reduced engagement in the *search* for *purpose*. These findings suggest that, when faced with challenging circumstances, young people should be supported in activating a positive meaning-making process – one that emphasizes the appreciation of positive everyday experiences and the constructive reappraisal of negative ones.

ARTICLE HISTORY
Received 4 February 2026
Accepted 27 October 2026

KEYWORDS
Meaning-making; meaning in life; daily diary; dynamic structural equation modeling; DSEM; multilevel modeling; daily events; COVID-19; emerging and young adults

As Victor Frankl (1963) reminds us, the *will to meaning* is the main life goal of human beings. Even under the most harmful traumatic and stressful conditions, individuals with a high intrinsic motivation to find a meaningful life have the best chance to survive and recover a physical and psychological state of well-being. Although multiple frameworks have been proposed to explain how individuals create and maintain high levels of meaning in life under both normative and non-normative conditions, the most widespread conceptualization sees the meaning-making process as underpinned by two intertwined dimensions: the subjective perception of having a life fulfilled with meaning

CONTACT Michela Zambelli michela.zambelli@unicatt.it Department of Psychology, Università Cattolica Del Sacro Cuore, Largo Gemelli, 1 – 20123, Milan, Italy

Supplemental data for this article can be accessed online at https://doi.org/10.1080/15298868.2026.2758632

© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

(i.e., presence of meaning) and the active engagement in searching for new meanings (i.e., search for meaning) (Steger et al., 2006).

The reciprocal relationship between these two dimensions has been extensively studied in the last decades using mostly cross-sectional studies, from which, however, contradictory results emerged (see Li et al., 2021 for a meta-analysis). Indeed, in the adult population high levels of search for meaning are often accompanied by low levels of presence of meaning, and this path is quite often associated with lack of well-being and negative psychological functioning. Conversely, other studies found a positive association between presence and search for meaning, especially among late adolescents and young adults, with a configuration of high levels of both components being positively associated with well-being constructs (Krok, 2018; Steger et al., 2008, 2011; Zambelli & Tagliabue, 2023; Zambelli et al., 2024).

These results lead to the hypothesis that the meaning-making process has different mechanisms of functioning, with different intrinsic dynamics, that might depend on several factors, such as the life stage, the situational experiences of everyday life, or the context in which the process is activated. The best strategy to test this hypothesis is to design studies that allow investigating both within-person dynamics and between-person differences. The former help identify fluctuations in the individual's perception of meaning in life over time; the latter capture the trait dimension of meaning-making that is mostly permanent across individuals.

More recently, several studies have reignited the discussion on the inherent complexity of the construct of meaning in life itself. This construct not only manifests as a dynamic process involving presence and search for meaning in life but must also be considered through three main components (i.e., *tripartite view of meaning*) that represent the existential context in which meaning in life is rooted. These three dimensions include the perceived *comprehension and coherence* of life events, the perception of life as *significant*, and the presence of life *purpose* that provides a direction in life (Costin & Vignoles, 2020; Martela & Steger, 2016; Zambelli & Tagliabue, 2024). Despite this important conceptual advance, most empirical research has continued to examine meaning in life as a unitary construct. Consequently, little is known about whether the reciprocal dynamics between presence and search operate similarly or differently across the six situational dimensions of *comprehension*, *purpose*, and *mattering/significance*.

Recently, a self-report tool (SMILE, Situational Meaning In Life Evaluation; Zambelli & Tagliabue, 2024) was developed to operationalize meaning in life as a multidimensional situational construct. Unlike previous instruments, the SMILE assesses both the presence and the search dimensions separately for *comprehension*, *purpose*, and *mattering/significance*, thereby opening new possibilities to investigate whether the reciprocal dynamics between presence and search differ across the three fundamental components of meaning.

Meaning-making, the self, and identity development

From the perspective of self and identity research, meaning-making can be understood as one of the fundamental psychological processes through which individuals construct, maintain, and revise a coherent sense of who they are. Rather than merely reflecting psychological well-being, the capacity to make sense of one's experiences enables

individuals to integrate past events, interpret present circumstances, and envision future goals within a coherent representation of the self (McAdams, 2001; McLean & Pratt, 2006). In this sense, meaning-making represents an ongoing process of self-construction through which everyday experiences are incorporated into one's self-concept, contributing to greater continuity, coherence, and stability across time.

The three dimensions of meaning may contribute to this developmental process through partially distinct mechanisms. Comprehension provides a coherent framework for understanding life experiences and is therefore closely related to identity coherence and self-concept clarity, allowing individuals to perceive themselves as psychologically consistent across situations and overtime (e.g., Campbell et al., 1996; Machell et al., 2015). Purpose supports the formation of identity commitments by helping individuals identify personally meaningful goals and future directions, thereby linking present actions with desired future selves (Marcia, 1966; McLean et al., 2007; McLean & Syed, 2015). Finally, mattering reflects the perception that one's life has value and significance within the broader social world, fostering feelings of belonging and reinforcing the sense that one's identity is recognized and valued by others (Costin & Vignoles, 2020; Flett, 2018).

These processes are particularly salient during adolescence and emerging adulthood, developmental periods characterized by intensive identity exploration, the revision of personal values, and the establishment of long-term goals and commitments (Arnett, 2014; Negru-Subtirica et al., 2016). During this transition, searching for meaning represents a normative precursor of identity development rather than an inherently maladaptive experience, as it accompanies processes of identity exploration, commitment formation, and the integration of self-relevant experiences (Arnett, 2014; de Moor, 2023; Steger et al., 2008). Its developmental value depends on whether this search successfully translates into a stronger perception of meaning over time (Zambelli & Tagliabue, 2023; Zambelli et al., 2024). Because identity is continuously constructed and revised through everyday experiences, rather than only during major developmental transitions, examining the daily reciprocal dynamics between the presence and search for meaning provides a unique opportunity to investigate how meaning-making and self-construction unfold together in everyday life.

Meaning-making as a situational daily process

Starting from a first intuition described by Frankl (1963), some recent research showed that people experience different levels of meaning in life from day-to-day and even from hour-to-hour (e.g., Heintzelman & King, 2019; Newman et al., 2018; Steger & Kashdan, 2013), supporting the view that meaning-making is a dynamic process that changes in the everyday life of individuals. From a theoretical perspective, two competing models have been proposed to explain how the meaning-making process operates over time. According to the *search-to-presence model*, actively searching for meaning promotes the subsequent experience of meaning. This perspective originates from Frankl's (1963) conception of the search for meaning as a fundamental human motivation and is further supported by Park's (2010) meaning-making framework, according to which successful meaning-making is reflected in increases in perceived meaning following efforts to search for it. Conversely, the presence-to-search model, grounded in Baumeister's (1991) homeostasis model of meaning and the Meaning Maintenance Model (Heine et al., 2006), posits

that individuals are inherently motivated to maintain a consistent and stable sense of meaning. When this sense of meaning is perceived as insufficient, individuals may be motivated to engage in greater meaning search, whereas a stronger sense of meaning may reduce the need to continue searching.

Only a couple of diary studies have attempted to examine these reciprocal dynamics in everyday life, and the available evidence remains inconclusive. Newman et al. (2018) and Morse et al. (2021) found that greater daily search predicted higher presence of meaning the following day, supporting the *search-to-presence model*. However, contrary to the classical presence-to-search hypothesis, Morse et al. (2021) also found that higher presence predicted greater, rather than lower, search on the next day. One possible explanation is that their sample consisted exclusively of U.S. undergraduate students, for whom actively searching for meaning may represent a normative developmental task associated with identity exploration and adaptive psychological development (e.g., Steger et al., 2008; Zambelli & Tagliabue, 2023; Zambelli et al., 2024).

Overall, because the available evidence comes from only two studies conducted within a single developmental context (i.e., US undergraduate students), it remains unclear whether these findings generalize to other populations or reflect more general characteristics of the meaning-making process. A second factor that may account for these inconsistent findings is that previous studies operationalized meaning-making by only considering the two dimensions of presence and search for meaning in life. According to the tripartite view of meaning, however, the meaning-making process encompasses three conceptually distinct content dimensions, namely *comprehension*, *purpose*, and *mattering/significance*, which may rely on partially different psychological mechanisms.

More specifically, both theoretical models may plausibly operate within each component, although through different psychological mechanisms. According to the *presence-to-search model*, deficits in comprehension may motivate efforts to restore coherence following expectancy violations or disruptive life experiences (Heine et al., 2006; Park, 2010). Likewise, lacking a sense of purpose may stimulate individuals to identify meaningful goals and future directions (Frankl, 1963), whereas diminished mattering may motivate efforts to regain significance, belonging, and social value (e.g., Flett, 2018). Conversely, the *search-to-presence model* predicts that engaging in the search for each component should increase its subsequent presence. Drawing on the sense-making literature, searching for comprehension may facilitate the construction of coherent interpretations of one's experiences, thereby increasing perceived coherence over time (Park, 2010). However, when individuals confront highly discrepant, traumatic, or emotionally overwhelming experiences, persistent attempts to make sense of events may instead foster uncertainty and rumination, ultimately undermining coherence (Davis et al., 1998; Park, 2010). Similar competing mechanisms may characterize purpose. Being engaged in identifying life purposes may foster goal clarification, commitment, and self-concordant striving (Hill et al., 2023; Deci & Ryan, 2000). At the same time, purpose development depends on broader motivational resources, including autonomy, perceived competence, self-efficacy, and opportunities for identity exploration. Individuals experiencing prolonged need frustration, low self-efficacy, or difficulties committing to valued goals may continue searching without developing a stronger sense of purpose, particularly during periods of developmental transition, stressful life events, or personal crises (Ryan & Deci, 2017; McLean & Syed,

2015; Park, 2010). Finally, actively searching for mattering/significance may encourage greater social contribution, connectedness, and recognition, thereby increasing perceived significance (Elliott et al., 2004). Alternatively, persistent efforts to establish one's significance may heighten social comparison or awareness of unmet relational needs, reducing feelings of mattering (Flett, 2018).

These alternative mechanisms suggest that the reciprocal dynamics between presence and search are likely to depend not only on the specific component of meaning under consideration but also on the contextual demands individuals face in everyday life. The present study addresses these limitations by using an intensive daily diary design to investigate the reciprocal relationships between the presence and search for meaning in the everyday lives of emerging and young adults facing both the normative developmental challenges characteristic of this life stage and the unique challenges brought about by the COVID-19 pandemic. Extending previous work, we also examine, for the first time, the reciprocal dynamics between the presence and search dimensions separately across *comprehension*, *purpose* and *mattering/significance*. Given the absence of previous evidence at the component level, these analyses are exploratory and aim to determine whether the meaning-making process operates similarly or differently across the three components of meaning in life.

The impact of daily events on the meaning-making process

A key aspect in defining meaning-making as a daily experience is its sensitivity to events individuals might encounter in their everyday life. For instance, Kiang (2012) examined the association between the daily feelings of purpose in life and a variety of daily experiences and activities within family, school, extracurricular, and leisure domains, finding a positive concurrent association between adolescents' daily purpose and family assistance (adolescents helping their parents), and the participation in general extracurricular activities. Steger et al. (2008) found that the daily experience of eudaimonic behaviors, such as volunteering, expressing gratitude, or listening to other points of view, had a positive impact on meaning in life on the same day as well as the next day. Heintzelman and King (2019) discovered that, even controlling momentary mood, daily routines predicted meaning in life perceptions at the within-person level. As far as we know, only one study (Machell et al., 2015) compared the valence of lived experiences to understand whether positive and negative events impact the daily perception of meaning in life in a different way, finding that the experience of a positive event was associated with an increase in daily presence of meaning, while the occurrence of negative events were associated with a subsequent loss in life meaningfulness.

Experimental research further supports the idea that situational experiences play a causal role in shaping perceived meaning in life. Studies manipulating experiences of social exclusion have consistently shown that being ostracized or anticipating future social isolation reduces perceived life meaningfulness together with motivation, agency, and goal-directed behavior (Stillman et al., 2009; Twenge et al., 2003). Similarly, research grounded in the *Meaning Maintenance Model* has demonstrated that experiences violating individuals' expectations or inducing absurdity temporarily threaten meaning systems and motivate compensatory efforts to restore coherence (Heine et al., 2006; Proulx & Inzlicht, 2012). Experimental studies have also shown that boredom functions as

a situational signal of insufficient meaning, increasing individuals' motivation to seek more meaningful activities and experiences (e.g., Van Tilburg & Igou, 2012).

Taken together, evidence from both experimental and daily diary studies indicates that everyday experiences can shape individuals' momentary sense of meaning. However, previous research has primarily focused on immediate changes in the presence of meaning, leaving unanswered whether positive and negative events also activate or inhibit the search for meaning and, consequently, alter the reciprocal dynamics through which meaning-making unfolds over time. These questions remain largely unexplored and are addressed in the present study.

Despite extensive research highlighting the protective role of meaning in life during the COVID-19 pandemic, little is known about how meaning-making processes unfold dynamically under prolonged conditions of uncertainty and stress. Indeed, the COVID-19 pandemic represented one of the most pervasive and disruptive stressors experienced worldwide since March 2020. Studies have shown that meaning in life was associated with lower distress and greater psychological adjustment during the pandemic among both adults and emerging adults (Samios et al., 2021; Ward et al., 2023; Zambelli et al., 2022). Additionally, a longitudinal study conducted among Spanish adults found that both presence and search for meaning in life decreased during the most restrictive phase of lockdown and stabilized as restrictions were gradually relaxed (Baños et al., 2022). However, it remains unclear whether positive and negative daily events occurring within prolonged stressful contexts differentially shape the reciprocal dynamics between presence and search for meaning across the three components of meaning. Examining these processes at the within-person level may therefore provide insight into how everyday experiences influence the unfolding of meaning-making when individuals face sustained uncertainty and adversity.

The present study

Taking together previous evidence, three main gaps emerge regarding the daily dynamics of meaning-making. First, evidence on the reciprocal relation between presence of the search for meaning in daily life remain mixed, and the few existing studies have primarily focused on homogeneous samples of university students under relatively stable and normative life conditions.

To address this gap, the *first aim* of the present study was to investigate daily meaning-making dynamics in a sample of Italian emerging and young adults (balanced between students and workers) during the early stages of the COVID-19 pandemic in Italy, a context characterized by high levels of stress and disruption due to widespread health risks and restrictive measures (Rossi et al., 2020). Specifically, three typologies of meaning-making dynamics have been examined: a) the *stability* of presence and search for meaning over time; b) the *concurrent daily relationship* between presence and search for meaning; and c) the *predictive relationship* between presence and search for meaning over time.

Second, little is known about how external events shape daily meaning-making dynamics. The *second aim* was therefore to examine whether the *occurrence of an impactful event* (positive or negative) and their cumulative frequency over a two-week

period impacted on the daily perception of presence and search for meaning, and on their reciprocal temporal dynamics.

As a *third aim*, we examined whether these daily meaning-making dynamics and their interaction with the occurrence of daily events extended across the three dimensions of meaning in life (*comprehension*, *purpose*, and *mattering/significance*). The investigation has been conducted in an exploratory fashion considering its novelty in the field.

Where theoretically grounded, we formulated directional hypotheses; however, given the limited and inconsistent prior evidence, several exploratory hypotheses were also considered. Figure 1 summarizes the conceptual roadmap of the study, illustrating the theoretically grounded and exploratory hypothesis on the within-person dynamics of the meaning-making process.

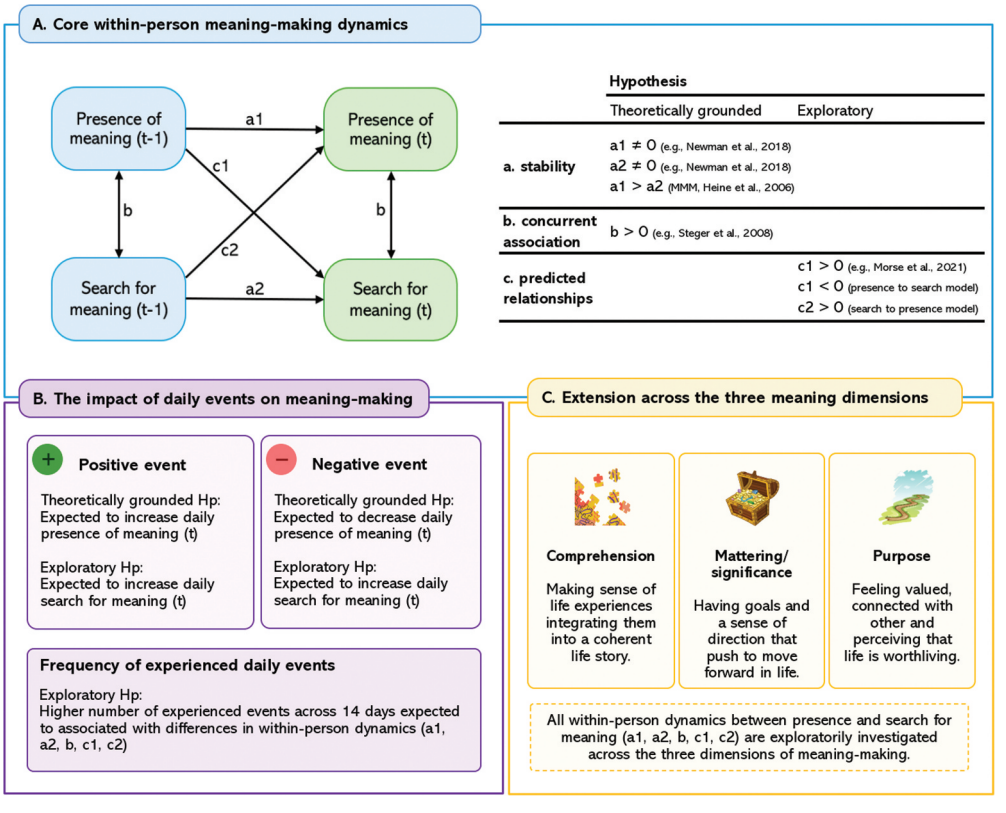


Figure 1. Conceptual model of the study illustrating theoretically grounded and exploratory hypotheses.

Method

Transparency and openness

Data from participants who agreed to share their data on the open science platform are publicity available, together with a statistical comparison of demographic differences between participants who agreed to share their data and those who did not. Analysis

code and research materials are accessible on Zenodo at: https://doi.org/10.5281/zenodo.23898160. Statistical analyses were conducted with R, version 4.2 (for data visualization and detrending) and Mplus version 8.4 (for CCFA and the DSEM). This study's design and its analysis were not pre-registered. We report how we determined our sample sizes below and how we excluded data.

Participants and procedure

Sample size determination was guided by simulation-based evidence on the trade-off between the number of persons (N) and the number of time points (T) in dynamic multilevel models. Hecht and Zitzmann (2021) demonstrated a clear N/T compensation effect, showing that relatively short time series ($T \approx 7$–15) can yield accurate parameter estimates when combined with a sufficiently large number of individuals, even in the presence of between-person heterogeneity. Their results indicate that combinations of T around 10–15 with $N \geq 100$–300 are associated with good convergence, low bias, and adequate coverage for autoregressive parameters. Consistent with these findings, Schultzberg and Muthén (2018) showed in extensive DSEM simulations that the accurate estimation of within-person autoregressive and cross-lagged effects primarily depends on the number of subjects when the number of time points per individual is limited, with sample sizes of several hundred individuals yielding stable estimates for models of comparable complexity. Taken together, we aimed at collecting data from a sample size of approximately 300 participants with 14 daily observations, which is considered sufficient and conservative for reliably estimating the proposed mlVAR models with two autoregressive and two cross-lagged effects.

We collected data from a sample of Italian emerging and young adults (aged 18–35) living in the Lombardia region between 26 April and 9 May 2020, in the context of a national lockdown imposed by the government due to the COVID-19 pandemic, during which people were not allowed to leave their home if not for medical reasons and most of the educational and work activities were suspended. Lombardia was the region most affected by the virus at that time, with half of Italy's 28,000 deaths between March and May 2020 occurring there (Ferrante, 2022). The sample was recruited through an intentional sampling procedure. Participants were informed about the study's aims, procedure and study design, data protection, and participant's rights via an online infographic implemented in Qualtrics. Participants who agreed to participate and signed the informed consent were asked to build an alphanumeric identification code to pair the daily questionnaires and ensure anonymity. IRB approval was obtained from the Department of Psychology of Università Cattolica del Sacro Cuore of Milan (protocol number: 32–20).

The sample included 328 Italian participants aged 18–37 years ($M = 25.47$; SD = 4.06). Participants included 69.2% females (30.5% males, only one participant did not identify in the female or male category), 43.3% students (50.3% worker/trainee, 6.4% unoccupied), 34.1% singles (65.9% in a romantic relationship), 65.5% cohabitating with parents (34.5% living outside the parents' home). Each participant answered a three-minute questionnaire sent on their mobile phones each evening (message sent at 7 p.m.) for 14 consecutive days. On average, participants completed 12.6 of the 14 daily questionnaires (range = 1–14; SD = 2.9). Most participants (86.3%, $N = 283$) completed from 11 to 14 daily questionnaires, 6.1% ($N = 20$) from 8 to 10, 3.6% ($N = 12$) from 4 to 7, and 4.0% ($N = 13$)

completed less than 3 daily questionnaires. Multiple entries completed on the same day and entries completed after 12:00 p.m. were dropped from final analyses. Additionally, as the DSEM models that we planned to use can provide reliable estimates for individual time series with at least 80% of valid entries, we retained only participants who completed at least 3 daily questionnaires out of 14 (78.6% of missingness at the respondent level), for a total of 318 cases and 4,295 observations.

A real-time non-monetary reward procedure

No economic reward was provided for participation to encourage compliance. Instead, we developed a real-time non-monetary reward that participants received after completing each of the 14 daily questionnaires. Specifically, after submitting each diary, participants were presented with a digital card describing an initiative developed by an emerging adult or a group of emerging adults, from the same developmental stage as the study participants, to support their local communities during the COVID-19 pandemic (e.g., projects promoting local businesses or innovative solutions to everyday challenges). The research team selected the initiatives, interviewed the young innovators, and created both the digital cards and short videos presenting each initiative. Each card also included an invitation to watch the corresponding video through the study's website or Instagram page, although viewing the videos was entirely optional. The initiatives were selected because they represented examples of youth-led civic engagement and social innovation during the pandemic and were not related to the study aims or to the psychological constructs under investigation. It is possible that the use of this type of non-monetary reward, together with the unique context of the COVID-19 lockdown which reduced emerging adults' academic and work-related commitments, facilitated the high level of compliance observed in the study.

Measures

Among the measures administered in the daily questionnaires, we considered the situational perception of meaning in life and few questions related to impactful events occurred in the previous 24 hours.

Situational meaning in life

The SMILE (Situational Meaning in Life Evaluation; Zambelli & Tagliabue, 2024) was administered daily. This measure is made of six items assessing the presence and the search for *comprehension* (i.e., Today, I think I comprehend the meaning of my life during the pandemic), *purpose* (i.e., Today, I think I have goals for my life that push me to move forward during the pandemic), and *mattering/significance* (i.e., Today, I feel that my life has value during the pandemic). Participants were given the following instructions "Looking back on what has happened, and what you have been thinking and doing in the past 24 hours, we ask you to evaluate how much do you agree with the following statements." The items were rated on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Descriptive statistics are available in the Supplemental Materials. The six items of the SMILE can be used singularly, or they can be aggregated into a presence of meaning and a search for meaning score (Zambelli & Tagliabue, 2024). The bi-dimensional structure of the SMILE was tested with *cross-classified confirmatory factor analysis* (CCFA; McNeish

Table 1. Composite reliability of daily presence and search for meaning indicators.

	Mean	Within-level		Between-level	
Daily measure		Variance	Composite Reliability	Variance	Composite Reliability
Presence of meaning	3.92	.79	.73	2.0	.96
Search for meaning	2.87	.90	.74	1.58	.98

Note: Results obtained from a two-level unconditional model with days nested within person.

et al., 2021) to verify that the items relate to the construct in the same way over all measurement occasions (i.e., longitudinal invariance), and that the items are interpreted similarly across individuals (i.e., between-person invariance). A full measurement invariance across time and a partial measurement invariance across people was confirmed. Results are reported in Supplemental Materials. Following Geldhof et al. (2014), the composite reliability of the SMILE was estimated considering the two-level structure of data, resulting in an adequate internal consistency at both within and between levels (Table 1).

Daily positive and negative events

Participants answered the following question: "Did any positive or negative event relevant to you or to your life happened in the previous 24 hours?" Participants could report up to three events and, for each of them, they evaluated how much it impacted their life, giving a score from one to five. Each event was then categorized as positive (e.g., "I video called my friends," "they announced the end of lock-down") or negative (e.g., "I had a fight with my father," "I am positive to COVID-19"). For the purposes of the present study, we focused on the most impactful event reported by each participant on each day, defined as the event with the highest subjective impact rating and a clearly identifiable positive or negative valence. This choice was made to capture the most salient daily experience while ensuring a consistent and parsimonious operationalization across measurement occasions. Three dummy variables were created, encoding the occurrence (1) or the nonoccurrence (0) of an impactful general event, a positive event, or a negative event in the previous 24 hours for each of the 14 measurement occasions.

Data analysis

Dynamic structural equation modelling

To address our research questions, we used Dynamic Structural Equation Modeling (DSEM; Asparouhov et al., 2018; Hamaker & Asparouhov, 2021). DSEM integrates three statistical frameworks: time-series analysis, multilevel modeling, and structural equation modeling. This integration makes DSEM particularly suitable for examining within-person dynamics, such as autoregressive and cross-lagged effects, when a small number of indicators are measured intensively over time, while also allowing to examine between-person variability of temporal dynamics when data are available from enough individuals.

DSEM modeling is implemented in Mplus with Bayesian estimation, relying on Markov Chain Monte Carlo (MCMC) algorithms. This procedure yields for each parameter an estimate of the posterior distribution (commonly summarized by its median), a standard deviation, and a 95% credibility interval (CI). Convergence of the estimation

can be assessed through the Potential Scale Reduction (PSR; Gelman et al., 1995) and by inspecting the trace plots of the MCMC chains for the parameters with the highest PSR values. When using DSEM to estimate multilevel VAR (mlVAR) models, three central assumptions apply (Asparouhov et al., 2018; McNeish & Hamaker, 2020). First, measurement occasions should be equally spaced within each person (e.g., data collected at fixed 24-hour intervals for each individual). Missing data within individual time-series can be accommodated by the Kalman filter. Second, the observed indicators are assumed to follow a multivariate normal distribution, although Bayesian estimation is generally robust to moderate departures from this assumption. Third, the process is assumed to be stationary, meaning that the moments of dependent variables are assumed to be constant over time. Because non-stationarity can bias the estimation of temporal dynamics in mlVAR models, it is important to inspect each indicator for temporal trends (e.g., linear trends in the mean) and, if present, either modeled explicitly or removed during preprocessing (e.g., Borsboom et al., 2021).

Estimation of a bivariate multilevel vector autoregressive model (mlVAR)

In the present study we applied a bivariate multilevel vector autoregressive model with a lag of one (mlVAR (1)) to investigate the within-person relationship between presence and search for meaning in life collected daily and simultaneously examine the between-person variability in such dynamics. The model is represented in Figure 2. Model's equations are reported Supplemental Materials. The model is based on the variance decomposition of observed

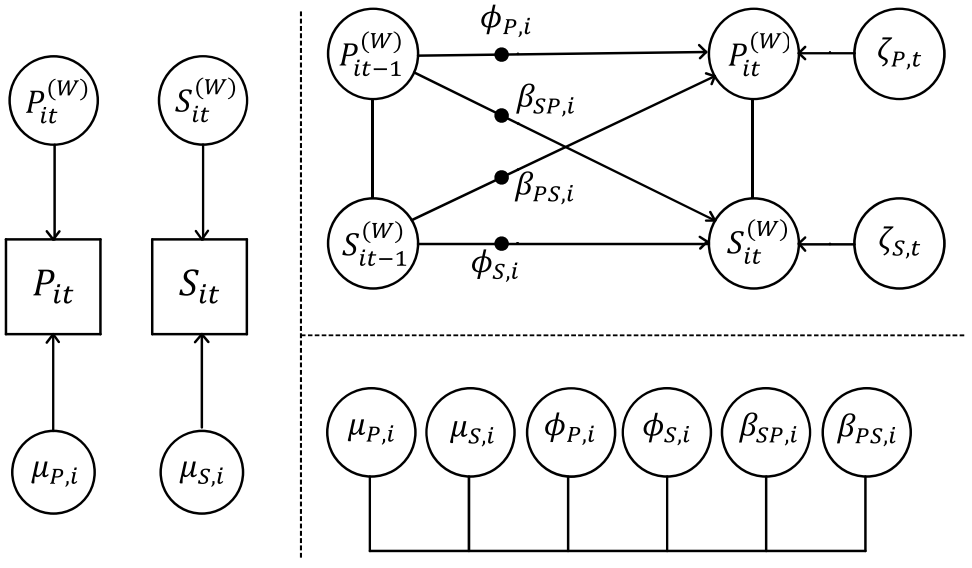


Figure 2. Representation of the bivariate mlVAR(1) model with presence (P) and search (S) for meaning as indicators. Note. The left part represents the variance decomposition of observed indicators into a within- and a between-person component. Top right contains the VAR(1) model at the within-level. Bottom-right contains the between-level model. The squares represent observed indicators, the circles represent latent variables. Solid black circles represent dynamic factors estimated as random effects at the between level. Lines represent correlations and arrows represent regressions.

indicators into a *between-person variance*, which represents the stable, trait-like variation between persons, and a *within-person variance*, encoding the day-to-day temporal deviations from the mean. As displayed in Figure 2, the two observed indicators of presence (P_{it}) and search for meaning (S_{it}) are first decomposed into a within-person mean ($\mu_{P,i}$ and $\mu_{S,i}$), and a temporal deviation from that mean ($P_{it}^{(W)}$ and $S_{it}^{(W)}$). At the *within-level*, the temporal deviations of presence and search for meaning at time t are regressed on themselves at the previous measurement occasion ($P_{it-1}^{(W)}$ and $S_{it-1}^{(W)}$) to obtain two *autoregressive effects*, representing the individual *stability* or *carry-over* of both presence ($\phi_{P,i}$) and search ($\phi_{S,i}$) for meaning over time. The temporal deviations are also regressed on each other at *t-1* to obtain two *cross-lagged effects*, reflecting the *predictive relationship* or *spill-over* of presence on search for meaning ($\beta_{SP,i}$), and vice-versa ($\beta_{PS,i}$). The covariation between the fixed effects of the within-person means ($\mu_{P,i}$ and $\mu_{S,i}$) can be interpreted as an indication of the *concurrent association* between presence and search for meaning. The residual variances ($\zeta_{P,t}$ and $\zeta_{S,t}$) for both indicators, also called *innovations* or *dynamic errors*, follow a multivariate normal distribution.

Inclusion of exogenous covariates as within-level and between-level predictors

To test the predictive effect of the occurrence of daily events on meaning-making dynamics, we extended the mlVAR(1) model to include an event-related predictor (E_{it}) as an exogenous covariate (Figure 3). The model is represented in Figure 3 and the model's equations in the Supplemental Materials. Following the same variance decomposition process of the meaning indicators, the event-related observed indicator is

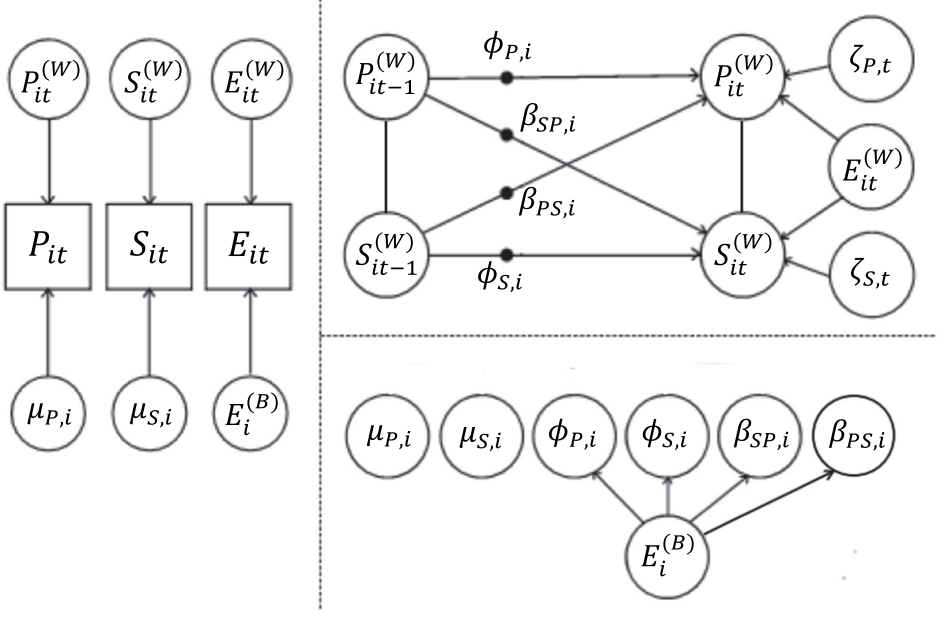


Figure 3. Representation of the mlVAR(1) model with daily events as an exogenous covariate. Note. The left part represents the variance decomposition into within and between part. Top right contains the VAR(1) model with the within-level predictor. At the between-level (bottom right) the regression path of the between-level predictor on dynamic effects are represented. Squares represent observed indicators and circles latent variables. Solid black circles represent dynamic factors estimated as random effects at the between level. Lines represent correlations and arrows regressions.

decomposed into a within-time (or time-varying) component ($E_{it}^{(W)}$), representing the variability across-days of the number of events experienced by participants, and a time-invariant component ($E_{i}^{(B)}$), encoding the variability across-people of the number of events experienced across the 14 days. The time-varying component allows to distinguish days in which many events occurred, from days in which few events occurred, and is included as a within-level predictor of daily presence and search for meaning. The time-invariant component allows to differentiate between those who experienced many daily events across the 14 days, from individuals who experienced few events, and is included as a between-level predictor of, respectively, the two autoregressive parameters of presence and search for meaning, and the presence to search cross-lagged parameter.[1]

Results

Verification of VAR models' assumptions

Equal space between measurements was guaranteed by the research design in which assessments were taken every 24 hours. Missing data at the individual level were handled via the Kalman filter, which yields a reliable estimation of dynamic parameters even if most occasions (80–85% of the total entries) are missing for each individual (Asparouhov et al., 2018). To examine the stationarity of the process, we checked for any linear trends over time by fitting a series of fixed-effects linear regressions (with alpha set to .05) with the day number as predictor of each of the six variables of the SMILE. Linear trends were found in the presence of meaning items showing a positive linear trend across the 14 days, while the search for meaning items overall showed an inverse trend (see Figure S1 in Supplemental Materials). Therefore, each variable has been detrended following the procedure presented in Borsboom et al. (2021). Detrended indicators were averaged to create the presence and search for meaning indicators.

The SMILE's six items were normally distributed across all measurement occasions, with no values of kurtosis or skewness exceeding $\left|\,1.2\,\right|$ (Muthén & Kaplan, 1985) (see Table S1 in Supplemental Materials). Multicollinearity was checked by investigating the bivariate correlation (Pearson's *r*) between the six SMILE items which ranged between .47 and .58 across days.

Investigating the daily dynamics of presence and search for meaning in life

After verifying the assumptions of the VAR models, we estimated the bivariate mlVAR(1) model,[2] including the average indicators of presence and search for meaning collected across 14 repeated days. The model converged properly as indicated by a final PCR close to 1 and from the examination of trace plots which showed stable mixing. The parameter estimates (median of the posterior distribution) for fixed and random effects together with their 95% credible intervals are reported in Table 2. Standardized results and the covariance matrix of the random parameters are available in the Supplemental Materials.

At the within level, the examination of autoregressive effects revealed that both presence of meaning ($\phi_{P,i}$ =.35; CI[.28, .41]) and search for meaning ($\phi_{S,i}$ =.33; CI[.26, .39])[3] presented moderate stability over time. A positive and consistent association between within-person means of daily presence and search for meaning (Cov ($\mu_{P,i}$, $\mu_{S,i}$)=.37; CI[.34,

Table 2. Estimates of dynamic effects and their 95% credible intervals for the bivariate multilevel VAR (1) model with presence and search for meaning as indicators.

	Notation	Fixed effects (means)			Random effects (variances)	
Dynamic Effect		Est.	95% CI	Sig.	Est.	95% CI[2]
Autoregressive P	$\phi_{P,i}$	.35	[.28, .41]	*	.12	[.09, .16]
Autoregressive S	$\phi_{S,i}$	.33	[.26, .39]	*	.09	[.06, .13]
Cross-lagged S on P	$\beta_{SP,i}$	.01	[−.04, .07]		.05	[.02, .09]
Cross-lagged P on S	$\beta_{PS,i}$	.08	[.02, .14]	*	.08	[.05, .12]
Residual P	$\zeta_{P,t}$	.70	[.67, .74]	*	–	–
Residual S	$\zeta_{S,t}$	.82	[.78, .86]	*	–	–
Covariance P with S	Cov ($\mu_{P,i}$, $\mu_{S,i}$)	.37	[.34, .40]	*	–	–
DIC(30)=22001.61						

Note: p = presence of meaning; S = search for meaning; DIC(fp)=Deviance Information Criterion (free parameters). *Sig. = significant parameters. [2] The 95% CI of random effects cannot include zero as specified by priors.

.40]) was found. The predictive relations between meaning indicators over time emerged from cross-lagged parameters. Specifically, the CI of the $\beta_{SP,i}$ parameter included zero (CI [−.04, .07]), thus indicating the absence of an effect of presence of meaning on search for meaning over time. Conversely, the cross-lagged fixed effect of search for meaning on presence of meaning was positive ($\beta_{PS,i} = .08; \mathrm{CI}[.02, .14]$) meaning that, on average across all individuals, an increase in search for meaning on a given day was related to an increase in presence of meaning the day after, as sustained by the *search-to-presence* model.

At the *between-level*, six random effects were estimated: two autoregressive parameters ($\phi_{P,i}$ and $\phi_{S,i}$), two cross-lagged effects ($\beta_{SP,i}$ and $\beta_{PS,i}$), and two within-person means ($\mu_{P,i}$ and $\mu_{S,i}$), while the residual variances were fixed across individuals. Considering that lagged parameters can range from −1 to 1 (McNeish & Hamaker, 2020), even a relatively small variance can represent quite important individual differences in the parameter, depending on the corresponding fix effect. Based on the normality assumption of latent variables, we can apply the formula $\gamma \pm 1.96\sqrt{\upsilon}$, where γ is the parameter fixed effect and υ the corresponding random effect, to calculate the min-max values of the person-specific effect showed by the 95% of people in the sample. For example, applying the formula to $\beta_{PS,i}$ parameter, which represents the *search-to-presence* dynamic, that has a fixed effect of .08 and a random effect of .08, it results that 95% of participants in our sample showed a person-specific value between −.47 and .63. Thus, indicating that this dynamic was not activated by all emerging adults in our sample, as for some of them this parameter was null or even negative. For the $\phi_{P,i}$ parameter, the 95% of person-specific effects ranged from −.34 to 1.02; and for the $\phi_{S,i}$ parameter the range was −.26 to .92. For the cross-lagged parameter of *presence-to-search* ($\beta_{SP,i}$), the person-specific parameter varied between −.41 and .43. The existence of consistent individual variability in the dynamic effects of meaning-making led us to investigate the role of external sources in explaining this between-person variance.

Examining the impact of daily events on meaning-making dynamics

An extended version of the mlVAR(1) model[4] was implemented to include as exogenous predictor of both within-person and between-person parameters, the occurrence of a general daily event (Model A), the occurrence of a positive event (Model B), or

Table 3. Estimates and 95% credible intervals for regression parameters in Models A, B, and C.

		Model A: general event			Model B: positive event			Model C: negative event		
Parameter	Notation	Est.	95% CI	Sig.	Est.	95% CI	Sig.	Est.	95% CI	Sig.
Within-level										
$E_{it}^{(W)}$ on $\mu_{P,i}$	$\beta_{PE,i}$	.27	[.18, .36]	*	.56	[.46, .65]	*	−.49	[−.65, −.34]	*
$E_{it}^{(W)}$ on $\mu_{S,i}$	$\beta_{SE,i}$	.28	[.19, .38]	*	.44	[.33, .54]	*	−.18	[−.36, −.01]	*
Between-level										
$E_{i}^{(B)}$ on $\phi_{P,i}$	γ_{E1}	−.74	[−1.26, −.23]	*	−.93	[−1.69, −.21]	*	−2.28	[−4.08, −.49]	*
$E_{i}^{(B)}$ on $\phi_{S,i}$	γ_{E2}	−.04	[−.55, .51]		−.64	[−1.38, .13]		1.80	[.18, 3.45]	*
$E_{i}^{(B)}$ on $\beta_{PS,i}$	γ_{E3}	−.14	[−1.18, −.28]		−.61	[−1.21, .01]		1.68	[.03, 3.51]	*
$E_{i}^{(B)}$ on $\beta_{SP,i}$	γ_{E4}	−.73	[−1.18, −.28]	*	−.94	[−1.59, −.31]	*	−1.37	[−2.89, .60]	
	DIC(26)=26639.56				DIC(26)=25425.99			DIC(26)=21476.85		

Note: DIC (fp)=Deviance Information Criterion (free parameters). *Sig. = significant parameters.

a negative event (Model C). The model converged properly as confirmed by PRC values. The parameter estimates are reported in Table 3 and the standardized results in the Supplemental Materials. Across the models, within person parameters showed narrow CIs, indicating robust estimates, while between-person regression parameters showed wide CIs. Thus, the latter parameters should be taken with caution as they might be inflated by the reduced person-level variability.

In Model A the covariate was the occurrence of an impactful event in the previous 24 hours. At the within level, the occurrence of a daily event ($E_{it}^{(W)}$) was a significant predictor of both presence ($\beta_{PE,i} = .27$; CI[.18, .36]) and search for meaning ($\beta_{SE,i} = .28$; CI [.19, .38]), indicating that, on average in our sample, the daily perception of both presence and search for meaning was higher when an impactful event occurred in the previous 24 hours. At the between-level, having experienced many events across the 24 days was associated with lower stability of presence of meaning (γ_{E1} =-.74; CI[−1.26, −.23]), and lower activation of the *presence-to-search* effect ($\gamma_{E4} = -.73$; CI[−1.18, −.28]).

Model B examined the role of daily positive events. Both within-level regression parameters were significant and positive, indicating that experiencing a positive event in the previous 24 hours made emerging and young adults perceiving higher presence ($\beta_{PE,i} = .56$; CI[.46, .65]) and higher search for meaning in life ($\beta_{SE,i} = .44$; CI[.33, .54]). As for the model with general events, people who experienced many events across the study showed lower stability in presence of meaning and a lower engagement in the *search-to-presence* dynamic ($\gamma_{E1} = -.93$; CI[−1.69, −.21]; $\gamma_{E4} = -.94$; CI[−1.59, −.31]).

Finally, Model C focused on the impact of daily negative events. At the within level, a negative effect was found on both daily presence of meaning ($\beta_{PE,i} = -.49$; CI[−.65, −.34]) and search for meaning ($\beta_{SE,i} = -.18$; CI[−.36, −.01]), suggesting that the occurrence of a negative event in the previous 24 hours was associated with a diminished perception of presence of meaning in life and also search for meaning in life. At the between-person level, the experience of many negative events was associated with lower stability of presence of meaning ($\gamma_{E1} = -2.28$; CI[−4.08, −.49]), increased stability in search for meaning ($\gamma_{E2} = 1.80$; CI[.18, 3.45]), and increased *search-to-presence* effect ($\gamma_{E3} = 1.68$; CI [.03, 3.51]).

Exploring meaning-making dynamics across the comprehension, purpose, and mattering/significance domains

To better understand whether the daily dynamics between presence and search for meaning were similar across the three content domains, we extended the bivariate mlVAR (1) model presented in Figure 2 by including as outcome variables, the single items of presence and search for *comprehension* (Model_C), *purpose* (Model_P) and *mattering/significance* (Model_M). Estimates of dynamic effects are reported in Table 4 and the standardized results in the Supplemental Materials.

Consistently with the general model, a positive within-level covariance between presence and search for meaning was found across the dimensions, meaning that the two components fluctuated together over time. Daily presence of meaning was slightly more stable than search for meaning in the *comprehension* and the *mattering/significance* domain, while the two daily components showed a similar fluctuation pattern for the *purpose* dimension. As for the cross-lagged parameters, the *search-to-presence* dynamic identified in the general model was also found for *comprehension* and *mattering/significance*, but not in the *purpose* domain. A positive *presence-to-search* effect appeared within the *comprehension* domain, indicating that when individuals were able to get a better understanding of what was happening in their daily life, they were pushed toward a deeper search for meanings the following day.

The model including daily events as predictors of the meaning-making dynamics was also tested separately on the three dimensions. Detailed results are reported in Table S4 in the Supplemental Materials. Overall, the within-person effects identified in

Table 4. Estimates of dynamic effects and their 95% credible intervals for the bivariate multilevel VAR (1) model across comprehension, purpose, and mattering/significance.

			Fixed effects (means)			Random effects (variances)	
	Notation	Model					
Dynamic Effect			Est.	CI	Sig.	Est.	CI[2]
Autoregressive P	$\phi_{P,i}$	Model C	.38	[.31, .44]	*	.13	[.10, .18]
		Model P	.21	[.16, .28]	*	.07	[.03, .11]
		Model M	.27	[.21, .33]	*	.11	[.08, .15]
Autoregressive S	$\phi_{S,i}$	Model C	.27	[.20, .33]	*	.10	[.06, .15]
		Model P	.23	[.17, .29]	*	.07	[.04, .10]
		Model M	.25	[.19, .31]	*	.08	[.05, .12]
Cross-lagged P on S	$\beta_{PS,i}$	Model C	.12	[.05, .21]	*	.08	[.04, .15]
		Model P	.05	[.00.09]		.04	[.02, .06]
		Model M	.06	[.01, .11]	*	.06	[.04, .10]
Cross-lagged S on P	$\beta_{SP,i}$	Model C	.07	[.02, .12]	*	.06	[.03, .14]
		Model P	.03	[−.03, .09]		.05	[.03, .09]
		Model M	.00	[−.05, .05]		.04	[.02, .07]
Residual P	$\zeta_{P,t}$	Model C	1.11	[1.05, 1.18]	*	–	–
		Model P	1.14	[1.08, 1.20]	*	–	–
		Model M	1.10	[1.05, 1.16]	*	–	–
Residual S	$\zeta_{S,t}$	Model C	1.04	[.99, 1.10]	*	–	–
		Model P	1.49	[1.41, 1.56]	*	–	–
		Model M	1.29	[1.23, 1.36]	*	–	–
Covariance P with S	Cov ($\mu_{P,i}$, $\mu_{S,i}$)	Model C	.39	[.35, .44]	*	–	–
		Model P	.47	[.42, .52]	*	–	–
		Model M	.35	[.31, .40]	*	–	–

Model C [DIC(29) = 25507.76]; Model P [DIC(30) = 27222.12]; Model M [DIC(30) = 26730.97].

Note: P = presence of meaning; S = search for meaning; DIC(fp)=Deviance Information Criterion (free parameters). Model C = Comprehension; Model P = Purpose; Model M = Mattering/Significance. *Sig. = significant parameters. [1] The CI of random effects cannot include zero as specified by priors.

the general model were consistent across all three dimensions, with the peculiarity of the negative effect of the occurrence of a negative event on search for meaning being identified only within the *purpose* dimension. At the between-person level, none of the effects were significant for the purpose dimension. Within the *mattering/significance* domain, individuals who experienced many events in general (especially positive) showed reduced stability of presence of meaning. Within the *comprehension* dimension, individuals who experienced more events (especially positive) presented a reduced activation of the *presence-to-search* dynamic, whereas those who lived many negative events were also characterized by fewer fluctuations in search for meaning.

Discussion

In this study, we zoomed into the dynamics of meaning-making process to investigate how the presence and search for meaning in life mutually co-occur and influence each other in a daily framework. We also investigated the role of impactful daily events, both positive and negative, as exogenous factors able to activate or de-active the meaning-making process dynamics. We also examined the presence – search dynamics across *comprehension*, *purpose,* and *mattering/significance*, to get an understanding of the functioning of the meaning-making process across its three basic content dimensions.

Summary of findings

Daily fluctuations in presence and search for meaning

As expected, presence of meaning showed a consistent trait-like component that was stable over time, while search for meaning fluctuated more across days. These paths were confirmed across the three meaning domains, especially within *comprehension*. This pattern is theoretically coherent with the *Meaning Maintenance Model*, which posits that individuals are fundamentally motivated to preserve a coherent and stable system of meaning that enables them to make sense of themselves and the world, engaging in compensatory meaning-making when this system is threatened (Heine et al., 2006). It is also consistent with the idea that situational meaning processes are embedded within a more stable global system of meanings related to self, others, and the world (Janoff-Bulman, 1989). Whereas the portion of stability in search for meaning may reflect a more context-sensitive and developmentally activated process, particularly in emerging and young adulthood (Mayseless & Keren, 2014; Negru-Subtirica et al., 2016; Zambelli & Tagliabue, 2023; Zambelli et al., 2024). This means that, during emerging and young adulthood, individuals may maintain a relatively stable sense of meaning while simultaneously adjusting their search for meaning in response to everyday experiences, developmental tasks, and contextual demands.

From the other side, the daily fluctuations (i.e., instability/innovations), in both presence and, especially, in the search for meaning, may reflect situational activation of meaning-making processes among Italian emerging and young adults in response to everyday challenges and contextual demands associated with the COVID-19 pandemic, which functioned as an amplifying context for meaning-related processes.

Evidence that presence and search represent dynamically interconnected processes, especially among emerging and young adults, emerged from their positive within-person association: on days when they were more engaged in searching for meaning, they simultaneously reported a stronger presence of meaning. This pattern, consistent with previous diary studies (Morse et al., 2021; Newman et al., 2018; Steger & Kashdan, 2013), was observed also across the three domains of *comprehension*, *purpose,* and *mattering/ significance*.

Reciprocal within-person dynamics between presence and search for meaning

The temporal analysis revealed a positive predictive effect of search for meaning on subsequent presence of meaning, while the effect of presence of meaning on search for meaning was not significant in the global model. This pattern of dynamics, previously identified in a sample of US undergraduates (Newman et al., 2018), supports the *search-to-presence* model theorized by Frankl's works back in the 1960s and sustained by Park's (2010) meaning-making framework in the context of traumatic events.

Importantly, however, this pattern of effects was not uniform across the three meaning dimensions. Indeed, at the component level, the *search-to presence* effect emerged more clearly for *comprehension* and, to a lesser extent, *mattering/significance*, while it was not significant for the *purpose* dimension. Interestingly, for the *comprehension* dimension we also found evidence of a significant *presence-to-search* effect (as also observed by Morse et al., 2021; Newman et al., 2018), such that an increase in presence of comprehension on a given day was associated with an increase in search for comprehension the next day. These findings suggest that the meaning-making dynamics are not general mechanisms but may instead depend on the specific psychological processes underlying each meaning component.

In particular, the bidirectional influence between presence and search for meaning observed for the *comprehension* dimension represents an empowering dynamic in which gaining a clearer understanding of one's experiences does not terminate meaning-making but instead may stimulate further efforts to make sense of them. This pattern is more consistent with an iterative sense-making process than with a homeostatic model in which search declines once meaning is achieved, suggesting that *comprehension* may function as a continuously updated cognitive integration system rather than a stable endpoint. Searching for comprehension may primarily involve cognitive sense-making processes (Park, 2010), whereby attempts to interpret daily experiences progressively generate more coherent representations of events. This increased comprehension may, in turn, provide a cognitive structured framework that facilitates deeper reflection and further meaning exploration.

The stronger within-person dynamics observed for *comprehension* compared to the other dimensions may reflect both theoretical and methodological factors. On the one hand, this pattern may indicate that the cognitive dimension of making sense of life events and organizing them coherently is particularly active in the immediacy of daily life, especially under critical conditions of uncertainty such as the COVID-19 pandemic (Heine et al., 2006; Park, 2010). On the other hand, evening assessment may have been particularly well suited to capture this dynamic as individuals are more likely at the end of the day to engage in reflective integration of daily experiences into broader meaning structures.

By contrast, the absence of significant temporal effects for *purpose* suggests that goal-related meaning is less responsive to short-term exploratory fluctuations. Purpose development requires sustained autonomy, perceived competence, and commitment formation (Ryan & Deci, 2017), which typically unfold over longer developmental time scales. Accordingly, search processes alone may not be sufficient to produce immediate increases in purpose. The pandemic may have further constrained these motivational processes by limiting opportunities to translate exploration into meaningful goal-directed action. As shown by several studies (e.g., Lanz et al., 2021; Zambelli et al., 2022), the COVID-19 pandemic strongly impacted emerging and young adults, limiting their opportunities to pursue developmental goals and challenging their future-oriented perspectives.

Similarly, the weaker and less consistent *search-to-presence* dynamic observed for *mattering/significance*, together with the non-significant reciprocal effect, may suggest that this component of meaning, which is rooted primarily in individuals' broader value systems, unfolds at a slower pace than daily fluctuations would capture. In addition, because mattering is closely related to relational meaning, its development is likely not only shaped by individual search processes but also dependent on interpersonal feedback and perceived social recognition (Flett, 2018). As such, searching for *mattering/significance* may not immediately translate into increased meaning unless accompanied by external validation or meaningful social interactions.

Taken together, these findings suggest that the *search-to-presence* dynamic identified in the global model is component-specific rather than universal. Although these results are exploratory in nature and therefore require cautious interpretation pending replication in other contexts and populations, they nonetheless suggest that *comprehension* appears to rely primarily on iterative cognitive sense-making processes, whereas *purpose* and *mattering/significance* may depend more strongly on motivational and interpersonal resources that require broader developmental and contextual conditions before search can be translated into a stronger experience of meaning.

The impact of daily events on meaning-making dynamics

Experiencing impactful events during a 24-hour window had an impact on individuals' perception of daily presence and search for meaning in life the day after, demonstrating that meaning-making is a process grounded in everyday life and sensitive to situational factors. In line with the literature (Machell et al., 2015; Steger et al., 2008), the occurrence of positive events suddenly determined an increase in the perceptions of life meaningfulness. In addition to the literature, we observed that positive events were also predictors of daily search for meaning. These paths were consistent across all three domains of *comprehension*, *purpose,* and *mattering/significance*. This finding extends previous daily diary research by suggesting that positive events do not merely enhance the experience of meaning but may also activate the motivational processes underlying meaning-making. Rather than satisfying meaning needs and reducing subsequent exploration, positive experiences may provide psychological resources that encourage individuals to further elaborate, integrate, and expand meaningful aspects of their lives. This interpretation is consistent with developmental perspectives proposing that, during emerging adulthood, experiencing meaning may stimulate continued identity

exploration rather than signal the completion of the meaning-making process (Arnett, 2014; McLean & Syed, 2015; Steger et al., 2008).

These findings are particularly noteworthy given the extraordinary contextual conditions under which the data were collected, namely during the peak of the COVID-19 pandemic. The fact that positive daily events predicted increases in both the presence and the search for meaning, even in a context characterized by prolonged uncertainty and severe restrictions, suggests that helping young people recognize and build upon the positive aspects of their everyday experiences may represent an important avenue for fostering meaning-making. From an applied perspective, future meaning-based interventions may therefore benefit from promoting the identification, appreciation, and reflective integration of positive daily experiences as a way to support the ongoing construction of meaning in life.

Conversely, the occurrence of negative events in the previous 24 hours was linked to a decrease in the perception of meaning in life at the end of the day – a path that emerged across the three domains. These results are in line with Machell's et al. (2015) daily diary study, finding negative events to predict a loss in life meaningfulness. However, they apparently depart from previous theoretical and empirical cross-sectional studies that point to negative events as sources of meaning in life (e.g., Vohs et al., 2019). One plausible interpretation for this discrepancy could be that the meaning-making functioning in relation to the occurrence of negative events works differently within-individuals and between-individuals (Molenaar, 2004). Rather than contradicting previous studies suggesting that adversity can foster meaning, our findings may capture an earlier phase of the meaning-making process. More specifically, fitting perfectly within Park (2010, 2012) theory of meaning-making and the Meaning Maintenance Model (Heine et al., 2006), disruptive events initially threaten the individual global system of meanings, producing an immediate decline in perceived meaning and feeling of distress that pushes individuals to activate meaning-making strategies (e.g., reframing the meaning of the event), with the aim of restoring a positive sense of meaning in life. Only over time, if individuals successfully engage in meaning-making efforts, may these experiences be reconstructed and integrated into broader systems of meaning.

Although meaning threats are often assumed to activate compensatory meaning search (Heine et al., 2006), our findings suggest that this mechanism may depend on the motivational resources available to individuals. Indeed, our results revealed that negative events could also predict disengagement in daily search for meaning, especially within the *purpose* dimension. A possible explanation could be that, under prolonged uncontrollable stress, negative events may temporarily deplete rather than mobilize motivational resources, leading individuals to disengage from active meaning exploration. This might have been the case of young people involved in our study, who were forced to put many transitive goals (e.g., work, study, relationships) on hold. The restrictions imposed by lockdown, and the uncertainty related to the future (especially regarding social and personal perspectives), may have undermined young adults' motivation to reframe or identify new goals, especially when preexisting ones were disrupted by negative events, resulting in a diminished drive to search for meaning in life.

Although the between-level effects of daily events on within-person dynamics should be interpreted with caution due to the uncertainty of the estimates, some patterns nonetheless emerge as theoretically meaningful and warrant further investigation in

future studies. Specifically, the *presence-to-search* dynamic observed for the *comprehension* dimension appeared to be attenuated among individuals who experienced a higher frequency of events, especially positive ones. One possible interpretation, consistent with Park's (2010) meaning-making framework, is that when people encounter numerous positive events, they may perceive less need to engage in active cognitive elaboration to make sense of these experiences, as such events are readily integrated into their existing meaning structures. Thus, the attenuated *presence-to-search* dynamic for individuals who experienced a context rich in positive events may reflect a more effortless integration of experiences into the personal system of meanings. Furthermore, experiencing a greater number of impactful events, both positive and negative, over the 14-day period was associated with increased fluctuations in individuals' daily perceptions of the *presence of meaning*, particularly in the *mattering/significance* dimension. This finding reinforces the idea that the meaning-making process is inherently situational and dynamically shaped by people's daily experiences (Park, 2010; Heintzelman and King, 2014). Together, these findings reinforce the idea that daily events function not simply as antecedents of meaning but as situational triggers that influence both the cognitive and motivational mechanisms through which meaning is maintained, reconstructed, and regulated over time.

Limitations and future perspectives

This study possesses several limitations that should be addressed by future studies. First, we considered the meaning-making process as a stable process and focused on the daily fluctuations around stable means of presence and search for meaning. However, we observed some linear trends in the data indicating that the meaning-making could probably behave also as a developmental process and change its trait-level configuration across medium- to long-time frames. Future studies should investigate the interaction between meaning-making micro-dynamics (i.e., daily fluctuations) and macro-dynamics (i.e., change in the average levels), as it has already been done in other fields such as identity (Becht et al., 2021), for which it has been demonstrated that micro-dynamics occurring at the daily level could directly determine a long-term change in the overall identity configuration.

A second limitation concerns the operationalization of daily events. In the present study, events were primarily classified according to their positive or negative valence. Although this distinction allowed us to examine whether event valence differentially shaped meaning-making dynamics, it does not fully capture the complexity of everyday experiences. Future research could build on the present findings by adopting alternative operationalizations of daily events, such as cumulative indices of event intensity or more fine-grained classifications of event types (e.g., interpersonal vs. achievement-related events), to further examine how both the intensity and nature of daily experiences shape meaning-making dynamics.

Another limitation concerns the operationalization of the search for meaning dimension. Indeed, there is still a debate around the underlined mechanisms of search for meaning that, according to growing majority of experts, can be both adaptive and maladaptive. For instance, Schulenberg et al. (2014) described two types of searching: *will to meaning*, i.e., productive/adaptive search resulting in greater presence of meaning,

and *existential vacuum*, or futile search that does not end in an increase of meaning in life. The SMILE measure, as well as other very popular measures of meaning in life (e.g., the MLQ measure by Steger et al., 2006), conflate this two opposite facet of search for meaning. An effective strategy to distinguish the healthy search for meaning from the maladaptive one is to use person-centered approaches that allow for the distinction of groups of people who jointly manifest high levels of presence and search for meaning (i.e., adaptive search), from those who present high levels of search and low levels of presence (i.e., maladaptive search). To date, there are a handful of studies that have used clustering techniques with these aims on cross-sectional data (e.g., Dezutter et al., 2014; Krok, 2018; Zambelli & Tagliabue, 2023; Zambelli et al., 2024); however, a future perspective could be to use these approaches on longitudinal and intensive data to observe different patterns of adaptive and maladaptive meaning-making functioning within and between individuals.

Previous research suggests that positive and negative affect are closely linked to meaning in life and may influence both cognitive and motivational aspects of meaning construction. However, the present study was not designed to examine affective processes in detail. Future research would benefit from adopting event-contingent designs to clarify whether daily events influence meaning-making directly or indirectly through the activation of emotional or affective responses to daily events. More broadly, investigating how affect interacts with the different components of meaning represents a promising direction for future work.

Finally, in the present study, the focus was specifically on exploring the presence–search dynamics across the three dimensions of *comprehension*, *purpose*, and *mattering/significance*, which were examined in separate models to test the role of exogenous events as predictors of the between-person variability in temporal parameters while maintaining a sufficiently parsimonious model. Nevertheless, it would be important to investigate how the six components of the meaning-making process influence one another over time, using statistical approaches that emphasize the interconnections between pairs of components, such as network psychometrics (Borsboom et al., 2021; Zambelli et al., 2025).

Constraints on generality

The present study focused on a national non-representative sample living in a very specific contextual condition. Meaning-making is a complex psychological process that is likely experienced differently across the life span and different situations. Replication with different populations (e.g., adolescents, adults, older adults), cultures (e.g., western vs non-western), and contextual conditions (e.g., stressful vs traumatic vs normative conditions) should be examined to broaden the available knowledge on meaning-making daily dynamics. However, although further research is needed to determine the generalizability of results, this study provides important theoretical and practical contributions.

Indeed, the few previous studies on meaning-making have mainly collected data from homogeneous samples of undergraduate students living in conditions of general well-being and stability, typical of affluent Western societies. The present study, in contrast, represents the first ecological investigation of meaning-making dynamics among emerging and young adults, including both students and workers, under non-normative contextual conditions.

Conclusion

To conclude, the present study provides new evidence that meaning-making is a dynamic process that unfolds through reciprocal within-person interactions between the presence and the search for meaning and is continuously shaped by everyday life experiences. Consistent with Frankl's perspective and the developmental theories of meaning-making (e.g., Negru-Subtirica et al., 2016; Zambelli et al., 2024), our findings highlight the central role of the search for meaning as an important driving force of meaning-making among emerging and young adults, even under highly adverse conditions such as the COVID-19 pandemic.

At the same time, our findings suggest that these dynamics are not uniform across the three fundamental components of meaning in life. Rather, they appear to rely on partially distinct psychological mechanisms, with *comprehension* being characterized by stronger iterative sense-making dynamics, whereas *purpose* and *mattering/significance* may depend more heavily on broader motivational and interpersonal resources that unfold over longer time scales. Although these interpretations require replication, they provide initial support for conceptualizing meaning-making as a multidimensional and component-specific process.

More broadly, the present findings emphasize the importance of studying meaning-making as a dynamic daily process. They also suggest that methodological decisions regarding the timing and frequency of assessments should be guided by theory rather than convenience, as different components of the meaning-making process, despite belonging to the same overarching construct, may unfold over different temporal scales and therefore require different observation windows to adequately capture their dynamics.

Finally, our findings demonstrate that the construction of meaning is deeply embedded in everyday life. Positive and negative daily experiences influenced not only individuals' momentary sense of meaning but also the motivational processes through which meaning is actively constructed over time. Particularly noteworthy is the finding that positive daily events fostered both the presence and the search for meaning, even during one of the most challenging periods of recent history. This suggests that helping young people recognize, appreciate, and reflect upon the positive aspects of their everyday experiences may represent a promising avenue for meaning-based interventions aimed at promoting resilience, purpose, and psychological well-being. Overall, the findings of this study highlight how young people can engage in a functional process of meaning-making even in adverse circumstances, offering guidance for interventions aimed at promoting resilience, purpose and meaning in their daily lives.

Notes

1. The three event-related predictors were latent person-mean centered (Asparouhov et al., 2018) as implemented by default in Mplus for variables that are decomposed into both within and between levels.
2. Given the lack of prior knowledge on the temporal dynamics under investigation, the defaults noninformative priors in Mplus were used. The model was estimated using 40,000 iterations, two chains and a thinning of two.
3. The autoregressive coefficients can range −1 to 1 due to the stationarity assumption.

4. The model was estimated with 10,000 iterations, two chains and a thinning of two, and the estimation option ALGORITHM = GIBBS(RW) which must be included instead of the defaults in Mplus when the variance covariance matrix is not block-diagonal, in this case as a between level covariate is included as predictor of an outcome variable (see Asparouhov and Muthén (2022) for more details).

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

Financial support was received from Università Cattolica del Sacro Cuore, under grant [D1 2020 – The meaning-making process during the transition to adulthood in the face of the COVID-19 pandemic].

ORCID

Michela Zambelli http://orcid.org/0000-0002-0777-6245
Semira Tagliabue http://orcid.org/0000-0002-3331-4781
Emilio Ferrer http://orcid.org/0000-0001-7520-046X

Data availability statement

Data from participants who agreed to share their data on the open science platform are publicity available, together with analysis code and research materials at: https://osf.io/ez6u4/?view_only=8e5b4c4c2cb2402cb791cbd80ce208b1.

Compliance with ethical standards

Ethical approval was obtained from the Department of Psychology of Università Cattolica del Sacro Cuore of Milan (protocol number: 32–20). All studies have been conducted in accordance with APA ethical guidelines for human research.

References

Arnett, J. J. (2014). *Emerging adulthood: The winding road from the late teens through the twenties* (2nd ed.). Oxford University Press.

Asparouhov, T., Hamaker, E. L., & Muthén, B. (2018). Dynamic structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *25*(3), 359–388. https://doi.org/10.1080/10705511.2017.1406803

Asparouhov & Muthén. (2022, January 30). *Practical aspects of dynamic structural equation models*. http://www.statmodel.com/download/PDSEM.pdf

Baños, R. M., Desdentado, L., Vara, M. D., Escrivá-Martínez, T., Herrero, R., Miragall, M., & Tomás, J. M. (2022). How the COVID-19 pandemic and its consequences affect the presence of and search for meaning of life: A longitudinal study. *Journal of Happiness Studies*, *24*(1), 17. https://doi.org/10.1007/s10902-022-00592-5

Baumeister, R. F. (1991). *Meanings of life*. Guilford Press.

Becht, A. I., Nelemans, S. A., Branje, S. J. T., Vollebergh, W. A. M., & Meeus, W. H. J. (2021). Daily identity dynamics in adolescence shaping identity in emerging adulthood: An 11-year longitudinal study on continuity in development. *Journal of Youth & Adolescence*, *50*(8), 1616–1633. https://doi.org/10.1007/s10964-020-01370-3

Borsboom, D., Deserno, M. K., Rhemtulla, M., Epskamp, S., Fried, E. I., McNally, R. J., Robinaugh, D. J., Perugini, M., Dalege, J., Costantini, G., Isvoranu, A.-M., Wysocki, A. C., van Borkulo, C. D., van Bork, R., & Waldorp, L. J. (2021). Network analysis of multivariate data in psychological science. *Nature Reviews Methods Primers*, *1*(1), 58. https://doi.org/10.1038/s43586-021-00055-w

Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality & Social Psychology*, *70*(1), 141–156. https://doi.org/10.1037/0022-3514.70.1.141

Costin, V., & Vignoles, V. L. (2020). Meaning is about mattering: Evaluating coherence, purpose, and existential mattering as precursors of meaning in life judgments. *Journal of Personality & Social Psychology*, *118*(4), 864. https://doi.org/10.1037/pspp0000225

Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal of Personality & Social Psychology*, *75*(2), 561. https://doi.org/10.1037/0022-3514.75.2.561

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

de Moor, E. L. (2023). Meaning making about and across self-relevant experiences: Links with identity commitment and exploration processes and satisfaction with life in adolescence. *Journal of Research in Personality*, *107*, 104434. https://doi.org/10.1016/j.jrp.2023.104434

Dezutter, J., Waterman, A. S., Schwartz, S. J., Luyckx, K., Beyers, W., Meca, A., Kim, S. Y., Whitbourne, S. K., Zamboanga, B. L., Lee, R. M., Hardy, S. A., Forthun, L. F., Ritchie, R. A., Weisskirch, R. S., Brown, E. J., & Caraway, S. J. (2014). Meaning in life in emerging adulthood: A person-oriented approach. *Journal of Personality*, *82*(1), 57–68. https://doi.org/10.1111/jopy.12033

Elliott, G., Kao, S., & Grant, A. M. (2004). Mattering: Empirical validation of a social-psychological concept. *Self and Identity*, *3*(4), 339–354. https://doi.org/10.1080/13576500444000119

Ferrante, P. (2022). The first year of COVID-19 in Italy: Incidence, lethality, and health policies. *Journal of Public Health Research*, *11*(1). https://doi.org/10.4081/jphr.2021.2201

Flett, G. L. (2018). *The psychology of mattering: Understanding the human need to be significant*. Academic Press.

Frankl, V. E. (1963). *Man's search for meaning: An introduction to logotherapy*. Washington Square Press.

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods*, *19*(1), 72–91. https://doi.org/10.1037/a0032138

Gelman, A., Carlin, J. B., Stern, H. S., & Rubin, D. B. (1995). Bayesian data analysis. *Chapman and Hall/CRC*. https://doi.org/10.1201/9780429258411

Hamaker, E. L., & Asparouhov, T. (2021). Residual structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *30*(1), 1–31. https://doi.org/10.1080/10705511.2022.2074422

Hecht, M., & Zitzmann, S. (2021). Sample size recommendations for continuous-time models: Compensating shorter time series with larger numbers of persons and vice versa. *Structural Equation Modeling: A Multidisciplinary Journal*, *28*(2), 229–236. https://doi.org/10.1080/10705511.2020.1779069

Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, *10*(2), 88–110. https://doi.org/10.1207/s15327957pspr1002_1

Heintzelman, S. J., & King, L. A. (2019). Routines and meaning in life. *Personality and Social Psychology Bulletin*, *45*(5), 688–699. https://doi.org/10.1177/0146167218795133

Hill, P. L., Pfund, G. N., & Allemand, M. (2023). The paths to purpose: A new framework toward understanding purpose development. *Current Directions in Psychological Science*, *32*(2), 105–110. https://doi.org/10.1177/09637214221128019

Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, *7*(2), 113–136. https://doi.org/10.1521/soco.1989.7.2.113

Kiang, L. (2012). Deriving daily purpose through daily events and role fulfillment among Asian American youth. *Journal of Research on Adolescence*, *22*(1), 185–198. https://doi.org/10.1111/j.1532-7795.2011.00767.x

Krok, D. (2018). When is meaning in life most beneficial to young people? Styles of meaning in life and well-being among late adolescents. *Journal of Adult Development*, *25*(2), 96–106. https://doi.org/10.1007/s10804-017-9280-y

Lanz, M., Sorgente, A., Vosylis, R., Fonseca, G., Lep, Ž., Li, L., Zupančič, M., Crespo, C., Relvas, A. P., & Serido, J. (2021). A cross-national study of COVID-19 impact and future possibilities among emerging adults: The mediating role of intolerance of uncertainty. *Emerging Adulthood*, *9*(5), 550–565. https://doi.org/10.1177/21676968211046071

Li, J., Bin, J., Dou, K., & Liang, Y. (2021). The relationship between presence of meaning, search for meaning, and subjective well-being: A three-level meta-analysis based on the meaning in life questionnaire. *Journal of Happiness Studies*, *22*(1), 467–489. https://doi.org/10.1007/s10902-020-00230-y

Machell, K. A., Kashdan, T. B., Short, J. L., & Nezlek, J. B. (2015). Relationships between meaning in life, social and achievement events, and positive and negative affect in daily life. *Journal of Personality*, *83*(3), 287–298. https://doi.org/10.1111/JOPY.12103

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality & Social Psychology*, *3*(5), 551–558. https://doi.org/10.1037/h0023281

Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *Journal of Positive Psychology*, *11*(5), 531–545. https://doi.org/10.1080/17439760.2015.1137623

Mayseless, O., & Keren, E. (2014). Finding a meaningful life as a developmental task in emerging adulthood: The domains of love and work across cultures. *Emerging Adulthood*, *2*(1), 63–73. https://doi.org/10.1177/2167696813515446

McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology*, *5*(2), 100–122. https://doi.org/10.1037/1089-2680.5.2.100

McLean, K. C., Pasupathi, M., & Pals, J. L. (2007). Selves creating stories creating selves: A process model of self-development. *Personality and Social Psychology Review*, *11*(3), 262–278. https://doi.org/10.1177/1088868307301034

McLean, K. C., & Pratt, M. W. (2006). Life's little (and big) lessons: Identity statuses and meaning-making in the turning point narratives of emerging adults. *Developmental Psychology*, *42*(4), 714–722. https://doi.org/10.1037/0012-1649.42.4.714

McLean, K. C., & Syed, M. (2015). Personal, master, and alternative narratives: An integrative framework for understanding identity development in context. *Human Development*, *58*(6), 318–349. https://doi.org/10.1159/000445817

McNeish, D., & Hamaker, E. L. (2020). A primer on two-level dynamic structural equation models for intensive longitudinal data in Mplus. *Psychological Methods*, *25*(5), 610–635. https://doi.org/10.1037/met0000250

McNeish, D., Mackinnon, D. P., Marsch, L. A., & Poldrack, R. A. (2021). Measurement in intensive longitudinal data. *Structural Equation Modeling: A Multidisciplinary Journal*, *28*(5), 807–822. https://doi.org/10.1080/10705511.2021.1915788

Molenaar, P. C. (2004). A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement: Interdisciplinary Research & Perspective*, *2*(4), 201–218. https://doi.org/10.1207/s15366359mea0204_1

Morse, J. L., Prince, M. A., & Steger, M. F. (2021). The role of intolerance of uncertainty in the relationship between daily search for and presence of meaning in life. *International Journal of Wellbeing*, *11*(1), 34–49. https://doi.org/10.5502/ijw.v11i1.1079

Muthén, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal likert variables. *The British Journal of Mathematical and Statistical Psychology*, *38*(2), 171–189. https://doi.org/10.1111/j.2044-8317.1985.tb00832.x

Negru-Subtirica, O., Pop, E. I., Luyckx, K., Dezutter, J., & Steger, M. F. (2016). The meaningful identity: A longitudinal look at the interplay between identity and meaning in life in adolescence. *Developmental Psychology*, *52*(11), 1926–1936. https://doi.org/10.1037/dev0000176

Newman, D. B., Nezlek, J. B., & Thrash, T. M. (2018). The dynamics of searching for meaning and presence of meaning in daily life. *Journal of Personality*, *86*(3), 368–379. https://doi.org/10.1111/jopy.12321

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, *136*(2), 257–301. https://doi.org/10.1037/a0018301

Park, C. L., Riley, K. E., & Snyder, L. B. (2012). Meaning making coping, making sense, and post-traumatic growth following the 9/11 terrorist attacks. *Journal of Positive Psychology*, *7*(3), 198–207. https://doi.org/10.1080/17439760.2012.671347

Proulx, T., & Inzlicht, M. (2012). The five "A"s of meaning maintenance: Finding meaning in the theories of sense-making. *Psychological Inquiry*, *23*(4), 317–335. https://doi.org/10.1080/1047840X.2012.702372

Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., DiMarco, A., Rossi, A., Siracusano, A., & DiLorenzo, G. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *Frontiers in Psychiatry*, *11*, 550552. https://doi.org/10.3389/fpsyt.2020.00790

Samios, C., Praskova, A., & Radlinska, B. (2021). The relationship between COVID-19 pandemic-related stress and meaning in life: Testing the moderating effects of self-compassion and savoring. *Anxiety, Stress & Coping*, *35*(1), 9–24. https://doi.org/10.1080/10615806.2021.1974408

Schulenberg, S. E., Baczwaski, B. J., & Buchanan, E. M. (2014). Measuring search for meaning: A factor-analytic evaluation of the seeking of noetic goals test (SONG). *Journal of Happiness Studies*, *15*(3), 693–715. https://doi.org/10.1007/s10902-013-9446-7

Schultzberg, M., & Muthén, B. (2018). Number of subjects and time points needed for multilevel time-series analysis: A simulation study of dynamic structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *25*(4), 495–515. https://doi.org/10.1080/10705511.2017.1392862

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80–93. https://doi.org/10.1037/0022-0167.53.1.80

Steger, M. F., & Kashdan, T. B. (2013). The unbearable lightness of meaning: Well-being and unstable meaning in life. *Journal of Positive Psychology*, *8*(2), 103–115. https://doi.org/10.1080/17439760.2013.771208

Steger, M. F., Kashdan, T. B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, *42*(1), 22–42. https://doi.org/10.1016/j.jrp.2007.03.004

Steger, M. F., Oishi, S., & Kesebir, S. (2011). Is a life without meaning satisfying? The moderating role of the search for meaning in satisfaction with life judgments. *Journal of Positive Psychology*, *6*(3), 173–180. https://doi.org/10.1080/17439760.2011.569171

Stillman, T. F., Baumeister, R. F., Lambert, N. M., Crescioni, A. W., DeWall, C. N., & Fincham, F. D. (2009). Alone and without purpose: Life loses meaning following social exclusion. *Journal of Experimental Social Psychology*, *45*(4), 686–694. https://doi.org/10.1016/j.jesp.2009.03.007

Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2003). Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness. *Journal of Personality & Social Psychology*, *85*(3), 409. https://doi.org/10.1037/0022-3514.85.3.409

Van Tilburg, W. A. P., & Igou, E. R. (2012). On boredom: Lack of challenge and meaning as distinct causes. *Personality and Social Psychology Bulletin*, *38*(6), 675–685. https://doi.org/10.1007/s11031-011-9234-9

Vohs, K. D., Aaker, J. L., & Catapano, R. (2019). It's's not going to be that fun: Negative experiences can add meaning to life. *Current Opinion in Psychology*, *26*, 11–14. https://doi.org/10.1016/j.copsyc.2018.04.014

Ward, S., Womick, J., Titova, L., & King, L. (2023). Meaning in life and coping with everyday stressors. *Personality and Social Psychology Bulletin*, *49*(3), 460–476. https://doi.org/10.1177/01461672211068910

Zambelli, M., Andrade, C., Fernandes, J. L., & Tagliabue, S. (2022). The role of meaning in life during COVID-19 pandemic on young adults' future perspectives in Italy and Portugal. In A. C.-K. Chan, M. F. Steger, R. C.-F. Chui, N. Y.-F. Siu, S. C. P. Wong Ip, & B. Y.-H. Lam (Eds.), *Proceedings of the Meaning in Life International Conference 2022: Cultivating, promoting, and enhancing meaning in life across cultures and life span* (pp. 71–86). Atlantis Press. https://doi.org/10.2991/978-94-6463-096-1_6

Zambelli, M., Ellena, A., Tagliabue, S., Pozzi, M., & Marta, E. (2024). The role of resilience in fostering late adolescents' meaning-making process: A latent profile analysis. *Journal of Happiness Studies*, *25*(7), 1–23. https://doi.org/10.1007/s10902-024-00803-1

Zambelli, M., & Tagliabue, S. (2023). Meaning-making profiles during emerging adulthood: A person-oriented approach in the context of romantic and working conditions. *Emerging Adulthood*, *11*(1), 242–256. https://doi.org/10.1177/21676968221111314

Zambelli, M., & Tagliabue, S. (2024). The situational meaning in life evaluation (smile): Development and validation studies. *Journal of Happiness Studies*, *25*(1–2), 1–24. https://doi.org/10.1007/s10902-024-00730-1

Zambelli, M., Tse, D. C. K., Cowden, R. G., Holtge, J., Johnson, B. R., Padgett, R. N., & VanderWeele, T. J. (2025). The psychometric network of individual flourishing across nationally representative samples from 22 countries. *Scientific Reports*, *15*(1), 1. https://doi.org/10.1038/s41598-025-15016-6