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COMMENTARY

Rethinking the measurement of time horizons in the context of socioemotional selectivity theory

Commentary on "Testing a model of biopsychosocial successful aging based on socioemotional selectivity theory in the second half of life" by Soylu *et al.*

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Socioemotional selectivity theory (SST) offers a conceptual framework for understanding age differences in well-being, decision-making, social preferences, and related behaviors (Carstensen, 2006; 2021). This theory was initially developed to explain the reliable observations that older people tend to fare better socially and emotionally than younger adults despite having poorer physical health and smaller social networks, known as the "paradox of aging." SST maintains that because goals are set in temporal contexts and perceived time horizons shrink with age, goal priorities also change systematically and contribute to age differences in motivation. When time is limited, rather than investments in the future, attention turns to savoring the present.

The core postulate of SST is that expansive time horizons motivate people to explore and learn, investing in their social capital and future potential. In contrast, when time horizons are constrained, higher priority is placed on goals realized in the present than in the distant future. Under such conditions, people are more selective about how they invest their time, favoring people and activities that are emotionally meaningful. Research under this theoretical framework has shown that social networks are actively pruned as people grow older such that emotionally meaningful partners are retained while peripheral networks grow smaller (Lang, 2000). Rather than a paradox of aging, SST maintains that relatively high levels of emotional well-being at older ages stem from shifts in goal priorities, which contribute to smaller yet emotionally more satisfying social networks.

In this issue of *International Psychogeriatrics*, Soylu and Ozekes (2022) examined the interrelationships among key variables associated with successful aging and grounded the work in SST. Understanding predictors of successful aging is a topic relevant to positive psychology that has been featured prominently in *International Psychogeriatrics* (e.g. Wilkins *et al.*, 2022). In the commentary below, we consider the implications of their findings for the theory and the broader literature on social and emotional aging.

Soylu and Ozekes (2022) hypothesized that time horizons are inversely correlated with age and that perceived constraints on future time are related to smaller social networks that reflect fewer peripheral but well-retained numbers of close social partners. Using structural equation modeling (SEM) and a sample of 478 Turkish adults aged 50 and over, they examined the strength of pathways in which time horizons contribute to social satisfaction which, in turn, accounts for biopsychosocial outcomes associated with successful aging. The research questions are well-grounded in the theory and further expand the literature.

The overall pattern of the SEM results is inconsistent with SST. Rather, expansive time horizons predicted larger close and peripheral networks. There are some possible explanations. An examination of the simple correlations among variables reveals that, unlike most studies on age differences in emotional well-being, older participants reported poorer subjective well-being than younger participants and expressed less satisfaction with their networks. One likely reason is that roughly half of the sample were nursing home residents. In the USA, nursing home residents are a subgroup of people with higher rates of depression than community-dwelling older adults (CDC, 2014). They also tend to be older than community-residing older adults. Because age was not part of the SEM, we can only speculate, but it is possible that the causal direction of the findings stems from poorer health of the sample, leading to less social satisfaction and shorter time horizons. Moreover, rather than treating age as an independent variable in the model, the sample is

treated as a homogeneous age group (i.e. older adults) in this study. Thus, age differences are not well-captured by the model.

In Soylu and Ozekes's study, social network composition was operationalized by the total number of people reported by participants in describing their inner and outer social circles respectively. Participants with shorter future time horizons, presumably older participants, reported smaller inner and outer circles than participants with longer future time, who were presumably younger, which is inconsistent with SST. However, because the *relative* proportion of the inner and outer circles was not reported, these findings cannot be interpreted in the context of SST. Individuals clearly differ in terms of overall network size, as the authors suggest, this may reflect a distinctive feature of Turkish culture. Thus, these findings do not speak to SST.

One other finding that is clearly inconsistent with predictions from SST and adds to similar findings from previous survey studies is the positive association between open-ended time horizons and well-being. Like many similarly motivated studies, time horizon was measured using the Future Time Perspective scale (FTP; Carstensen and Lang, 1996). Soylu and Ozeke observed that expansive rather than constrained time horizons predicted larger inner and outer social networks, greater social satisfaction, and biopsychosocial well-being. If reliable, these findings challenge the contention that shortened time horizons increase the value of time and thus, the priority of emotionally meaningful experience. Such findings merit serious consideration of at least two alternatives. The first is that the theoretical postulate offered by SST is incorrect. The second is that the FTP measure fails to capture the motivational shifts prompted by constraints on time that increase its value and turn attention to the present. We consider both below.

The strongest support for this cardinal tenet of SST comes from experimental studies that manipulate time horizons and measure changes in social preferences, positivity in cognitive processing, and emotional experience. Fredrickson and Carstensen (1990) developed an experimental paradigm to examine causal associations. In an earlier study, younger and older participants were asked to choose from among three prospective social partners with whom to spend a half hour of time. The social partners presented had been pretested to represent their association with emotionally meaningful, informational, or future goals. Under open-ended conditions, older adults showed strong preferences for emotionally meaningful social partners and younger people choose relatively evenly across options. However, when instructed to anticipate social endings, such as moving across the country, younger people also choose to spend the time with emotionally meaningful social partners. In other words, younger prioritized emotionally close social partners under conditions that limited future time. In a subsequent study using the same paradigm, older people's preferences resembled those of younger people when time horizons were expanded (Fung *et al.*, 1999). Fung *et al.* (2001) have used the paradigm extensively in a research program that spans cultures and countries and observe similar findings: age-related preferences for emotionally meaningful social partners are observed under time-limiting conditions and eliminated when participants imagine open-ended time horizons. To our knowledge, all of the studies that experimentally manipulated time horizons have supported this core tenet of SST. When time is limited, people value time spent with close others; when time is vast, people like to explore new people and relationships.

In contrast to findings from experimental studies, findings from surveys based on the FTP scale developed by Carstensen and Lang (1996) are more mixed. Some findings indicate that network composition mirrors preference findings, with more limited FTP predicting networks where peripheral networks selectively grow smaller and close relationships are maintained (Lang and Carstensen, 2002; Windsor *et al.*, 2012). Yet, other investigators have observed the opposite patterns, with findings resembling those reported by Soylu and Ozekes's (2022) findings, namely more open-ended time horizons predict better well-being outcomes (e.g. Brothers *et al.*, 2016; Grühn *et al.*, 2016; Hoppmann *et al.*, 2017).

Considering the discrepancies between experimental and survey findings, our research group suspects that the problem likely reflects a limitation of the FTP scale. The scale was originally developed to establish the association of chronological age with perceived time left in life, and it has generated ample evidence that older ages are indeed associated with shorter time horizons. Yet, the scale also taps perceived opportunities and goals and thus FTP captures a sense of optimism about the future. Because optimism is associated with better subjective physical and psychological well-being (see Gallagher *et al.*, 2013), we suspect this contributes to positive correlations between open-ended time horizons and well-being.

From a theoretical perspective, an even greater limitation of FTP is that it fails to tap changes in the value or appreciation of time postulated by SST. Constraints on time horizons, as conceptualized in SST, lead people to savor the time they have left in life (see Carstensen, 2021). Although FTP captures the duration of the future well, it does not measure the growing appreciation of remaining time or *time*

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savoring. Savoring is defined as the act of attending to, appreciating, and enhancing positive experiences (Bryant and Veroff, 2007). In temporal context, time savoring is immersing oneself in the present and experiencing heightened appreciation for time. Thus, time savoring captures the sense of time limitations, along with deep appreciation for remaining time. We expect that this aspect of savoring leads people to discard thoughts about trivial matters and to experience the preciousness of time. Because FTP does not tap the heightened value of time or the presumed sense of savoring that comes from time scarcity, we argue that a better measure of time scarcity and time savoring is needed to test the core psychological mechanism posited in SST. Our research team is currently developing a savoring measure to better investigate and test the theoretical framework offered by SST (Carstensen *et al.*, in preparation).

To conclude, Soylu and Ozekes's (2022) findings make an important contribution to the literature. They reveal similar relationships among constructs central to successful aging in Turkey that have been observed previously in many western and eastern countries. They also show that older Turkish participants view their futures as shorter than younger participants, documenting similar shifts in perceived time with age, which contributes further to evidence to potentially universal aspects of aging (Kooij *et al.*, 2018). SST maintains that limited time leads people to savor meaningful experiences and to worry less about their long-term futures; together, these changes contribute to improved well-being. Improved measurement of the changes associated with time horizons is needed to reconcile mixed findings about the role of time and more directly test the role of time savoring in improved emotional well-being with age.

Conflict of interest

None.

Description of authors' roles

The authors, Li Chu and Laura L. Carstensen, contributed equally to the manuscript, revised, read, and approved the submitted version.

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