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Age and Time Horizons Are Associated With Preferences for Helping Colleagues

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Abstract

The present study examined the causal role of time horizons in age differences in worker motivation. Based on socioemotional selectivity theory (SST), we hypothesized that under unspecified time horizons, older workers prefer to engage in emotionally meaningful work activities more so than younger workers. We further hypothesized that when time horizons at work are expanded or limited, age differences are eliminated. We recruited a sample of employees (N = 555) and randomly assigned them to one of three experimental conditions: a no-instruction condition in which time horizons were not specified, an expanded time horizons condition, or a limited horizons condition. We asked participants to choose from among three options for work-related activities: Helping a colleague or a friend, working on a career-advancing project, or working on a project which may take the company in a new direction. Consistent with SST postulates, we found that age was associated with preferences for helping colleagues in the unspecified horizons condition, and that age differences were eliminated when time horizons were extended or limited. As hypothesized, expanding time horizons reduced employees' likelihood of choosing to help colleagues. Contrary to our hypothesis, limiting time horizons also reduced the likelihood of choosing to help colleagues. Alternative explanations are considered. Findings suggest that age differences in worker motivation are shaped by time horizons and that modification of time horizons can alter work preferences.

Keywords: motivation, socioemotional selectivity theory, time horizons, work preferences, older workers

Older adults are participating in the paid workforce in record-numbers. From 2010 to 2020, there has been a 20% increase in Americans aged 55 to 74 years in the labor force (Bureau of Labor and Statistics, 2021). A similar pattern is observed in Europe, where the proportion of employed adults aged 55 to 64 years increased by twenty percentage points from 2004 to 2019, with a smaller but noticeable increase in workforce participation observed among Europeans aged 65-74 (Eurostat, 2020). These trends toward working longer are expected to continue across the globe (Hurd & Rohwedder, 2014).

Concerns among employers about age-related declines in work motivation (Van Dalen, Henkens, & Schippers, 2010) are supported by evidence that older workers are less motivated to engage in skill training or novel and effortful work (Kanfer & Ackerman, 2004; Stamov-Roßnagel & Hertel, 2010; see Rudolph, 2016, for comprehensive review). Compared to younger workers, older workers express less motivation to pursue opportunities for professional growth (e.g., training or advancement) and occupational status (e.g., recognition or prestige; Kooij, de Lange, Jansen, et al. 2011). Nonetheless, there is also evidence that compared to younger workers, older workers are more motivated to help others and build relationships with colleagues (Kooij et al., 2011). In addition, older workers display better organizational citizenship than younger workers, such as holding more favorable attitudes towards colleagues and more commitment to the workplace [see meta-analyses by Ng and Feldman (2008, 2010)].

Thus, rather than general declines in motivation, a more nuanced picture of older workers is emerging. Theoretical understanding of age-related changes in work motivation can help us to identify work activities that best align with the interests of age-diverse workforces and ultimately inform employers and workers alike. Past work based on observational evidence found that older age is associated with greater preference for helping (Doerwald, Zacher, Van Yperen, & Scheibe, 2021; Kooij et al., 2011), yet the mechanism leading to these preferences has not been established experimentally.

The current study provides an experimental test of the mechanism postulated in socioemotional selectivity theory (SST; Carstensen, Isaacowitz, & Charles, 1999). SST stands out among life-span developmental theories in postulating a falsifiable mechanism that may account for age-related differences in goals and preferences (Kooij, et al., 2018; Rudolph, 2016). SST maintains that as time horizons grow shorter, people prioritize goals that hold emotional meaning (e.g., helping) over exploratory goals (e.g., seeking new

opportunities at work). Theoretically, this is because emotionally satisfying goals are realized during their execution, whereas exploratory goals pay off in the future. Studies on age-differences in motives at work have found correlational support for SST postulates and established experimentally that time horizons can shift preferences for social partners at work. Yet, an experimental test of time horizon's causal role in shaping age-related preferences for work related activities is lacking.

The current study fills this gap by using an experimental paradigm to examine SST's predictions regarding the mechanism that shapes work motives among younger and older workers. Understanding causes for age differences in work motivation can help employers make the most of an age-diverse workforce by suggesting ways to shift age-typical preferences, encourage older workers' continued growth, and cultivate better organizational citizenship among younger workers.

Age Differences in Work Motivation

Observed differences in older and younger workers' motives are consistent with socioemotional selectivity theory (Carstensen et al., 1999). According to SST, age-related differences in goals are not caused by the aging process per-se, but rather by differences in time orientation. It follows that under typical circumstances, in which older age is naturally associated with limited time horizons, an age-related preference for emotionally meaningful activities, such as helping others (Hubbard, Harbaugh, Srivastava, et al., 2016), is observed. However, under circumstances that equate time horizons, people of different ages have similar preferences.

SST predicts that prosocial behaviors at work increase with age since they are rewarding in their doing (i.e., intrinsically rewarding) by engendering positive social environments at work (Yeung, Fung, & Chan, 2016). Evidence supports this prediction. Compared to younger workers, older workers are more attuned to emotional aspects of work life and engage in more authentic expression of emotions (Dahling & Perez, 2010), are more likely to select and retain jobs that are personally meaningful and make use of existing knowledge and skills (Kooij, 2015; Maestas, Mullen, Powell, et al., 2019), and are more motivated to engage in work tasks that provide opportunities to pass on their knowledge and experience (Stamov-Roßnagel & Biemann, 2012). A recent meta-analysis by Doerwald et al. (2021) found that older workers report greater motivation to help colleagues by assisting, training, and teaching.

Findings about younger workers are also consistent with SST postulates. Self-report studies have found that younger workers are motivated by goals related to professional growth and accumulation of knowledge, experience, and status (Kooij et al., 2011). Evidence suggests that younger workers, unlike older workers, focus on new opportunities in their careers (Zacher & Frese, 2011). Evidence further suggests that younger workers are more motivated to learn and advance at work than older workers (Kanfer & Ackerman, 2000; Kooij et al., 2011). Taken together, findings point to age differences in work motivation whereby older workers are more motivated to engage in work tasks such as helping that affect emotional well-being in the present, whereas younger workers are more focused on professional growth at work.

Work Motivation Relates to Time Horizons at Work

Evidence is accumulating that work time horizons are associated with worker motivation at different ages (Zacher & Frese, 2011). Kanfer and Ackerman (2004) were among the first to place findings about work motivation in the context of time horizons. They proposed a model in which motivation for effortful work is reduced when the promise of future payoffs is low. Supporting the role of time horizons in shaping work motives, a 3-year longitudinal study involving employees at a Dutch university, found that negative associations among age and motives related to self-promotion and learning were mediated by constraints on time horizons (Kooij, Bal, & Kanfer, 2014). These findings suggest that perceived future time at work may influence age-related changes in goal orientation.

Based on a recent meta-analysis of 40 independent samples, Rudolph, Kooij, Rauvola, et al. (2018) concluded that limited occupational time horizons were associated with less interest in learning and achievement. Gielnik, Zacher, and Wang (2018) found that individuals with more expansive occupational time horizons were more likely to turn business opportunities to entrepreneurial intentions (e.g., starting a new business) 6 months later, relative to those with more constrained occupational time horizons. Taken together, these findings suggest that occupational time horizons may play an important role in the pursuit of goals at work.

Because studies reported to date have relied on observational and correlational methods, causal relationships between motivation and time horizons remain speculative. Two notable exceptions examined the influence of time horizons on social motives. In two independent studies, Hommelhoff, Müller, and Scheibe (2018) found that when time horizons at work were expanded, employees preferred to spend lunch breaks with colleagues who might be beneficial for them in the future. However, when time horizons at work are limited, employees prefer to spend time with emotionally close partners. Another study by Gärtner and Hertel (2017) found that, regardless of age, limiting workers' occupational future time perspective increased preferences to stay with a familiar work team over a novel team that presented opportunities for learning and professional development. These studies provide initial experimental evidence for the causal role of time horizons on the social aspects of work lives. However, they do not speak directly to theoretical predictions about work motivation.

To the extent that time horizons play a causal role in age differences in work motivation, such evidence cannot only inform the developmental nature of work motivation but can point to potential interventions. For one, tying emotional meaning to work activities (e.g., providing opportunities to help colleagues) may enhance motivation among older workers as it is consistent with goals stemming from limited time horizons. Conversely, expanding older workers' time horizons at work may be one way to motivate them to expend efforts to learn new work-related skills.

Present Study

The current study examined the relationship between age, time horizons, and preferences for work-related activities. Specifically, we aimed to test the theoretical mechanism

postulated in SST to explain age differences in workers' motives for work related activities. Namely, we tested whether limited time horizons at work are the cause for age being positively associated with preference for helping colleagues and negatively associated with activities related to professional growth. We used an adapted version of a widely used experimental paradigm developed by Fredrickson and Carstensen (1990) that assesses the role of time horizons in social preferences to study preferences for work activities in older and younger workers.

Fredrickson and Carstensen's (1990) original social partner paradigm was based on extensive preliminary testing of social stimuli in which research participants grouped prospective social partners based on similarity and data were subsequently analyzed using multidimensional scaling. Their preliminary testing confirmed that the two core dimensions—emotional meaning and exploration—postulated in SST were indeed evident in mental representations of social partners. Unexpectedly, however, two subtypes emerged in the exploration dimension, viz., information rich (e.g., a teacher) and future payoffs (e.g., an acquaintance with whom you have much in common). Although SST does not distinguish between these two exploratory subtypes in terms of goal rankings, both were retained in subsequent research in light of evidence that people make such distinctions. In terms of work motives, the subtypes map beautifully onto learning new skills and involvement in novel projects (information rich) and working towards self-advancement (future payoffs).

Based on these findings, Fredrickson and Carstensen developed a forced-choice paradigm to examine age-related preferences for emotionally meaningful vs. exploration-oriented social partners. The paradigm requires participants to choose from among three prototypic social partners, one of which represents emotionally meaningful social partners and two represent each of two types of exploratory social partners. Because SST does not distinguish between the two exploratory options, they are collapsed in statistical analyses (e.g., Fung & Carstensen, 2006; Fung, Carstensen, & Lutz, 1999; Fung, Lai, & Ng, 2001). To examine the causal role of time horizons in shaping age-related preferences, choices are made under experimental conditions that expand time horizons, constrain them, or leave them unspecified (i.e., as they normally are).

The paradigm has been widely used and reveals that when time horizons are unspecified, older people reliably prefer emotionally meaningful partners over future-oriented ones (see Fung & Carstensen, 2006). However, under conditions where participants are asked to imagine that they will live 20 years longer than expected (expanded time horizons) or, alternatively, conditions where they are asked to imagine that they were about to move across the country (limited time horizons), age differences are eliminated. Under expanded time conditions, older people no longer prefer emotionally close social partners and under conditions that limit time, younger peoples' choices mimic older peoples' preferences for emotionally close social partners (Fung et al., 1999, 2001). Recently, Vahle and Tomasik (2021) found that even an implicit manipulation in the form of embodying an older avatar, shifted young adults' social preferences to resemble those typically found among older adults. Findings from this line of research suggest that age differences reflect fluid adaptations to temporal contexts.

In the current study, rather than social partner preferences, we asked participants to choose from among work activities that represented future-oriented goals or emotionally meaningful goals. Of the two future-oriented work activities, one is related to exploration of new horizons ("work on a company project that may lead the company in a new direction") and one related to self-promotion ("work on a project that may help you advance your career"). The activity representing emotionally meaningful goals at work was "helping a colleague or a friend with a company project". Helping colleagues was chosen as the emotionally meaningful activity due to evidence that prosocial behavior leads to positive mood and a sense of meaning (e.g., Aknin, Dunn, Proulx, et al., 2020; Van Tongeren, Green, Davis, et al., 2016).

Research in organizational behavior also provides a distinction between task performance—that is, behaviors related to meeting job requirements—and organizational citizenship behaviors (OCB)—or behaviors aimed at supporting the social and psychological work environment (Bergeron, Shipp, Rosen, et al., 2013). Task performance focuses on behaviors related to job requirements (e.g., interacting with clients and knowledge seeking), whereas OCB involves helping and improving social environments. Although both task performance and OCB contribute to the functioning of organizations, time spent on OCB may come at a cost to task performance (Bergeron et al., 2013). This distinction corresponds to SST's differentiation between future-oriented and emotionally meaningful activities, with task performance activities relating to future preparation and OCB relating to activities that provide emotional meaning in the present. Thus, the current study makes the distinction between these two types of activities and seeks to understand different preferences in engagement.

Based on SST, we predicted that because older age is linked to constraints on time horizons at work (e.g., Kooij et al., 2014), there is a linear age-related increase in preferences for work activities that generate positive emotions in the present, such as helping, over activities that foster learning and professional growth. However, according to SST, time horizons play a causal role in age differences in preferences. Thus, under conditions where time horizons are comparable, we expected that age trends in preferences will be eliminated. Specifically, we tested three hypotheses:

(1) *When time horizons are unspecified, older age is associated with a preference to help others over future-oriented options.*
(2) *When time horizons are expanded, age differences in work preferences are eliminated such that across all ages, future oriented options are preferred over helping others.*
(3) *When time horizons are limited, age differences in work preferences are eliminated such that across all ages, helping others is preferred over future oriented options.*

Method

Participants

We recruited participants from a larger study about decisions and regret that was constructed by KnowledgePanel of GfK Research in Sunnyvale, CA [see Tassone, Reed, & Carstensen (2019) for further details on the sample and methods]. Of the total sample, 567 participants who were employed full- or part-time were asked to complete the

present task. Twelve participants chose not to complete the task. The resulting sample included 555 adults who were 47% female, 82% White, and ranged in age from 20 to 75 years (M = 44.65, SD = 13.2). Participants in the sample were relatively well-educated (73% had completed at least some college education), and the median household income was $75,000–$84,999. Sensitivity analysis conducted in G*Power (Faul, Erdfelder, Lang, et al., 2007) version 3.1.9.4 indicated that the sample size was sufficient to detect medium to small effect sizes (effects larger than Cohen's D = 0.3) using logistic regression analyses with 80% power. The study was approved by Stanford University's Institutional Review Board.

Procedure

Participants first provided background information and were then randomly assigned to one of three experimental conditions where time horizons at work were either unspecified (N= 174), expanded (N= 198), or constrained (N= 183).[1] In the unspecified condition, participants were asked to imagine that they arrived at work 1 day and found that they had unscheduled time. Participants in the expanded time horizons condition were told that "the company would like you to stay with them considerably longer than you had planned." Participants in the limited time horizons condition were told: "Your contract will expire in a few months. Although you have been offered a new job, you feel as if a chapter of your life is ending."

After reading the prompt, participants in each condition were asked to choose one of three work-related activities that they would pursue: "Help a colleague or a friend with a company project," "Work on a project that may help you advance you career," or "Work on a project that may lead the company in a new direction." Helping colleagues represented pursuit of emotionally meaningful goals, whereas career-advancing and taking the company in new directions represented pursuit of exploratory goals (future payoffs and learning new information, respectively).

To ensure that the conditions limited and extended time horizons at work as intended and that the choice options were perceived as intended, we asked an independent sample of 99 individuals aged 20–70 years to read each of the prompts. We chose to validate the manipulation and choice option in an independent sample to minimize participant burden in the larger study and avoid potential priming of participant responses by asking them to reflect on the degree to which choice-options correspond to different goals. Participants in this validation survey rated how each prompt affected their perceived future time horizons using four items from the Occupational Future Time Perspective scale (Zacher & Frese, 2009), which were adapted to reflect time horizons in the current job (as opposed to occupational life as a whole; see Supplementary Appendix 1 for full details).

Repeated measures ANOVA showed significant differences in time horizons at the job, in the expected directions [F(2,196) = 121.2, p < .001]. Compared to the unspecified horizons condition (M = 3.7, SD = 1.68), participants rated time horizons at work as more expansive in the expanded horizons condition (M = 4.93, SD = 1.51; mean difference β = −1.22, p < .001 [Bonferroni corrected], 95% CI [−1.5 – −0.94]), and as more limited in the limited horizons condition (M = 2.29, SD = 1.69; mean difference = 1.41, p < .001 [Bonferroni corrected], 95% CI [1.07 – 1.75]).

In the validation survey, participants were asked to rate each of the options on the degree to which it corresponded to goals relating to emotional meaning, future preparation, and exploration (see Supplementary Appendix 1 for details). Using repeated-measures ANOVAs, we found that all three options were perceived as intended. Helping colleagues [F(2, 195) = 11.5, p < .001], working towards career advancement [F(2, 196) = 15.81, p < .001], and taking the company in a new direction [F(2, 196) = 6.52, p = .002] all corresponded to the three goals to different degrees.

The emotional meaning rating of helping colleagues (M = 3.9, SD = 0.84) was significantly higher than the rating on future preparation (M = 3.49, SD = 0.86; mean difference = 0.41, p < .001 [Bonferroni corrected], 95% CI [0.2, 0.61]) and exploration (M = 3.53, SD = 0.91; mean difference = 0.38, p < .001 [Bonferroni corrected], 95% CI [0.19, 0.56]). As intended, career advancement was rated higher on future preparation (M = 4.24, SD = 0.7) than on emotional meaning (M = 3.78, SD = 0.93; mean difference = 0.46, p < .001 [Bonferroni corrected], 95% CI [0.27, 0.66]). The difference between future preparation and exploration (M = 4.07, SD = 0.73) was only marginally significant after adjusting for multiple comparisons (mean difference = 0.17, p = .06 [Bonferroni corrected], 95% CI [0.03, 0.31]). Taking the company in new directions was rated higher on exploration (M = 4.24, SD = 0.77) than on emotional meaning (M = 3.95, SD = 0.98; mean difference = 0.29, p = .003 [Bonferroni corrected], 95% CI [0.12, 0.46]) and future preparation (M = 4.04, SD = 0.91; mean difference = 0.2, p = .02 [Bonferroni corrected], 95% CI [0.06, 0.34]).

To address concerns that workers' age might be associated with perception of choice options in a manner that may impede testing SST postulates, we used multilevel linear models with random intercepts for participants to examine Age (measured continuously) x Rating interactions in each of the choice options. We found that in all cases older age was associated with higher meaning ratings (see Supplementary Table S1 in Supplementary Appendix 1), suggesting that age differences in preferences are not likely to stem from perceptions of different choice options as emotionally meaningful.

Measures

Dependent and independent variables

The dependent variable in this study was "choice of work-related activities." Consistent with prior research, we collapsed the two future-oriented options together (see Fung & Carstensen, 2006; Fung et al., 1999). The main dependent measure was choice of helping others versus future oriented activities. The independent variables of interest were age, measured continuously, and the experimental condition.

Background variables

As part of the larger survey, several background variables were collected. These variables are often associated with age

[1]Due to randomization issues, there are different numbers of participants in each condition. However, differences in number of participants per group are not significant [$\chi^2(2) = 1.59$, p = .45].

Table 1. Sample characteristics by condition and age correlations with background variables.

	Correlation with age	Unspecified horizons (*N* = 174)	Expanded horizons (*N* = 198)	Limited horizons (*N* = 183)	*F* (df)	*p* value	η^2_p
Age (M, *SD*)	–	45.5 *(13.1)*	44.8*(13.1)*	43.7*(13.4)*	0.902 (2,552)	.41	.003
FTP (M, *SD*)	**–.33*** **	4.53*(1.28)*	4.53*(1.2)*	4.65*(1.21)*	0.591 (2,549)	.55	.002
Openness (M, *s.d*)	–.05	4.96*(1.17)*	4.72*(1.2)*	4.82*(1.2)*	1.825 (2,551)	.16	.007
Conscientiousness (M, *s.d*)	**.14*** **	5.59*(1.03)*	5.53*(1.15)*	5.57*(1.12)*	1.013 (2,552)	.36	.004
Extraversion (M, *s.d*)	.02	4.01*(1.14)*	3.88 *(1.54)*	3.92*(1.46)*	0.339 (2,552)	.71	.001
Agreeableness (M, *s.d*)	**.09***	4.75*(1.13)*	4.88*(1.13)*	4.99*(1.09)*	2.038 (2,552)	.13	.007
Emotional Stability (M, *s.d*)	**.12****	4.84*(1.27)*	4.81*(1.31)*	4.91*(1.3)*	0.339 (2,552)	.71	.001
Gender (% female)[a]	–.01	44.8%	46.9%	47.5%	0.293 (2)	.86	
Race (% white)[a]	.07	77.6%	82.8%	84.1%	2.863 (2)	.24	
Household income (Md.)	.04	$75,000–$84,999	$75,000–$84,999	$85,000–$99,999	1.661 (2,552)	.19	.006
Education Level (Md.)	**–.13****	Some college	Some college	Some college	0.832 (2,552)	.44	.003
Subjective health (M, *s.d*)	.02	8.07*(1.09)*	8.24*(1.13)*	8.30 *(1.16)*	1.862 (2,549)	.16	.007

[a]Conditions were compared using chi-square analysis.
Bold values are statistically significant.
*$p < .05$, **$p < .01$, ***$p < .001$.

and may thus present alternative explanations (Becker et al., 2016). "Time horizons in life" were measured using the Future Time Perspective scale (FTP; Carstensen & Lang, 1996). The scale had good internal consistency (Cronbach's α = 0.92) and so items were averaged to form a single score, with higher scores indicating more expansive time horizons (*M* = 4.57, *SD* = 1.23). Personality traits are associated with work motives such as influence and advancement (Furnham, Petrides, Tsaousis, et al., 2005). Thus, we measured for "personality" with the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), which measures the Big-Five personality traits: Openness, Consciousness, Extraversion, Agreeableness, and Emotional stability. Based on prior research suggesting that subjective health is associated with work motivations such as growth (Kooij, de Lange, Jansen, et al., 2013), we measured "subjective health" using responses to three self-report items taken from the Philadelphia Geriatric Center Multilevel Assessment Instrument (MAI; Lawton, Moss, Fulcomer, et al., 1982): current health, health compared to same-aged others, and health interference with life. All three items loaded on one factor in a confirmatory factor analysis (with weights ranging from .43 to .8, Cronbach's α = 0.6) and were therefore summed to form a single measure. "Household income" was measured using a 19-point scale ranging from "Less than $5000 a year" to "More than $175000 a year" in increments of $3000 for the first five levels, and of $5000 from the sixth level on. "Education level" was measured in four levels: "Less than high school," "High school," "Some college," and "Bachelor's degree or higher."

Analytic strategy

Analyses were conducted in R version 4.0.3 (R core team, 2020; see Supplementary Appendix 3 for packages). The focal tests for the three hypotheses are the simple effects of age on the likelihood of choosing to help a colleague or a friend over any of the future-oriented options, in each of the three conditions. We estimated the effects of age and time horizons condition using logistic regressions in which the intercept indicates a difference from a chance level of 33%. Although we did not expect to find significant Age x Condition interactions because they were not found in past research (Gärtner & Hertel, 2017; Hommelhoff et al., 2018), we included them in the model to provide context for understanding the focal tests of age associations with preferences in each of the conditions. As a first step, we entered only age, condition, and their interaction term into the model. In a second step, to ensure any observed age effects are not caused by third variables, we included background variables found to be significantly associated with age in the current sample as control variables. To facilitate interpretation, we supplemented this approach with chi-square analysis (see Supplementary Appendix 2).

In post hoc analyses, we used multinomial regression to examine the likelihood of choosing to help a colleague or a friend over each of the future oriented activities independently. We used this exploratory analysis to better understand age-related preferences for emotionally meaningful activities at work versus either self-advancement or knowledge seeking. Here, too, we first entered age and condition (with their interaction term) into the model, and then followed by including background variables to control for potential confounds. In all models, continuous variables were standardized to facilitate interpretation of model estimates and reflect the "main" effect of condition.

Results

Preliminary analyses

As a preliminary step, we examined age and condition differences in background variables. As shown in Table 1, we did not find significant differences among conditions. Age, on the other hand, was negatively associated with FTP ($R(550) = -.33$, $p < .001$, 95% CI [–.4, –.25]), education-level ($R(553) = -.13$, $p = .003$, 95% CI [–.21, –.04]), and positively associated with agreeableness ($R(553) = .09$, $p = .03$, 95% CI [.01, .17]), conscientiousness ($R(553) = .14$, $p < .001$, 95% CI [.06, .22]), and emotional stability ($R(553) = .12$, $p = .005$, 95% CI [.04, .2]). We included FTP, education, and personality in the second step of the analyses as control variables because they

may serve as alternative explanations for age patterns (Becker et al., 2016).

Primary analysis

As shown in Figure 1 and in support of the first hypothesis, age was significantly associated with choosing to help colleagues in the unspecified time horizons condition (β = 0.59, 95% CI [0.27, 0.93], Z = 3.52, p < .001). The pattern was unchanged when control variables were included (see Table 2).

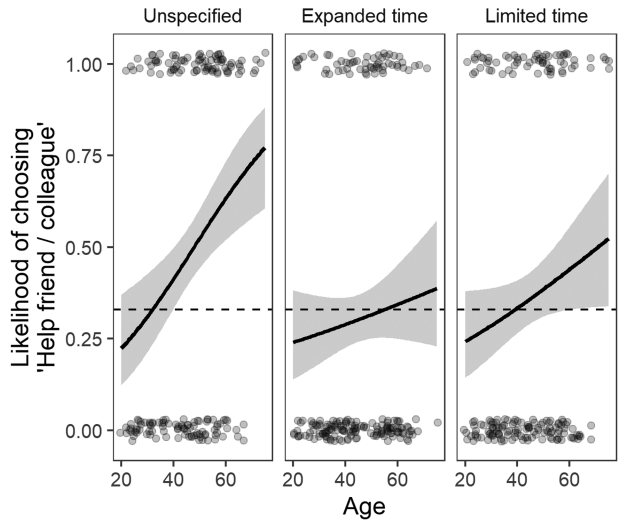

Figure 1. Likelihood of choosing to help others at work by age and condition.

In support of the second hypothesis, we found a main effect of expanded time horizons on preferences, whereby the likelihood of helping others was reduced in the expanded horizons condition (β = −0.7, 95% CI: −1.14 – −0.27, Z = −3.15, p = .002). Furthermore, the interaction term between age and expanded time horizons was negative, although it failed to reach the conventional threshold for statistical significance in the traditional two-tailed test (β = −0.42, 95% CI: −0.88 – 0.02, Z = −1.86, p = .07). The interaction is significant, however, if applying a one-tailed test ($p_{(one\text{-}tailed)}$ = .035) which is appropriate in this case given the directional hypothesis. This suggests that the negative effect of expanded horizons on likelihood of helping was stronger for older, compared to younger, adults.

However, contrary to the third hypothesis, the main effect of limited time horizons was also negative (β = −0.45, 95% CI [−0.89, −0.01], Z = −2.01, p = .05), suggesting that participants in this condition were less likely to help others, whereas the theory would predict a positive effect. This condition was also not as successful in eliminating age effects. The interaction term (although negative) was weaker in comparison to that of the Age x Expanded horizons interaction and did not reach statistical significance even when applying a one-tailed test (β = −0.29, 95% CI [−0.75, 0.15], Z = −1.29, p = .2, $p_{(one\text{-}tailed)}$ = .1).

We proceeded by inspecting the simple effects of age in the remaining time horizons conditions, because the focal tests were the simple effects of age. In full support of the second hypothesis, age was not significantly associated with the likelihood of helping a colleague or a friend under expanded time horizons (β = 0.17, 95% CI [−0.14 – 0.45], Z = 1.06, p = .29). This result did not change when we included the control

Table 2. Logistic regression: likelihood of choosing to help others over any future-oriented project in each condition.

Variable	Unspecified time horizons			Expanded time horizons			Limited time horizons		
	Estimate	95% CI	Z value	Estimate	95% CI	Z value	Estimate	95% CI	Z value
(Intercept)	**0.6*****	(0.29 – 0.92)	3.74	−0.16	(−0.48 – 0.14)	−1.03	0.07	(−0.25 – 0.37)	0.41
Age	**0.53****	(0.19 – 0.88)	3.04	0.12	(−0.2 – 0.44)	0.73	0.27	(−0.06 – 0.6)	1.59
Unspecified horizons	–	–	–	**0.77*****	(0.32 – 1.22)	3.38	**0.54***	(0.09 – 0.99)	2.36
Expanded horizons	**−0.77*****	(−1.22 – −0.32)	−3.38	–	–	–	−0.23	(−0.67 – 0.21)	−1.02
Limited horizons	**−0.54****	(−0.99 – −0.09)	−2.36	0.23	(−0.21 – 0.67)	1.02	–	–	–
Age x Unspecified	–	–	–	0.41⁺	(−0.04 – 0.87)	1.76	0.26	(−0.19 – 0.72)	1.12
Age x Expanded	−0.41⁺	(−0.47 – 0.04)	−1.76	–	–	–	−0.15	(−0.59 – 0.29)	−0.66
Age x Limited	−0.26	(−0.72 – 0.19)	−1.12	0.15	(−0.29 – 0.57)	0.66	–	–	–
Control Variables (identical across reference conditions)									
FTP	−0.08	(−0.3 – 0.13)	−0.74						
Openness	−0.13	(−0.33 – 0.07)	−1.23						
Conscientiousness	−0.09	(−0.3 – 0.11)	−0.89						
Extraversion	0.1	(−0.1 – 0.29)	0.97						
Agreeableness	**0.25***	(0.05 – 0.46)	2.41						
Emotional Stability	0.08	(−0.13 – 0.29)	0.73						
Education level	−0.05	(−0.24 – 0.13)	−0.57						
Pseudo $R^2_{(McFadden)}$	.06			.06			.06		

The three models detail the simple effects for age and time-horizon manipulation in each of the three conditions and the interaction of the two, with the heading referring to the reference condition. Coefficients are logit estimates. Intercept coefficients represent differences from chance level (33%) at mean age in the reference condition. Continuous predictors were standardized such that estimates reflect a change of one standard-deviation in the predictor. Bold values are statistically significant.
⁺p < 0.1, *p < .05, **p < .01, ***p < .001.

variables in the model (see Table 2). However, under limited time horizons, the effect of age on increasing the likelihood of helping others fell just short of reaching the traditional threshold for statistical significance (β = 0.3, 95% CI: –0.01 – 0.61, Z = 1.9, p = .06). The relationship between age and likelihood of helping others was reduced and not statistically significant when we included the control variables (see Table 2). These findings offer evidence in favor of the third hypothesis. Yet, since the overall effect of limited time horizons was in the opposite direction, the evidence supporting the hypothesis that limited time horizons eliminate age differences and increase preferences for helping is mixed.[2]

Secondary analysis

We used multinomial regression analysis to examine the relationship between age and the likelihood of selecting to help others at work over the other two alternatives. This method allowed us to test the effects of age, time horizons condition, and their interaction independently of the likelihood of choosing the helping project versus the career-benefitting project and the project taking the company in a new direction.

When time horizons were left unspecified, there was an overall preference for the helping project over the career-advancing one, and over the one taking the company in new directions. However, preferences for the former were not equal across ages (see Table 3). Consistent with SST postulates, age was positively associated with the likelihood of choosing to help others over a career-advancing project. That said, we did not find evidence for age preferences for helping others over the project taking the company in a new direction when time horizons were left unspecified. Of note, across ages there was a preference for helping over taking the company in a new direction. The lack of an age association with choice may therefore reflect a ceiling effect.

Overall, manipulating time horizons altered project preferences. Compared to the "unspecified" condition, in the expanded horizons condition, participants were less likely to prefer helping others over either of the alternatives. This finding provides further evidence in favor of the second hypothesis. Unexpectedly, however, we observed a similar pattern in the limited horizons condition, in which people across ages preferred to work on a project that would advance their career over helping others. Limited time horizons did not affect the general preference for helping others over taking the company in a new direction.

Finally, we found that time-horizon manipulations moderated (to a small degree) age-related preferences for helping over advancing careers, but not over taking the company in new directions. For the former, we observed a negative Age x Expanded horizons interaction that was marginally significant. This finding indicates that in the expanded time horizons condition, age-related preferences for helping over working on a career advancing project are reduced. This is consistent with the primary analysis and supports the second hypothesis. However, results also point to a negative Age x Limited horizons interaction suggesting that in this condition, too, the association between older age and a preference for helping others over spending time on a career advancing project was reduced. We did not observe such interactions in preferences for helping over taking the company in new directions. Notably, expansive FTP was independently associated with increased likelihood of choosing to work on a project taking the company in a new direction over helping others. Not surprisingly, agreeableness was independently associated with preferences for helping over the self-serving, career advancing project. However, adding agreeableness as a control variable did not appreciably change coefficients.

Discussion

Findings from the present study, grounded in socioemotional selectivity theory, suggests a causal relationship between worker motivation and time horizons and adds to the existing observational literature (Rudolph et al., 2018). The findings also expand experimental evidence that time horizons heighten the desire to spend time with work friends by demonstrating a preference for helping colleagues over other types of work projects.

The study's main contribution is establishing that time horizons are not merely associated with age-related preferences for work activities (Kooij et al., 2014; Rudolph et al., 2018), and they shape work-related goals and motives in older and younger workers alike. To the best of our knowledge, this is the first study to establish causality in known age-related preferences for helping others at work. We found that these preferences are caused by time horizons, such that when time horizons at work are equated, older and younger workers have similar preferences. Specifically, we supported the hypothesis that under open-ended time horizons, older workers prefer projects that help colleagues more than younger workers *and* more than future oriented projects. We also observed support for the hypothesis that when time horizons are held constant across ages, age differences are eliminated. Under time expansive conditions, older age was no longer associated with a preference to help colleagues over future-oriented work-related activities. These findings mirror past findings about age differences in social preferences (e.g., Fung & Carstensen, 2006, 1999, 2001).

In contrast, although limiting time horizons changed preferences for work-related activities, it did not lead to the expected effects. Contrary to our third hypothesis, limiting time horizons reduced preferences for helping others across all ages. In hindsight, we expect that the limited time horizons instructions motivated younger and older participants to explore new work opportunities. Belmi and Pfeffer (2015) previously found that in contrast to preferences in other domains, at work, people tend to have more instrumental preferences for workmates. That is, people are more strategic (i.e., "calculating") in their behavior. In the current study, limiting participants' time horizons at work while instructing them to imagine having another job lined up may have led them to prioritize preparing for the future.

[2]The chi-square analysis (detailed in Supplementary Appendix 2 and illustrated in Supplementary Figure S1) similarly found age differences in helping preferences in the unspecified time horizons condition [χ^2 (2, N = 174) = 10.38, p = .006, Cramer's V = .24], with 65.2% of older participants choosing to help colleagues compared to 33.3% of younger participants. Chi-square analysis also found support for the second hypothesis. In the expanded horizons condition, although there was evidence for age group differences in helping preferences [χ^2(2, N = 198) = 6.55, p = .04, Cramer's V = .18], the proportions of participants choosing to help colleagues among older and younger adults were similar (26.4% and 22.7%, respectively). In the limited horizons condition, there were no age-group differences in preference for helping [χ^2(2, N = 183) = 2.96, p = .23, Cramer's V = .13), but no group preferred helping others above chance levels (all χ^2's < 1.69, p's > .19, Cramer's V's ≤ .2).

Table 3. Multinomial logistic regression: likelihood of choosing to help others over each of the future-oriented projects.

Variable	Helping over Career advancement						Helping over New direction (exploration)					
	Model 1			Model 2			Model 1			Model 2		
	Estimate	95% CI	Z value	Estimate	95% CI	Z value	Estimate	95% CI	Z value	Estimate	95% CI	Z value
(Intercept)	**0.45***	(0.08 – 0.83)	2.4	**0.52****	(0.14 – 0.9)	2.68	**0.75*****	(0.35 – 1.14)	3.68	**0.84*****	(0.43 – 1.25)	3.99
Age (Unspecified time)	**0.85*****	(0.45 – 1.24)	4.2	**0.86*****	(0.45 – 1.27)	4.09	0.26	(−0.15 – 0.67)	1.23	0.08	(−0.35 – 0.51)	0.38
Expanded horizons (vs. Unspecified)	**−0.74****	(−1.24 – −0.24)	−2.9	**−0.81****	(−1.32 – −0.3)	−3.09	**−0.67***	(−1.23 – −0.15)	−2.49	**−0.76****	(−1.32 – −0.21)	−2.69
Limited horizons (vs. Unspecified)	**−0.71****	(−1.21 – −0.22)	−2.82	**−0.82****	(−1.32 – −0.31)	−3.15	−0.07	(−0.65 – 0.52)	−0.22	−0.14	(−0.74 – 0.45)	−0.47
Age x Expanded horizons	*−0.52*+*	(−1.05 – 0.002)	−1.95	*−0.52*+*	(−1.05 – 0.01)	−1.93	−0.31	(−0.87 – 0.24)	−1.11	−0.28	(−0.84 – 0.29)	−0.96
Age x Limited horizons	**−0.54***	(−1.05 – −0.03)	−2.06	*−0.49*+*	(−1.02 – 0.03)	−1.85	−0.001	(−0.59 – 0.59)	0.004	0.03	(−0.58 – 0.63)	0.09
FTP	–	–	–	0.05	(−0.19 – 0.29)	0.4	–	–	–	**−0.28***	(−0.56 – −0.01)	−2.01
Openness	–	–	–	−0.05	(−0.28 – 0.17)	−0.48	–	–	–	*−0.23*+*	(−0.49 – 0.02)	−1.78
Conscientiousness	–	–	–	−0.18	(−0.41 – 0.04)	−1.59	–	–	–	0.04	(−0.21 – 0.3)	0.33
Extraversion	–	–	–	0.06	(−0.16 – 0.27)	0.54	–	–	–	0.15	(−0.09 – 0.39)	1.22
Agreeableness	–	–	–	**0.27***	(0.04 – 0.5)	2.3	–	–	–	*0.23*+*	(−0.04 – 0.49)	1.68
Emotional Stability	–	–	–	0.09	(−0.14 – 0.32)	0.74	–	–	–	0.08	(−0.2 – 0.34)	0.5
Education level	–	–	–	0.01	(−0.19 – 0.22)	0.12	–	–	–	−0.17	(−0.41 – 0.07)	−1.39
Pseudo $R^2_{(McFadden)}$	Model 1:.04 Model 2:.06											

Coefficients are logit estimates. Intercept coefficients represent difference from chance level (50%) at mean age, in the "no-instruction" condition. Continuous predictors were standardized such that estimates reflect a change of one standard-deviation in the predictor.
Bold values are statistically significant.
$^{+}p < 0.1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Unlike Hommelhoff et al.'s (2018) instructions that required participants to imagine retiring or resigning, which resulted in heightened preferences for spending time with work friends, our manipulation imposed a sudden externally imposed work ending. Gärtner and Hertel's (2017) induction involving a sense of crisis (e.g., the company is going bankrupt, and everyone will be laid off) is also quite different from the manipulation we used, underscoring the importance of isolating time horizons from other contextual factors. Drawing on Belmi and Pfeffer's (2015) findings, it is reasonable to expect workers' reward structure to be different when time at work is ending as a result of personal choice versus external conditions and is experienced collectively versus individually. When employment ends abruptly and individually, as is in the limited time horizons condition, we used in the current study, workers' focus is likely on future preparation more so than emotional meaning. The opposite may be true when the ending of employment is voluntary or experienced collectively with other workers. In addition, the scenario used in the current study was also vague about the nature of the future job participants might expect (e.g., whether it is a new employer or a different position with their current employer). This vagueness left room for interpretation which may have affected participants' reward structure and their ensuing preferences. Future research is required to investigate alternative explanations.

Theoretical implications

Findings from the current study suggest that age-related differences in workers' goals are most pronounced when emotionally meaningful goals are contrasted with goals related to self-advancement (e.g., advancing careers) rather than exploration (e.g., taking the company in a new direction). We found that older adults (unlike younger adults) prefer to help others over working on a self-promoting project. However, age was not related to preferences for helping others over taking the company in a new direction in the expanded horizons conditions. This finding corresponds to recent evidence that when time horizons at work are limited, employees prefer to spend time with emotionally close colleagues over instrumental colleagues, who may facilitate career development (Gärtner & Hertel, 2017; Hommelhoff et al., 2018). Age-related preferences for helping over self-serving activities are also in line with findings linking older age to increases in prosocial motives for work (Kooij et al., 2011), which often involve choosing to benefit others over oneself.

By examining worker motivation under experimental conditions, findings offer an extension of socioemotional selectivity theory into the work domain. The finding that age is associated with a preference among older workers to help others adds to a small but growing body of research, demonstrating that older people are more prosocial than younger people (Raposo, Hogan, Barnes, et al., 2021). In one recent study based on a large sample of adults from 67 countries who responded to hypothetical scenarios, older adults displayed greater willingness to donate to charities compared with younger adults [Cutler, Nitschke, Lamm, et al., 2021; see also Carstensen and Chi (2021)]. Findings from laboratory-based studies involving real monetary outcomes similarly find that older adults act more prosocially than younger adults (Beadle, Sheehan, Dahlben, et al., 2015; Hubbard et al., 2016; Sze, Gyurak, Goodkind, et al., 2012). To the best of our knowledge, this is the first study to extend the literature on age-related prosocial preferences to work-related activities.

Practical implications

In an era of increasing age diversity of workforces, this line of research also holds practical implications. Findings on age differences in work motivation may be informative in creating work teams that complement younger and older workers. Specifically, older employees are more motivated to help younger employees in their quest to grow and develop. Furthermore, including older employees on work teams may create a more supportive environment that allows everyone to put their best efforts forward which may foster economic growth, especially in developing countries (Cristea, Noja, Stefea, et al., 2020).

In addition, findings suggest that employers can change their employees' goals by changing their work time horizons. This finding can help companies develop strategies to make the best possible match between employees' tasks and their motivation based on how much time they have left in their current role. Furthermore, employers could expand older workers' time horizons to make training more appealing instead of assuming that training older employees is ineffective (Zwick, 2011). The current study offers one way to do so, by telling employees that they can anticipate a long future with the company. Future research is needed to examine ways to foster expansive time horizons at work, perhaps by setting employee goals that extend beyond the typical 5-year span of planning (Bateman & Barry, 2012).

Limitations

The design of the current study has several limitations. First, although the scenario presented to participants conferred experimental control, it may have been unconvincing. Many employees have little control over how they spend their time at work and are likely to have other constraints affecting how they choose to utilize their time when they are afforded the luxury to choose a work project. Furthermore, because we aimed to experimentally examine a theoretical mechanism, we presented participants with activities that represent specific goals, but do not cover the full range of work-related activities. It is possible that some work-related activities are perceived as emotionally meaningful for older workers but as future-oriented to younger workers. Although we ensured the current study did not include such activities, it could be theoretically informative to include such activities in future research.

It is also possible that individual differences may lead some younger workers to see helping others as an investment in their future and some older workers to perceive working towards future-oriented goals as emotionally meaningful. We believe that the clear age-related preferences for helping others observed in the current study despite these potential differences (and the finding that expanding time horizons altered this preference) are testament to the theoretical mechanism postulated by SST. Nonetheless, future work would benefit from examining the role of individual differences in perception of work-related activities as future-oriented and emotionally meaningful.

Second, the study was conducted online among workers coming from a diverse range of occupations, some of which may offer more opportunities for helping colleagues or for career development than others. Future studies should test

whether the findings of the current study extend to actual work teams who share similar work environments. Future research should also consider how these findings apply to temporary vs. fixed-term workers given underlying motivational differences. Specifically, temporary workers are more motivated by career advancement opportunities and are more likely to apply higher levels of effort to their jobs (e.g., working overtime) to increase the probability of shifting to permanent roles (Engellandt & Riphahn, 2005).

We make no claim that time horizons are the sole reason for age differences in work motivation. Factors such as perceived abilities (Kanfer & Ackerman, 2004; Rudolph, Katz, Lavigne, et al., 2017), attitudes towards work (Ng & Feldman, 2010), and position on the normative career timetable (Lawrence, 1984) likely influence work motivation (see recent review by Zacher, Sagha Zadeh, et al., 2021). Future research could examine the causal role of these factors in shaping age-related preferences for work activities.

Conclusion

To conclude, the present study provides evidence that age is associated with preferences for helping colleagues and that time horizons play a causal role in such preferences. When time horizons for a job are experimentally expanded, age differences are eliminated such that both younger and older workers prefer future-oriented projects. When time horizons at a given job are experimentally limited, age-related preferences for helping are not observed in older or younger workers, possibly because of a need to prepare for the next career move. Findings from the current study stress the importance of looking beyond chronological age when considering workers' motivation and that time horizons may be more important than age.

Findings about worker motivation are growing in importance. As working lives become longer, and transitions into and out of jobs become more common, time horizons may be a prime target for interventions. The current study has important implications for guiding employers and policymakers as they strive to understand and take advantage of changing motives for work across the adult life span.

Supplementary Material

Supplementary material is available online at *Work, Aging, and Retirement*.

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