Future-directed Thinking and its Relationship to Subjective Well-being in Older Adults.

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# Abstract

Age-related changes in future-directed thinking may be important for well-being. Older and younger adults generated idiographic anticipated experiences for the next week, the next year and the next five to ten years, using an adapted fluency measure. Relative to younger adults, older adults maintained a focus on the immediate future but frequency of anticipated events declined for the medium- and longer-term. The presence of negative thoughts for those two more distant time periods was related to lower life satisfaction in older adults. Content differences in thoughts illustrated the differing concerns of the two groups. The results align broadly with previous findings in the literature on Socioemotional Selectivity Theory.

The pace of population aging is increasing, with the number of people aged over 60 years expected to double by the year 2050 (World Health Organisation, 2015). Understanding how aging impacts on well-being is imperative for maximising quality of life in those extra years. Interestingly, evidence suggests that older adults experience greater life satisfaction (a commonly used indicator of well-being) than their younger counterparts, although when examined across countries this effect appears to be restricted to high-income English-speaking countries (Steptoe, Deaton, & Stone, 2015). The effect is somewhat counterintuitive because older age represents various challenges, not least the presence of social, functional and physical losses, which might be expected to reduce well-being.

An additional puzzle for why older age does not lead to a decline in well-being relates to a person’s subjective future life trajectory (MacLeod, 2017). There is a wealth of evidence that the ability to think about the future, including having goals and plans and the presence of positive future expectancies, is related to high levels of well-being and mental health (See MacLeod, 2017, for a review). Aging would appear to pose a challenge to future-directed thinking simply because as we age our futures becomes shorter and therefore more restricted. For example, Strough et al. (2016) report that around age 60 there is a shift from a focus on having future opportunities to starting to perceive time as limited, and as people age they make fewer plans for the future and are less optimistic (Kotter-Gruhn & Smith, 2011).

Socio-emotional selectivity Theory (SST; Carstensen, Isaacowitz & Charles, 1999) potentially provides a way to understand how well-being is preserved despite a more limited perceived future into which to project our expectation, goals, and plans. SST proposes that when time is perceived as largely open-ended, individuals tend to select goals that will benefit them in the future, such as meeting new people and acquiring knowledge, where activities might contribute to well-being in the longer term. In contrast, when time is perceived as limited, individuals switch to more emotionally meaningful goals that are more linked to the present and contribute to their current, rather than future, levels of well-being. As people age, not surprisingly, they do show a reduced temporal perspective (Lang & Carstensen, 2002), but the evidence is less clear about whether those changes are related to enhanced current levels of well-being (Grühn, Sharifian, & Chu, 2016). In fact, there is evidence that reduced future time perspective tends to be associated with lower, rather than higher, well-being (Grühn et al., 2016).

Important questions remain to be answered about how aging changes the way individuals think about their futures and how such changes are linked to well-being. The Future-thinking Task (MacLeod & Byrne, 1996) offers a potentially useful contribution towards answering some of these questions. Adapted from verbal fluency measures, the task requires people to spontaneously generate things they are looking forward to and not looking forward to for different future time periods (the next week, year, and 5-10 years). Participants give their own, particular idiographic, valued and disvalued events across different spans of future time. Not surprisingly, having more events to look forward to and fewer events not looked forward to is associated with life satisfaction, both in community samples and clinical samples (See MacLeod, 2017, for a review). Depression appears to be particularly related to a lack of positive events, whereas anxiety is more strongly related to an excess of negative events (MacLeod & O’Connor, 2018). Interestingly, in younger samples, the different future time periods typically show little variation in their effects. However, specifically in older adults those time periods might play a more important role. For example, SST would predict older adults to show a greater focus on thoughts about the near future at the expense of the distant future and this greater near-future focus should be linked to well-being. Because participants provide their own idiographic responses, the Future-thinking Task also allows the possibility of looking at content of people’s thoughts in more detail.

The present study sought to (a) examine the presence of idiographic positive and negative thoughts about the future in older adults and younger adults for different time periods in the future, (b) relate the presence of these different facets of future-thinking to well-being and (c) explore the content of the thoughts. Older adults, relative to younger adults, were expected to show intact future-thinking for the next week, but possibly show reduced future-thinking for the next year and certainly for the next 5-10 years. In younger adults well-being was expected to relate to the presence of positive and absence of negative expectancies consistently across the different time periods. For older adults, following SST, well-being was expected to be related to the presence of near-future thoughts, but not to more distant future-thinking. Examining the content was exploratory so no clear predictions were made.

# Method

### Participants and Recruitment

Thirty nine older adults (OA; *M* = 72.3 years, *SD* =7.33 years, range 62-89 years; 29 female) were recruited from relevant voluntary and community groups for older adults in the London (UK) region. Recruitment posters were displayed in community activity centres for older adults and the researcher visited a number of community groups to advertise the study. A sample of 39 younger adults (YA; *M* = 28.1 years, *SD* = 4.29 years, range = 20-35 years; 20 female) were recruited using a convenience sample in the same geographical region, consisting of staff working in the same community activity centres from which the older adult sample were recruited were approached, along with those in the researchers’ wider networks.

**Measures and Procedure**

Verbal fluency. The verbal fluency task is a widely-used test of phonemic verbal fluency (Lezak, Howieson, Bigler, & Tranel, 2012). Participants are typically given one minute to generate as many unique words as possible with the resultant score comprised of the number of correct words. Letter fluency tasks have been shown to be more comparable than category fluency tasks across older and younger adults than (Kozora & Cullum, 1995). In the present study, participants were given one minute in each case to generate as many words as they could that began with the letters F, A and S, excluding names of people, places, numbers or sequences involving the same basic word. The task is used to prime participants to get in the right frame of mind for completing the timed conditions on the Future-thinking Task and also to control for possible effects of general verbal fluency (e.g., Macleod & Conway, 2007).

**The Future-thinking Task (MacLeod, Rose & Byrne, 1993).** This task is an adapted fluency task in which participants are asked to generate events that they anticipate will happen to them in the future in each of three different time periods: the next week, the next year, and the next 5-10 years. Following the completion of the verbal fluency measure participants are told: "Now I'd like to ask you to think about things that might happen to you in the future. I will give you three different time periods in the future, one at a time, and I'd like you to try to think of things that might happen to you in those time periods. Like before, I will give you a minute to try to think of as many things as you can. It doesn't matter whether the things are trivial or important, just say what comes to mind. But, they should be things that you think will definitely happen or are at least quite likely to happen. If you can't think of anything or if you can't think of many things, that's fine, but just keep trying until the time limit is up”. There is a positive condition, where participants are asked to provide things they are looking forward to (positive future events) and a negative condition, where they are asked to provide things they are not looking forward to (negative future events). The positive and negative conditions are counterbalanced although the time periods are always presented in the same order, starting with *the next week*. So, for example, a participant starting with the positive condition would be instructed: “First I'm going to ask you to think of positive things in the future. So, I'd like you to try to think of things that you are looking forward to, in other words, things that you will enjoy. So, I want you to give me as many things as you can that you're looking forward to over the next week including today". For each of the six trials participants are given a full minute to generate events, which are written down by the researcher as they are presented. The main measure is the number of events in each condition.

The Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985). This scale (Diener et al., 1985) is a widely used measure of subjective life satisfaction. The measure requires participants to rate themselves on five items assessing life satisfaction (e.g., “In most ways my life is close to my ideal”; “I am satisfied with my life”), each of which is rated on a 7-point scale of agreement. The measure has shown high reliability, correlates well with other measures of well-being and life satisfaction (Pavot, Diener, Colvin & Sandvik, 1991) and can be used with different age groups (Diener et al., 1985).

### Coding of Content. Eight themes were developed through an inductive content analysis by collapsing the themes which emerged from reading through responses and drawing out important aspects into overarching categories (Table 1 in Appendix). For the positive conditions the context was often that certain aspects of these themes were present, for example having good health or social connection, whereas in the negative conditions they were mentioned negatively (e.g., absent or problematic). These themes were: Creating New Social Connections/ Relationships; Maintaining/ Attending to Existing Social Connections/ Relationships; Activity/ Occupation; Work /Employment/ Education/ Qualification/ Learning new Skills; Health and Welfare; Aspects of Eudaimonic Well-being (e.g, purpose, achievement); Practical/ Political issues; New/ Different Experiences/ Change/ New Things. The first author (HC) coded all responses. A random sample of 20% of responses (N= 307) rated blind by a second rater showed good inter-rater reliability (Kappa = .81).

Participants were tested individually, either at the activity centre from where they were recruited, at home, work or in a central London location. They completed the verbal fluency measure, the Future-thinking Task and the Satisfaction with Life Scale, in that order. The study received institutional ethics approval.

# Results

## Group Differences on number of future thoughts

The older adult and younger adult groups did not differ on gender (*p* = .620) or on ethnicity (*p* =. 135), coded as White British versus Other in order to cope with small numbers of distinct ethnic groups. Neither verbal fluency (OA, *M* = 13.56, *SD* = 4.99; YA, *M* = 13.76, *SD* = 4.44, t < 1) or life satisfaction (OA, *M* = 24.31, *SD* = 6.40; YA, *M* = 24.85, *SD* = 6.46, t < 1) differed between groups.

A Group (OA, YA) x Valence (positive, negative) x Time period (week, year, 5-10 years) mixed model ANOVA was used to analyse the main question of number of future thoughts generated on the Future-thinking Task. Means and standard deviations are shown in Table 2. There were significant main effects of group (*F*(1,76) = 9.60, *p* =.003, *ηp2* = .112) and time period (*F*(2,152) = 30.41, *p* <.001, *ηp2* = .286), which were qualified by a significant Group x Time Period interaction (*F*(2,152) = 3.90, *p* = .023, *ηp2* = .048). There was also a main effect of valence (*F*(1,152) = 60.72, *p* <.001, *ηp2* =.444), with participants producing more positive than negative thoughts, and a Valence x Time interaction (*F*(2,152) = 14.45, *p* <.001, *ηp2* = .246), which appeared to be the result of the greater number of positive responses to negative responses declining over the time periods. No other effects approached significance.

INSERT TABLE 2 ABOUT HERE

The Group x Time Period interaction arose because whereas the older adults and younger adults did not differ on thoughts for the next week (*M* = 5.14, *SD* = 2.15 and *M* = 5.65, *SD* = 2.55, respectively; *t* < 1), the older adults had fewer thoughts for the next year (*M* = 3.59, *SD* = 1.08 and *M* = 5.19, *SD* = 1.84, respectively; *t*(76) = 4.69, *p* <.001, *d* = 1.06), and the next 5-10 years (*M* = 3.29, *SD* = 1.54 and *M* = 4.47, *SD* = 1.65, respectively; *t*(76) = 3.27, *p* =.002, *d* = .74 ). The lack of a three-way interaction indicated that these differences were not qualified by the valence of the thoughts.

## Relationship of future thoughts to life satisfaction

Before examining the relationship of future thoughts to life satisfaction within each group, the older and younger adults were compared on levels of life satisfaction. The groups did not differ significantly (t < 1), indicating comparable levels of life satisfaction in the older and younger adults in this sample. Table 2 shows the correlations of life satisfaction with number of positive and negative responses participants gave for the three different time periods. Scatterplots were first examined. No obvious bivariate outliers or nonlinear relationships were observed. Positive future thinking showed no relationship to life satisfaction, either for older adults or younger adults. For younger adults, negative future thinking also showed no significant relationship to life satisfaction but for older adults the pattern was different: as the time periods stretched further into the future, lower well-being was increasingly related to having more negative thoughts. So, alongside the general decline in medium and longer term future thoughts that is evident in older adults, the greater the presence of negative thoughts for those medium and longer time periods the lower the level of the person’s well-being.

INSERT TABLE 3 ABOUT HERE

There was a wide age range in the older adult group. To check whether the participants’ age within the OA group was a factor, partial correlations were conducted for the significant relationships. The correlation of life satisfaction with negative thoughts for the next year (*r*(36) = -.34, *p* =.034) and with negative thoughts for the next 5-10 years (*r*(36) -.49, *p* =.002) remained significant after partialling out age. Similarly, the correlations were not influenced by any possible decline in verbal fluency that might have occurred with age because after partialling out verbal fluency both correlations were also preserved (*r*(36) = -.37, *p* = .024 and *r*(36) = -.53, *p* =.001 for Next Year and Next 5-10 Years, respectively).

## Group differences on content of future thoughts

Some of the distributions of categories (overarching themes) were very non-normal so non-parametric comparisons (Mann-Whitney u test) were conducted between groups (older and younger adults) on each category in each condition. There were many comparisons so an alpha of *p* <.01 was adopted, to try to minimise Type I errors at the same time as avoiding an excessive increase in the risk of Type II error. Some categories were very infrequent and/or showed no significant differences between groups on any of the six conditions, notably, Maintaining/ Attending to Existing Social Connections/ Relationships, Aspects of Eudaimonic Well-being, Practical/ Political Issues, and New/ Different Experiences/ Change/ New Things. Not surprisingly, younger adults gave more responses related to Work/Education across all conditions (either *p* = .001 or *p* <.001). Consistent with SST, younger adults gave more responses connected to Creating New Social Connections/ Relationships, for both positive and negative conditions for the next 5-10 years only (both *p* <.001). Finally, and also consistent with SST, older adults gave more Activity/ Occupation responses than younger adults for things looked forward to over the next week (*p* <.001). Older adults gave more responses related to Health and Welfare for all conditions, with the exception of things looked forward to over the next week (*p*’s ranged from .006 to <.001).

# Discussion

The present study used, for the first time, a measure of future-directed thinking to examine differences between older and younger adults in the amount and type of positive and negative thoughts they have for different future time periods. The study also examined the relationship between life satisfaction and the presence of positive and negative thoughts for the different time periods, as well as the content of future thoughts.

A key finding was the generally reduced number of thoughts about the future in older adults compared to younger adults, with the exception of thoughts about the next week. This finding is consistent with SST (Carstensen et al., 1999). SST emphasises the relationship between aging and increased focus on the present rather than the future, although in fact it may be more accurate to consider this a focus on what might be called the *present future*. Present future anticipations, as well as being closer, would be expected to be more specific, definite and typically smaller scale than anticipations for the more distant future (e.g., Trope & Liberman, 2010). Typical examples of these responses in the older adult group were ‘going to the cinema’, ‘going to clubs’ and ‘playing tennis’. These responses illustrate another finding consistent with SST, in that older adults gave more positive responses in the next week that were related to leisure and activities, experiences that are more likely to be related to providing a source of immediate well-being. In contrast, younger adults provided significantly more thoughts than older adults related to creating new relationships in the longer term. The prevalence of thoughts related to work/education in the younger adult group is not surprising, given the different life stages and circumstances. Similarly, older adults giving more responses related to health for almost all the conditions illustrates the salience of thinking about their health, either positively or negatively, for the older adult group.

The difference between groups in the amount of thoughts for the future emerged between one week and one year. The jump between these two future time periods leaves unanswered the question of how far into the future this period of the present future extends, how far into the future the anticipation of older adults remains comparable to that of younger adults. Jumentier and Barsics (2018), using a word-cuing methodology to elicit future thoughts, found older adults to be less specific than younger adults in their future representations, both when cued to think about events in the next year and the next five to ten years. This study did not include future time frame shorter than one year. It would therefore appear that differences between older and younger adults in their future-thinking are already established at a projected distance of one year into the future, but it remains to establish when, over the course of the next year, these differences start to emerge; in other words how far does the present future extend?

The second main finding was that within the older adult group the presence of negative thoughts about the next year and the next 5-10 years, but not the next week, were implicated in (low) life satisfaction. It is perhaps not surprising that, especially as people age, thoughts about the presence of adversity and negative outcomes in the medium to longer-term future are linked to a lower sense of well-being. Interestingly, the correlation between life satisfaction and the presence of negative future thoughts was not a function of chronological age within the older adult group. Perhaps as SST (Carstensen et al., 1999) would suggest, it is the subjective sense of time being limited rather than chronological age *per se*, that might be important. Future research could certainly usefully include a measure of time perspective. It is not clear why positive thoughts were unrelated to well-being in either the older or younger adult groups, particularly as the presence of positive thoughts has previously been found to be related to life satisfaction in a sample that had a wide age range (MacLeod & Conway, 2005). Short term thinking, positive or negative, was unrelated to well-being, again somewhat surprisingly. It may be that short term thinking is more linked to other, more labile aspects of well-being, for example, current affective states that might be more influenced by near-future anticipation. In fact, SST has tended to focus on more momentary positive and negative affect, the more hedonic aspects of subjective well-being (e.g., English & Carstensen, 2014), as opposed to life satisfaction, which is seen as the more cognitive evaluative component of subjective well-being (Diener et al., 1995). Such an explanation remains speculative but examining facets of well-being other than life satisfaction would be a useful aim for future research using the Future-thinking Task. Another avenue for future research would be to examine the magnitude, or personal importance, of events, beyond the number and type of events, as the present study was limited in only examining number and content. Finally, it might also be useful to examine trait measures of future orientation, such as the Temporal Orientation Scale (Shipp, Edwards & Lambert, 2009), given that in the moment future-thinking may vary over time.

The use of more experimental methodologies such as the Future-thinking Task (MacLeod et al., 1993) or word cuing paradigms (e.g., Jumentier et al., 2018; Madore & Schacter, 2014) can provide a useful supplement to existing, questionnaire-based methods for examining future-thinking in older adults. Although such measures do rely on people providing their own subjective responses, they (a) allow people to report on their own idiographic thoughts, (b) enable an examination of the content of people’s thoughts about the future and (c) produce objective performance indicators such as latency to first response or number of response within a given time limit. What is clear from the findings of the present study is that different time frames matter, both for describing how the future-thinking of older adults differs from that of younger adults and for examining how future-thinking is related to well-being and confirms previous findings that positive and negative thoughts about the future are distinct from each other, rather than simply opposite ends of a single dimension. The findings also suggest useful avenues for adapting formulation and intervention for adults as they age. For example, helping older adults to simultaneously focus less on medium to long term negative expectancies whilst increasing positive expectancies in a ‘here and now’ time frame could potentially contribute to helping people to age well.

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Appendix

Table 1

*Content themes and example responses generated from qualitative data*

|  |  |
| --- | --- |
| Content Theme | Example Response |
| Creating new social connections/ relationships | ‘Meeting new people’ |
| Maintaining/ attending to existing social connections/ relationships | ‘Spending time with my partner’ |
| Activity/ occupation | ‘Reading’ |
| Work/ employment/ education/ qualification/ learning new skills | ‘I want to use my PhD and not work at a job because I have to’ |
| Health and welfare | ‘My eyesight deteriorating’ |
| Aspects of eudaimonic well-being | ‘Having a sense of purpose’ |
| Practical/ political issues | ‘Current things in the country, terrorism and politics’ |
| New/ different experiences/ change/ new things | ‘A new challenge’ |

Table 2

*Means and standard deviations, in brackets, of positive and negative future thoughts generated by older and younger adults*

|  |  |  |  |
| --- | --- | --- | --- |
| Group | Positive |  | Negative |
|  | 1 week | 1 year | 5-10 years |  | 1 week | 1 year | 5-10 years |
| YA  |  6.82 (3.56) |  6.18 (2.68) |  4.95 (2.06) |  |  4.49 (2.28) |  4.21 (1.66) |  4.00 (2.03) |
| OA  |  6.72 (3.10) |  4.44 (1.57) |  3.49 (1.99) |  |  3.56 (2.77) |  2.74 (1.46) |  3.10 (1.80) |

*Note.* YA = younger adults, OA = older adults.

Table 3

*Correlations between life satisfaction and future-directed thinking for OA and YA groups.*

|  |  |  |  |
| --- | --- | --- | --- |
| Group | Positive |  | Negative |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 week | 1 year | 5-10 years |  | 1 week | 1 year | 5-10 years |
| YA  |  -.04 |  -.03 |  -.19 |  |  -.05 |  -.16 |  -.27 |
| OA |  -.27 |  .04 |  .04 |  |  -.15 |  -.36\* |  -.52\*\* |

*Note.* YA = younger adults, OA = older adults.

\**p* =.023; \*\**p* =.001.