The impact of having a defined benefit pension plan on well-being

Research paper

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Executive summary

Context

Many workers rely on pensions for their financial security during retirement. While there is evidence demonstrating how pensions impact members' health and well-being *during* retirement, less is known about how having a high-quality pension (e.g., a defined benefit pension plan or DBPP) impacts members' health and well-being *pre*-retirement.

Approach

To explore how DBPPs affect health and well-being pre-retirement, The Behavioural Insights Team (BIT) used the salience of pension benefits as a stimulus (i.e., prompting workers to reflect on the advantages of their pension). We hypothesized that if simply reflecting on one's pension increases financial well-being, then it is likely that having a pension increases financial well-being. We also wanted to know whether reminding DBPP members about their pension increases their financial well-being.

We focused on two key aspects of well-being. First, "financial well-being," which refers to having financial security and freedom of choice, in the present and in the future. Second, "financial stress," which refers to psychological reactions triggered by uncertainties and risks associated with managing financial resources. It represents a more immediate, present-focused aspect of well-being.

To establish a causal relationship between the salience of pension benefits and financial well-being, we randomly assigned workers with a DBPP into one of two groups: 1) a control group exposed to neutral information or 2) a treatment group exposed to information about the advantages of a DBPP. We then asked participants in both groups an identical set of questions to measure their financial well-being and stress, as well as to understand their expectations toward retirement.

We also wanted to understand how people with a DBPP compare on these outcomes to people without them. This is methodologically complex, but we were able to survey a similar population of non-pension workers to enable a *descriptive* comparison[1].

[1] A "descriptive comparison" means that we are not making strong inferences that having a pension is the *cause* of these differences in outcome, as we are not able to "control" for all other potential factors.

Findings

Full-time workers aged 40–60 with a DBPP reported 9 per cent higher financial wellbeing and 10 per cent lower financial stress than those without a pension. They also had more positive expectations toward their retirement.

Viewing a video prompting DBPP members to think about their lifetime pension increased their financial well-being by 3 per cent. These results suggest that having a DBPP has a positive impact on workers' financial well-being—a key contributor to health and well-being overall.

The video did not impact financial stress. Our results suggest that short-term financial concerns are the dominant factor in financial stress. While participants appeared to think frequently about their financial situation in retirement (over 50 per cent said they think about it at least monthly), they reported thinking about their current financial situation much more frequently (60 per cent said they think about it daily or weekly). This short-term bias likely mediates (and limits) the effects of pensions on stress pre-retirement. Future research could explore how to help workers think more about their long-term financial outlook or more fully integrate the value of their pension into their near-term outlook.

Introduction

Many healthcare workers rely on pensions for their financial security during retirement. A scan of the literature demonstrated that less is known about how, or if, having a pension conveys benefits to health and well-being pre-retirement. In this context, the Healthcare of Ontario Pension Plan (HOOPP) engaged The Behavioural Insights Team to conduct empirical research examining whether and to what degree high-quality pensions impact workers' health and well-being pre-retirement.

BIT conducted a novel and innovative experiment to shed light on this question. We ran a randomized controlled trial (RCT) that measured how increasing the *salience* of a plan member's pension impacted their financial well-being and stress. To make their pension plan more salient, we showed research participants a short video about the value of a DBPP. We compared these participants to a "control group" of participants who saw a video about a neutral topic, Canadian geography. We hypothesized that if reflecting on one's pension increases well-being, then it is likely that having a pension increases well-being. More directly, we wanted to know whether prompting people to reflect on their pension improved their well-being.

Improving financial well-being and reducing financial stress: pathways to improving health and well-being

Financial well-being refers to an individual's ability to meet their financial obligations, feel secure in their financial future and make choices that allow them to enjoy life. It considers factors like income stability, savings and debt management, and can influence overall well-being in a number of ways (e.g., contributing to higher life satisfaction and happiness, better relationships, a healthier lifestyle, increased self-efficacy and lower stress).

Financial stress refers to psychological strain related to managing finances (e.g., worries about meeting financial obligations, income insecurity, challenges with savings or accumulating debt).

Generally, there's an inverse relationship between financial well-being and financial stress; higher levels of financial well-being correspond to lower levels of financial stress. Overall, we know that stress is a key mechanism influencing both physical health and mental health[2,3,4] and that it is difficult to separate from well-being.

While stress is an important measure, we selected financial well-being as our primary outcome for this study. This is because measures of financial well-being are more future-focused (e.g., prompts someone to think about their financial future), which better fit our intervention design (i.e., making pension benefits—which manifest in the future—more salient.) Stress, on the other hand, is more present-focused (e.g., influenced by one's feelings about their current financial state). Therefore, we selected financial stress as our secondary outcome.

[2] McIntyre, L., Kwok, C., Emery, J. C. H., & Dutton, D. J. (2016). Impact of a guaranteed annual income program on Canadian seniors' physical, mental and functional health. *Canadian Journal of Public Health, 107(*2), e176–e182.
[3] Hamilton, H. A., Wickens, C. M., Ialomiteanu, A. R., & Mann, R. E. (2019). Debt stress, psychological distress and overall health among adults in Ontario. *Journal of Psychiatric Research, 111*, 89–95.
[4] Duflo, E. (2000). *Child Health and Household Resources in South Africa: Evidence from the Old Age Pension Program*. American Economic Association Conference.

Research methodology

Approach

Our experimental research aimed to answer the question: **Does prompting people to think about their pension increase financial well-being in individuals with a DBPP pre-retirement?**

To answer this question, we conducted a randomized controlled trial[5] online using Predictiv, BIT's proprietary platform for online experimentation. We also surveyed a similar population of workers ("companion survey") who do not have a pension to produce a descriptive comparison between those with and without a pension on baseline measures of financial well-being, stress and expectations toward retirement.

Randomized controlled trial

Inclusion criteria

We recruited full-time Canadian workers with a defined benefit pension plan (DBPP), aged 40–60 years old, through online panels, word-of-mouth and an email campaign by the British Columbia General Employees Union (BCGEU) between Oct. 6–Dec. 13, 2023. Full sample demographics and characteristics are available in Appendix A.

Participants were excluded from the study if they completed it too quickly (in less than 20 per cent of the expected completion time) or failed an attention check at the start of the experiment.

Trial design

Upon entering the experiment, participants were randomly assigned to one of two groups: 1) the control group, which was exposed to neutral, unrelated information (facts about Canadian geography), or 2) the treatment group, which was exposed to information about the benefits of a high-quality pension plan.

In both groups, the information was presented in the form of a short 25-second video that used simple language (e.g., a short audio message with subtitles for accessibility) and featured captivating nature imagery to attract the viewer's attention without being over-stimulating. The videos had identical pacing, tone and imagery—only the scripts differed between the conditions.

[5] Randomized controlled trials (RCTs) examine the causal relationship between an intervention and outcomes by eliminating the effect of potentially correlated external factors. What sets RCTs apart from other methods is that participants are randomly assigned to experiment groups. With a sufficiently large sample, random assignment ensures that—on average—individuals across groups only differ in terms of their group assignment. By eliminating differences across groups, we ensure that any difference in outcomes can be attributed to group conditions, as opposed to other confounding factors.

Control arm

Participants in the control condition were exposed to neutral information with general facts about the Great Lakes in the province of Ontario. This information was designed to be factual and neutral, avoiding topics that might elicit stress or change the emotional state of the participants.

Figure 1: Video provided to the control group and companion survey participants.

Script: "Canada stretches from the Atlantic Ocean, along the Arctic Ocean, and to the Pacific Ocean. It is the second-largest country in the world by land area. Canada also has the world's longest coastline, and the largest area of freshwater lakes. This includes the Great Lakes. The Great Lakes have been a major resource for activities like transportation, migration, trade and fishing."

Treatment arm

Participants in the treatment condition were exposed to information about the benefits of a high-quality workplace pension plan (specifically describing a DBPP) to increase the salience of both having a pension and its advantages. The aim of the video was to make pension benefits concrete and compelling. It targeted mechanisms of certainty ("...you will have a secure income every month after you retire.") and social comparison ("The rule of thumb for people without a pension is to save 10–15% of their paycheck every year. For you, it's taken care of!").

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Figure 2: Video provided to the treatment group participants.

Script: “You can enjoy peace of mind knowing your retirement is financially secure. That’s because you have a high-quality workplace pension plan. That means you will have a secure income every month after you retire. The rule of thumb for people without a pension is to save 10–15% of their paycheck every year. For you, it’s taken care of! So, enjoy the peace of mind. You are already doing a lot to save for your retirement.”

Experiment flow

To ensure participants were exposed to all of the information, they were not able to proceed through the video until it had played fully. Participants were then presented with a static text image with the same message and asked to confirm this was the message presented in the video. As a final check to ensure proper exposure and active participation in the survey, participants were then asked to describe their understanding of the information in an open-text field.

Outcome measures

After watching the video, participants in both conditions answered questions relating to the outcomes of interest. Our primary and secondary outcomes were measures of financial well-being and financial stress. Table 1 describes the validated self-report measures of financial well-being and stress that we used; subcomponents of these scales were selected based on relevance and practical reasons (e.g., keeping the survey short).

Table 1: Summary of the primary and secondary outcome measures

	Financial well-being	Financial stress
Definition	Having financial security and financial freedom of choice in the present and in the future	Psychological response to the perception of imbalance, uncertainty and risk in the realm of financial resource management and decision making
Measurement	Part 1 of CFPB Financial Well-Being Scale **How well does this statement describe you or your situation?** *1 - Not all, 2 - Very little, 3 - Somewhat, 4 - Very well, 5 - Completely* • I could handle a major unexpected expense • I am securing my financial future • Because of my money situation, I feel like I will never have the things I want in life* • I can enjoy life because of the way I'm managing my money • I am just getting by financially* • I am concerned that the money I have or will save won't last* **Reverse-coded*	The Affective Reaction section of the APR Financial Stress Scale **How much do you agree with the following statement?** *1 - Strongly disagree, 2 - Disagree, 3 - Neither agree nor disagree, 4 - Agree, 5 - Strongly Agree* • I feel depressed because of my financial situation • I feel sad because of my financial situation • I am fearful because of my financial situation • I feel anxious because of my financial situation • I worry a lot because of my financial situation • I am easily irritated because of my financial situation • I feel frustrated because of my financial situation
Elements[6]	• Having control over one's finances • Having capacity to absorb a financial shock • Being on track to meet financial goals • Being able to make choices that allow one to enjoy life	• Depression • Anxiety • Emotional exhaustion
Time horizon	Present- and future-focused	Present-focused

We also asked participants four questions about their expectations toward retirement related to their ability to meet their financial needs, decreases in quality of life, feelings of satisfaction

[6] All sub-questions are presented in Appendix B.

with their financial situation and their ability to maintain their current lifestyle and spending habits in retirement. Last, we asked participants about drivers of stress, how often they think about their current financial situation and how often they consider their financial situation in retirement.

Companion study

A companion study to the RCT was conducted to compare outcomes between those with a DBPP and those without a workplace pension.

Inclusion criteria

We recruited full-time Canadian workers without any type of workplace pension, aged 40–60 years old, through an online panel between Dec. 1–18, 2023.

Participants were excluded from the study if they completed it too quickly (in less than 20 per cent of the expected completion time) or failed the attention check at the start of the experiment.

Trial design

Experiment flow

Participants in the companion study experienced the same experiment flow as participants in the control group of the randomized controlled trial. They viewed a 25-second video that featured general facts about the Great Lakes in the province of Ontario (see Figure 1). This information was designed to be factual and neutral, avoiding topics that might elicit stress or change the emotional state of the participants.

Outcome measures

Participants completed all the same outcome measure questions as participants in the randomized controlled trial.

Research findings

Randomized controlled trial

Primary results: Financial well-being

Our primary outcome of interest was subjective financial well-being, measured using Part 1 (six questions) of the Consumer Financial Protection Bureau (CFPB) Financial Well-Being Scale. Financial well-being is understood in this scale as **financial security and financial freedom of choice, in the present and in the future**.

As shown in Figure 3 below, participants who were prompted to think about their pension had a **0.53 higher financial well-being score (3 per cent increase)** than those in the control group—a statistically significant difference.[7] In the analysis, we controlled for demographic characteristics that have been shown to influence financial well-being, including gender, age, education, marital status, value of assets and whether the participant has dependants.

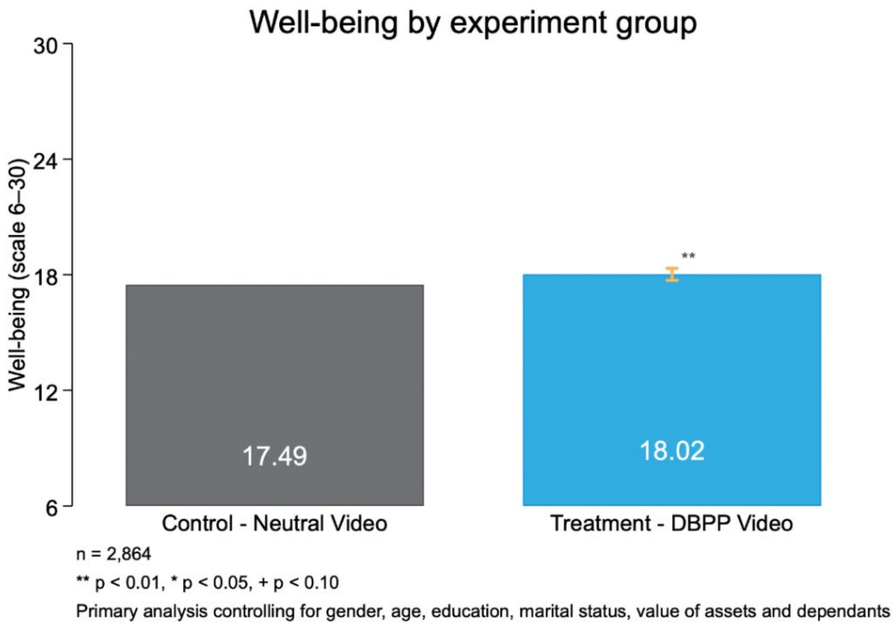

Figure 3: Subjective financial well-being by treatment condition.

This finding suggests that simply reminding people of the advantages provided by their pension conveys well-being benefits to workers pre-retirement. This half-point increase on the adapted CFPB scale is a relatively small but meaningful difference, given the light-touch stimulus (a 25-second video). This is an important finding since pension salience appears to increase financial well-being pre-retirement. Simply having a DBPP could have a much larger and sustained impact on individuals' financial well-being pre-retirement.

[7] Baseline financial well-being scores were higher among panel participants compared to those recruited through word of mouth, but the treatment effect was consistent across both samples.

Secondary results: Financial stress

Our secondary outcome of interest was subjective financial stress, measured using the seven questions in the Affective Reaction section of the APR Financial Stress Scale. In this context, financial stress refers to the psychological response to the perception of uncertainty and risk when managing finances and making financial decisions.

We did not find that the intervention changed participants' financial stress. As shown in Figure 4 below, there was **no statistically significant difference between** the self-reported stress of participants who were prompted to think about their pension compared to the control group. In the analysis, we controlled for demographic characteristics[8] that have been shown to influence financial well-being, including gender, age, education, marital status, value of assets and whether the participant has dependants.

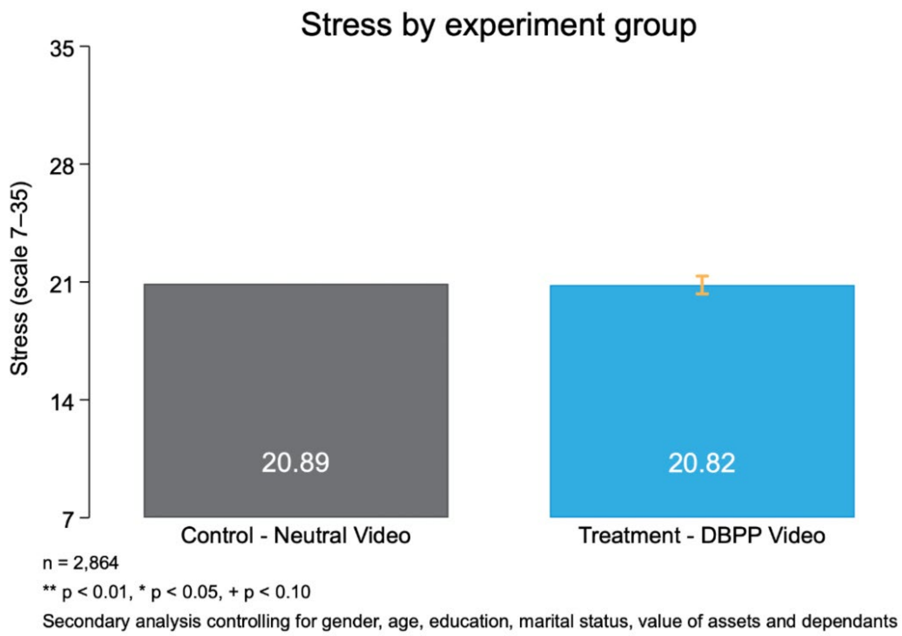

Figure 4: Subjective financial stress by condition.

It is important to note that the scale used to measure financial stress in this experiment focuses on *affective reaction* and emphasizes the role stressors play in shaping the way people feel about their *current* financial situation. We also learned that participants appear to think more frequently about their current financial situation compared to their financial situation in retirement (see Exploratory Results below).

These findings suggest that feelings of financial stress may be difficult to shift without altering participants' perception of their current financial situation, and that a pension, being future-focused, does not easily influence this aspect. Future research could explore how to help workers think more about their long-term financial outlook or more fully integrate the value of their pension into their near-term outlook.

[8] Our OLS regression $Y_i=\beta_0 + \beta_1$ Treatment $+ X_i\beta_j + \varepsilon_i$ where X_i is a vector of covariates controlled for these variables.

Exploratory results

Gender differences in financial well-being and stress

We conducted subgroup analyses for the primary and secondary outcomes to understand whether different trends in well-being and stress were observed among women and people of other genders[9], and men.

Descriptively, females and other genders had a lower baseline well-being by about 1.1 points on the scale compared to males (Figure 5). Consistent with the overall results, the treatment appears to have had a small, positive effect on well-being among both groups. As a result, the gap in well-being between females and other genders, and males persisted in the treatment group.

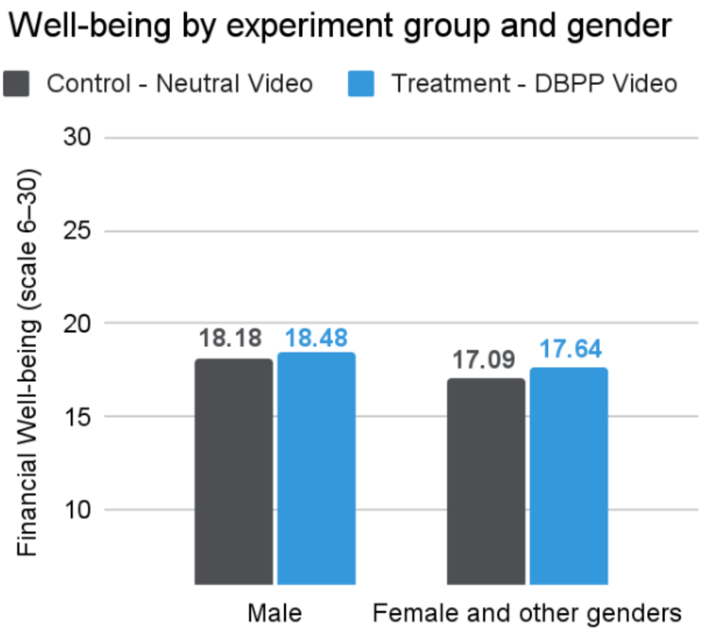

Figure 5: Subjective financial well-being by condition and gender.

Descriptively, females and other genders had higher baseline stress by about 1.4 points on the scale compared to males (Figure 6). Consistent with the overall results, the treatment appears to have had a null effect on stress among both groups.

[9] "Other genders" refers to those who selected "non-gender conforming (including nonbinary, pangender, gender fluid, bi gender, agender, transgender or other)" and "I prefer not to say."

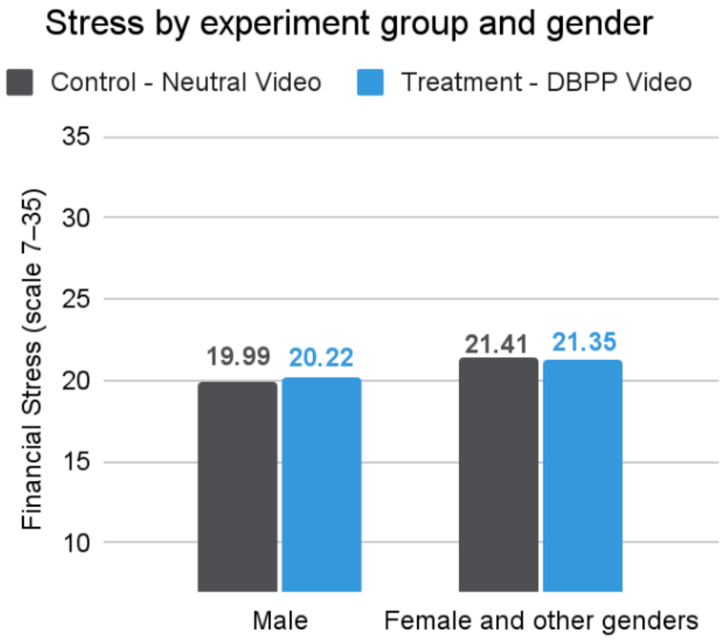

Figure 6: Subjective financial stress by condition and gender.

Expectations toward retirement

To capture participants' attitudes and expectations toward retirement, we asked them about the extent to which they agreed with a series of statements relating to what their life might look like in retirement.

Participants in the treatment group had significantly higher levels of agreement with positive statements in three out of the four measures,[10] including in their ability to meet their financial needs in retirement (Figure 7), feelings of satisfaction with their financial situation during retirement (Figure 9) and their ability to maintain their current lifestyle and spending habits (Figure 10). The levels of agreement with the statement, "My quality of life will decrease in retirement" (Figure 8) were similar between the control and treatment groups and were not statistically significant.

[10] We used an OLS regression to compare average response scores for each statement controlling for gender, age, education, marital status, value of assets and dependents.

1. I will be able to meet my financial needs in retirement

On average, participants in the treatment group **reported higher levels of agreement** that they will be able to meet their financial needs in retirement.

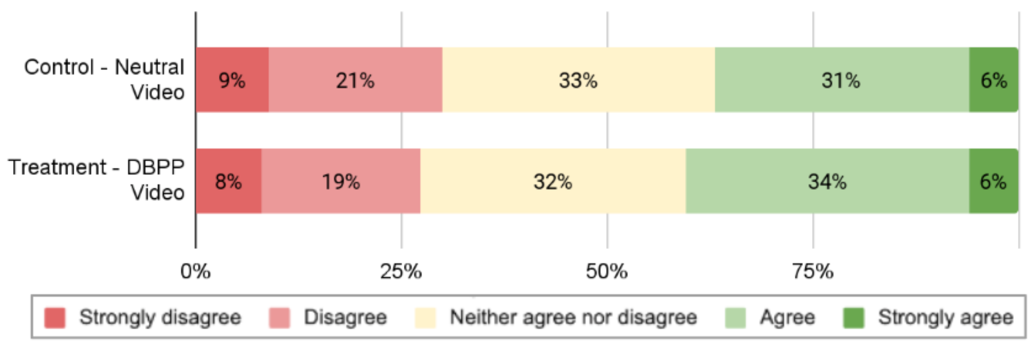

Figure 7: Agreement with ability to meet financial needs in retirement, by group.

2. My quality of life will decrease in retirement

On average, participants in the treatment group **reported similar levels of agreement** that their quality of life will decrease in retirement.

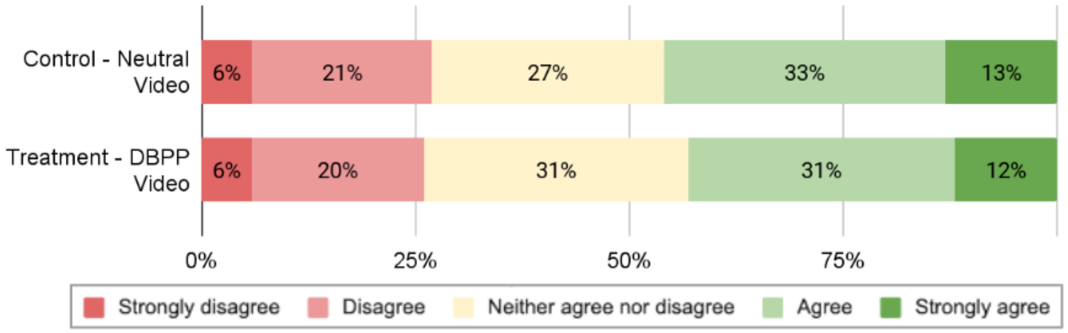

Figure 8: Agreement that quality of life will decrease in retirement, by group.

3. I'll feel satisfied with my financial situation during retirement

On average, participants in the treatment group **reported higher levels of agreement** that they will be satisfied with their financial situation during retirement.

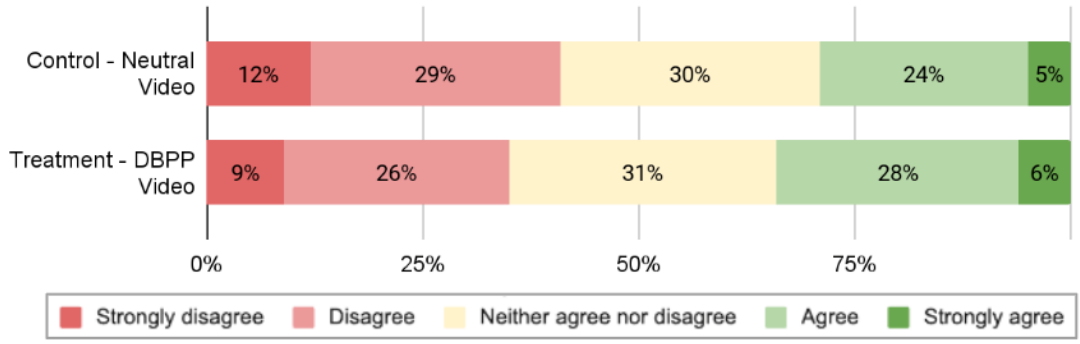

Figure 9: Agreement on feeling satisfied with one's financial situation during retirement, by group.

4. I'll be able to maintain my current lifestyle and spending habits

On average, participants in the treatment group **reported higher levels of agreement** that they will be able to maintain their current lifestyle and spending habits.

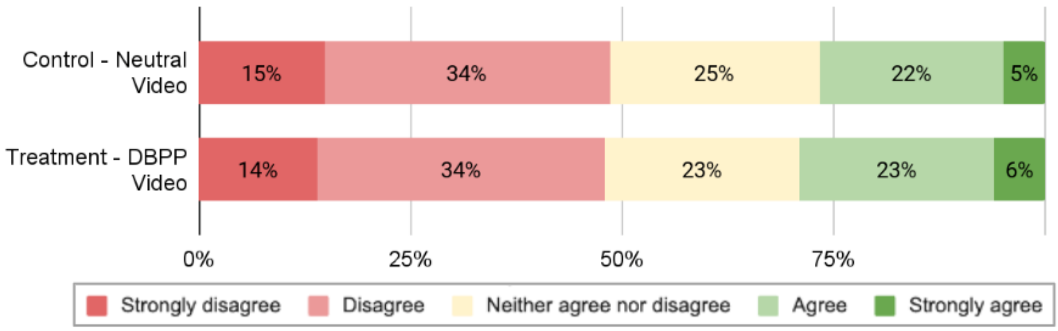

Figure 10. Agreement on the ability to maintain current lifestyle and spending habits, by group.

Overall, the differences in attitudes and expectations toward retirement are small but meaningful, demonstrating that reminding people about the advantages of their pension has an immediate impact on their perceptions of retirement.

The advantages of a DBPP highlighted in the video were quite general (e.g., referring to participants' "peace of mind"). In the future, communications that focus on the link between a pension and these specific aspects of retirement (e.g., the ability to maintain current lifestyle and spending habits) could have a larger impact on individuals' attitudes and expectations toward retirement.

We also compared expectations for retirement between the group without a workplace pension and DBPP members in the control group who viewed the neutral video. The differences in agreement with each sub-question were statistically significant. We cannot be certain that the difference is due to having a pension. While there are many other correlated factors, this suggests that the underlying hypothesis is correct: expectations for retirement are more positive among people with a DBPP compared to those without.

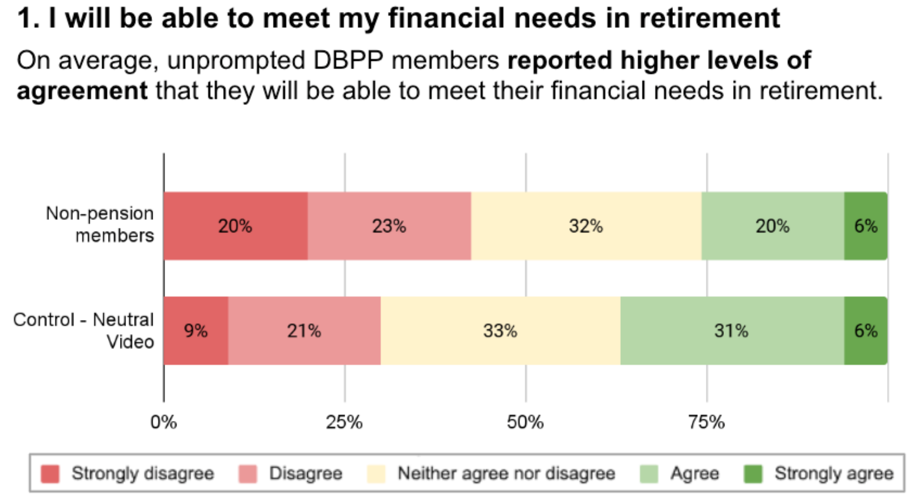

Figure 11: Agreement with the ability to meet financial needs in retirement, comparing non-pension members and DBPP members in the control group.

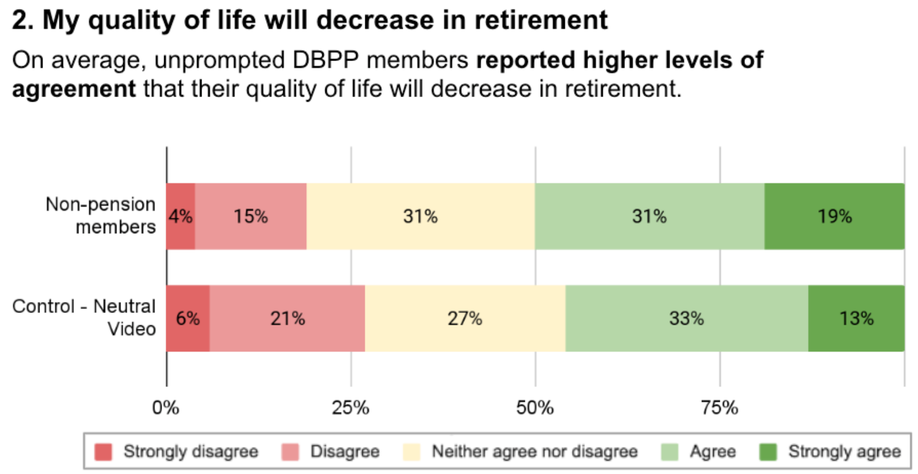

Figure 12: Agreement that quality of life will decrease, comparing non-pension members and DBPP members in the control group.

3. I'll feel satisfied with my financial situation during retirement

On average, unprompted DBPP members **reported higher levels of agreement** that they will be satisfied with their financial situation during retirement.

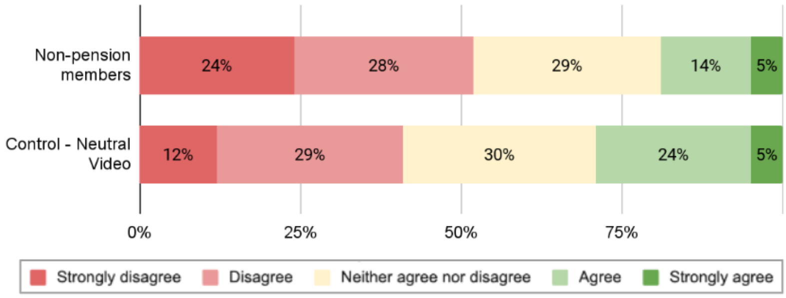

Figure 13: Agreement on feeling satisfied with one's financial situation during retirement, comparing non-pension members and DBPP members in the control group.

4. I'll be able to maintain my current lifestyle and spending habits

On average, unprompted DBPP members **reported higher levels of agreement** that they will be able to maintain their current lifestyle and spending habits.

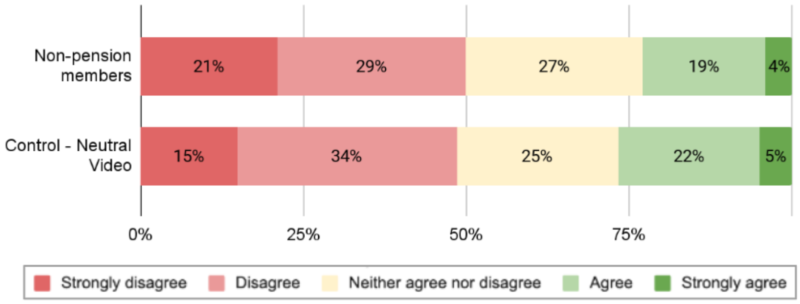

Figure 14: Agreement with ability to maintain current lifestyle and spending habits, comparing non-pension members and DBPP members in the control group.

Plans to stay with current employer

We asked participants whether they plan to stay with their current (i.e., pensioned) employer, as individuals who do not plan to stay with their current employer may be less likely to be affected by pension salience. Across both conditions, we found that over three-quarters (76 per cent) of participants were planning to stay with their employer for more than three years (Figure 15).

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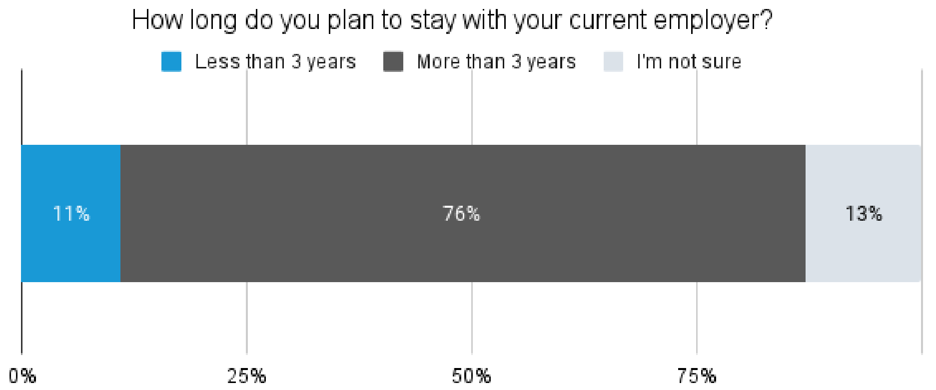

Figure 15: Plans to stay with current employer.

Sources of stress

We asked participants about the biggest sources of stress in their lives. If a participant is less affected by financial stress compared to other sources of stress, they may be less likely to be affected by pension salience. We observed, however, that financial stress was the most frequently reported driver of stress among participants in the experiment (Figure 16).

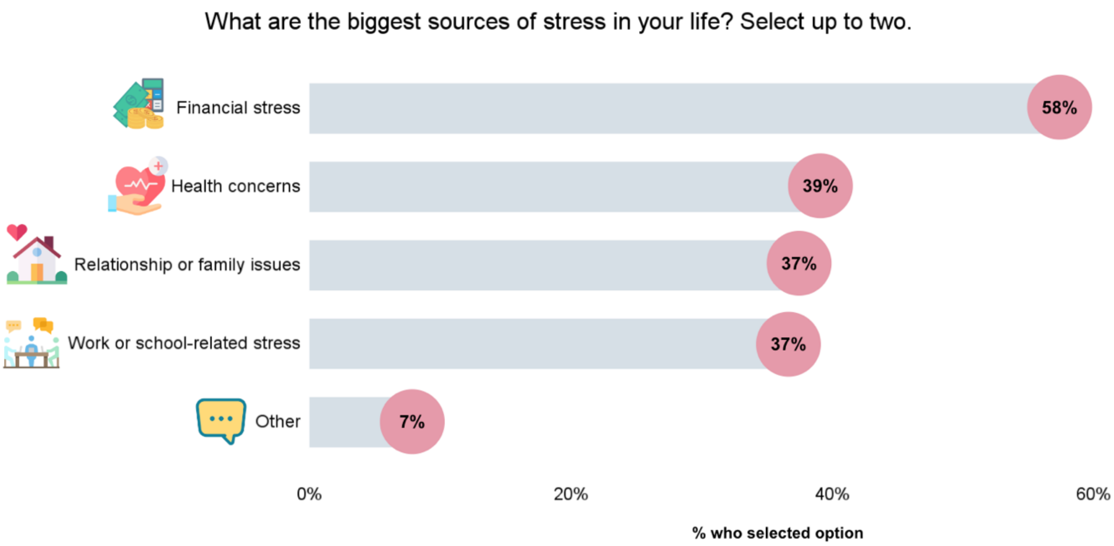

Figure 16: Biggest sources of life stress.

Frequency of thinking about financial situation

We asked participants two questions about how frequently they think about their financial situation—one focused on their current financial situation, and one focused on their financial situation in retirement.

As shown in Figure 17 (below), while participants appeared to think frequently about their financial situation in retirement (over 50 per cent said they think about it at least monthly), they reported thinking about their current financial situation much more frequently (60 per cent said they think about it daily or weekly). As discussed above, this short-term bias likely mediates (and limits) the effects of pensions on well-being pre-retirement.

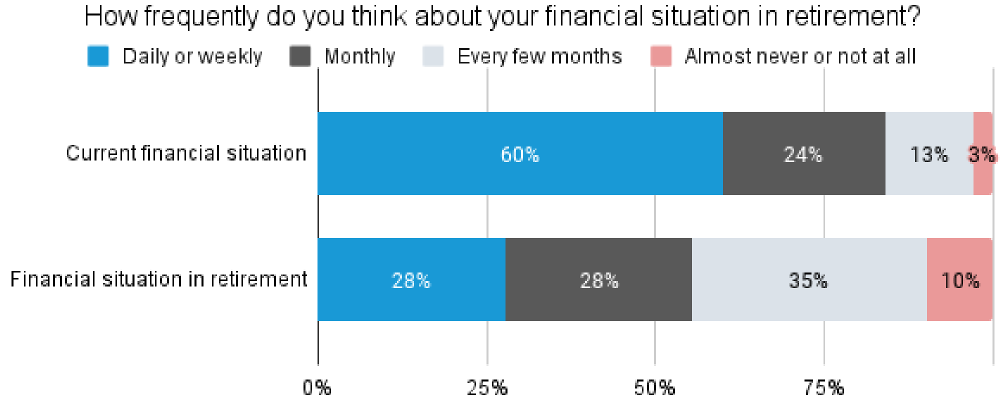

Figure 17: Frequency of thinking about current financial situation versus financial situation in retirement.

Companion study

Results

We collected data from 495 full-time workers within the same age range (40–60 years) who do not have a workplace pension to compare baseline levels of financial well-being, stress and expectations toward retirement with those of the control group.

Pension members reported higher levels of financial well-being, lower levels of financial stress and more positive expectations toward retirement compared to non-pension members. These differences in average financial well-being and stress (Figure 18) and expectations toward retirement[11] were **statistically significant**. While this is a meaningful result, we cannot be certain that the differences were due to having a pension. Establishing causality in an experiment would require randomly assigning people to having a pension or not, which is not feasible. This companion study was the strongest design available to us, and we believe is quite valuable despite the methodological limitations.

[11] Each sub-question was examined separately.

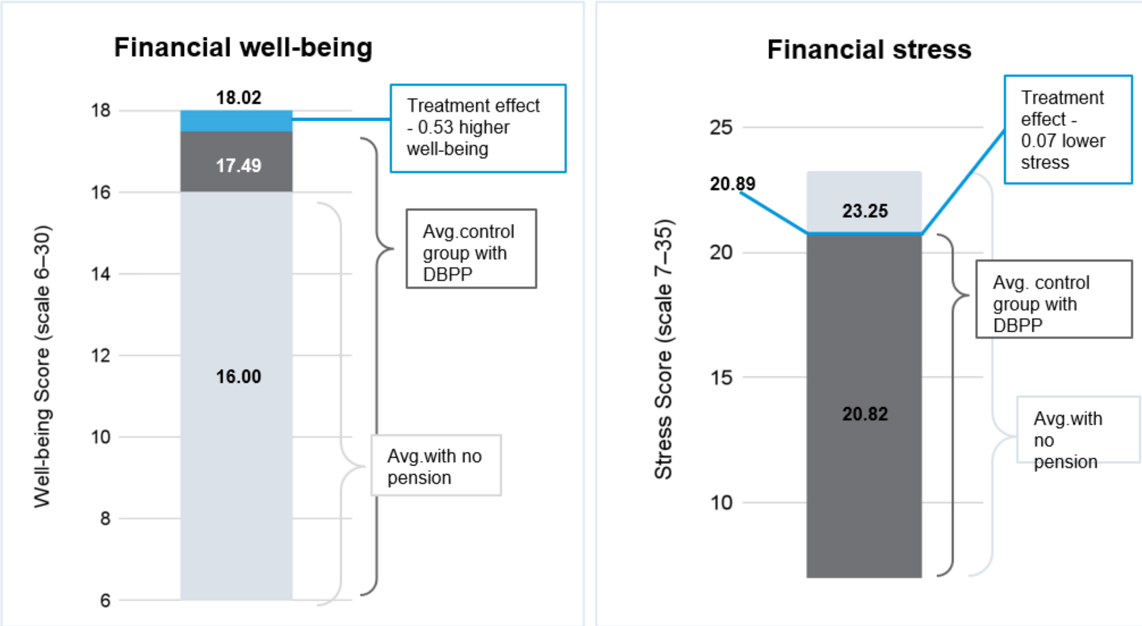

Figure 18: Average scores for financial well-being and stress between DBPP members in the treatment and control groups, compared to those with no pension.

We observed descriptive differences in demographic and other characteristics between this sample and the sample that completed the RCT (e.g., companion survey participants had lower non-pension assets and were less likely to work in the public sector; see Appendix A for details). While there are also many other correlated factors, this finding does provide some further evidence to support the underlying hypothesis: **pre-retirement well-being is higher, stress is lower and expectations toward retirement are more positive among people who have a pension compared to those who do not**.

Descriptively, **participants with a pension plan (i.e., those that completed the RCT) have higher intentions to stay with their current employer for more than three years than those without a pension (76 per cent vs. 52 per cent)**.

Conclusion

Many workers rely on pensions for their financial security *during retirement.* Our research demonstrates that pensions may have a positive impact on individuals' well-being during the *pre-retirement* years as well.

Full-time workers aged 40–60 who have a DBPP reported a 9 per cent higher financial well-being and 10 per cent lower financial stress than those without a pension. They also had more positive expectations toward their retirement. Among DBPP members that saw a video prompting them to think about their pension, financial well-being was 3 per cent higher than members who did not receive this prompt. This suggests that having a DBPP has a positive impact on workers' financial well-being—a key contributor to health and well-being overall.

The intervention did not impact financial stress, which appears to be primarily determined by short-term financial concerns.

Appendix A: Participant demographics and characteristics

Gender		
	RCT (n=2,864)	**Companion survey** (n=495)
Male	36%	45%
Female and other genders	64%	55%

Age		
	RCT (n=2,864)	**Companion survey** (n=495)
40–44 years	31%	34%
45–49 years	25%	22%
50–54 years	22%	22%
55–60 years	22%	22%

Dependants		
	RCT (n=2,864)	**Companion survey** (n=495)
Yes	46%	42%
No	54%	58%

Married		
	RCT (n=2,864)	**Companion survey** (n=495)
Yes	57%	47%
No	43%	53%

Degree		
	RCT (n=2,864)	**Companion survey** (n=495)
Yes	75%	64%
No	25%	36%

Value of non-pension assets		
	RCT (n=2,864)	**Companion survey** (n=495)
Under $50,000	47%	59%
$50,000 and over	53%	41%

Occupation		
	RCT (n=2,864)	**Companion survey** (n=495)
Health care	15%	9%
Social services	15%	2%
Information technology	5%	8%
Education and research	7%	4%
Manufacturing and engineering	4%	7%
Finance and banking	5%	5%
Retail and customer service	6%	16%
Agriculture and farming	1%	2%
Arts, entertainment, media	1%	4%
Government and public administration	30%	1%
Construction and real estate	2%	10%
Transportation and logistics	2%	5%
Other	6%	25%
Missing	2%	0%

Appendix B: Experimental research analysis technical details

Primary outcome: Financial well-being

Measurement

How well does this statement describe you or your situation?
1 - Not all, 2 - Very little, 3 - Somewhat, 4 - Very well, 5 - Completely
I could handle a major unexpected expense
I am securing my financial future
Because of my money situation, I feel like I will never have the things I want in life*
I can enjoy life because of the way I'm managing my money
I am just getting by financially*
I am concerned that the money I have or will save won't last*
***Reverse-coded**

Statistical analysis

To assess the difference in average financial well-being scores across the groups, we used an ordinary least squares regression:

- $Y_i = \beta_0 + \beta_1 Treatment + X_i\beta_j + \varepsilon_i$
  - i represents the individual.
  - Y represents our outcome of interest (total score).
  - $Treatment$ represents an indicator variable equal to 1 if the individual was randomly assigned to the experimental condition and 0 if the individual was assigned to the control condition.
  - Our primary coefficient of interest is β1, which represents the average causal effect of being assigned to receive the treatment. We are testing the hypothesis that the average difference between the treatment and control group is statistically significantly different from zero.
  - X_i represents a vector of covariates—gender, age, educational attainment and income of participant i. These variables are treated as dummy variables and are coded as stated in the variable construction table.
  - ε_i is the error term.

Secondary outcome: Financial stress

Measurement

How much do you agree with the following statement?
1 - Strongly disagree, 2 - Disagree, 3 - Neither agree nor disagree, 4 - Agree, 5 - Strongly Agree
I feel depressed because of my financial situation
I feel sad because of my financial situation
I am fearful because of my financial situation
I feel anxious because of my financial situation
I worry a lot because of my financial situation
I am easily irritated because of my financial situation
I feel frustrated because of my financial situation

Statistical analysis

To assess the difference in average scores across the groups, we will used an ordinary least squares regression:

- $Y_i = \beta_0 + \beta_1 Treatment + X_i\beta_j + \varepsilon_i$
  - i represents the individual.
  - Y represents our outcome of interest (total score).
  - $Treatment$ represents an indicator variable equal to 1 if the individual was randomly assigned to the experimental condition and 0 if the individual was assigned to the control condition.
  - Our primary coefficient of interest is β1, which represents the average causal effect of being assigned to receive the treatment. We are testing the hypothesis that the average difference between the treatment and control group is statistically significantly different from zero.
  - X_i represents a vector of covariates—gender, age, educational attainment and income of participant i. These variables are treated as dummy variables and are coded as stated in the variable construction table.
  - ε_i is the error term.

Exploratory measure: Expectations toward retirement

Measurement

How much do you agree with the following statement?
1 - Strongly disagree, 2 - Disagree, 3 - Neither agree nor disagree, 4 - Agree, 5 - Strongly Agree
I will be able to meet my financial needs in retirement
My quality of life will decrease in retirement*
I'll feel satisfied with my financial situation during retirement
I'll be able to maintain my current lifestyle and spending habits during retirement
***Reverse-coded**

Statistical analysis

To assess the difference in average scores across the groups for each sub-question, we used an ordinary least squares regression, controlling for gender, age, education, marital status, value of assets and dependants.

Other exploratory measures

Employment intentions

How long do you plan to stay with your current employer?
Less than 3 years
More than 3 years
I'm not sure

How frequently individuals think about their financial state

How frequently do you think about your current financial situation?
Daily or weekly
Monthly
Every few months
Almost never or not at all

How frequently do you think about your financial situation in retirement?
Daily or weekly
Monthly
Every few months
Almost never or not at all

Drivers of stress

What are the biggest sources of stress in your life? Select up to two.
Work or school-related stress
Relationship or family issues
Financial stress
Health concerns
Other (please specify)

Companion study

Measurement

We assessed the same outcome measures described above.

Statistical analysis

To assess the difference in average scores between the control condition and the non-pension control, we used a T-test.