

Empirical Article

Integrating career, health, and finance in a holistic retirement planning intervention for Australian older workers

Anna Mooney¹ , Joanne Earl¹, Paul Gerrans², Chanaka Wijeratne³, Carl Mooney⁴

¹Department of Psychology, Macquarie University, Macquarie Park, Australia

²UWA Business School, University of Western Australia, Perth, Australia

³School of Clinical Medicine, University of New South Wales, Sydney, Australia

⁴College of Science and Engineering, Flinders University, Bedford Park, Australia

Corresponding author: Department of Psychology, Macquarie University, Balaclava Rd, Macquarie Park, NSW 2109, Australia. Email: Joanne.Earl@mq.edu.au

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Abstract

Inadequate retirement planning has negative consequences for individuals and society. Interventions to improve more informed planning often focus primarily on financial aspects, with the timing of workplace exit and health considerations ignored leaving retirees at risk of poor adjustment. A six-stage intervention was developed consisting of three online modules (career, health, and finance) combined with individual consultations that aimed to assist older workers ($N = 829$, $M_{\text{age}} = 57.09$, female = 68%) to make more considered decisions about retirement. A randomized control study using four groups (modules only, modules-plus-consultations [holistic], finance only, and a control) was employed. Holistic group participants completed three online modules, completed a general health check, and spoke to a career consultant, as well as a financial consultant. Compared with the control group, mixed-effects regressions showed improved intervention outcomes across all three experimental groups. Of these, the holistic group had the largest number of significant outcomes including increased workplace exit perceptions, financial decision-making, and career and finance goal processes. We discuss the theoretical and practical implications of integrating online modules with retirement consultations to optimize retirement decision-making.

Keywords: retirement planning, online modules, retirement adjustment, older workers

Introduction

Preretirement planning is a goal-orientated behavior that involves long-term preparation for one's retirement. The positive relationship between planning and retirement adjustment has been well established both pre- and post-retirement (Muratore & Earl, 2015; Topa et al., 2009; Yeung & Zhou, 2017). A key input to a retirement plan is an expected retirement age. That is, people with an intention to retire generally plan to leave the workforce at a specific age such as when they reach their savings goals or may be entitled to a pension (Hoffman & Plotkina, 2020). Although the mean and modal *intended* retirement age of Australian workers aged 45 and over is 65 years, the reality is that the *actual* mean retirement age is 10 years earlier at 55 years (ABS, 2020). Of those workers aged 45–59 years, approximately 4 in 10 either do not have an intended age of retirement or do not know if they will retire at all (ABS, 2020). Even for those with plans, potential challenges that can trigger an early workforce exit may be underestimated. Therefore, well-considered retirement plans that consider potential setbacks can help to mitigate the adverse effects of an unexpected early retirement.

In analyzing data provided by the Australian Bureau of Statistics (2020), it is evident that expectations about workplace exit do not always match the reality. Australian workers cite financial as the main factor influencing their expected workplace exit, identified as either having financial security or as reaching eligibility age to access retirement savings or government age pension (ABS, 2020). While this matches the reality of what factors *retirees* cite for leaving the workforce, the case is not so clear-cut for other workplace departures, especially relating to job changes, health, and caring responsibilities. For example, less than 1% of those aged 55–69 cite expectations of being made redundant or retrenched as the main factor influencing their expected retirement whereas approximately 10% of those who retired in this age range cite it as a reason they ceased their last job (ABS, 2020). While health is identified as the main factor influencing retirement expectations by 19% of those aged 45–59 years, 33% of those who retired within the same age range identify it as a reason they ceased their last job. Finally, the need to care for others is cited by 1% of workers as the main reason influencing their expected retirement age, whereas 5% of retirees identify it as a reason they ceased their

last job (more so for women). These data point to both the need for greater planning per se and for the need to consider career and health as part of the plans.

There is a disconnect between workers' retirement expectations and retirees' experience. For example, in 2018–2019 196,200 people returned to work, having previously retired (ABS, 2020). Although many retirees may be willing and able to return to the workforce, successful reentry is commonly thwarted by employers' more negative evaluation of older workers' productivity as compared with younger candidates (Tunney & Mulders, 2022). Unless retirees possess unique knowledge or skills that are in high demand, employers are more likely to support the career progression of younger workers over older candidates (Tunney & Mulders, 2022). Therefore, workplace reentry can be complicated and often prevented by ageist attitudes that may include, for example, a belief that older workers do not perform as well as younger workers or are less willing to participate in career development activities (Cebola et al., 2021; Murphy & DeNisi, 2022). As such, careful consideration of the timing of workforce exit needs to account not only for individuals' financial readiness, but also their career goals, and health status to ensure an optimal time to leave the workforce.

Timing of workplace withdrawal

Workers' ability to optimize the timing of workplace withdrawal depends on their ability to construct a holistic plan that integrates not only financial aspects, (Leandro-França et al., 2016), but also career and health considerations. There is a clear need for planning initiatives to focus on more than just wealth accumulation for retirement (Tomar et al., 2021). For example, while financial need is the major reason cited for the return to work, more so for those who retired at younger ages (under 60 years), boredom becomes a more cited factor at older ages (ABS, 2020). Retirement planning, therefore, needs to be more closely aligned with life planning than just financial planning. Retiring from the workforce is not the same as retiring from one's career. Feeling bored in retirement may mean longing to return to doing the work one enjoyed or feeling unsure about what to do with one's time. As life expectancy in Australia continues to increase (Australian Institute of Health and Welfare, 2022), so do expected years lived in retirement. Hence, improving retirement planning, decision-making, and overall sense of wellbeing of older workers in the preretirement phase is significant not only for individual welfare but also for the economy and society overall (Donaldson et al., 2010; Henning et al., 2019; Noone et al., 2022).

Because having a say about how and when to leave work is a predictor of retirement adjustment, influencing the conditions of workplace exit is another way to improve retirement adjustment (Wong & Earl, 2009). With the increasing labor demands across multiple disciplines, particularly in the wake of the COVID-19 pandemic, older employees with high levels of motivation, health, job satisfaction, and workability wishing to maintain an active role would benefit from having a considered say in when they want to leave the workforce, which in turn would benefit labor shortfalls (Hirschi & Pang, 2020). In fact, experience of older workers, particularly in high-complexity jobs, is positively associated with behaviors of organizational citizenship and safety, and negatively related to absenteeism, tardiness, counterproductive, and aggressive

work behaviors (Doerwald et al., 2021; Ng & Feldman, 2008; Sturman, 2003; Zacher et al., 2021). Although control over the conditions of workplace exit, planning, and resource acquisition are crucial for retirement adjustment (Muratore & Earl, 2015), these are often not given the attention deserved in preretirement.

Based on the evidence for more holistic retirement planning, we developed a retirement planning intervention that aimed to promote the integration of workforce exit considerations (i.e., perceptions of choice, ease, and preparedness to retire) and the timing of retirement (i.e., leaving the workforce at a considered time vs. leaving at an "expected" time or being forced into retirement), along with health and finance considerations.

Interventions to promote retirement planning behavior

To date, the majority of interventions aimed at assisting the work-to-retirement transition address a single factor such as physical activity, health education, or social support (Rodríguez-Monforte et al., 2020). In response to the need for a multidisciplinary approach to retirement planning, this paper presents a model using evidence-based online educational modules covering career, health, and finance. These are supplemented with consultations to promote retirement decision-making through a greater awareness of career goals and exit conditions, applied retirement planning behaviors, goal setting, and more considered financial decision-making leading to better retirement outcomes.

Interventions to assist people in the preretirement phase vary in their specific objectives to promote retirement adjustment (Earl, Bednall et al., 2015). For example, actively developing new interests (Ng et al., 2019), maintaining similar living standards to those in preretirement (Hershey & Henkens, 2013), deciding whether to continue working or not (Kim & Feldman, 2000), encouraging retirement savings behaviors (Blanco et al., 2020), or maintaining a healthy lifestyle (Baxter et al., 2016). With regards to retirement planning interventions delivered online, educational modules have previously focused on improving goal setting and goal specificity (Earl & Burbury, 2019), and promoting retirement self-efficacy and mastery (Earl Muratore, et al., 2015). Other interventions with online modules have sought to raise awareness of the impacts of time perspective (i.e., focus on the past, present, and future; Zimbardo & Boyd, 1999) on planning and accumulation of retirement resources with an aim to enhance planning behavior during retirement (Mooney et al., 2021a). A separate program utilizing modules that cover health, social, and financial domains aimed to promote a smooth transition to retirement for late-career medical practitioners (Mooney Wijeratne, et al., 2021). The current study considers a wider range of outcomes grouped into retirement planning behaviors (e.g., looking into eligibility for government allowances), workplace exit perceptions (e.g., retirement age expectancy and confidence), financial decision-making, and goal setting (e.g., goal striving and expectancy).

One aspect not always explored during retirement planning is how the timing of workplace exit was determined. Retirement discussions between a financial adviser and the client often begin with the nomination of an exit date from the workplace by the employee which is effectively treated as exogenous by the adviser. The adviser may conduct wealth

modeling assuming the date of exit is optimal from a financial perspective, but may not explore health, psychological, or social aspects. If left unchecked, a person may exit prematurely, and risk having insufficient funds or get bored, as noted above, or stay too late and possibly endure a forced exit due to ill health or the cessation of work (Hirschi & Pang, 2020). Both scenarios have serious psychological and financial consequences (Thorsen et al., 2012; Tomar et al., 2021). The issue of poor postretirement adjustment and the costly implications for individuals and organizations alike has led to calls to introduce systematic education in retirement planning that helps employees to consider aspects beyond finance (Amani & Fussy, 2022). In response, the current intervention addresses a need to evaluate the relative benefit of inclusion of a broader range of topics in preretirement planning (i.e., career, health, and finance vs. finance only), and delivery (i.e., via online modules or by combining modules with one-on-one individualized consultations), for enhanced workplace exit decision-making, leading to a more positive postretirement experience. Well-adjusted retirees benefit economies, reduce costs to taxpayers, and ease pressure on professionals in caring agencies who often deal with the consequences of inadequate advice and limited decision-making.

The dynamic resource-based perspective

In the current research, retirement planning is conceptualized within the dynamic resource-based model of the process of retirement adjustment (Wang et al., 2011). From this perspective, the underlying mechanism affecting the complex and longitudinal process of adjustment is theorized to be a function of changes to six resource domains: physical, financial, social, cognitive, emotional, and motivational (Wang et al., 2011). That is, adjustment quality is affected by the fluctuation of resources (Noone et al., 2022).

In recent years, a number of antecedents have been identified as factors that influence adjustment quality and the majority of these fall directly within the six resource domains. For example, Topa et al. (2018) examined four broad psychosocial categories related to individual-, job-, work-, and family-level antecedents of early retirement that could be positioned within financial (income), social (family pull), physical (physical and mental health), and emotional (job satisfaction) resources. They reported medium effect sizes of workplace timing of retirement (e.g., financial security and organizational pressures). More recently, Noone et al. (2022) investigated the mediating role of retirement planning in the relationship between preretirement antecedents and retirement resources. Results of longitudinal pre and postretirement data of 435 retirees revealed physical (health), financial (income), and emotional (positive retirement attitude) resources predicted retirement planning. Financial planning was the strongest mediator predicting the greatest number of resource-based retirement outcomes. In developing a psychometric tool to assess the level of aggregate retirement resources, Leung and Earl (2012) found that physical and financial resources were the strongest predictors of retirement well-being, successful aging and better stress-coping ability.

The current intervention was guided by the theoretical framework of the dynamic resource-based model of retirement adjustment (Wang et al., 2011), and the empirical support for resource-based predictors of retirement outcomes, particularly the strong findings pertaining to financial

and health resources reported in Leung and Earl (2012). Furthermore, it extends the model to include a new component—careers. This new section is motivated by the symbiotic nature of workplace exit, health, and financial resources. For example, poor health may necessitate earlier exit and promote fewer financial resources. Much of the accumulation and maintenance of retirement resources requires one to be proactive; for example, to investigate what benefits are available to them and actively take the necessary steps to attain the necessary resources, or to simply nurture existing valued resources. In support of the view of retirement as a process rather than a life stage (Donaldson et al., 2010; Henning et al., 2019; Wang & Shi, 2014). Muratore and Earl (2010) developed a measure of retirement preparation that captures planning behaviors and practical effort in preretirement. The Retirement Planning Questionnaire (RPQII) taps retirement preparation across three domains: public protection (e.g., looking into government-provided financial and other benefits), self-insurance (e.g., checking and contributing toward financial and other assets to ensure financial needs are met), and self-protection (e.g., engaging in nonfinancial preparations to maintain physical and mental health, lifestyle choices, and social supports). This broader focus of retirement preparation beyond physical and financial aspects points to a more realistic view of the many facets of retirement planning that need to be considered.

Planning for workplace exit

As noted by Hirschi and Koen (2021), career counseling interventions promoting career self-management are lacking for older workers. One way to encourage reflection is to use current evidence and relate this back to personal circumstances. Frameworks provided by the Australian Bureau of Statistics and by Topa et al. (2018) provide many relevant and contemporary reasons for workplace exit that can be related back to an individual's own circumstances. When combined with Socratic questioning, these provide a powerful combination for evidence-based practice. It is possible for people to examine which of these reasons is most relevant for them, to share information about what is already known, but also to consider strategies for intervention or restructuring while still working.

The timing of workplace exit is a very personal consideration. Promoting workplace longevity without understanding the individual's job satisfaction or their position regarding career development, their health status or financial needs is not always the best course of action and may undermine postretirement adjustment (Amani & Fussy, 2022). The goal instead is to aim for a considered workplace exit including timing, whether gradual or abrupt, and to examine the reasons for leaving. For example, a person wanting to leave work due to low job satisfaction may want to undertake additional training, develop new networks to capitalize on well-developed skill sets, explore entrepreneurial opportunities, or change from full-time work to part-time work in order to delay retirement. Similarly, someone with poor health may realize that never retiring is an unrealistic objective and investigate workplace flexibility options.

Integrating health status in retirement planning

There may be two broad associations between health and early retirement. Some people in good health may choose

to retire early to engage in other activities while still well, while other workers may be forced to retire early due to illness which in turn impacts on their adjustment to retirement and financial resources. Australian data has shown two main trends (Maharaj et al., 2018). First, the number of people retiring early due to disability increases by age from the 50–54 to 60–64 group. Second, those aged 50–64 with poor to fair self-rated health are much less likely to be employed than those in good to excellent health. What is generally agreed, originating from the workability studies of Ilmarinen (2009; 2019) and others (e.g., Bethge et al., 2021) is that subjective ratings of health are a predictor of work exit, even after controlling for objective physical and work-related stress (Fisher et al., 2016). While poorer mental health has been associated with work exit, physical function, socialization, income, and job conditions are also relevant (Olesen et al., 2012). These findings highlight the importance of managing workers' physical and mental health in retirement planning. The fact that there was a 51% increase between 2001 and 2014 in the proportion receiving social security benefits for psychiatric or psychological problems is suggestive of the need to actively improve workplace supports to extend workplace longevity (Harvey et al., 2017).

There is a complex relationship between cognitive health and work exit. While cognitive impairment is unusual before the age of 65, and occupational complexity reduces the risk of cognitive impairment and dementia (Hyun et al., 2022), there is nevertheless an age-related decline in capacity for tasks such as novel problem solving and speed of processing (Borgeest et al., 2020). While changing to less cognitively demanding roles is one solution, the lack of insight experienced by some individuals with this condition may result in professionals with cognitive impairment continuing to work (Thomas et al., 2018; Tsugawa et al., 2017).

The definitive effect of the COVID-19 pandemic on retirement remains uncertain. In 2021, the U.S. Survey of Income and Program Participation found only a modest decline from January to December 2020, the first year of the pandemic, in the number of people aged 55–70 who were retired. Subjective rating of health was a predictor of retirement: 5.6% who endorsed having “poor” health reported they had retired early or planned to do so because of COVID-19 (Thompson, 2022).

Financial planning

While the relative importance of financial planning in retirement adjustment and retirement wellbeing is an open empirical question, “financial literature dominates evidence about who plans and who does not” (Preston et al., 2018, p. 4). Notwithstanding the attention financial planning receives, it is not unambiguously the dominant preretirement planning domain, and neither are financial resources necessarily the most significant retirement resources, in determining retirement adjustment and well-being. For example, cross-sectional evidence suggests that financial planning has a comparable association with life satisfaction and retirement confidence as health, social, and psychosocial planning (Liu et al., 2022). Similarly, longitudinal evidence suggests that while building financial resources is an important outcome of preretirement planning, and is an important component of total retirement

resources, social resources largely account for the changes in well-being and life satisfaction in retirement (Yeung & Zhou, 2017). Other longitudinal evidence of the significant positive role of financial planning on retirement resources (Wang et al., 2011), relative to the role of health, psychosocial, and lifestyle planning (Noone et al., 2022), supports the attention given to financial planning.

Early literature reviews (e.g., Barbosa et al., 2016; Wang, 2007) identified retirement planning as a significant positive predictor of adjustment or wellbeing, without a breakdown by planning domain. More recent meta-analyses confirm the significance of financial factors on retirement adjustment but note that the effect size (0.17) was significantly lower than social participation (0.23) and physical health (0.22) (La Rue et al., 2022). Furthermore, finance subfactor effects were larger for income and net worth than financial planning. Notwithstanding the evidence supporting retirement planning across career and health domains, informed financial planning can increase confidence in retirement knowing one has maximized their retirement earnings potential (Greenwald et al., 2017; Helman et al., 2015). Accordingly, outcomes in financial decision-making in this study include measures of engaging additional financial advice, financial well-being (i.e., capacity to absorb financial shocks, and tracking or estimating retirement savings and expenditures), and financial literacy.

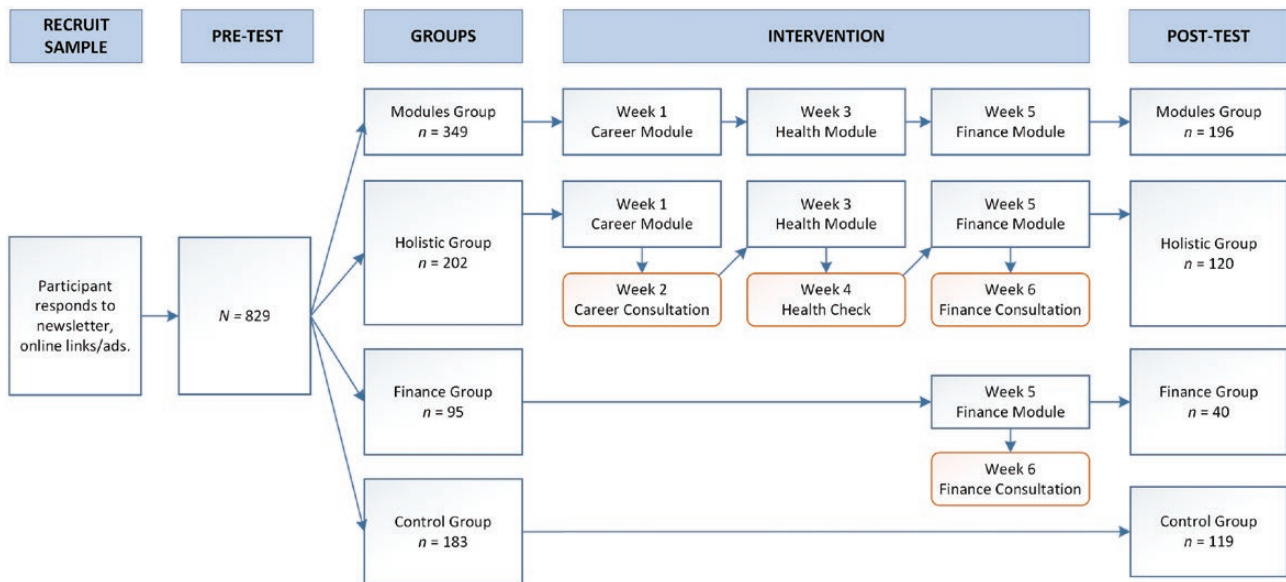
Focus of the current investigation

In light of theoretical and empirical evidence supporting a multidimensional view for retirement planning, the focus of the current investigation was to integrate career considerations along with health and finance in an online modules and consultations program that aimed to encourage a more holistic approach to retirement planning. Emphasis was placed on decisions surrounding the conditions of workplace exit such as timing and readiness to transition into retirement. Moreover, we aimed to determine whether participating in consultations provided additional value to the decision-making process relative to completing the evidence-based modules alone. We tested across a total of 19 outcome variables nested under four categories: retirement planning behaviors, workplace exit perceptions, financial decision-making, and goal setting. All the specific variables within each of these categories are presented in Table 1.

The inclusion of a finance-only group allowed us to separate the effects of financial planning from holistic planning. Guided by the current research findings, we predicted that engaging in holistic consultations would be better than completing the modules alone. That is, compared with the modules-only group, the holistic group was expected to show positive changes at postintervention across a greater number of variables in workplace exit perceptions (five variables), goal setting behaviors (six variables), and financial decision-making (five variables) (Hypothesis 1). Moreover, we hypothesized that engaging in holistic consultations would be better than receiving financial information only; therefore, we expected that compared with the finance group, the holistic group will experience positive nonfinancial outcomes across a greater number of variables in workplace exit perceptions (five variables) and goal setting behaviors (six variables) (Hypothesis 2). Essentially, we anticipated that compared with the control group, all three experimental groups would show

Table 1. Study outcomes grouped into four broad categories

Retirement planning behaviors	Workplace exit perceptions	Financial decision-making	Goal setting
RPQII public protection	RA expected	Financial literacy	Career goal striving
RPQII self-insurance	RA confidence	Fin self-efficacy	Career goal expectancy
RPQII self-protection	Choice	Consult FA	Health goal striving
	Ease	Estimated retirement income	Health goal expectancy
	Preparedness	Estimated retirement expenditure	Finance goal striving
			Finance goal expectancy

**Figure 1.** Experimental design and study flow.

improvements in outcomes across all four categories; that is, 12 comparisons capturing retirement planning behaviors, workplace exit perceptions, financial decision-making, and goal setting behaviors (Hypothesis 3).

Materials and methods

Participants and procedure

Respondents satisfying the eligibility criteria of being 50 years of age or over and working ($N = 829$) were invited to participate in a study involving a holistic model of retirement planning. Invitations were circulated by Australian Superannuation companies, via social media platforms and community flyers. The invitation called for volunteers to complete online surveys that ask about their plans for retirement, financial position, health, and well-being, as well as potentially complete online educational modules and engage in holistic consultations. Participants were incentivized with gift vouchers to the value of \$20 - \$60 AUD depending on the number of tasks they completed. With regard to participant demographics, the majority were female ($n = 564$; 68.0%), married or partnered ($n = 548$; 66.1%), well educated with, at minimum, a Bachelor's degree ($n = 534$; 64.4%), and working 35 or more hours per week ($n = 623$; 75.2%).

As illustrated in Figure 1, upon completing the baseline survey, which took approximately 30 min, participants were

asked whether they were interested in continuing with the study. All those consenting to continue were then randomly allocated by the survey software to one of four groups: modules (three online modules only), holistic (three online modules, career, and finance consultations, and health check), finance (finance module only and finance consultation), and wait list control (surveys only). For equity, all participants assigned to the finance or control group were assured at the outset that they would be provided with full access to all the modules at the end of the study.

Quotas for each group were estimated and pre-set based on the available number of advisers and expected attrition. The holistic group required a career counselor and a financial planner to meet online or via phone with each participant and the number of available counselors and planners provided a capacity constraint. COVID-19 created another unexpected constraint with some Australians confined to their homes and unable to attend a pharmacy to undertake a health check. The modules and holistic group requirements had the greatest time burden for participants and were therefore assigned more participants to account for likelihood of greater attrition. Upon allocation, participants were informed of their assigned group, were presented with information outlining the task requirements for their specific group, and were again given the option to continue or withdraw; 98.9% consented to continue. To encourage retention, we adopted a participant-centered approach and applied several retention

strategies, including approaches recommended by [Chhatre et al. \(2018\)](#) such as providing easy-to-understand communication and detailed explanation of task requirements and scheduling. [Table 2](#) presents an outline of our retention strategies.

[Figure 1](#) illustrates the study design and flow, and task requirements for each group. As the figure shows, the holistic group corresponding tasks (i.e., career and finance consultations, and health check) were fulfilled in the week following each module. Aligned with the task progression of the modules and holistic groups, the finance group began the Finance module in Week 5 of the program. The entire intervention program ran for six weeks.

Participants booked career and finance consultations via Squarespace Scheduling, an appointment scheduling tool that allows individuals to book an appointment, cancel, or reschedule. A link to Squarespace was included in the same

email containing a link to the module. For example, at the start of Week 1, participants received two links via email—a link to the career module and a link to book an appointment with a career consultant in the following week. The same process applied for the finance component in Week 5. In Week 3, participants received a link to the health module and a link to book a general health check at a local participating pharmacy. As outlined under “Health checks” below, participants received a general 4-point check; a standard service offered by the participating pharmacy chain. As the health check was the only part of the program that was not completed online, participants received a \$20 gift voucher via email as reimbursement for time and travel costs. All participants received a timetable of scheduled tasks for the entire study in their first correspondence.

Holistic retirement planning modules

The modules were delivered online and hosted on a secure website explicitly created for the program. To gain access, participants entered their individual ID codes that they created at baseline. All three modules presented five broad topics within the theme of each module (see topic screenshots in [Supplementary File A](#)). The module slides included interactive psychoeducational material and exercises to enhance engagement with the content (see example slides in [Supplementary File B](#)). Training modules containing interactive or gamified elements have the potential to increase interest in the content and, in turn, trainee effort ([Armstrong & Landers, 2018](#)). Furthermore, we can reasonably infer that since participants self-volunteered for the study, they were intrinsically interested and motivated to learn new retirement planning strategies. According to [Ryan and Deci \(2000\)](#), intrinsic motivation is high where individuals’ needs for both autonomy and competence are met. We infer a high level of autonomy based on self-selection to participate. Regarding nurturing a sense of competence, module navigation was pitched toward relatively easy- to medium-level task difficulty to ensure cognitive resources are not depleted ([Milyavskaya et al., 2021](#); [Nurtilla et al., 2015](#)). Participants were invited to rate each module out of five stars. The Career module was rated 4.4, the Health module was rated 4.1, and the Finance module was rated 4.2.

Career module

The objective of this module was to provide psychoeducation and guidelines pertaining to workplace exit as derived from two main sources: the ABS Retirement Intentions data (2020) (e.g., reentry difficulties, premature departure due to ill health, and adopting caring responsibilities), and a meta-analysis of reasons for workplace withdrawal ([Topa et al., 2018](#)). The five topics in the Careers module stimulated thinking about: (a) why people leave work; (b) the conditions of workforce exit; and (c) variations of workforce exit; and prompted self-reflection regarding; (d) workability; and (e) next steps. In reference to the screenshot in [Supplementary Appendix A](#), the first three topics covered the timing and conditions of leaving the workforce and identified some reasons for why people decide to leave work ([ABS, 2020](#); [Topa et al., 2018](#)). As an example, regarding timing, retire too early and risk depleting financial savings, feel the full career potential had not been reached, or becoming bored; retire too late and risk feeling tired or burnt out or enter a forced retirement due

Table 2. Outline of applied retention strategies

Strategies	Description
Study description	Full disclosure of the potential risks and benefits of participation was provided at the outset.
Description of tasks	Following group allocation, a tabulated outline of all scheduled tasks was provided and the date ranges within which the tasks would need to be completed.
Task requests	The same table of tasks was emailed with each request to complete a scheduled task. The content in the table referring to the current task was highlighted. In subsequent invitations to complete a task, the previous completed task(s) was/were marked with “DONE.”
Personalized communication	Identification codes (ID) were used in emails to address participants. ID codes were created by participants based on their initials and day and month of birth. ID codes allowed personal communication while maintaining anonymity.
Appointment scheduling	Scheduling software was used to book appointments with advisers. The software allowed participants to reschedule or cancel appointments via automated emails containing links to these functions.
Reminders	Text message reminders were sent to the participant’s nominated mobile phone one day prior to their scheduled appointment with the adviser.
Financial incentives	Electronic gift cards were emailed following completion of designated milestone tasks. A message accompanied the gift card stating the research team’s appreciation of the participant’s task completion and continuing engagement in the study.
Nonfinancial incentives	Messages of appreciation for participation at every stage of the study.
Contact	A dedicated project email address and phone number were provided to participants as contact information should they need to raise an issue. The same project administrator (AM) maintained communications and encouraged participants to contact her with any concerns or technical issues.
Holiday greetings	Festive season wishes were emailed to all participants with the simple message: Whether this time of year holds a spiritual, religious, relaxation, or other significance for you, we hope you have a wonderful time and a safe Happy New Year!

to ill health. Regarding common reasons for the decision to cease paid work, the module presented themes identified by [Topa et al. \(2018\)](#) as antecedents to early retirement; these included job satisfaction, family commitments, individual circumstances, and work situation.

The last two of five topics aimed to direct attention to participants' individual circumstances and to encourage personal reflection regarding their own sense of workability and anticipated resource-based daily activities in retirement. Regarding workability, which [Cadiz et al. \(2020\)](#) have described as "a person's ability to meet the requirements of their job" (p. 89), participants were introduced to factors that affect workability (e.g., job demands, personal and job resources, physical and mental health) and in turn how workability affects outcomes (e.g., job attitudes and performance, work motivation, strain, and exit intentions). This information led to a self-reflection activity that helped individuals to determine their own level of workability. Finally, the fifth topic introduced the retirement resources pyramid, a hierarchical depiction of the six retirement resources needed for better retirement adjustment ([Leung & Earl, 2012](#); [Wang & Shultz, 2010](#)). To assist an understanding of the connection of each resource to how time is spent in retirement, participants assigned "time tokens" to each resource based on which activities they anticipate engaging in over an average one-week period. Given that many retirees have approximately 63 hr per week to fill (24 hr per day minus sleep, self-care, and chores), the activity prompted thought about how they could use their free time to build or maintain resources.

Health module

The focus of this module was to link health factors with premature workplace withdrawal. Information was provided about risk factors in older age, common health problems, diet and exercise, and the importance of implementation intention to improve goal-setting success. The module covered topics pertaining to: (a) disease prevention; (b) substance use; (c) physical health; (d) mental health; and (e) cognitive impairment. Content covering disease prevention highlighted specific lifestyle patterns as risk factors and outlined known consequences of common health issues such as cardiovascular disease, Type 2 diabetes, unhealthy diet and excess weight, and provided suggestions for prevention and health improvement. The substance use topic provided education around the effects of consumption on physical and mental health, and on interpersonal relationships. Links to external sources such as health websites provided opportunities for participants to check health-related guidelines and recommendations, take online health tests, or simply learn more about a topic.

The physical and mental health topics provided information regarding warning signs and symptoms of common problems that could affect one's working life such as back problems, arthritis, asthma, and diabetes mellitus. Mental health issues included stress, burnout, depression, anxiety, and suicidal ideation. For all these concerns, the module outlined some known causes, suggestions for self-care, and questions for self-reflection. Regarding the topic of cognitive impairment, much of the content centered around dementia, its prevalence, symptoms, risk factors, prevention, and advice with supporting a loved one showing symptoms of dementia.

Finance module

The Finance module focused on the role of financial resources in retirement. The broad aim of the module was to assist participants to reflect on and develop/confirm/modify informed financial goals and expectations for retirement through a combination of information and available activities. As with the other modules, the Finance module was structured with five topics: (a) "How much will I need?" reviewed different approaches (income replacement rates, standards of living guidelines, and budgeting approaches) to determining the income required in retirement; (b) "How can you provide income in retirement?" focused on ways of generating income; for example, from accumulated lump sums (superannuation savings); (c) "Income provided to you" focused on benefits provided by government; for example, age pension, and income replacement via government subsidies such as medical benefits; (d) "How am I traveling" focused on reflecting on income expectations and projected income, which reconciled the information from previous modules; and finally (e) "Options for savings" reviewed opportunities for building financial resources; for example, through additional voluntary superannuation contributions. Participants were advised at the start of the module that in designing the content, independent sources of information were relied on as much as possible. For example, information was sourced from MoneySmart, which is the consumer "face" of the Australian Securities and Investments Commission, and from industry groups such as Super Consumers Australia. The module was designed to be able to be completed within an hour but given the various opportunities provided to access further information via links or to check understanding through optional trivia style quizzes, actual module completion was longer for some participants.

Career consultations

Career consultants were either registered or provisionally registered psychologists working under the supervision of an endorsed Organizational Psychologist. To ensure consistency with regard to what was covered, consultants completed a process of training in which they were required to: (a) view the Career module; (b) attend an online 4-hr group-based training workshop covering processes including calling participants, potential questions, and responses; (c) practice provision of a session using the semi-structured protocol and logging calls using a survey style platform; and (d) complete an individual full-length role-play via a coaching call over the phone supervised by the lead researcher.

Career consultations were offered following completion of the online Career module. The first scheduled "live" call with an actual participant was listened to by a supervising psychologist and feedback provided afterwards. To ensure quality, 10% of calls were randomly listened to for adherence to protocol and feedback provided later. Call logs recorded participant ID code for attendance, adviser name, main topic of discussion, and a basic assessment of the participant's engagement.

Aligned with the topics covered in the module, career consultants used a protocol to explore participants' reasons for future workplace exit. Topic examples included, social or organizational pressures, financial incentives, family/friends, job stress, job satisfaction, reaching eligibility age to access funds, own sickness or disability, expected to be retrenched.

Socratic questioning was used to test participants' reasoning, challenge assumptions, and look for evidence. Toward the end of the discussion participants were encouraged to prepare at least one career goal using SMART Goals (Doran, 1981) with a focus on implementation intention (Gollwitzer, 1999) to increase the likelihood of success.

Health checks

The aim of the health checks was to offer some insights into personal health status and encourage acknowledgement and reflection of health risk factors that could affect workplace longevity and goal setting. Health checks followed completion of the Health module, were of a general nature, and conducted at a local participating pharmacy within a national chain. Stores in the participating pharmacy chain offer general health checks as part of their standard service to customers. The service involved checking blood pressure, body mass index, and total cholesterol and glucose levels using a finger-prick blood test. Health check data were confidentially stored on the pharmacy system, as per standard practice, and not shared with the research team.

Finance consultations

Financial advisers were invited to participate via email from an industry partner with an interest in retirement risk management. All advisers were practicing professionals with an average of 14.7 years' experience and registered with the Australian Securities and Investments Commission (ASIC, 2021). Following a similar training process to the career consultants, finance advisers completed an online 4-hr group-based training workshop and practiced applying the protocol and logging calls. Financial advisers were accredited with 12 professional development points corresponding to the overall number of hours applied toward training and providing consultations (see ASIC (2022) for information on professional standards for Australian financial advisers).

Advisers emphasized to participants that no personal financial advice was being provided. That is, advisers provided general or informational insights rather than personal advice as they were not able to consider participants' personal circumstances such as investments, debts, etc. Advisers invited participants to raise questions about any of the topics from the Finance module that were of most interest to them. As with the career consultant compliance checks, 10% of all calls were listened to by a supervising financial adviser and finance academic who provided feedback to the adviser. Toward the end of the session, advisers provided referrals to government and other reputable websites for participants to look into gaining further information.

Measures

Outcome measures used were largely established and validated in the literature, and scores were calculated according to published recommendations. These outcomes (dependent variables) have been grouped into four broad categories and are outlined in Table 1.

Retirement planning behaviors were assessed using the RPQII (Muratore & Earl, 2010). The RPQII is a 28-item scale that measures the level of effort spent on retirement planning behaviors across three domains: public protection (looking into payments and other supports provided by the Government), self-insurance (financial preparations to optimize wealth in

retirement), and self-protection (nonfinancial preparations to maintain physical, mental, social, and emotional well-being). Participants rated their effort in each of the 28 behaviors from 1 (*very small amount of effort*) to 5 (*very large amount of effort*). Sample items include: "Looking into eligibility criteria for Age Pension" (public protection), "Checking your superannuation fund's performance" (self-insurance), and "Developing new interests or skills with formal instruction or your own initiative" (self-protection). For each domain, a mean score was calculated with higher scores indicating a greater level of planning effort.

Workplace exit perceptions (Muratore & Earl, 2015) were assessed across three dimensions: (a) choice, "How much choice do you feel you have over your decision to retire?" from 1 (*no choice at all*) to (*complete choice*); (b) ease, "How difficult is it to make up your mind about retiring?" from 1 (*very difficult*) to 5 (*very easy*); and (c) preparedness, "How well prepared do you think you are for your retirement?" from 1 (*not at all prepared*) to 5 (*extremely well prepared*).

Confidence in retirement age

To assess possible revisions to expected retirement age with improved certainty and confidence, participants were asked to nominate the age that they expected to retire and then asked to rate their confidence that they would retire at that age from 0 (*not at all confident*) to 10 (*extremely confident*).

Financial literacy

The choices individuals are required to make in both the accumulation and decumulation of retirement savings requires adequate financial literacy. That is "how well an individual can understand and use personal finance-related information" (Huston, 2010, p. 306). Our objective measure of financial literacy is based on the scale proposed by Fernandes et al. (2014) and reflects that while conceptualized as referring to skills, financial literacy is more often assessed as knowledge (Fernandes et al., 2014). Correct responses to 13 items were summed—eight multiple-choice questions and five True/False/Don't know questions.

Financial self-efficacy

We expected individuals to vary in their belief in their capabilities to produce given financial outcomes. That is, their perceived self-efficacy (Bandura, 2006). Given our focus on retirement savings and planning, we utilized Lown's (2011) scale to estimate a context-specific financial self-efficacy. We supplemented the scale's six items with an item focused on terminology ("I find it difficult to make financial decisions because I don't understand the language or jargon of finance"). Responses ranged from 1 (*Exactly true*) to 4 (*Not true at all*).

Estimated retirement income and spending was measured with the questions, "Which of the following have you estimated?" Participants were selected from "retirement income," "retirement expenditure" and "Neither."

Likelihood of consulting a financial adviser was assessed with a single question, "How likely is it that you will consult with a financial professional (e.g., financial planner, accountant) for retirement financial advice? Responses ranged from 1 (*Extremely unlikely*) to 5 (*Extremely likely*).

Retirement goals were based on a retirement goal process model proposed by Hershey and Jacobs-Lawson (2009), and further advanced by Tsotsoros et al. (2021), which aimed to

identify the mechanisms underlying individuals' perceptions of retirement goal expectancy. We examined two of the four domains from the process model that tap goal behaviors and achievement perceptions in the following three resource domains: "CAREER: Leaving work at a time that's right for me," HEALTH: Be healthy and physically fit for retirement," and "FINANCE: Be financially secure and independent in retirement." For each goal, participants were asked to provide a rating for (a) goal striving, "How much thought and effort have you put into achieving this goal?" from 1 (*little or none*) to 5 (*a great deal*) and (b) goal expectancy, "How likely is it you will achieve this goal?" from 1 (*not at all likely*) to 5 (*extremely likely*).

Data analysis

Data were analyzed using Stata version 16.1. Reliability of multiple-item scales was assessed with Cronbach's alpha coefficient and Kuder-Richardson 20 (KR-20) (for Financial Literacy). All estimated alphas were greater than 0.8, at both pre and post. The KR-20 estimate indicated a less reliable scale but nonetheless acceptable at 0.69 at baseline. The independent variable was group membership and dependent variables are specified in Table 1. As a preliminary analysis, bivariate relationships between variables were calculated using correlation analysis which is presented in Supplementary Table 1. To better capture the change in distribution of scores and responses, histograms showing pre-post distributions for all outcome variables are presented in Supplementary File C, Figures C1–C7.

Differences between respondents and nonrespondents of the postsurvey can threaten the validity of analysis (Bell et al., 2013). To mitigate this threat, we followed the advice of Bell et al. regarding dropout by estimating the odds of a respondent to the baseline survey completing the postsurvey using a range of respondent socio-demographics at baseline; results are presented in Table 3. The only demographic variable which had some significance is employment status. Here, the result is not consistent, as two groups of part-time workers were more likely to complete relative to respondents employed full time. We also assessed reason for participation (motivation) and found that almost (62%) answered that they were interested in retirement planning. Those who answered that they were "just curious" (8.4%) were less likely to complete the second survey. Each of the treatment groups had significantly lower odds of completing the postsurvey relative to control with no significant differences in the odds of completion between any of the experimental groups.

Collectively, the estimation provides evidence to support an assumption of "missing at random" response pattern given the lack of significance in observables, except as observed between the treatment groups and the control. As Bell et al. (2013) noted, differential dropout relative to the control does not per se mean estimations will necessarily be biased. However, given the differential dropout, following Bell et al. (2013) likelihood-based mixed-effects regressions were used as the best means of eliminating or reducing potential bias (Bell et al., 2013; Vittinghoff et al., 2010), given the assumption of data missing at random, and including all baseline respondent information (Bell et al., 2013). The mixed-effects regressions include individual random effects and an unstructured covariance matrix. The latter allows for, but imposes

no, control over the correlation of repeated measures. All regressions included group allocation, survey time, interaction of group allocation and time, and controls for gender and education. The regression allows both within-group differences in outcomes pre and post (e.g., modules [post-pre]), and between-group differences in outcomes pre and post (e.g., modules [post-pre] vs. control [post-pre]) to be estimated together. As per Benjamini and Hochberg (1995), false discovery adjustments were applied given the multiple comparisons undertaken.

Effect sizes were determined when comparing means using Cohen's *d* with recommended values of 0.20 (small), 0.50 (medium), and 0.80 (large) (Cohen, 1988). Power was estimated using Jamovi (Morey & Selker, 2023) with the recommended parameters of alpha level of 0.05, and statistical power of 0.80 to detect a medium effect size of ≥ 0.5 (Cohen, 1988) for a paired-sample procedure using the smallest group size of 40 at postintervention. Power was deemed acceptable given the probability level of at least 0.869.

Our study can be described as "explanatory" (Fisher et al., 1990, p. 335) in that we: (a) aimed to test hypotheses about the relative benefits of different retirement information interventions, and (b) are at an earlier stage of inquiry into approaches to improve retirement planning outcomes. Hence, the study design allowed for participant group reclassification where certain tasks were not completed. For example, those assigned to the holistic group who were not able to participate in consultations, but completed at least two modules, were reclassified to the modules group, and those who did not complete any part of the program were still invited to complete the postsurvey as controls. This "per-protocol" approach ensures participants are grouped where they best match group protocols (Gupta, 2011). A potential problem with this approach, however, is the possible endogeneity it introduces if, for example, differences in motivation account for participants not completing some tasks. We cannot rule this out, but note as reported above, that there were no significant differences in dropout between the three treatment groups.

Nonetheless, we also undertook an Intention-to-Treat (ITT) analysis in which we retained the original group allocation regardless of any deviation from protocol (Fisher et al., 1990). ITT allows for noncompliance and various protocol deviations, as expected in practice, and provides unbiased estimates of treatment effects (Gupta, 2011). However, the disadvantage of ITT is that retaining the original group and including non-compliant participants does not provide information about treatment efficacy (Gupta, 2011). For interested readers, we present results of the ITT analysis in the Supplementary Appendix. Essentially, these results are a replication of the results presented in Tables 4 and 5, using the original randomized sample.

Manipulation checks

At postintervention, experimental participants were asked "Could you please indicate which modules you were able to complete?" Responses for each module separately were, "Fully completed," "Partially completed" and "Didn't start." Responses were cross-checked with module login data. Participants in groups tasked to speak with an adviser were asked, "Did you have the opportunity to access a career consultant, financial adviser, and health assessment?" Responses

Table 3. Odds ratios from a logit regression of whether a baseline respondent completed the postsurvey

Variable	Odds ratio	SE	Variable	Odds ratio	SE
Allocated group (Reference: Control)			Household debt (Reference: Average)		
Modules	0.653*	0.161	Don't have	1.229	0.398
Modules-plus-consultation	0.594*	0.145	Significantly below	1.358	0.465
Finance	0.501*	0.138	Below	1.656	0.592
Experimental group			Above	1.201	0.460
Modules-plus-consultation versus Modules	0.909	0.162	Significantly above	0.991	0.388
Finance versus Modules	0.767	0.170	Education (Reference: Secondary/Trade)		
Modules-plus-consultation versus Finance	0.844	0.185	Diploma or Advance Diploma	1.104	0.278
Age	0.973	0.022	Bachelor	0.774	0.179
Female	0.790	0.140	Post-graduate	0.791	0.178
Relationship status (Reference: Married/Partnered)			Confidence in expected retirement age	0.974	0.031
Divorced/Separated/Widowed	1.372	0.271	Expected years to retirement	0.969	0.021
Never married/Single	1.028	0.269	Reason for participation (Reference: Interested in retirement planning)		
Dependants			Just curious	0.524*	0.151
Employment (Reference: ≥35 hr)			I like to support research	0.846	0.161
Part time (≤10 hr)	0.596	0.348	I like the incentives	0.679	0.227
Part time (11–20 hr)	1.679	0.651	Other	0.908	0.393
Part time (21–30 hr)	1.855*	0.508	Consulted a financial professional (Reference: Never)		
Part time (31–34 hr)	1.879*	0.539	Consulted previously	1.256	0.210
Household superannuation (Reference: Average)			Currently consulting	0.797	0.193
Significantly below	0.867	0.265	Financial well-being	1.012	0.008
Below	1.345	0.447			
Above	1.376	0.355			
Significantly above	1.533	0.417			
Observations		814			
Negelkerke R ²		0.091			

for each advice type were, “Yes, completed,” “Yes, but unable to complete,” and “No opportunity provided.” These responses were cross-checked with advisers’ attendance logs. Self-report completions supported by cross-checks were used to confirm participants’ membership to their assigned experimental group.

Results

In our assessment of the effectiveness of the holistic retirement planning program, we present all the variables that were included in our investigation rather than selecting a small number representing a particular focus. To simplify interpretation, the variables have been grouped into four broader categories, as shown in Table 1, namely: retirement planning behaviors; workplace exit perceptions; financial decision-making; and goal setting.

Table 4 presents the results of within- and between-group pre-post differences for retirement planning behaviors and workplace exit perceptions, while Table 5 presents results for financial decision-making and goal setting. As

hypothesized (H1), the greatest number of within-group postintervention changes across workplace exit perceptions ($d^1 = 0.16$, 95% CI [0.04, 0.41] [expected retirement age]— $d = 0.40$, 95% CI [0.18, 0.64] [prepared exit]), financial decision-making ($d = 0.28$, 95% CI [0.07, 0.52] [financial self-efficacy]— $d = 0.53$, 95% CI [0.30, 0.76] [estimated retirement spending]) and goal setting ($d = 0.14$, 95% CI [0.08, 0.38] [health goal expectancy]— $d = 0.33$, 95% CI [0.08, 0.38] [career goal expectancy]) was observed in the holistic group compared with the modules group. In terms of nonfinancial outcomes as compared with the finance group, as expected, the holistic group showed the greatest number of improvements in workplace exit perceptions and goal setting (H2). Surprisingly, the finance group showed improvements to only two variables in the financial decision-making category, financial literacy ($d = 0.67$, 95% CI [0.29, 1.05]) and estimated retirement income ($d = 0.38$, 95% CI [0.02, 0.77])

¹Estimated as $\frac{\beta_{post-pre}}{\sqrt{(\frac{n_{post}-1}{n_{post}+n_{pre}-2})sd_{post}^2 + (\frac{n_{pre}-1}{n_{post}+n_{pre}-2})sd_{pre}^2}}$, where n_{post} and n_{pre} are the group sample sizes for post and pre, and sd_{post} and sd_{pre} are the respective standard deviations.

Table 4. Within and between group means and standard deviations for retirement planning behaviors and workplace exit perceptions

Variable	Within group						Between group				
	Modules group		Holistic group		Finance group		Control group				
	Pre	Post	Pre	Post	Pre	Post	Pre	Post			
	<i>n</i> = 349	<i>n</i> = 196	<i>n</i> = 202	<i>n</i> = 120	<i>n</i> = 95	<i>n</i> = 40	<i>n</i> = 183	<i>n</i> = 119			
	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)			
	Retirement planning behaviors										
RPQII public protection	1.61 (0.04)	1.86 (0.05)	1.60 (0.05)	1.69 (0.06)	1.61 (0.08)	1.88 (0.04)	1.65 (0.06)	1.75 (0.06)	0.14 (0.07,0.19)	-0.01 (0.08,0.01)	0.17 (0.12,0.23)
RPQII self-insurance	2.56 (0.04)	2.86 (0.05)	2.50 (0.05)	2.77 (0.06)	2.69 (0.08)	2.95 (0.04)	2.50 (0.06)	2.67 (0.06)	0.13* (0.06,0.17)	0.10 (0.07,0.13)	0.09 (0.09,0.12)
RPQII self-protection	2.84 (0.04)	3.05 (0.05)	2.72 (0.05)	2.83 (0.06)	2.89 (0.08)	3.07 (0.04)	2.78 (0.05)	2.87 (0.06)	0.11 (0.06,0.15)	0.02 (0.07,0.03)	0.10 (0.10,0.14)
	Workplace exit perceptions										
Expected retirement age	65.31 (0.33)	64.79 (0.38)	65.42 (0.43)	64.36 (0.50)	64.89 (0.63)	64.27 (0.33)	65.61 (0.45)	65.28 (0.51)	-0.20 (0.52,0.03)	-0.73 (0.57,0.11)	-0.31 (0.80,0.05)
Ret age confidence	6.09 (0.14)	6.56 (0.17)	6.26 (0.18)	7.23 (0.21)	6.45 (0.26)	7.40 (0.14)	6.11 (0.19)	6.36 (0.22)	0.22 (0.26,0.08)	0.72* (0.29,0.27)	0.70 (0.40,0.26)
Choice in exit	3.32 (0.06)	3.59 (0.07)	3.61 (0.07)	3.82 (0.09)	3.67 (0.11)	3.65 (0.06)	3.50 (0.08)	3.56 (0.09)	0.20* (0.10,0.18)	0.16 (0.11,0.15)	-0.08 (0.16,0.07)
Ease of exit	2.81 (0.06)	2.84 (0.07)	2.79 (0.07)	3.05 (0.09)	2.79 (0.11)	2.81 (0.06)	2.70 (0.08)	2.86 (0.09)	-0.13 (0.11,0.12)	0.09 (0.12,0.08)	-0.14 (0.17,0.13)
Prepared exit	2.68 (0.05)	2.86 (0.06)	2.61 (0.07)	3.01 (0.08)	2.55 (0.10)	2.94 (0.05)	2.65 (0.07)	2.82 (0.08)	0.02 (0.09,0.02)	0.23* (0.10,0.23)	0.22 (0.13,0.22)

Note. *M* = mean, *SE* = standard error, *d* = Cohen's *d*. Between-group values represent pre–post mean differences between experimental groups versus control. **p* < .05, ***p* < .01, ****p* < .001.

Table 5. Within and between group means and standard deviations for financial decision-making and goal setting

Variable	Within group										between group				
	Modules group			Holistic group			Finance group			Control group			Modules vs Control (SE, d)	Holistic vs Control (SE, d)	Finance vs Control (SE, d)
	Pre n = 349	Post n = 196	Post vs Pre	Pre n = 202	Post n = 120	Post vs Pre	Pre n = 95	Post n = 40	Post vs Pre	Pre n = 183	Post n = 119	Post vs Pre	M (SE)	M (SE)	M (SE)
	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)
Financial decision-making															
Financial literacy	7.89 (0.13)	8.59 (0.15)	0.71*** (0.12)	8.46 (0.17)	9.54 (0.19)	1.08*** (0.16)	7.76 (0.25)	9.23 (0.13)	1.47*** (0.16)	7.70 (0.18)	7.96 (0.20)	0.26 (0.16)	0.45* (0.20,0.17)	0.82*** (0.22,0.32)	1.21*** (0.31,0.47)
Financial self-efficacy	2.84 (0.04)	2.87 (0.04)	0.03 (0.03)	2.81 (0.05)	3.00 (0.05)	0.19*** (0.03)	2.90 (0.07)	3.01 (0.04)	0.10 (0.03)	2.81 (0.05)	2.88 (0.05)	0.06 (0.03)	-0.03 (0.04,0.04)	0.13** (0.05,0.19)	0.04 (0.07,0.06)
Estimated net income	0.56 (0.03)	0.65 (0.03)	0.09** (0.03)	0.59 (0.03)	0.80 (0.04)	0.21*** (0.04)	0.55 (0.05)	0.74 (0.03)	0.19** (0.04)	0.60 (0.03)	0.59 (0.04)	-0.00 (0.04)	0.09 (0.05,0.18)	0.22*** (0.06,0.45)	0.19* (0.08,0.38)
Estimated ret spending	0.42 (0.03)	0.56 (0.03)	0.14*** (0.03)	0.41 (0.03)	0.67 (0.04)	0.26*** (0.04)	0.44 (0.05)	0.56 (0.03)	0.12 (0.04)	0.39 (0.04)	0.44 (0.04)	0.05 (0.04)	0.09 (0.05,0.18)	0.21*** (0.06,0.43)	0.07 (0.08,0.14)
Consult FA ^a in future	3.93 (0.06)	4.00 (0.08)	0.07 (0.07)	3.99 (0.08)	4.40 (0.10)	0.41*** (0.09)	3.91 (0.12)	4.12 (0.06)	0.21 (0.09)	3.94 (0.08)	3.95 (0.10)	0.02 (0.09)	0.05 (0.12,0.04)	0.39** (0.13,0.33)	0.20 (0.18,0.17)
Goal setting															
Career goal striving	3.24 (0.06)	3.44 (0.08)	0.20** (0.07)	3.22 (0.08)	3.50 (0.10)	0.27** (0.09)	3.31 (0.12)	3.65 (0.06)	0.33* (0.09)	3.23 (0.09)	3.34 (0.10)	0.11 (0.09)	0.09 (0.11,0.08)	0.17 (0.13,0.14)	0.23 (0.18,0.19)
Career goal expectancy	3.20 (0.06)	3.30 (0.07)	0.10 (0.07)	3.21 (0.07)	3.57 (0.09)	0.36*** (0.08)	3.28 (0.11)	3.57 (0.06)	0.29** (0.08)	3.24 (0.08)	3.35 (0.09)	0.12 (0.09)	-0.02 (0.11,0.02)	0.24* (0.12,0.22)	0.18 (0.17,0.17)
Health goal striving	3.37 (0.05)	3.40 (0.07)	0.03 (0.06)	3.11 (0.07)	3.32 (0.09)	0.21** (0.08)	3.47 (0.11)	3.41 (0.05)	-0.05 (0.08)	3.26 (0.08)	3.25 (0.09)	-0.01 (0.08)	0.04 (0.10,0.04)	0.22* (0.11,0.21)	-0.04 (0.15,0.04)
Health goal expectancy	3.32 (0.05)	3.41 (0.06)	0.09 (0.06)	3.21 (0.07)	3.36 (0.08)	0.14* (0.07)	3.49 (0.10)	3.46 (0.05)	-0.03 (0.07)	3.35 (0.07)	3.26 (0.08)	-0.09 (0.07)	0.18* (0.09,0.19)	0.23* (0.10,0.24)	0.06 (0.14,0.06)
Finance goal striving	3.55 (0.06)	3.71 (0.07)	0.16** (0.06)	3.50 (0.07)	3.75 (0.09)	0.25** (0.08)	3.49 (0.11)	3.81 (0.06)	0.32* (0.08)	3.44 (0.08)	3.50 (0.09)	0.06 (0.08)	0.11 (0.10,0.10)	0.19 (0.11,0.18)	0.26 (0.15,0.24)
Finance goal expectancy	3.24 (0.06)	3.35 (0.06)	0.11* (0.05)	3.30 (0.07)	3.60 (0.08)	0.31*** (0.07)	3.17 (0.11)	3.49 (0.06)	0.31** (0.07)	3.33 (0.08)	3.34 (0.09)	0.01 (0.07)	0.10 (0.09,0.09)	0.30** (0.10,0.28)	0.30* (0.13,0.28)

Note. M = mean, SE = standard error, d = Cohen's d. Between-group values represent pre-post mean differences between experimental groups versus control. *p < .05, **p < .01, ***p < .001.

^aFinancial Adviser.

compared with the holistic group who showed improvements across all five variables. As expected (H2), we observed a greater number of positive nonfinancial outcomes in the holistic group compared with the finance group such as a greater sense of choice ($d = 0.20$, 95% CI [0.02, 0.43]), ease in the decision to retire ($d = 0.24$, 95% CI [0.01, 0.47]), and greater career goal striving ($d = 0.20$, 95% CI [0.02, 0.48]) and career goal expectancy ($d = 0.33$, 95% CI [0.11, 0.56]). Against expectations, the control group demonstrated improvements to RPQII self-insurance and preparedness for retirement with effect sizes $d = 0.22$, 95% CI [0.00, 0.45] and $d = 0.17$, 95% CI [0.06, 0.41] respectively. Figure 2 provides a visual summary of the number of significant pre–post changes for each group as per the information in Tables 4 and 5. As shown, overall, the holistic group made the largest number of gains.

Looking at between-group outcomes for individual experimental groups compared with control, as Tables 4 and 5 show, all three experimental groups exhibited several positive changes at postintervention. Again, the holistic group displayed the greatest gains in terms of the number of outcomes with small to medium effect sizes ranging from $d = 0.14$, 95% CI [0.05, 0.35] (health goal expectancy) to $d = 0.42$, 95% CI [0.22, 0.62] (estimated retirement expenditure). We anticipated that compared with the control group, all three treatment groups will have increases across all four outcome categories (H3), that is, 12 comparisons. This hypothesis was partially supported given the nonsignificant differences between the control group and experimental groups in three comparisons. Specifically, (a) the holistic group demonstrated nonsignificant increases in retirement planning behaviors compared with control, and the finance group demonstrated nonsignificant increases in (b) retirement planning behaviors, and (c) workplace exit perceptions compared with control.

Discussion

The principal aim of the present study was to develop and test the effectiveness of a holistic model of retirement planning incorporating career, health, and financial information that aimed to promote positive retirement planning perceptions and behavior. Research has demonstrated the importance of financial, health, and other resources for successful transition and adaptation to retirement (Cassanet et al., 2023; Moffat & Heaven, 2017). In this study, we applied the dynamic resource

perspective (Wang et al., 2011) and findings from Leung and Earl (2012) that reported health and financial resources were the strongest predictors of retirement wellbeing of all the resources in the dynamic resources model. Furthermore, based on Topa et al's (2018) findings of work-related antecedents of early retirement, we integrated career considerations as part of the conversation regarding the optimal conditions of workplace exit as a contributing factor to retirement adjustment. Given the many elements in the program (i.e., career, health, and finance modules; career and finance consultations; and a health check), to differentiate any effects of engaging with consultants over and above the modules, or receiving financial information alone as opposed to holistic information, we included three experimental groups and a control group in our design.

As proposed, the holistic group demonstrated a larger number of positive outcomes than the modules (Hypothesis 1) and finance-only groups (Hypothesis 2) across the following categories: workplace exit perceptions, financial decision-making, and goal setting. The results suggest that compared with completing information modules only, speaking with a consultant may help in consolidating acquired knowledge from the modules, improve financial self-efficacy, reinforce existing plans, or generate new ones, and set goals. Speaking with a career consultant who guides the conversation about career advances or workplace exit preparations can help to increase one's confidence in their retirement decision and potentially strengthen their sense of choice and preparedness for workplace withdrawal. The holistic group also showed increases across all five financial decision-making variables compared with three seen in the modules group, and two in the finance group. It is plausible that this outcome may have been influenced by the discussion with a career consultant as career plans may be aligned with financial planning.

Overall, all three experimental groups showed significant within-group pre–post improvements across the majority of outcomes. Moreover, between-group differences compared with the control group showed significant improvements to several outcomes pertaining to retirement planning, workplace exit perceptions, financial decision-making, and goal setting, supporting Hypothesis 3. The holistic group, and to a lesser extent the finance group, saw improvements in retirement age confidence, preparedness for retirement,

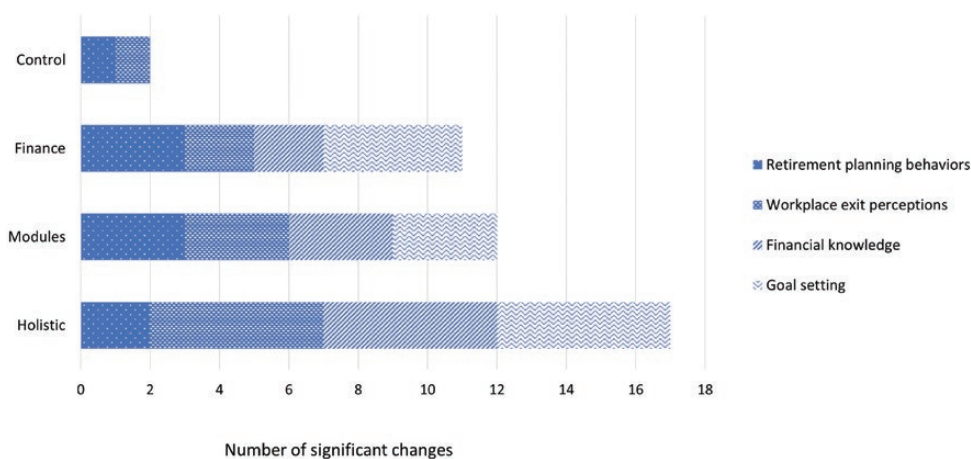


Figure 2. Number of significant changes at postsurvey for each group by category.

financial decision-making, and career and finance goal expectancy. In the case of the finance group, the magnitude of differences relative to the control were comparable to the holistic group, but the standard errors were larger resulting in nonsignificant differences (e.g., for confidence in expected retirement age, retirement preparedness, and financial goal striving). The control group remained relatively stable at postsurvey except for an increase in self-insurance type planning behaviors and level of preparedness for workforce exit (discussed below). The preliminary analysis suggests that while improvements are observed across all three treatments, it is when the modules are paired with consultation(s) that support is stronger for the efficacy of the retirement planning interventions, particularly the holistic intervention.

Changes in retirement planning behaviors

Using the RPQII (Muratore & Earl, 2010), we measured planning effort across three broad categories that tapped behaviors associated with (a) exploring what benefits the Government was offering (public protection), (b) actions to maximize financial potential (self-insurance), and (c) nonfinancial actions to enhance health, social and emotional well-being (self-protection). All three experimental groups showed increases in planning behaviors with the modules and finance groups showing improvements across the three domains, while the control group demonstrated an increase in self-insurance behaviors. Although unexpected for the control group, this is not entirely surprising and may indicate a measurement effect (Pelham & Blanton, 2013) whereby control participants may have gleaned inspiration from questions in the survey prompting them to engage with reviewing the state of their financial position and possibly making some changes to, for example, personal superannuation contributions or other savings. Indeed, the survey as a source of inspiration for the increase in self-insurance behaviors cannot be ruled out for the other groups too. However, given the overall larger effect sizes seen in the experimental groups, it appears the intervention encouraged self-insurance behaviors beyond the survey alone.

Regarding increases in public protection behaviors (i.e., benefits provided by government) in the modules and finance groups, we surmise that the strong focus on financial resource accumulation and financial services available from the government may have prompted people to investigate the availability of financial supports in addition to personal sources. Although the holistic group accessed the same finance module, the greatest shift to retirement planning pertained to self-insurance and self-protection behaviors. It appears that discussions with a career consultant may have more strongly influenced self-insurance behaviors such as positioning oneself for a postretirement job, assessing career longevity and/or taking up life insurance. Similarly, self-protection behaviors entail health and social elements such as participating in health screening programs and leisure pursuits.

Of the three experimental groups, the modules group showed the greatest magnitude increases to self-insurance and self-protection behaviors. Unlike public protection behaviors that pertain to looking into what benefits the government could provide, increases in self-insurance and protection indicate more proactive planning for both financial and nonfinancial outcomes perceived to be within the individual's

control. This suggests the modules are an effective tool for holistic planning that affects career considerations, awareness of health and social domains, and financial planning.

Changes in workplace exit perceptions

All three experimental groups demonstrated improvements in how well prepared they felt for their retirement with the holistic group showing increases across all variables in the workplace exit perceptions category. This finding indicates an added advantage of receiving one-to-one contact with career and finance consultants to supplement the modules. It is plausible that discussing personally relevant issues with a consultant and receiving guidance on achieving goals consolidates the information learned from the modules and becomes an impetus for change. Aligned with this notion, the holistic group was the only group to indicate an increase in the level of perceived ease in making the decision to retire suggesting that speaking with a consultant about areas of concern can increase confidence in decision-making. In fact, the holistic group made the largest revision to their expected retirement age, intending to retire more than one year earlier at postintervention. Receiving personally relevant information appears to boost individuals' confidence in their chosen timing of their retirement.

Increases to having a choice in the decision to retire for the modules and holistic groups suggest that the modules can foster a greater sense of choice and autonomy pertaining to the decision to retire. An increase in choice suggests the modules offered some novel perspectives for consideration allowing various options to be explored in retirement decision-making. Regarding the finance group, medium effect increases in retirement age confidence and sense of preparedness for retirement is not surprising given the strong focus that was placed on financial preparation for retirement.

Changes to financial decision-making

Despite the financial nature of the five variables in this category (i.e., financial literacy, financial self-efficacy, estimating retirement income, estimating retirement expenditure, and likelihood of consulting a financial adviser in the future) and the gain in financial decision-making that was reasonably anticipated, the finance group significantly improved on only two of the variables (financial literacy and estimated retirement income), while the holistic group demonstrated increases across all five variables. Given that both the holistic and finance groups completed the finance module and received financial advice, we expected similar gains across the financial decision-making category, hence our hypothesis that the holistic group would perform better in nonfinancial outcomes (H2). We propose that integrating career and health aspects with financial planning pointed to additional links between concepts, providing a more complete picture with which to engage actions related to the financial knowledge acquired.

While the finance group improved on financial literacy and estimating retirement income, similar outcomes, albeit weaker effects, were also seen in the modules group along with an increase in estimating retirement expenditure suggesting that the modules affect improvement to financial decision-making. Importantly, when we compare experimental group differences collectively with the control

group, the financial decision-making category showed significant differences across all variables. This suggests that although the finance group demonstrated some gains, financial decision-making, and planning is enhanced with the consideration of career exit processes and health status as covered in the modules.

Changes to goal setting

Goal striving and goal achievement expectancy were assessed for career, health, and finance-related goals. As hypothesized (H1 and H2), the holistic group demonstrated the greatest gains across all domains in the goal-setting category of outcomes. The absence of any major changes in health striving or expectancy in the modules and finance groups suggest that health information is more deeply considered when integrated with career and finance advice. We surmise that the information presented in the Health module in conjunction with the health check for the holistic group raised greater awareness of personal health status providing an additional perspective on retirement planning. Given the heightened awareness of health-related themes in mainstream media resulting from COVID-19 at the time, participants in the other groups may have had some health goals already in place. The self-rated health status of the current sample is worth noting. More than 93% reported their general physical health as average to excellent suggesting that participants may have directed more energy toward career and finance goals, given their general health was good. Therefore, we expect improvements to health goals may possibly be observed in future program applications with groups of people with lower health ratings.

Interestingly, despite having no exposure to career content, the finance group showed medium effect increases in both career goal striving and expectancy. The fact that pre-post scores in the control group remained stable precludes a conclusion to be drawn regarding measurement effects. Rather, it is plausible that career goals align with financial goals given that financial plans typically incorporate the source of income as the means by which financial goals can be realized. For an individual to exert effort in achieving their goal of being financially secure and independent in retirement, they would invariably need to also strive toward achieving their career goals, which includes ensuring job security, in order to be able to actualize financial goals.

Practical implications

Several practical implications for retirement planning programs emerge from the results of this study. The first is that findings can help to inform the design and development of future retirement preparation programs. In recognizing the lack of attention to career aspects and health status in existing retirement planning interventions, we developed an online resource coupled with one-to-one consultations to address this limitation. The promising outcomes of this study demonstrate that three one-hour self-paced online modules are effective in promoting positive retirement perceptions through a more holistic approach to planning than financial planning alone. As our results suggest, considering the conditions of workplace exit (i.e., having choice in the decision to retire and having a say in the timing or transition of retirement) plays an essential role in enhancing confidence in the retirement planning process.

The modules are a comprehensive resource that can be accessed online which enables scalability and access in remote or regional areas. Based on outcomes already reported for the modules group, the modules alone can be used to glean ideas and prompt consideration across the three important domains (career, health, and finance), potentially benefitting users whether professional personalized advice is subsequently sought or not. By extension, partners/family/peers could be included in joint discussions related to the content essentially strengthening plans. Financial advisers may find value in referring clients to view the modules in preparation for retirement planning conversations. Similarly, career consultants, coaches, or counselors could refer clients to the modules prior to consultations. In these instances, the aim is to provide a source of holistic information with which clients can use to formulate questions and open discussions with planning professionals.

More widespread improvements in outcomes were observed in the holistic group. From the participants' perspective, in practice, there are many reasons why they may not be willing to visit career and finance professionals to discuss retirement planning (e.g., time or financial constraints, adviser anxiety, and trust issues) (van Dalen et al., 2016). The holistic model is also the most resource intensive as it additionally requires involvement of career and finance consultants, and access to health checks. However, the financial and careers sessions were online or phone based which reduces some of these barriers, and assists scalability. A variation of the program that retains the involvement of professionals but reduces costs would be via group-based delivery. In addition to nurturing social resources, group sessions can provide opportunities for attendees to ask questions, reflect and learn from others' experiences, set retirement goals, formulate plans, and derive strategies for overcoming possible setbacks (Seiferling & Michel, 2017).

The program was delivered outside of a work environment, but its design enables delivery by employers, retirement savings schemes, or other consumer-focused groups to supplement retirement preparation. Providing the program within a workplace, particularly where older workers hold negative views or express adverse expectations in retirement, positions organizations in a more supportive, socially responsible light, while recognizing employees as a whole person and promoting open conversations about retirement. If retirement is viewed as a career stage, then retirement planning and accumulation of resources could be integrated into staff development programs.

Limitations and directions for future research

A few limitations merit consideration when interpreting the results of this study. First, women were overrepresented in our sample. Despite our best efforts to implement gender quotas and obtain a balanced sample, there was greater interest among women. This potentially signals a greater appetite by women for retirement preparation assistance given the significant challenge to women's financial security often due to the gender wage gap or interrupted earnings as a consequence of caregiving roles (Tomar et al., 2021). Our sample also largely represented higher-than-average educational achievement. Just over 64% of our sample held at minimum a Bachelor degree compared with the proportion in the Australian population for 45 to 54-year-olds (35%), and 55 to 64-year-olds

(26%) (ABS, 2022). Although we controlled for gender and education in our ANCOVA analyses, the overrepresentation of these demographics should be noted when considering the generalization of findings. Given that gender and educational attainment has been previously linked to health and financial planning (Murari & Shukla, 2021; Noone et al., 2022), future research in assessment of retirement planning interventions may be better placed with a more balanced sample.

Related to the overrepresentation of women and those with higher education, is the role of self-selection. Although self-selection can potentially confound results, it also serves as a motivating factor for intervention engagement and adherence (Lyubomirsky et al., 2011). Interventions such as retirement planning programs tend to be more effective where participants are motivated to reflect on personal transition issues and retirement plans (Lyubomirsky et al., 2011; Seiferling & Michel, 2017).

Along similar lines, attrition bias needs to be considered as it can undermine the benefits of randomization (Armijo-Olivo et al., 2022). Although multiple strategies have been implemented to retain as much of the sample as possible, 43% of the sample was lost to attrition. Despite our final sample size being sufficient to retain adequate power for hypothesis testing (Faul et al., 2009), attrition is partially observable and differences other than key outcome variables may exist between participants who completed the requirements of their assigned group and those who did not. Conditioning on postintervention variables by controlling for these differences in statistical models is one way of managing attrition bias. However, since we cannot account for a participant's decision to leave the study, this modeling choice can bias estimates of causal effects and potentially distort outcomes, as it essentially assumes that all relevant covariates have been addressed when in fact they may have not (Montgomery et al., 2018). We have not collected data on reasons for attrition, and since reasons for attrition in samples where more than 20% of a sample dropped out are difficult to estimate using statistical strategies, we have not applied any statistical modeling to address attrition bias (Xi et al. 2018). Given the experimental design of this study, some cause and effect can be claimed; however, issues with possible biases mentioned should be considered. Future research would benefit from follow-up questions regarding reasons for discontinuation.

Another limitation to keep in mind is that many of the measures used in this study tapped individual perceptions, which do not necessarily translate to implementation intentions (Gollwitzer, 1999) or future actions. As such, a future longitudinal investigation is needed to adequately assess intervention outcomes beyond post-test.

Supplementary material

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

Data availability statement

The data underlying this article will be shared on reasonable request to the corresponding author.

Author contributions

Anna Mooney (Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Software,

Writing—original draft), Joanne Earl (Conceptualization, Funding acquisition, Investigation, Project administration, Supervision, Writing—review & editing), Paul Gerrans (Conceptualization, Data curation, Funding acquisition, Methodology, Supervision, Validation, Writing—review & editing), Chanaka Wijeratne (Conceptualization, Funding acquisition, Writing—review & editing), and Carl Mooney (Data curation, Resources, Software, Writing—review & editing)

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Conflicts of interest:

None declared.

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