

# Working Adults' Metacognitions Regarding Financial Planning for Retirement

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## ABSTRACT

In this article, we introduce a new perceptual measure of retirement planning metacognition, which was evaluated in the United States across 2 different data collection efforts. The measure is designed to assess individual differences in perceptions of the intellectual difficulties adults face when they think about or anticipate engaging in retirement-linked financial planning activities. In the initial study ( $N = 90$ ), data revealed that the 5-item scale had a unitary factor structure and reasonable psychometric characteristics. Descriptive data suggest that some 40% of individuals report experiencing moderate to severe difficulties in thinking about retirement-related financial planning issues. A 2-stage hierarchical regression model revealed that retirement metacognition scores were well predicted on the basis of a combination of demographic and psychological measures. A follow-up investigation ( $N = 988$ ) was carried out using a substantially larger national sample of American adults. A theoretically grounded path model identified antecedents of retirement planning metacognitions and demonstrated that perceived cognitive difficulties were inversely related to engagement in financial planning activities. From a theoretical perspective, this article introduces a new construct to the retirement literature that covaries with individuals' ability to financially plan for the future. From an applied perspective, the findings suggest practitioners face a daunting challenge given the appreciable proportion of individuals who report experiencing difficulties at the prospect of planning for the postemployment period.

It is no simple task to plan and save for retirement. That statement particularly rings true in economically more developed nations such as the United States, where many individuals carry the burden of responsibility for amassing and managing their own retirement resources (Hershey, Jacobs-Lawson, & Austin, 2012; Shuey, 2004). A number of different factors make retirement planning, as a task, both complex and intellectually challenging. Financial markets are complicated and dynamically changing, the intricacies of workplace pension programs can be difficult to understand, and there exist a myriad of different possible personal investment opportunities. Moreover, uncertainty surrounds many important personal dimensions that determine one's resource needs, such as how long one is likely to live, whether serious health shocks will be experienced and if so when, and whether other forms of support will be available to supplement one's savings. The complexities and uncertainty surrounding financial planning for retirement can not only lead to worry (Gutierrez & Hershey, 2013; Neukam & Hershey, 2003), but also anxiety at the prospect of seeking professional financial planning advice (Gerrans & Hershey, in press; van Dalen, Henkens, & Hershey, in press).

Taken together, the factors outlined in the preceding paragraph can make financial planning for old age a daunting task, particularly for those who have limited financial literacy and financial knowledge

(Gerrans, Speelman, & Campitelli, 2014; van Rooij, Lusardi, & Alessie, 2012). Research has shown that only about a third of American adults over the age of 50 have attempted to devise a retirement plan, and of those, only 38% were able to stick to their plan (Lusardi & Mitchell, 2011). Similar findings were reached by a 2014 study conducted by the Employee Benefit Research Institute (EBRI), which found that only 44% of American adults had carried out a retirement needs assessment. In light of this situation, in this article we set out to develop and evaluate a new measure designed to tap the intellectual difficulties individuals face when confronted with the prospect of establishing a financial plan for retirement. The measure—which is hereafter referred to as the Retirement Planning Metacognition Scale—assesses individuals' "thinking about thinking" in this focal domain, and thus, it is properly considered a psychological measure of metacognition.

In this article, we report the results to two investigations that were carried out in sequence. The first, which was designed to serve as an initial evaluation of the new metacognition scale, was conducted using a small sample ( $N = 90$ ) of adults living in the Midwestern United States. The objective of the investigation was to assess individuals' perceptions of any difficulties they might have when engaged in retirement planning, specifically, in the area of finances and long-term saving. In addition to reporting the development of the measure and its psychometric

characteristics, we examined the extent to which retirement planning metacognition scores could be predicted by demographic measures (e.g., income, gender) and previously published financially based psychological measures (e.g., self-rated financial knowledge, financial worry). The second investigation served as a replication and extension of Study 1. Respondents included nearly 1,000 adults who were 18–64 years of age, sampled from across the United States. As was the case in Study 1, the psychometric characteristics of the metacognition scale were assessed. In addition, a theoretically grounded path analysis model was estimated that was designed to demonstrate the psychological basis of individuals' metacognitive perceptions. Now, we turn attention to the general topic of metacognition, in order to provide a broader framework from which to view the empirical work that was carried out.

### RESEARCH ON METACOGNITION

The topic of metacognition has been examined extensively in the psychological literature over the past 35 years (Mata, Ferreira, & Sherman, 2013; Mazzoni & Nelson, 1998; Metcalfe & Shimamura, 1994; Schraw, 1998; Wells, 1995), with early work on the topic being carried out by Flavell (1979) and colleagues. According to Frith (2012), metacognition concerns “the processes by which we monitor and control our own cognitive processes” (p. 2213). In more basic terms, it is often referred to as it is in the preceding paragraph, simply as the process of “thinking about one’s own thinking.” Garner (1987) suggests a distinction between cognition and metacognition, with cognitive skills being necessary to perform a task, but metacognitive skills being necessary to understand how the task was performed. An article by Schraw (1998) describes two separate components of metacognition: (a) one’s knowledge of his or her own cognition, and (b) the regulation of cognitive processes. The former includes declarative knowledge (knowing facts about a domain), procedural knowledge (heuristics and strategies that allow one to carry out a task), and conditional knowledge (knowing when and why to use declarative and procedural knowledge).

Metacognitive regulatory skills—the second component in Schraw’s (1998) definitional distinction—can also be decomposed into different components, including: planning, monitoring, and evaluation (Jacobs & Paris, 1987; Schraw, 1998). Planning involves the choice of a suitable strategy in a particular task-oriented or problem solving situation. Monitoring involves a real-time awareness of the efficiency of one’s strategies and cognitive processes. Whereas evaluation refers to an appraisal of one’s performance on a task. Both metacognitive knowledge and perceptions of metacognitive regulatory skills provide a foundation for the performance of real-world tasks across a variety of different domains. Although metacognitive skills are often deemed to be domain-general in nature (Schraw, 1998), it is possible to query individuals about their metacognitive knowledge and strategies within particular domains.

To date, most of the attention in the area of metacognition has focused on the acquisition and use of learning strategies in educational contexts (e.g., Hacker, Dunlosky, & Graesser, 2009), meta-memory strategies (e.g., Cavanaugh & Borkowski, 1979; Henry & Norman, 1996), consciousness and self-awareness (e.g., Koriath, 2007), and metareasoning processes (e.g., Cox & Raja, 2011). Other work in the area of cognitive neuroscience has sought to determine both how and where metacognitive processes take place in the brain (Shimamura, 2008), with evidence to suggest that the pre-frontal cortex is heavily

involved in metacognitive monitoring. Still other work has examined the link between critical thinking abilities and metacognitive awareness (Ku & Ho, 2010; Magno, 2010). These studies have shown that individuals with strong metacognitive knowledge within a domain are more likely to be analytically deliberate (as opposed to intuitive) in their thinking as problem solvers, and on that basis, have a better sense of the quality of their decisions. This is because deliberate thinkers have a strong sense of the relative quality of multiple solution strategies (based on the process of considering and rejecting different solution approaches), whereas intuitive thinkers are limited to intuitions of the quality of their preferred solution approach (Mata et al., 2013).

In a somewhat different but related line of research, Parker, Bruine de Bruin, Yoong, and Willis (2012) assessed individuals’ level of confidence in relation to financial planning for retirement. The researchers found that higher confidence levels were associated with the ability to read through information about financial investment options more carefully. Parker and colleagues also made the point that “confidence [levels] correlated positively with knowledge, indicating a degree of metacognitive competence, and one that may be surprising in a domain like finance and savings where feedback is often complex, ambiguous and voluminous” (p. 88). Further, Gollwitzer and Schaal (1998) suggest that goal intentions are an important aspect metacognitive control. They argue that to the extent one possesses strong metacognitive control within a domain, the behaviors associated with goal fulfillment are more likely to be processed with a greater degree of automaticity. In the context of the present investigation, one could imagine how having an enhanced degree of goal-based behavioral automaticity in the financial planning and investing domain might work to one’s advantage.

For the reasons outlined in the opening of this article, retirement planning is a task that presents many individuals with intellectual difficulties. It would therefore not be unreasonable to expect that individual differences exist in perceptions of one’s own task-specific competence in relation to financial planning for retirement, and thus, those perceptions should be able to be subjectively assessed. Moreover, to the extent that individuals’ task-specific metacognitive perceptions (i.e., perceptions of the difficulty of the task) color one’s sense of domain-specific self-efficacy (i.e., perceptions of one’s more general competence in financial planning), then metacognitive scores might help to explain why it is that some individuals face particular challenges carrying out tasks related to financial planning for retirement.

## STUDY 1

### Overview

The first investigation had three major empirical goals. The first was to develop and administer the new retirement planning metacognition measure to a sample of working adults, to determine whether the psychometric properties of the scale were sound. The second goal was to determine how prevalent negative metacognitions are in relation to retirement planning practices. The third goal was to use regression techniques to explore the demographic and psychological antecedents of metacognitive scores, reflective of cognitive difficulties in this focal task domain. In this regard, a set of five demographic indicators and two psychological measures were selected as predictors, because each have been shown to be related to retirement planning practices in other investigations. It is worth noting that two types of metacognitions were assessed in this investigation based on Schraw’s (1998) definition of the construct—that is, measures were taken of both domain-specific

declarative knowledge (i.e., self-rated financial knowledge) and self-regulatory metacognitive competence (assessed via the measure of retirement planning metacognitions). Our working assumption in relation to these two constructs is that self-rated financial knowledge (in conjunction with financial worry) will account for variation in perceptions of task-specific self-regulatory processes (i.e., the new measure of metacognition).

## METHOD

### Participants

Study participants were 90 adults (25 men and 65 women) who were involved in a larger investigation of emotions, information processing, and retirement planning (Gutierrez & Hershey, 2013, 2014). All respondents were nonretired adults who were recruited for the study from Northern and Central Oklahoma using a multimodal sampling approach (i.e., public service announcements, fliers posted in public spaces, snowball sampling). The average age of the sample was 49.09 years (standard deviation [*SD*] = 7.91; min. = 34; max. = 65), the median household income of the group was \$57,500, and respondents' mean level of education was 15.47 years (*SD* = 2.33). Some 62.2% of participants were married at the time of testing; the remaining participants were either single, widowed, or divorced.

### Procedure

All participants were tested on an individual basis. Once an informed consent document was signed, each respondent voluntarily completed a questionnaire using a paper-and-pencil administration format. In addition to completing the retirement planning metacognition scale, participants responded to items from two other previously published scales that have been shown to be related to retirement planning practices: the financial worry subscale of the FIS measure and a measure of self-rated financial knowledge. Both of these measures used a 5-point (1 = *strongly disagree*; 5 = *strongly agree*) Likert-type response format. After completing the questionnaire, participants were fully debriefed and given the opportunity to ask questions prior to concluding the session. The research methods and procedures were fully reviewed and approved by the Institutional Review Board at the authors' home institution.

### Measures

#### *Retirement planning metacognitions*

The retirement planning metacognition scale was designed to tap individuals' self-perceptions of competence in relation to thinking about planning for retirement. In that sense, it provides an assessment of self-regulatory processes as defined by Schraw's (1998) bipartite definition of metacognition. The scale employed a 5-point Likert-type response format, in which individuals rated how well a series of statements applied to them (1 = *strongly disagree*; 5 = *strongly agree*). The five items used for the scale are as follows:

- Item #1: I feel like it's harder for me to think about retirement planning than other people.
- Item #2: I find that I often postpone thinking about financial planning for retirement.
- Item #3: I feel overwhelmed by the thought of financial planning for retirement.

Item #4: When doing financial planning for retirement, it's easy for me to get mixed up and confused.

Item #5: I hate the idea of thinking about financial planning for retirement.

The first of the five items calls for a judgement of the adequacy of one's cognitive abilities relative to others. In that sense, it taps the evaluation components of Schraw's (1998) regulatory skill dimension. In responding to this item individuals evaluate their own retirement planning abilities as being superior, inferior, or equivalent to those of others who engage in financial planning activities. Item 2 is designed to tap the extent to which behavioral avoidance is used as a planning strategy—presumably, because the task is perceived to be particularly challenging. The third item, like the first, is designed to assess one's evaluation of task performance. Those who endorse this item—indicating a feeling of being overwhelmed—are essentially providing an appraisal of competence within the planning domain. Item 4 was designed to simultaneously capture planning and monitoring aspects of self-regulation. Individuals who recognize they easily get mixed up or confused are, in essence, indicating that their planning strategies are either inappropriate (evidence of perceptions planning self-regulation) or lacking in efficiency (evidence of perceptions of monitoring self-regulation). The last of the five items is designed to provide an evaluation of task-related affect (perceived evaluation self-regulation). Those who indicate they “hate thinking about retirement planning” are, essentially, providing an appraisal of how the task makes them feel.

In an effort to identify the structural basis of the measure, the items from the scale were subject to an exploratory factor analysis using principal components extraction. The scale was found to possess a unitary factor structure, with 67.21% of the variation in item scores being accounted for by the latent construct. Factor loadings ranged from .74 to .89. Internal consistency reliability for the measure was found to be above threshold, with an observed coefficient alpha level of .88 and a mean item-total correlation of .71 (min. = .61; max. = .80). Larger mean scores for the measure reflect greater perceived cognitive difficulties in planning for retirement, smaller scores reflect less in the way of perceived difficulties.

#### *Financial worry*

The 9-item measure of financial inhibition, developed by Neukam and Hershey (2003; see also Gutierrez & Hershey, 2013), is purported to assess individuals' level of worry about financial planning for retirement (planning worry) and late life financial security (financial worry). In their 2003 article, Neukam and Hershey found evidence confirming a two-factor structure among the items. In the present investigation, the 6-item financial worry component of the FIS measure was administered. A sample item from the financial worry subscale is: “I often find myself concerned about not having enough money in retirement.” Responses were made using a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*). The mean score for this measure was 3.25, with a *SD* of 1.06. A confirmatory factor analysis based on data from this study demonstrated evidence of a unitary factor structure, which explained 71.92% of the variability in item scores. Coefficient alpha for the worry subscale was found to be excellent at .92.

#### *Self-rated financial knowledge*

The 3-item measure of self-rated financial knowledge used in this investigation was originally published by Hershey, Henkens, and van Dalen (2010). A sample item from the measure is “I know a great deal

about financial planning for retirement.” Responses were made using a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*). The mean score for this measure was 2.71, with a SD of 1.06. A single factor structure was confirmed, with 84.65% of the variation in item scores being explained by the latent construct. The coefficient alpha value for the scale in this investigation was found to be .91. In previous work, the self-rated knowledge measure has been shown to be effective at predicting involvement in financial planning activities (Hershey et al., 2010), and more generally, self-rated financial knowledge has been shown to be correlated in the .50 range with actual financial knowledge scores (Goldsmith & Goldsmith, 1997; Goldsmith, Goldsmith, & Heaney, 1997). It is worth noting that this measure, in and of itself, taps a form of metacognition as defined by Schraw (1998), as it assesses one’s perceptions of declarative and procedural knowledge within a focal decision making domain.

#### Demographic indicators

In addition to administering the questionnaire containing the three psychological scales, respondents were asked to report their age, gender (0 = male; 1 = female), number of years of education that had been completed, marital status (0 = single, widowed, or divorced; 1 = married), and household income measured in ten income bands (1 ≤ \$10K; 10 > \$170K). Income was subsequently recoded into units representing thousands of dollars using the midpoint of each response band.

## RESULTS

### Prevalence of Negative Metacognitions

Descriptive analysis of the retirement planning metacognition measure revealed an overall mean score of 2.77 on the 5-point scale, with a sample SD of 1.03. Moreover, respondents were found to have used the full range of possible response values on the measure (i.e., min. = 1; max. = 5). No aberrations were observed in terms of skew and kurtosis for the distribution of scores.

Some 24.4% of respondents were found to have mean scores on the measure that indicated a lack of cognitive difficulties (i.e., scores of <2.0). More importantly, however, some 42.2% of individuals reported moderate to severe difficulties in thinking about retirement issues, with

a mean metacognition score of more than 3.0. This is a troubling finding inasmuch as it suggests that a large segment of the sample finds financial planning for retirement a particularly intellectually challenging task.

### Predictors of Retirement Planning Metacognitions

A hierarchical multiple regression analysis was computed in which metacognition scores were regressed on five demographic indicators in the first level, including: age, gender, years of education, household income, and marital status. Interestingly, the overall *F*-ratio for this step failed to reach the significance threshold,  $F(5, 87) = 2.07$ , *ns*, adjusted  $R^2 = .058$  (Table 1). An inspection of beta weights revealed that income was the only individual predictor that emerged as statistically significant. This finding suggests that although there is appreciable variation in metacognition scores among members of the sample—that variation is largely unrelated to demographic individual difference dimensions that have often been shown to be linked to financial planning practices in the past.

In the second level of the analysis, the two psychological predictors—FIS financial worry and perceived financial knowledge—were added to the model. This block of predictors was statistically significant,  $F(7, 87) = 10.63$ ,  $p < .01$ , explaining an additional 37.9% of the variability in metacognition scores over and above that accounted for by the demographic indicators. As seen in the table, both psychological predictors were shown to have roughly equivalent explanatory power. Higher levels of financial worry were associated with higher levels of perceived cognitive difficulties, and higher levels of perceived financial knowledge were associated with fewer perceived cognitive difficulties. Taken together, the demographic and psychological predictors accounted for nearly 44% of the variance in the criterion.

## DISCUSSION

Three intriguing findings emerged from Study 1. First, the newly developed scale was found to have sound psychometric properties—both in terms of factor structure and internal consistency reliability. Second, the new measure demonstrated a range of individual differences in how intellectually challenging respondents find the task of financial planning; moreover, a strikingly high prevalence rate of negative

**Table 1. Retirement Planning Metacognitions Scores Regressed on Demographic and Psychological Predictors**

Variable	Demographic Predictors Only (Std. Beta)	Demographic and Psychological Predictors (Std. Beta)
Level 1: demographic predictors		
Age	-.12	-.08
Gender (0 = male)	.11	.11
Education (years)	-.06	.04
Household income (×1000)	-.25*	-.03
Marital status (0 = single)	.19	.08
Adjusted $R^2$ Level 1	.058	.058
Level 2: psychological predictors		
FIS financial worry		.41**
Self-rated financial knowledge		-.41**
Incremental $R^2$ Level 2		.379
Adjusted $R^2$	.058	.437

Note.  $N = 90$ .

\* $p < .05$ . \*\* $p < .01$ .

metacognitions was observed (i.e., over 40%). And third, the regression analysis revealed that planning metacognition scores covary primarily with other psychological—and not demographic—indicators. This final point is particularly interesting inasmuch as demographic indicators such as age, gender, educational level, and income have routinely been shown to covary with a range of variables related to financial planning, including involvement in financial planning activities (cf., Denton et al., 2004; Morgan & Eckert, 2004; Petkoska & Earl, 2009) and the likelihood of making retirement saving contributions (Arano, Parker, & Terry, 2010; Davis & Chen, 2008).

From a theoretical perspective, the findings from this study suggest that metacognitions can be studied beyond the set of psychological dimensions typically examined in this area of the literature (e.g., metacognitive learning strategies, metamemory, and metareasoning). Moreover, the face validity of items on the metacognitive scale suggests that all three aspects of self-regulation were being tapped: planning, task monitoring, and task evaluation (Jacobs & Paris, 1987; Schraw, 1998). We recognize that more could be done in future studies, however, to further develop the scale so as to more systematically assess performance across the three self-regulatory domains. That said, the empirical findings from the first study suggest that individuals who experience moderate to large financial planning metacognition scores might be expected to face difficulties in not only selecting specific strategies when making retirement saving and investment decisions, but also in monitoring the efficiency of those strategies in real time and evaluating the overall quality of their performance.

From an applied perspective, the findings from Study 1 suggest that the retirement metacognition scale might productively be used as an assessment device in financial counseling, financial education, and financial therapy settings (cf., Klontz, Britt, & Archuleta, 2015; Langer, 2001; Rappleyea, Jorgensen, Taylor, & Butler, 2014), as well in intervention contexts where it is valuable to establish a baseline level when it comes to the psychological factors related to the propensity to plan and save. Limitations of Study 1 include the relatively small sample size and the fact that data were collected from a localized region of the country. Another limitation involves the fact that it is unclear based on the findings whether metacognitive scores (i.e., perceived cognitive difficulties) are predictive of the ability to successfully carry out financial planning activities. Study 2 is designed to address these three concerns by collecting data from a much larger national sample, and examining the extent to which metacognitions covary with planning involvement.

## STUDY 2

### Overview

The second investigation had both empirical and conceptual objectives. From an empirical perspective, one key goal was to determine whether certain retirement metacognition scale-related findings from Study 1 (e.g., psychometric properties, incidence of negative thoughts)

generalize to a larger, nationally based sample of respondents. And from a conceptual perspective, the second investigation sought to determine whether retirement planning metacognitions were predictive of involvement in financial planning activities when examined in the context of a theoretically grounded path model.

In terms of the latter objective, a conceptual model was formulated (Figure 1) in which retirement planning metacognitions were hypothesized to be negatively related to planning activities (H1). The working assumption that underlies this hypothesis is that cognitive difficulties in thinking about retirement planning issues could serve as a barrier to carrying out financial planning tasks (cf., Autin & Croizet, 2012; Rozencwajg, 2003). Continuing with the conceptual model, FIS financial worry scores—indicative of worry about financial security in retirement—were posited to be positively related to negative planning metacognitions (H2). The basis of this prediction was that higher levels of worry about late life finances would result in an increased level of financial stress, and that stress would manifest itself in the form of difficulties in thinking about financial planning (i.e., higher metacognition scores). On the basis of findings from Neukam and Hershey (2003), H3 posited that financial knowledge would be negatively related to FIS financial worry scores, with higher self-rated knowledge levels being linked to lower levels of worry about financial security in retirement. Next, on the basis of a substantial literature on the positive relationship between financial knowledge and financial planning (e.g., Bucher-Koenen & Lusardi, 2011; van Rooij et al., 2012), H4 predicts that perceived financial knowledge scores will have a direct positive impact on engagement in retirement-based financial planning activities. Finally, even though demographic indicators were shown to be unrelated to metacognitive scores in Study 1, in Study 2 a set of five demographic variables were incorporated into the path model (not shown in Figure 1). Specifically, age, household income, gender, marital status, and years of education were added as exogenous variables on the left side of the model, because demographic markers have often been shown to be related to indices of retirement planning and saving. This conceptual model was tested using conventional path analysis techniques. Thus, the conceptual representation shown in Figure 1 hypothesizes a partial mediation model.

## METHOD

### Sampling approach and participants

The sampling goal of Study 2 was to collect data from approximately 1,000 American respondents who ranged in age from 25 to 60 years, as part of a larger study designed to examine the psychological underpinnings of financial planning for retirement (Gutierrez, 2015). Recruiting took place using the Amazon Mechanical Turk (MTurk) crowdsourcing platform, which over the past decade has become an increasingly popular data collection tool among social scientists. This popularity is due, in part, to the large potential pool of American respondents and the low cost and great speed with which data can be collected

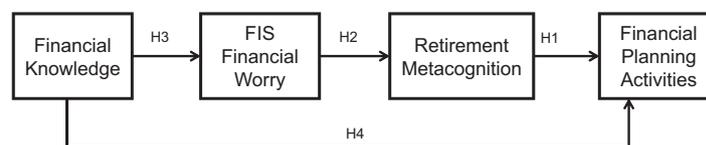


Figure 1. Hypothesized path model of the effect of retirement planning metacognitions on financial planning activities.

(Marvit, 2014). Recent work has shown that the pool of MTurk respondents (so-called “Turkers”), while not fully representative of the U.S. adult population, is from a representativeness standpoint superior to college student samples and data collected using convenience sampling procedures (Berinsky, Huber, & Lenz, 2010). Relative to the population of American adults, members of MTurk samples tend to be somewhat younger, somewhat more likely to be male, have slightly lower incomes, and they are a bit more highly educated (Richey & Taylor, 2012).

The mean age of the full sample ( $N = 988$ ) was 39.81 years ( $SD = 10.48$ ), with roughly equal numbers of males (51.4%) and females (48.6%). Respondents had completed, on average, 15.08 years of formal education ( $SD = 2.11$ ) and had a mean household income of \$64,150 ( $SD = 45,235$ ). Some 44.6% of the sample reported being married, 38.7% were single, and 11.3% were divorced or separated, and the remaining 5.3% reported being either in a legal partnership, widowed, or “other.” The sample was predominantly Caucasian (79.3%), with 8.9% of respondents self-reporting as African-Americans, 6.5% Asian-Americans, 2.7% “other,” and 2.6% bi- or multi-racial. Some 92.5% of the sample described themselves as non-Hispanic.

### Procedure

The potential pool of MTurk participants were made aware of the data collection opportunity by the investigators posting a notice on the MTurk website. Interested respondents were directed to a Qualtrics data collection interface (Qualtrics, 2014), where they were asked to sign an electronic statement of informed consent. Thus, testing took place at a time and in a location decided upon by the respondent subsequent to signing the informed consent form, participants answered a series of questions designed to assess financially linked retirement planning metacognitions, FIS financial worry, self-rated financial

knowledge, and a scale designed to tap involvement in retirement-linked financial planning activities. Each respondent was also asked to provide a basic set of demographic information.

Once respondents completed the questionnaire they were fully debriefed. As a final step in the procedure, each participant was provided with a unique participant identification number that they entered on the MTurk website in order to receive payment (\$0.50) for their service. All measures and procedures for this investigation were subject to scrutiny and subsequently approved by the Institutional Review Board at the investigators’ university.

### Measures

The same version of the retirement planning metacognition measure used in Study 1 was again used in Study 2. Recall that items on this measure were designed to tap the extent to which individuals found the task of retirement planning overwhelming, confusing, and difficult. As in the first investigation, metacognitive perceptions were assessed using a 5-point (1 = *strongly disagree*; 5 = *strongly agree*) Likert-type response format. Table 2 shows item percentages for the five different response categories. As seen in the table, participant endorsements of individual items were well dispersed across response options. A confirmatory factor analysis for the metacognition measure revealed a unitary factor structure that explained 68.5% of the variation in item scores, with a strong KMO sampling adequacy value of .87. Inter-item correlations and loadings from the factor analysis are shown in Table 3. Furthermore, internal consistency reliability for the 5-item metacognition scale was .89, which corresponds well with the Cronbach alpha value of .88 identified in Study 1.

The set of remaining measures employed in the second study were nearly identical to those used in Study 1—that is, scales to assess FIS financial worry and perceived financial knowledge, as well as a set of sociodemographic dimensions. Financial worry and perceived financial

**Table 2. Descriptive Statistics for Items From the Retirement Planning Metacognition Scale (Percentages)**

Item	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I feel like it’s harder for me to think about retirement planning than other people	13.6	38.7	17.4	23.1	7.3
2. I find that I often postpone thinking about financial planning for retirement	12.8	33.2	16.3	29.0	8.7
3. I feel overwhelmed by the thought of financial planning for retirement	12.4	30.4	14.4	29.6	13.3
4. When doing financial planning for retirement, it’s easy for me to get mixed up and confused	8.9	36.3	22.1	28.1	4.6
5. I hate the idea of thinking about financial planning for retirement	14.4	39.1	18.4	21.5	6.7

**Table 3. Pearson Correlations and Factor Loadings of Retirement Planning Metacognition Scale Items**

Item	1	2	3	4	Factor Loading
1. I feel like it’s harder for me to think about retirement planning than other people					.81
2. I find that I often postpone thinking about financial planning for retirement	.65				.86
3. I feel overwhelmed by the thought of financial planning for retirement	.63	.70			.87
4. When doing financial planning for retirement, it’s easy for me to get mixed up and confused	.47	.51	.61		.74
5. I hate the idea of thinking about financial planning for retirement	.60	.67	.68	.54	.84

knowledge were again coded using a 5-point (*strongly disagree/strongly agree*) Likert-type format, and as in the previous investigation, gender was coded dichotomously (0 = male; 1 = female), as was marital status (0 = single/widowed/divorced; 1 = married or in a legal partnership). Education was coded as the number of years of formal education that had been completed, and personal income was measured using 12 income response bands (1 = no income currently through 12 = more than \$155K). Use of the Qualtrics data collection system served to ensure that all study variables were of full ranks.

In addition to the measures described in the preceding paragraph, a 6-item measure of financial planning activities, originally published by Hershey, Jacobs-Lawson, McArdle, and Hamagami (2007), was administered to assess involvement in instrumental activities linked to the financial planning process. Specifically, this measure tapped behaviors such as reading books, articles, and brochures about financial planning for retirement, watching financial planning shows on television, organizing one's personal financial records, and calculating one's own net worth. A sample item from the scale is "I have visited investing or financial planning sites on the World Wide Web." This scale also used a 5-point (*strongly disagree/strongly agree*) Likert-type response format. A confirmatory factor analysis of the five items supported the hypothesized unitary factor structure for this measure. In Stawski, Hershey, and Jacobs-Lawson (2007), the planning activities scale was found to predict the percentage of income individuals voluntarily contribute to a retirement savings plan.

Mean scores for the self-rated financial knowledge, FIS financial worry, and retirement planning activity measures were 3.14 ( $SD = .91$ ), 3.15 ( $SD = .90$ ), and 3.31 ( $SD = .91$ ), respectively. Coefficient alpha values for all three of these scales were found to be above threshold (minimum alpha = .85). Table 4 shows bivariate Pearson correlations for each of the psychological, financial, and demographic constructs in the study.

## RESULTS

### Incidence of negative metacognitions

In the second study, the retirement planning metacognition scale was found to have a mean score of 2.82 ( $SD = .98$ ). As in Study 1, participants were found to have employed the full range of response options on the measure. Some 15.9% of respondents indicated a lack of cognitive difficulties in planning for retirement (i.e., mean metacognitive scores of <2.0), however, 45.7% of respondents were found to have

mean scale scores of 3.0 or greater, which is indicative of moderate to severe cognitive difficulties. Skew and kurtosis for the distribution were unremarkable. Thus, in terms of descriptive characteristics, the findings from Study 2 were highly consistent with the outcomes from Study 1.

### Psychological path model involving planning metacognitions

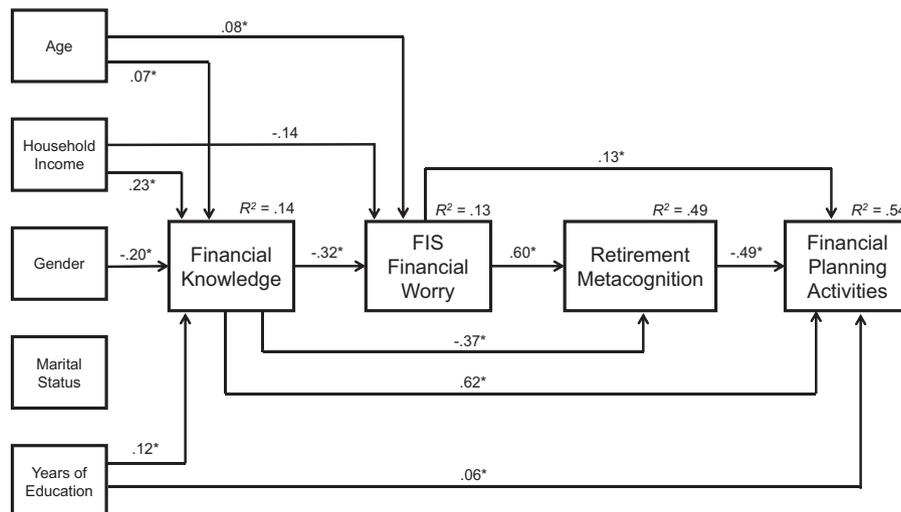
The next step in the analysis process involved testing the partial mediation path model shown in Figure 1. Toward this end, four hierarchical regression models were estimated. In the first model, scores on the financial planning activities scale (the criterion) were regressed on the metacognition variable (Level 1), the indicator of FIS financial worry (Level 2), self-rated financial knowledge (Level 3), and the set of five demographic indicators (Level 4). The second regression model took a similar form, with metacognitive scores (the criterion) being regressed on the FIS financial worry variable (Level 1), self-rated financial knowledge scores (Level 2), and demographic indicators (Level 3). The third of the four models regressed FIS financial worry on self-rated financial knowledge (Level 1), and the demographic indicators (Level 2). The final model regressed self-rated financial knowledge on the set of demographic indicators in what amounted to a "flat" regression. Together, these four regressions allowed for each of the four a priori hypotheses to be tested, while at the same time identifying the possibility of any nonhypothesized paths (including associations between demographic measures and scale indicators).

The observed path model is shown in Figure 2. This diagram shows standardized beta weights for each path, as well as  $r$ -squared values for each of the four endogenous variables. The overall hierarchical regression predicting planning activities was statistically significant,  $F(4, 979) = 140.25, p < .01$ . H1 and H4 both received support, with metacognitive scores shown to be inversely related to planning activities ( $\beta = -.49$ ), and self-rated financial knowledge scores shown to be positively linked to planning activity scores ( $\beta = .62$ ). Furthermore, a relatively weak nonhypothesized positive path was found to emerge between FIS financial worry and planning activities ( $\beta = .13$ ). This latter effect suggests that individuals who worry more about their retirement finances are somewhat more likely to engage in planning activities. Finally, a very small significant positive effect ( $\beta = .06$ ) was found between years of education and planning activities.

Table 4. Pearson Correlation Matrix for Constructs Included in the Study

	1	2	3	4	5	6	7	8	9
1. Metacognition	—								
2. Age	-.04	—							
3. Gender	.12**	.08*	—						
4. Education in years	-.13**	-.04	-.08*	—					
5. Household income	-.23**	.06	-.07*	.32**	—				
6. Marital status	-.10**	.21**	.01	.09**	.31**	—			
7. Self-rated financial knowledge	-.53**	.06*	-.22**	.20**	.28**	.11**	—		
8. FIS: worry	.60**	.06	.10**	-.10**	-.21**	-.05	-.33**	—	
9. Financial planning activities	-.49**	.10**	-.14**	.21**	.25**	.13**	.71**	-.21**	—

\* $p < .05$ . \*\* $p < .01$ .



**Figure 2.** Observed path model for Study 2. Path parameters are standardized beta weights; all paths shown are statistically significant at the  $p < .05$  level (denoted by asterisks).

The second hierarchical regression—in which retirement planning metacognitions served as the criterion—also revealed a significant overall effect,  $F(7, 979) = 131.01, p < .01$ . In support of H2, FIS financial worry scores were found to be strongly positively related to metacognitive scores ( $\beta = .60$ ). Stated differently, those who worry more about their future finances find it more difficult to think about the task of financial planning for retirement. However, a (second) nonhypothesized path also emerged between perceived financial knowledge scores and retirement planning metacognitions ( $\beta = -.37$ ). Specifically, individuals with higher levels of perceived financial knowledge less likely to report perceived cognitive difficulties when planning for retirement.

The third regression model, in which FIS financial worry scores served as the criterion, was also found to be statistically significant,  $F(1, 987) = 117.12, p < .01$ . In support of H3, perceived financial knowledge was found to be negatively linked to financial worry scores with a standardized beta weight of  $-.32$ . That is, higher perceived knowledge scores were associated with lower levels of worry about finances in late life. Age and household income also revealed weak but significant effects on FIS worry scores (standardized beta weights of  $.08$  and  $.12$ , respectively).

The last of the four regression models revealed that four of the five demographic indicators had weak associations with self-rated financial knowledge scores,  $F(5, 979), 31.15, p < .01$ . Higher levels of age, household income, and years of education were positively linked to self-rated knowledge, and gender displayed a negative coefficient which indicates that males reported having higher self-rated knowledge scores than females.

## DISCUSSION

The results of Study 2 served to confirm the findings from Study 1. Specifically, the psychometric properties of the newly developed measure were closely replicated, both in terms of internal consistency reliability and factor structure. Moreover, the incidence rate of moderate to severe negative metacognitions was also consistent across investigations, with 42.2% of respondents in the regional sample reporting cognitive difficulties compared to 45.7% of respondents in the national

sample. This finding clearly reveals that financial planning for retirement is a task that a large segment of society finds exceedingly difficult. Also, in Study 2 demographic factors were found to be minimally related to metacognition scores, which again, is consistent with the findings from the first investigation.

The results of the theoretically driven path model analysis also provided intriguing insights into the drivers of retirement planning behaviors. One notable aspect of the model was that over fifty% of the variability in financial planning activities was accounted for on the basis of the three psychological predictors, with a minor contribution in explained variance flowing from years of education. This finding is revealing, inasmuch as investigations that exclusively rely on sociodemographic predictors of planning typically account for substantially less variability. It is also interesting to note that cognitive difficulties (as indexed by retirement planning metacognition scores) were found to mediate the relationship between worry about postemployment finances and financial planning activities. Moreover, based on model findings, FIS worry scores and metacognition scores were both shown to mediate the otherwise strong direct relationship between self-rated financial knowledge and planning activities. This finding, however, does not preclude the possibility of some form of action/feedback loop (cf., control-theory as described by Carver & Scheier, 1990), in which high levels of perceived cognitive difficulties stimulate individuals to seek out additional financial knowledge, thereby reducing future perceptions of task difficulty. Additional research designed to tease out the possibility of this type of recursive path configuration is indicated.

In future investigations it would be interesting to explore the possibility of cross-cultural and cross-national differences in retirement planning metacognitions. Unfortunately, the size of the minority groups in Study 2 precluded an examination of racially based cross-cultural differences. A cross-national comparison of metacognitions would also be informative, particularly if the countries under scrutiny differed with respect to the structural nature of their pension systems. Another interesting future research direction would involve investigating the extent to which different forms of social support moderate perceptions of task-specific cognitive difficulties. It is altogether possible

that a collaborative planning arrangement with a partner, spouse, family member, or professional financial advisor would attenuate the perceived difficulty of the task. We believe it would also be informative to assess perceived retirement planning difficulties among a sample of older adults. The average age of respondents in the present investigation was approximately 40 years. A recent review of aging and financial decision making concluded that decisions in the financial arena are generally best in the 40–60 year age range (Hershey, Austin, & Gutierrez, 2015), after which point normative age-related cognitive declines can begin to limit decision-making abilities. It would be intriguing to determine whether perceived metacognitive difficulties increase as older individuals experience developmentally based declines in cognitive and intellectual abilities.

One other limitation of both studies reported in this article is that self-rated financial knowledge was used as a proxy measure for actual financial knowledge. In light of the fact that knowledge calibration has been shown to be imperfect (see Alba & Hutchinson, 2000 for a review), it would seem worthwhile in future investigations to obtain a direct measure one or more aspects of actual domain-specific knowledge or competence (e.g., financial literacy, numeracy) to see how they relate to the new measure of self-regulatory metacognition. By doing so, it should be possible to arrive a more reliable (i.e., less potentially biased) estimate the relationship between knowledge and perceived cognitive performance.

## CONCLUSION

The findings from the two studies reported in this article make three major contributions to the literature on metacognition. The first involves the development and psychometric assessment of a new metacognitive measure within a significant, real-world decision-making domain. Such a measure should prove useful in future studies examining the metacognitive basis of retirement planning. The second contribution is more theoretical in nature. Over the course of the two investigations it was possible to demonstrate an inverse relationship between two different forms of metacognitive awareness; specifically, between one's self-rated financial knowledge and one's negative thoughts about the financial planning process. Comparable findings are rare in the metacognitive literature, as most investigations tend to focus attention on only one form of the construct in their empirical work. The third contribution involved demonstrating how both forms of metacognition (based on Schraw's 1998 bipartite definition of the construct) are strongly predictive of behavior. This latter finding also contributes to the literature on financial planning for retirement, as it provides additional insights into the set of psychological factors that underlie the tendency to plan for the future.

In terms of the further development of metacognitive theory, it would be interesting in future investigations to examine not just individuals' impressions of task-related cognitive difficulties (i.e., their metacognitive perceptions), but to link those perceptions to actual retirement-linked financial decision-making performance. As pointed out in the introduction, those with strong metacognitive knowledge in a domain are more likely to solve problems in an analytically deliberate fashion (as opposed to using an intuitive approach; Mata et al., 2013). This leaves open the question of how analytically deliberate individuals are likely to be in cases in which they perceive the task of financial planning for retirement to be difficult. That is, if a person strongly endorses the metacognitive scale items—thereby suggesting that they

find financial planning a challenge—then are they increasingly prone to engage in analytical, or intuitive, processing? This is not an inconsequential theoretical question in light of the complexity of the domain, which ideally calls upon individuals to approach the task in a careful and systematic fashion [i.e., what Kahaneman (2011) refers to as “slow” or “System 2” thinking]. One might speculate that a low level of perceived cognitive difficulty (i.e., low metacognitive scores) would be associated with use of a more systematic decision-making approach, and those who find the task daunting (high metacognitive scores) might be more likely to base their decisions on heuristics and intuition (i.e., “fast” or “System 1” thinking according to Kahaneman's framework). This is indeed a testable proposition that could have implications not only for the development of metacognitive theory, but also for the development of retirement interventions (On a related note, it would be interesting to examine individuals' perceptions of decision quality as a function of retirement planning metacognition scores, as Mata and colleagues (2013) suggest that self-assessments of the quality of our decisions also covary with metacognitive awareness.)

Also in terms of the development of theory, it would be interesting in future studies to explore the relationship between metacognitive perceptions in the retirement planning domain and various goal constructs. We were unable to identify any studies in the retirement literature that have addressed this topic. Gollwitzer and Schaal (1998) have argued that goal intentions and goal implementation intentions are both important aspect of metacognitive control (Zacher, Hacker, & Frese, 2016). Having clear goals for, say, establishing a sufficient retirement nest egg (a goal intention) should be linked to the desire to carry out savings-related behaviors (implementation intentions). According to Gollwitzer and Schaal, individuals who possess strong metacognitive control are more likely to have “strategically automated” the types of tactics necessary to enact goal striving behaviors, thereby increasing the chances of experiencing goal fulfillment. Strategic automaticity is said to occur in cases in which a triggering condition leads to an adaptive, goal-related behavior. So in the financial planning domain, automated strategies might involve, for instance, increasing 401K contributions each time one receives a raise, carrying out an annual review of one's retirement portfolio when preparing one's annual tax forms, or meeting with a professional financial planner on birthdays divisible by five or birthdays that fall in even numbered years. Because these triggering conditions are, in and of themselves, “conditional elements” according to Schraw's (1998) definition of metacognition, it would likely be a thorny matter to establish the precise nature of the relationships among metacognitive action control and goal structures. However, to do so would not only stand to advance metacognitive theory, but it would also provide insights into the psychological foundations of retirement saving behaviors.

Toward the beginning of this article it was pointed out just how few working American adults carry out even the most basic retirement planning tasks, such as calculating how much will be needed for the postemployment period of life (EBRI, 2014; Lusardi & Mitchell, 2011). Possible explanations for this lack of involvement in the planning process include the notion that individuals lack the resources necessary to do so (Wang, 2007, such as time; discretionary income, sources of information), sufficient clarity of goals (Adams & Rau, 2011; McCullough, 2012; Stawski et al., 2007), distorted attitudes toward the aging process (Heraty & McCarthy, 2015), interest in the topic, or some combination of the four. Furthermore, findings from

the second investigation suggest that low levels of engagement in planning activities are reflective of, but not necessarily causally related to, the perceived intellectual challenges brought about by the task. This is a potentially consequential empirical finding with significant real-world implications, inasmuch as a failure to plan has been linked to insufficient financial resources after leaving the workforce and a reduced quality of life (Earl, Bednall, & Muratore, 2015; Gerrans et al., 2014; van Rooij et al., 2012).

To the extent that financial knowledge and metacognitive scores collectively account for a large proportion of variance in planning, one partial solution to the challenge of getting workers to plan for the future would be to help them become better informed about long-range finances and investing. The findings from this study suggest that strengthening individuals' perceived financial knowledge and financial literacy levels will, in turn, result in lower levels of perceived cognitive difficulties and, potentially, enhance domain-specific self-efficacy [although, this latter claim has yet to be empirically demonstrated; we distinguish perceived cognitive difficulties (i.e., low levels of perceived metacognitions) from perceived self-efficacy in the financial planning domain. Whereas the former taps perceptions of competence regarding specific aspects of the planning process (i.e., planning, monitoring, evaluation), the latter—self-efficacy—taps more global perceptions of an individual's competence in the domain (cf., Bandura, 1982; Vancouver & Kendall, 2006).]. Of course, a solution such as this is easier said than done. High levels of task-specific competence, low levels of perceived cognitive difficulties, and high levels of retirement planning self-efficacy are fostered by living and working in a society that nurtures and supports individuals with the requisite resources to plan effectively. Toward that end, institutional programs and public policies that support learning and financial preparedness will be critical (Bartlett, 1989; Webb, 2010). The good news is that steps are already being taken in that direction, with initiatives aimed at educating school children and young adults about personal finance (Bernheim, Garrett, & Maki, 2001; Goetz, Cude, Nielsen, Chatterjee, & Mimura, 2011), and the development of user-friendly online resources designed to make the task of financial planning less daunting (Updegrave, 2008). It would seem that more could be done, however, with respect to workplace financial education programs, many of which are only targeted at individuals as they near the end of their career (Krajnak, Burns, & Natchek, 2008).

In closing, it would be a serious omission if we again failed to mention the potential use of the retirement metacognition scale in applied settings. There exists an emerging field of financial therapy (Klontz et al., 2015) that is deeply rooted in the notion that assessment and planning are two keys to helping individuals gain control over their finances. Therapists who work in this focal area could perhaps find use for the brief metacognitive measure as a way of developing a baseline profile for those who report experiencing financial planning difficulties. Retirement intervention specialists could also conceivably benefit from the use of the newly developed scale as a way of not only identifying those in need of assistance, but also as a way to track positive changes in financial self-esteem as a function of program involvement.

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