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Mediational effects of sensation seeking on the age and financial risk-taking relationship

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ABSTRACT

The current study examined the potential mediating role of sensation seeking in the well-established negative relationship between age and financial risk-taking. A total of 299 participants, aged 17–90 years, allocated hypothetical money into mutual funds that varied in risk and completed a sensation seeking measure. Hierarchical multiple regressions revealed that the amount of variability age accounted for in risk-taking (4.1%; $\beta = -.22$) was significantly reduced when sensation seeking was controlled for (0.8%; $\beta = -.12$). A Sobel test revealed that sensation seeking fully mediated the aforementioned relationship. Results suggest sensation seeking's role as a mediator in more physiologically arousing risk-taking contexts (e.g., surfing). Discussion recommends investigating potential biologically and cognitively-rooted mediators and moderators of the age and risk-taking relationship.

> "Twenty years from now you will be more disappointed by the things that you didn't do than by the ones you did. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover."
>
> Mark Twain

1. Introduction

Conventional wisdom might suggest that younger adults would be more likely than older adults to endorse these famous words. Risk-taking in general has been investigated in many different contexts, including management decision-making (Sanfrey & Hastie, 2000), driving (Dahlen & White, 2006), gambling (Winters, Stinchfield, Botzet, & Anderson, 2002), surfing (Diehm & Armatas, 2004), and in financial matters (Dulebohn, 2002). Specifically, a well-established negative relationship exists between age and risk-taking (e.g., Deakin, Aitken, Robbins, & Sahakian, 2004; Hunter & Kemp, 2004; Vroom & Pahl, 1971). For example, Vroom and Pahl (1971) presented managers (aged 22–58) from a variety of corporations with a list of five situations (e.g., chess game, prisoner of war situation) in which participants could choose to make a risky or safe hypothetical decision. Researchers found older managers made less risky decisions than younger managers. Similarly, Deakin et al. (2004) presented participants (aged 17–73) with a hypothetical gambling situation and found that younger adults tended to risk more than older adults. Finally, the negative relationship between age and risk-taking has also been demonstrated using financial operationalizations. For example, Hunter and Kemp (2004) evaluated shareholders of two risky e-commerce companies and one less risky electronics company and found that shareholders in the riskier e-commerce companies tended to be younger and more impulsive than investors in the less risky electronics company. Similarly, examining tax returns, Palsson (1996) found that older participants tended to invest personal assets in less risky entities than did younger participants.

Although the inverse relationship between age and risk-taking behaviors has been reliably established, less is known about the underlying mechanisms that might be responsible for this relationship. In previous research, both biological and social underpinnings of risk-taking (Zuckerman & Kuhlman, 2000), along with behavioral and cognitive underpinnings, have been reported. The purpose of the current study was to investigate the role that the biologically-based need of sensation seeking might play in mediating the relationship between age and financial risk-taking.

Four conditions are necessary to determine if one variable is a mediator of the relationship between two other variables (Baron & Kenny, 1986). First, the predictor variable (age) must be related to the criterion variable (risk-taking). Next, the predictor variable (age) must be related to the mediating variable (sensation seeking). Third, the potential mediator (sensation seeking) must be related to the criterion variable (risk-taking). Finally, the relationship between the predictor variable (age) and criterion variable

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(risk-taking) must be significantly reduced after the potential mediating variable (sensation seeking) is controlled.

1.1. Sensation seeking

Due to its established correlations with age and risk-taking, sensation seeking is one variable that may mediate the age and risk-taking relationship. Sensation seeking is the need for varied and new experiences, and incorporates the willingness to take risks for the sake of those experiences (Zuckerman, 1979). Supporting Baron and Kenny's (1986) second requirement for mediation, age has been negatively correlated with sensation seeking. For example, Roth, Schumacher, and Brahler (2005) investigated sensation seeking among 1949 participants aged 16–79 years and found that sensation seeking steadily decreased across all age levels. In addition, Zuckerman, Eysenck, and Eysenck (1978) studied sex, age, and national comparisons between English and American samples and found a significant decrease in sensation seeking as age increased. A more recent study conducted by Beauducel, Strobel, and Brocke (2003) assessed a large sample of Europeans varying in age (16–59 years) and also found a negative relationship between age and sensation seeking.

Supporting Baron and Kenny's (1986) third requirement for mediation, sensation seeking has been connected with risk-taking in many different contexts. For example, Fischer and Smith (2004) evaluated the relationship between sensation seeking and a host of negative outcome risk activities (e.g., trespassing, cheating on an exam, shoplifting), and non-negative risk outcome activities (e.g., camping, snow skiing, blind date) among college students. Using participant indication of past involvement in these negative and non-negative outcome risk activities, as well as completion of sensation seeking measures, researchers found weak positive correlations between sensation seeking and both composite negative outcome risk measures and composite non-negative risk measures. Subsequently, Dahlen and White (2006) evaluated the relationship between risky driving habits and sensation seeking and found a weak positive correlation between the aforementioned variables ($r = .26$). Of specific interest to financial risk-taking, Wong and Carducci (1991) found that among a sample of individuals aged 18–53 years, high sensation seekers were more likely to make riskier everyday financial decisions regarding personal investments, household decisions, and gambling than were low sensation seekers.

It is important to note that sensation seeking and risk-taking differ in that sensation seeking is a biologically-based need for arousing stimuli, whereas risk-taking is often the means with which sensation seeking needs are met (e.g., Levenson, 1990). In other words, a need for high sensation seeking does not necessarily facilitate high-risk-taking activities, although it often does occur as a result (Zuckerman, 1991). For example, high sensation seekers often satisfy their need for arousal by travelling to or vacationing in new and exotic places, activities that typically contain little inherent risk.

1.2. Overview of current research

To determine the extent to which sensation seeking mediated the relationship between age and financial risk-taking, we questioned four samples of adults. To assess financial risk-taking, we asked participants to allocate money among low- and high-risk mutual funds. To assess sensation seeking, participants completed a brief, well-validated scale (e.g., Eachus, 2004) created by Hoyle, Stephenson, Palmgreen, Lorch, and Donohew (2002). Due to the intercorrelations between age, sensation seeking, and risk-taking found in previous research, sensation seeking was expected to mediate the age and financial risk-taking relationship.

2. Method

2.1. Participants

A total of 299 respondents (61% women) completed measures assessing financial risk-taking, sensation seeking, investment knowledge, and demographic variables. Participants were obtained from four different composite samples that varied in age (composite $M_{age} = 35.87_{yrs}$, $SD_{age} = 18.95_{yrs}$, range = $17–90_{yrs}$). Participants in a midwest community ($n = 80$, $M_{age} = 58.77_{yrs}$, $SD_{age} = 12.93_{yrs}$, range = $32–90_{yrs}$) completed sample measures and were entered in a raffle to win one of 25, $10 gift cards to a retailer. Of the 600 people originally contacted, 80 completed surveys were returned (response rate = 13.33%). Additionally, convenience sampling of introduction to psychology students, economics students, and students from other majors at a liberal arts college in the Midwest ($n = 107$, $M_{age} = 18.70_{yrs}$, $SD_{age} = 1.03_{yrs}$, range = $17–22_{yrs}$) was conducted. Participants either received introduction to psychology class credit or a piece of candy as an incentive for their participation. In addition, college students ($n = 50$, $M_{age} = 26.70_{yrs}$, $SD_{age} = 8.02_{yrs}$, range = $19–52_{yrs}$) from a regional university in the South, and community members ($n = 62$, $M_{age} = 42.88_{yrs}$, $SD_{age} = 13.21_{yrs}$, range = $24–69_{yrs}$) from the South were also sampled.

2.2. Materials

2.2.1. Risk-taking

Participants distributed either $10,000 or $50,000[1] among 13 mutual funds, varying from low- to high-risk. Funds that were specialized geographically (e.g., Asia, Latin America) were excluded to reduce any extraneous variable effects. Funds were listed by name in alphabetical order, with each described in some detail. Instructions indicated that the size of the standard deviation for each fund was an indicator of its risk level, and participants were asked to allocate hypothetical money among the funds in any desired manner.

2.2.2. Sensation seeking

Developed by Hoyle et al. (2002), the 8-item Brief Sensation Seeking Scale (BSSS) was used to measure sensation seeking. This scale has been used in past research and is a well-validated measure of sensation seeking (e.g., Eachus, 2004; Stephenson, Hoyle, Palmgreen, & Slater, 2003). Participants indicated the extent to which they agreed with statements such as "I would love to have new and exciting experiences, even if they are illegal" on a 1 (*not at all characteristic of me*) to 7 (*extremely characteristic of me*) Likert scale. In the current study, $\alpha = .82$.

2.2.3. Investment knowledge

Developed by the Vanguard Funds Group (Updegrave, 1996) and validated in previous research (e.g., Dulebohn, 2002), participants completed a 5-item investment knowledge quiz testing their knowledge of basic investment principles. Questions such as "If your investment earns an average annual return of 10%, your money will double in approximately how many years?" were asked. Four or five multiple-choice alternatives were given as possible answers to each question. In the current study, $\alpha = .57$.

2.2.4. Demographic variables

Participants reported their age, sex, and socioeconomic status (SES). To measure SES, student participants (i.e., Midwest liberal arts college and Southern regional university students) reported

[1] No effect of the experimental manipulation variable in regards to risk-taking was found. The experimental manipulation did not affect any variables in the current study, nor did it interact with any of the other variables in the study. Thus, the experimental manipulation was excluded from further analyses.