

Risk-Taking Differences Across the Adult Life Span: A Question of Age and Domain

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Background. Older adults face important risky decisions about their health, their financial future, and their social environment. We examine age differences in risk-taking behaviors in multiple risk domains across the adult life span.

Methods. A cross-sectional study was conducted in which 528 participants from 18 to 93 years of age completed the Domain-Specific Risk-Taking (DOSPERT) scale, a survey measuring risk taking in 5 different domains.

Results. Our findings reveal that risk-taking tendencies in the financial domain reduce steeply in older age (at least for men). Risk taking in the social domain instead increases slightly from young to middle age, before reducing sharply in later life, whereas recreational risk taking reduces more steeply from young to middle age than in later life. Ethical and health risk taking reduce relatively smoothly with age. Our findings also reveal gender differences in risk taking with age. Financial risk taking reduced steeply in later life for men but not for women, and risk taking in the social domain reduced more sharply for women than for men.

Discussion. We discuss possible underlying causes of the domain-specific nature of risk taking and age.

Key Words: Aging—Domain-specific risk taking—DOSPERT—Gender differences—Older adults—Risk taking.

Just because you're an old guy, you don't have to sit around drooling in the corner. Get out and do something. Get out and enjoy life.

—George H.W. Bush (Thomas, 2009)

THE former U.S. President George H. W. Bush commemorated his 85th birthday with a 10,500-foot sky-dive over Maine (Thomas, 2009). In this adventurous spirit, 85-year-old Anthony Smith and his elderly crew navigated their home-made raft, constructed of polyethylene pipes with a prefabricated pig shelter for a cabin, across 3,000 miles of the Atlantic Ocean to arrive at St. Martin in the Caribbean (Farnham, 2011). Reports of this kind are in contrast with studies in the psychological literature identifying older adults as risk avoidant (Rolison, Hanoch, & Wood, 2012; Turner & McClure, 2003; Vroom & Pahl, 1971). But the psychological literature has mainly focused on older adult risk taking in the financial domain (Bakshi & Chen, 1994; Deakin, Aitken, Robbins, & Shahakian, 2004; Mata, Josef, Samanez-Larkin, & Hertwig, 2011; Zamarian, Sinz, Bonatti, Gamboz, & Delazer, 2008), and may not reflect decisions that older adults make about their health (e.g., medical care) and social environment (e.g., whether to live independently or in a nursing home). We reveal that older adult risk taking, typically studied in financial domains does not relate to risk taking in other domains, and that to better capture older adults' risk-taking tendencies, researchers need to evaluate risk behavior in a range of domains.

The dominant view in the psychological literature is that risk taking represents either a single personality trait or a small cluster of subtraits (e.g., impulsivity and sensation seeking; Hansen & Breivik, 2001). This view of risk-taking behavior, which brands individuals with either a risk-taking or risk-averse style, does not provide a reliable model for predicting behavior across domains and situations (Schoemaker, 1990). Managers' attitudes toward financial risk for instance are reported to differ from their attitudes toward personal and recreational risks (MacCrimmon & Wehrung, 1990). Smokers are more likely than nonsmokers to take risks that concern their health, but are no more risk taking in other domains (Hanoch, Johnson, & Wilke, 2006), and women are more cautious than men in multiple domains except for situations that relate to their social environment (Weber, Blais, & Betz, 2002). There is also wide cultural variation in risk taking across domains (Weber, 2001).

Addressing the domain-specific nature of risk, Weber and colleagues have developed the Domain-Specific Risk-Taking Scale (DOSPERT; Blais & Weber, 2006; Weber et al., 2002), which captures individual behaviors across five risk domains, including the financial domain, combining elements of risky financial investment and gambling, the health domain, and social, recreational, and ethical domains. Within the DOSPERT scale, risk taking—a self-reported likelihood of engaging in a risky activity—is measured separately from two additional scales that measure perceived

risks and expected benefits of engaging in risky activities in each domain. Weber and colleagues (Blais & Weber, 2006; Weber et al., 2002) have provided a risk-return framework, in which risk-taking behavior varies as a function of the individual's perceptions of risk and their associated benefits. In this study, we focused on the behavioral component of the DOSPERT and measured only participants' likelihood of engaging in risky activities in each domain.

The original 40-item DOSPERT scale, measuring risk attitudes, and perceived risks and benefits, has been demonstrated to have satisfactory internal consistency reliability of its scale items (Weber et al., 2002), adequate test-retest reliability (Weber et al., 2002), and to capture the domain-specific nature of real-world risk taking. For example, Markiewicz and Weber (2013) found responses only to the gambling items of the DOSPERT to predict the trading volume of investors, a particularly risky variant of financial investment, and Brown and Braver (2007) reported that risk-averse responses on the gambling items of the DOSPERT relate to greater activity in the anterior cingulate cortex—neurological activity associated with cognitive control and anticipation of performance errors. The DOSPERT is also demonstrated to provide an effective clinical tool for measuring health-related risk attitudes in health settings, captured by responses to items in the health domain (Harrison, Young, Butow, Salkeld, & Solomon, 2005). Our present purposes are to identify age differences in attitudes toward risk in various content domains, and thus we focus on the risk-taking component of the DOSPERT. We apply the revised 30-item DOSPERT scale, developed by Blais and Weber (2006) specifically for measuring domain-specific risk taking among individuals of broad age ranges and education levels. In contrast with the original 40-item scale, developed for use with college undergraduates, items of the revised 30-item scale are applicable also to adult age ranges. For example, "Disagreeing with your father on a major issue," an item that measures risk taking in the social domain, is replaced with "Disagreeing with an authority figure on a major issue" in the revised 30-item DOSPERT scale (see [Supplementary Appendix A](#) for the full list of scale items).

Separate from theoretical developments in domain-specific risk taking, researchers studying aging have focused on financial risk taking and gambling behavior (Deakin et al., 2004; Mata et al., 2011; Vroom & Pahl, 1971; Zamarian et al., 2008). Researchers using behavioral measures have found that age differences vary across risk-taking tasks, highlighting the importance of studying risk taking in multiple contexts and with various methodologies. For example, Henninger, Madden, and Huettel (2010) reported that older adults were more risk averse than their younger counterparts on the Balloon Analogue Risk Task (BART; see also Rolison et al., 2012), but more risk seeking on the Iowa Gambling Task (IGT; see also Deakin et al., 2004; Denburg, Tranel, Bechara, & Damasio, 2001). The authors discovered that the BART and IGT make different learning demands on processing speed and memory,

which may interact with the cognitive declines that are associated with older age. The different cognitive context of these tasks results in different predictions for risk-taking behavior in older adults. When people are instead provided full information about the expected payoffs of risky choice options, rather than having to learn them from experience, age differences typically reduce (Mata et al., 2011; Samanez-Larkin, Wagner, & Knutson, 2010; Zamarian et al., 2008).

In contrast with findings from some behavioral studies, researchers using self-report measures and responses to risky dilemmas have typically found increased risk aversion among older adults (Botwinick, 1966; Turner & McClure, 2003; Wallach & Kogan, 1961; but see Chou, Lee, & Ho, 2007), perhaps due to the reduced learning component. For instance, Rolison and colleagues (2012) found that younger adults were willing initially to take greater risks than older adults on the BART, but that experience on the task eroded age differences, suggesting that older adults may be more cautious when their risk taking is based on their initial risk perceptions. Importantly, many of the serious decisions that older adults face about their medical care and treatment, social environment (e.g., whether to move to an over 60 community), and financial future (e.g., when to begin to draw on one's retirement savings) are one-off decisions that do not offer an opportunity for learning. Previous studies that have investigated people's willingness to engage in risky activities, however, have failed to consider these types of contextual effects on risk taking. For example, the Choice Dilemma Scale, developed by Kogan and Wallach (1964), measures individuals' willingness to accept hypothetical risks in various domains, but participants' responses are summed across all scale items to calculate their risk score, which ignores risk-taking tendencies that are specific to risk domain. Using the DOSPERT scale, in this study we test for age differences in risk taking separately for several risk domains.

Cross-sectional studies comparing younger and older adults have revealed that age differences in financial risk taking typically emerge from around the age of retirement (~65+ years; Jianakoplos & Bernasek, 1998; Riley and Chow, 1992), suggesting that changes in risk attitude with age may be more abrupt in later life. The underlying causes of age differences are complex and multifaceted. In a review of the literature, Mather (2006) identified a number of potential causes of increased cautiousness in older age, including changes in life circumstances, motivational factors, and cognitive decline. We can expect that in the financial domain, the time horizon of older adults is also relevant to their risky decisions (Rolison, Giroto, Legrenzi, & Hanoch, 2013). Individuals with shorter time horizons (e.g., saving for the purchase of a new car) are discouraged from investing aggressively, as a loss to savings can take time to recover. This is particularly relevant to older adults who have a shorter time horizon than younger individuals for long-term investments in their financial future. Older adults are encouraged by financial advisors to invest more cautiously