

RESEARCH ARTICLE

WILEY

Perfectionism paradox: Perfectionistic concerns (not perfectionistic strivings) affect the relationship between perceived risk and choice

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Abstract

We investigate whether, when, and why perfectionism moderates the relationship between perceived risk and choice. Two studies ($N = 1784$) using different choice domains (appearance and performance) and different samples (women and general population) show consistent results. People with high (vs. low) perfectionistic concerns (PC) are less sensitive to high risks and, hence, are more willing to consider options (i.e., products and services) that entail greater risks. These effects emerge because high-PC (vs. low-PC) individuals have more favorable appraisals, believing that the product or service's benefits are worth its risks even when these risks are substantial. The effects observed for high- vs. low-PC do not obtain for people who are high (vs. low) on a second dimension of perfectionism called perfectionistic strivings (PS). Our findings suggest that high-PC individuals may be a vulnerable segment in society, particularly since (a) people are frequently confronted with decisions about options that promise perfectionistic outcomes, (b) these options can come with high levels of risk, and (c) perfectionistic tendencies have become more prevalent over time. We discuss the implications of these findings for policymakers and future research.

1 | INTRODUCTION

Perfectionism in society has been on the rise in recent years. A longitudinal study between 1989 and 2016 finds that perfectionism has linearly increased among younger individuals in the US (Curran & Hill, 2019). Today, teenagers often believe that they must be or appear perfect to win approval from friends, social media followers, or parents (Curran & Hill, 2019). Adults also seem to be under pressure to project an image of oneself as perfect to others. Organizations increasingly expect and require their employees to attain extremely high (i.e., perfectionistic) performance, go beyond assigned work duties, and take the initiative in everything they do (Janssen & van

Yperen, 2004; Schaufeli et al., 2008). These results suggest that setting high standards in general and pursuing perfection, in particular, may be desired and demanded by today's society.

To cope with these demands, consumers turn to the marketplace in their quest for perfection. For example, Google reveals that people have searched for the phrase “how to get the perfect body” more than 2.2 billion times, “how to plan the perfect wedding” more than 236 million times, and “how to find the perfect home” more than 6.0 billion times on Google. Moreover, the media extensively covers anecdotal accounts of consumers' attempts to purchase perfection (Clarke, 2020). On social media, especially younger consumers try to project a perfect image of themselves with things they buy, consume,

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share, and experience (Simmons, 2019). In response to such requests, marketers offer products and services that promise perfection. For instance, products that offer flawless skin or rapid weight loss now make up a \$1.3 trillion health and wellness industry (O'Sullivan, 2021).

In many instances, though, the efficacy of such products and services is suspect. Even more concerning, consumption of these products comes with substantial economic, physical, time, and social risks. For example, consumers increasingly engage in high-risk beauty practices like extreme diets or expensive cosmetic surgery to look exceptionally thin and beautiful (Micali et al., 2015; Widdows & MacCallum, 2018) or take drugs and prescription painkillers to perform at their best despite the health risks (Clarke, 2020). We suggest that perfectionism in general and PC, in particular, can explain consumers' purchase behavior specifically in the context of high-risk products, giving rise to important implications for firms and policymakers.

Our intended contributions are three-fold. First, we extend the collective understanding of perfectionism by examining its effects on consumer responses. Consumers increasingly turn to the marketplace to become a more perfect version of themselves. Yet, to date, research on perfectionism focused on contexts like education (Madigan, 2019), the workplace (e.g., Chang et al., 2016), and athletics (Madigan et al., 2015), and not marketing and consumer behavior. Second, we document the novel finding that consumers with PC (a dimension of perfectionism) show a higher preference for products and services under high risk compared to other individuals (including those with strong perfectionistic strivings [PS]), and exhibit relatively lower risk sensitivity (i.e., a smaller negative effect of the marginal increase in risk). These findings raise concerns about consumer welfare. To the extent that consumers with PC are less deterred by high-risk purchases, they may be a vulnerable consumer segment. Third, we provide a process explanation for this phenomenon. Specifically, we show that the low-risk sensitivity of consumers with strong PC is due to their appraisal that the benefits of such products or services (i.e., enabling them to reach perfectionistic standards) are worth the risks.

Next, we discuss our theory, focusing on perfectionism, risk, and the role of PC in risk perception. We end the conceptual discussion with a formal discussion of our hypothesis.

2 | THEORETICAL DEVELOPMENT

2.1 | Perfectionism and its dimensions

Perfectionism is defined as “the practice of demanding of oneself a higher quality of performance than is required by the situation” (Hollender, 1965, p. 94) or “setting high standards for one's performance” (Frost & Marten, 1990, p. 90). Prior research considers perfectionism to be a multidimensional construct that comprises two conceptually distinct dimensions (Bieling et al., 2004; Frost et al., 1993; Hamachek, 1978; Slade & Glynn Owens, 1998; Stoeber & Otto, 2006): PS and PC (Stoeber, 2018). Though PS and PC are

positively related (with correlations up to 0.70; Stoeber & Otto, 2006), they show opposing effects. PC consistently leads to *maladaptive outcomes* (i.e., negative, dysfunctional, or unhealthy), including test anxiety, fear of negative evaluation, and low self-esteem (Bieling et al., 2004; Hill et al., 2004; Rice et al., 1998). By contrast, PS often shows positive relationships with *adaptive outcomes* (i.e., positive, functional, or healthy), such as higher academic performance and the perceived ability to achieve (Bieling et al., 2004; Cox et al., 2002).

While both types of perfectionists are motivated to achieve high standards on the surface, their latent motivations, corresponding affective states, and cognitive processes are different, ultimately leading to differences in outcomes. For high-PC individuals, perfectionism is an attempt to procure others' approval and repair feelings of unworthiness and shame through displays of high achievement (Hewitt et al., 2017). As a result, high-PC individuals are hyper-attentive to others' evaluations of them, and they feel anxiety and pressure regarding others' expectations that they should be perfect (Hewitt et al., 2017). When they fail to achieve their high standards, they constantly worry that others will judge them negatively. Given these concerns, high-PC individuals consider anything short of perfection catastrophic and akin to a failure and a threat to their already low self-worth (Frost et al., 1995). Moreover, they tend to perceive that mistakes that get in the way of perfection are harmful to their ideal image and hence, must be concealed from others (Frost et al., 1995). These individuals constantly perceive a discrepancy between the current self and the (ideal) self even when they attain high standards. This discrepancy leads to constant dissatisfaction with the outcome and regret that the person could have done better (Bergman et al., 2007). Given these findings, it is perhaps not surprising that high-PC individuals often exhibit low self-esteem and negative psychological outcomes, such as a chronic sense of failure and shame (Hamachek, 1978; Hollender, 1965; Pacht, 1984).

In contrast to high-PC individuals, individuals who are high on PS think and behave differently. Specifically, whereas high-PS individuals hold themselves to high standards, they worry less about not achieving these standards or what others will think about them if they fail to meet them (Stoeber et al., 2009). As such, failing to meet one or more standards, while disappointing, is neither catastrophic nor a threat to their self-worth. Unlike high-PC individuals, high-PS individuals experience positive affect in their quest for high standards. They also tend to be more forgiving of themselves when mistakes happen (Frost et al., 1995). When they meet their high standards, they attribute success as evidence of their genuine internal capabilities and superiority relative to others. As a result, these individuals often exhibit high self-esteem and positive psychological outcomes such as positive life satisfaction and happiness (Bergman et al., 2007; Stoeber & Janssen, 2011).

Perfectionistic concerns can be distinguished from similar constructs in the literature. Whereas high-PC individuals perceive a discrepancy between the self and the (ideal) perfect standards to which they hold themselves, PC are not the same as self-discrepancy (Mandel et al., 2017). Though one might perceive a discrepancy between a current state (e.g., I am disorganized) and an ideal state

(e.g., I want to be organized), the ideal state may not be the equivalent of a perfect state (e.g., I want to be the most organized person possible). Maximization is another construct that may be related to perfectionism. Schwartz et al. (2002) proposed that when making choices, some individuals—*maximizers*—search extensively through many alternatives with the goal of making the best choice, whereas others—*satisficers*—search only until they identify an option that meets their standards, which they then choose. Maximization is different from perfectionism conceptually because maximizers want to make the best choice among available alternatives. Perfectionists want to find and use products that create perfect outcomes. Maximizers are product-focused; perfectionists are outcome-focused. Prior research finds a significant but small correlation ($r = .20$) between participants' scores on maximization and perfectionism (Schwartz et al., 2002). Later work further uncovered that maximization correlates 0.22 with positive perfectionism (i.e., PS) and 0.42 with negative perfectionism (i.e., PC; Bergman et al., 2007). These correlations suggest that these are distinct constructs with vastly different underlying functioning, although they share surface-level commonalities.

2.2 | Risk sensitivity and purchase decisions

Products and services that promise perfection can entail varying degrees of risk. Risk is defined as *the degree of uncertainty regarding outcomes from a decision* (Dowling & Staelin, 1994; Kacelnik & Bateson, 1997). Consumers' perception of risk is a crucial determinant of their purchase decisions (Bauer, 1960; Jacoby & Kaplan, 1972). Whereas some decisions offer a narrow range of possible outcomes (low risk), others entail widely variable outcomes (high risk), with the potential for large gains as well as large losses. For example, undergoing cosmetic surgery (vs. using a facial cream) can create a more youthful appearance (i.e., a larger gain); yet, it also entails greater physical, time, and financial risks (i.e., larger potential losses).

As perceived risks surrounding the purchase or use of the product or service increase, consumers become less likely to purchase that product or service (Gunawan & Huarng, 2015; Park et al., 2005). At the same time, consumers' choices are not static but often exhibit risk sensitivity. A risk-sensitive individual weighs expected outcomes and chooses among options based on outcome expectations and outcome variability. Risk sensitivity theorists (Kacelnik & Bateson, 1997; Tversky & Kahneman, 1992) predict risk-aversion when one's survival is not threatened (in the domain of gains) but risk-seeking when there is such a threat (in the domain of losses).

Research in judgment and decision making suggests that the way in which people evaluate risk and their sensitivity to increasing risks depends on factors that include the use of cognitive heuristics (Tversky & Kahneman, 1992), individual factors (Charness & Gneezy, 2012), culture (Weber & Hsee, 1998), goals (Sayette et al., 2005), framing of information (Raghubir & Menon, 2001), and emotional states (Ragunathan & Pham, 1999). We add to these factors demonstrating that perfectionism in general, and PC in particular, influence consumers' risk sensitivity and ultimate choice.

2.3 | Perfectionistic concerns and risky choice

The literature on perfectionism shows that both high-PS and high-PC individuals regard the prospect of obtaining outcomes that facilitate perfection as rewarding. However, we anticipate that the PC dimension of perfectionism (vs. the PS dimension) makes individuals less sensitive to the risks a product or service entails and more sensitive to the benefits that the product provides, ultimately increasing their overall acceptance of risk.

Several reasons drive this logic. First, high-PC consumers may feel that they have little to lose and much to gain from risky products and services. High-PC individuals desperately want to avoid failure and achieve less than perfect results (Frost et al., 1995). At the same time, as they are constantly anxious about their performance, these individuals often see themselves on the brink of failing to achieve their perfectionistic standards. Both prospect theory (Tversky & Kahneman, 1992) and risk-sensitivity theory (Kacelnik & Bateson, 1997) predict that entities may become less risk-averse and more accepting of risk when they perceive themselves in the domain of losses. For instance, in a medical decision-making context, patients with life-threatening illnesses showed more risk-seeking tendencies, such as taking a new medical treatment protocol, when they had a short versus long duration of survival (Van Osch et al., 2006). As such, the product's benefits, more so than its risks, may weigh more heavily in their decision-making. Similarly, high-PC consumers may place considerable value on the product's benefits in getting them out of their current state of imperfection, even if the product entails high risks.

Second, high-PC consumers also attach social and emotional value to attaining perfectionistic standards rather than achieving them for their own sake. For high-PC individuals, perfectionism is an attempt to procure others' approval and repair feelings of unworthiness and shame through displays of high achievement (Hewitt et al., 2017). Often triggered by their negative childhood experiences, they engage in negative self-talk, such that "I'm not lovable unless I'm perfect," or "I'm either perfect or I'm worthless" (Hamachek, 1978; Hollender, 1965). These cognitions impact their affective states and lead to feelings of inferiority and shame (Hollender, 1965). For these individuals, achieving perfection may be the only way to gain their social acceptance and restore a sense of self-coherence. In such cognitive and affective states, the benefits of the product (i.e., the promise of reaching perfectionistic standards), more so than its risks may weigh more heavily in their decision making.

This asymmetry in the perceived impact of gains (here, from product benefits) and losses (here, from product risks) has been studied in the literature in other contexts. For instance, research in psychology finds that young men are more risk-prone than any other demographic group (Wilson et al., 2002). From an evolutionary perspective, young men may benefit from competing hard and facing risks in early adolescence because, during this time, they wish to attain social status and wealth (key benefits). Moreover, any win increases their mate value and ability to provide for future offspring, offering social benefits (Kruger & Nesse, 2006; Wilson et al., 2002). Analogously, high-PC consumers may perceive the social and emotional gains from using a

high-risk product to be desirable because the product might help them achieve perfection despite its risks. The possibility of achieving perfect outcomes is particularly tempting as it also means avoiding presumed negative judgments from others and reinforcing their self-worth (Frost et al., 1993). As a result, they become more accepting of risks given the potential benefits they may reap from the products.

Third, products and services that promise perfection can be a remedy for high-PC individuals because their low self-esteem makes them feel uncertain and anxious about their capabilities and prospects of reaching their goals (Cain et al., 2008; Enns et al., 2001). As such, they may be particularly open to external aids like products and services that promise perfection. Because they feel unable to reach their goals, they may believe that without such aids, they fail to reach the state of perfection. With such external aids, high-PC individuals may try to establish some sense of control, even when the aid entails high risks. This logic aligns with research in the health domain. High-PC individuals' low self-efficacy is related to risky maladaptive behavior (e.g., bulimia or anorexia) rather than less risky adaptive alternatives (e.g., dieting; Cain et al., 2008; Vohs et al., 1999). Similarly, high-PC individuals may deem products and services that align with their quest to meet perfectionistic standards necessary even when these products entail risks.

High-PS individuals, however, are more satisfied both with their current standing and positive about their prospects of reaching perfection on their own and based on their internal capabilities (Bergman et al., 2007; Enns et al., 2001; Vohs et al., 1999). Since they perceive themselves as starting in the region of gains, we predict that increasing risks would deter them from choosing a high-risk offering.

2.4 | Hypotheses and study overview

Following from this theorizing, we expect high-PC (vs. low-PC) individuals to be more willing to choose a product that promises perfection even if it imposes high risks. We further argue that these individuals appraise the benefits as worthy of risks, making them more accepting of risks even when they are considerable. We do not expect such an effect of PS on risky behavior. More formally, and as illustrated in Figure 1, we predict that:

H1a. Consumers with high (vs. low) PC are less sensitive to increasing risks associated with a product or service and are more likely to choose a product or service that entails high risks.

H1b. Consumers with high (vs. low) PS are equally sensitive to increasing risks associated with a product or service and are equally likely to choose a product or service that entails high risks.

H2. Consumers with high (vs. low) PC are more likely to choose a product or service that entails high risk because they appraise that the benefits of the product or service (i.e., enabling them to reach their high standards) are worth the risks even when the risk is high.

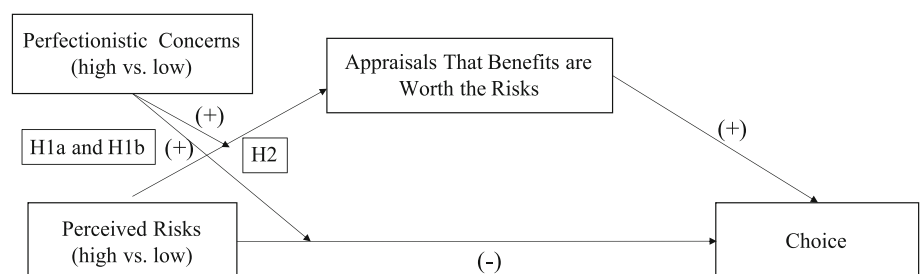
We report two studies designed to test our hypotheses. In a survey design, Study 1 tests H1a and H1b in the domain of cosmetic procedures since perfectionism is likely to be operative in this domain (Furnham & Levitas, 2012; Sherry et al., 2004). Specifically, we examine whether consumers' PC (but not strivings) interacts with their perceived risk and impact their cosmetic surgery decisions. Study 2 replicates these hypotheses in a different domain (i.e., brain health supplements) related to perfection in work performance (Childs & Stoeber, 2012) and provides a stronger test of causality in an experiment. Specifically, we test and find that consumers with high (vs. low) PC are more likely to choose a product or service that entails high risk because they appraise that the benefits of the product or service are worth the risks even when the risk is high. We also report a replication of Study 2 in Appendix G.

3 | STUDY 1

3.1 | Study 1 participants

Study 1 employed a survey method. We recruited a Qualtrics panel of female participants $N = 1416$, 100% female, $M_{age} = 41.7$ as women accounted for 92% of all cosmetic procedures (American Society of Plastic Surgeons, 2019). As compensation, participants received a gift card equivalent to \$2.25. There are two types of cosmetic procedures: surgical (e.g., facelift, breast augmentation, rhinoplasty, and liposuction) and non-surgical (i.e., Botox, microdermabrasion, and facial fillers). We focused on surgical procedures since they might have greater appeal to perfectionists given their ability to permanently change aspects of one's appearance (American Society of Plastic Surgeons, 2019). Moreover, surgical procedures produce benefits that are unlikely to be achieved through other means like diet and exercise.

FIGURE 1 Conceptual model showing the relationship between perceived risks and purchase intentions (operationalized as intentions in Studies 1 and 2) moderated by perfectionistic concerns and mediated by appraisals that benefits are worth the risks



We restricted the sample to participants with no prior cosmetic surgeries since prior experience influences how people evaluate product risks and benefits (Cox & Rich, 1964; Horvath & Zuckerman, 1993). We allowed participants who previously had one or more minimally invasive non-surgical procedures ($N = 275$ or 20% of the sample). We excluded data from 29 participants who failed at least one of the attention checks ($N_{\text{final}} = 1387$).

3.2 | Study 1 procedures

We told participants that they would take two separate studies. In the first study, participants read a brief introduction about surgical and non-surgical cosmetic procedures and indicated their intentions to undergo any cosmetic procedure in the future (1 = Yes, 2 = No). Those who indicated “yes” were asked what type of procedure they were willing to undergo (1 = surgical, 2 = non-surgical, 1,2 = both). Overall, 15.9% of participants reported an intention to undergo a surgical procedure (i.e., those who responded 1 and 1,2). Next, participants indicated their agreement with a 10-item risk scale that measured perceived physical, economic, psychological, and social risks associated with surgical procedures (1 = definitely disagree, 5 = definitely agree). The items cohered well ($\alpha = .81$), and we averaged them to create a composite risk score ($M = 3.46$, $SD = 0.68$, range 1–5).

In the second study, participants responded to questions about their general motivations in life. First, participants responded to two sub-scales (PS and PC) that constitute Frost's multidimensional perfectionism scale (Frost et al., 1990). The PS sub-scale (7-item; $\alpha = .81$) includes items such as “It is important to me that I be thoroughly competent in everything I do” and “If I do not set high standards for myself, I am likely to end up as a second-rate person.” The PC sub-scale (9-item; $\alpha = .90$) includes items such as, “People will probably think less of me if I make a mistake” and “if I fail at school, I am a failure as a person” (1 = strongly disagree, 5 = strongly agree). By averaging items that correspond to each scale, we created a composite PS score ($M = 3.25$, $SD = 0.81$, range 1–5), and a composite PC score ($M = 2.61$, $SD = 0.94$, range 1–5). Next, participants responded to a set of exploratory measures that have been shown in prior research to correlate with willingness to undergo cosmetic procedures (e.g., self-esteem Furnham & Levitas, 2012; body dissatisfaction, Slevic & Tiggemann, 2010). Finally, participants indicated their age,

ethnicity, education, marital status, sexual orientation, and income. Appendix A shows our key measures: PS, PC, risk items. Appendix A shows all exploratory and demographic measures.

3.3 | Study 1 results

PS and PC were positively correlated ($r = .52$, $p < .001$; see Table 1), consistent with prior literature (Stoeber, 2018; see Appendix B for item means). Confirmatory factor analysis showed that the PS and PC scale items loaded on their respective constructs (Appendix C). Our key dependent variable was participants' intention to undergo a surgical cosmetic procedure in the future. We mean-centered all three predictor variables (PS, PC, risk) for ease of interpretation (West et al., 1996).

As H1a suggests, we predicted a positive interaction between perceived risks and PC in determining people's intentions to undergo a surgical procedure. That is, increasing levels of product risk would have less of an impact on high-PC (vs. low-PC) individuals. We expected this effect to be independent of people's PS; hence we did not anticipate an interaction between PS and risk (as in H1b).

Since perfectionism is multidimensional, past research suggests that the unique effect of one dimension (e.g., PC) can be examined when the overlap with other dimension (e.g., PS) is statistically controlled in a regression model (Stoeber & Gaudreau, 2017). Therefore, we ran a logistic regression to test H1, and regressed the intention to undergo a surgical procedure on the main effects of PS (mean-centered), PC (mean-centered), risk (mean-centered), along with all corresponding two-way and three-way interactions (Table 2). The three-way interaction was mainly included for control purposes. We did not have direct predictions related to this interaction.

As expected, risk had a significant negative effect on intentions to undergo a surgical procedure, consistent with prior findings in the risk literature, $b = -1.26$, $z(1386) = -9.12$, $p < .001$. We also found significant main effects for PS, $b = 0.50$, $z(1386) = 3.73$, $p < .001$, and PC, $b = 0.27$, $z(1386) = 2.35$, $p = .02$. More importantly, and in line with H1a, the interaction between risk and PC was positive and significant, $b = 0.38$, $z(1385) = 2.61$, $p = .009$.

To better understand the implications of these results, we decomposed the interaction between PC and risk using the “emmeans” package in R (Lenth et al., 2020). We proceeded with two

TABLE 1 Correlations between intentions, PS and PC

	Study 1			Study 2		
	Intentions	PS	PC	Intentions	PS	PC
Intentions	1			1		
PS	0.16**	1		0.17**	1	
PC	0.09**	0.52**	1	0.24**	0.57**	1

Note: Intention refers to intentions to undergo a surgical procedure in Study 1, and intentions to purchase the focal product in Study 2.

Abbreviations: PC, perfectionistic concerns; PS, perfectionistic strivings.

**Correlation is significant at the 0.01 level.

comparisons critical to H1: the slope comparison for the risk effect and a simple mean comparison between high- and low-PC groups at high-risk (+1SD). While the slope comparison reveals differences in risk sensitivity, comparing mean levels provides insights into differences between low- and high-PC individuals in their intentions to undergo a surgical procedure at different levels of risk. Starting with the former, the negative effect of risk on intention was significantly lower for high-PC (+1SD, slope = -0.92) than low-PC individuals ($-1SD$; slope = -1.61), $b = -0.81$, $z(1386) = -3.06$, $p = .009$ (Figure 2, graph on the left). In other words, increasing perceived risk affected high-PC (vs. low-PC) individuals significantly less in their intentions to undergo a surgical cosmetic procedure, suggesting less sensitivity to risk.

Next, we compared the mean intention levels between the low- and high-PC groups under conditions of high perceived risk. As predicted by H1a and seen in the left panel of Figure 2, under conditions of high risk (+1SD), a greater % of high-PC ($M = 9.5\%$) individuals were willing to undergo a surgical procedure compared to low-PC

TABLE 2 Summary of regression analyses for perfectionistic strivings, perfectionistic concerns and risk predicting intentions to undergo a surgical procedure (Study 1)

	Coefficient	z value
PS	0.50	3.73***
PC	0.27	2.35*
Risk	-1.26	-9.12***
PS × PC	-0.16	-1.44
PS × risk	-0.27	-1.57
PC × risk	0.38	2.61**
PS × PC × risk	-0.02	-0.17
N	1387	

Abbreviations: PC, perfectionistic concerns; PS, perfectionistic strivings.
* $p < .05$. ** $p < .01$. *** $p < .001$.

individuals ($M = 3.9\%$), odds-ratio = 0.42, $z(1386) = 2.96$, $p = .003$. This difference in surgery intentions between the two groups disappeared at low risk ($-1SD$; $M_{\text{highPC}} = 25.6\%$, $M_{\text{lowPC}} = 25.1\%$), odds-ratio = 0.97, $z(1386) = 0.15$, $p = .88$. The slope and level comparisons collectively confirmed H1a.

We further examined the relationship between risk and PS and tested H1b (Figure 2, graph on the right). We found that increasing risks deterred intentions for both high- and low-PS individuals. The negative effect of risk on intention was similar for both groups and their slopes were not significantly different (slope_{highPS} = -1.49 ; slope_{lowPS} = -1.04), $b = 0.45$, $z(1386) = 1.57$, $p = .12$, confirming no interaction between risk and PS dimensions of the perfectionism. Collectively, these findings supported H1b.

3.4 | Study 1 discussion

Our findings in Study 1 indicate that high-PC (vs. low-PC) individuals show less sensitivity to increasing risks and are less deterred by high perceived risk. In contrast, we do not find an interaction between the PS dimension and risk. Further, the main effects of PS and PC on intentions to undergo surgical procedures indicate that both dimensions enhance intentions when we control for risk. Whereas Study 1 offers initial support for H1a and H1b, the results are mainly correlational. Further, participants may have considered a range of surgical procedures that varied in their risks and benefits. To this end, we design a follow-up experiment in Study 2 where we keep the product type and benefits constants while manipulating risk.

4 | STUDY 2

Study 2 replicates Study 1 in another domain relevant to perfectionists (work performance vs. appearance) and using a different product (memory supplements vs. cosmetic procedures). The global brain

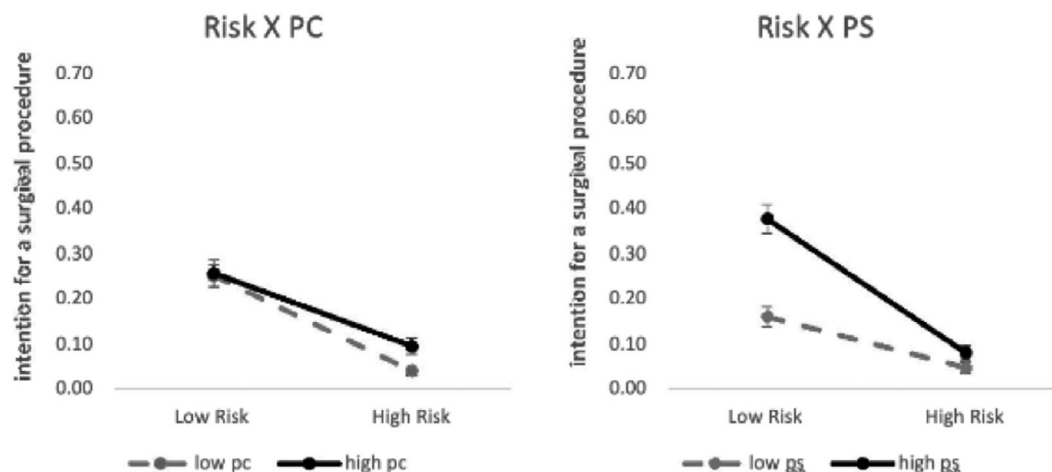


FIGURE 2 Intention to undergo a surgical procedure as a function of risk, perfectionistic concerns (PC on the left), and perfectionistic strivings (PS on the right) in Study 1

health supplements market is growing and is expected to reach USD \$13.38 billion by 2028, with memory enhancements being the main driver of growth (Business Wire, 2021). Though these products promise better memory, there is little evidence that they are effective or even safe (Harvard Health Publishing, 2019). Given the trade-off between desired benefits and risks, we chose to study the role of perfectionistic dimensions in the context of purchasing these supplements. Further, we sampled both men and women as opposed to the women-only sample in Study 1. Finally, we manipulated whether the risk associated with the memory supplement was high vs. low for causal inference purposes.

4.1 | Study 2 participants

Four hundred Amazon's MTurk workers (49.6% female; $M_{\text{age}} = 40.9$) participated in Study 2 in exchange for \$0.80. As with Study 1, we limited the study to individuals with no prior history of purchasing a memory supplement (focal category tested in Study 2). We excluded three participants who failed the attention checks ($N_{\text{final}} = 397$).

4.2 | Study 2 procedures

We randomly assigned participants to one of the two risk conditions (high- vs. low-risk) in a between-subjects design. Participants first read a description of a memory supplement that purported to enhance mental clarity. Those in the high-risk condition read that the memory supplement involved mild-to-moderate health (e.g., headaches and blurred vision), performance (had not received FDA approval), and financial risks (priced at \$39.99). Those in the low-risk condition read that the supplement involved mild-to-no health (e.g., no headaches or blurred vision), performance (the FDA approved it), or financial risks (priced at \$19.99). A pretest indicated that the manipulation was successful and induced the intended levels of risk in each condition (Appendix D).

After reading about the product and its risks, participants used a 100-point slider scale to indicate how likely (0 = definitely would not; 100 = definitely would) and how willing they would be to purchase the supplements (0 = not at all willing; 100 = very willing). We averaged these items ($\alpha = .93$) to create a composite measure of *purchase intentions*. Next, participants responded to the proposed mediator–appraisals that the benefits of the product are worth its risks—by indicating their agreement with four items (1 = completely disagree to 7 = completely agree): “The potential risks associated with this product are probably worth it given the product's benefits,” “I'd be willing to see if the product can benefit me, even if it's got some risks,” “I wouldn't mind the product's risks as long as it benefits me,” and “I would be willing to try this product despite its risks” ($\alpha = .95$). We present all measures and reliabilities for Study 2 in Appendix E.

Participants then responded to questions related to three alternative mediating mechanisms. *Generalized inferences* (alternative1) tested the idea that high PC individuals might have learned over time to

believe that the products that involve high risks are more effective and offer greater potential for reward (e.g., “The bigger the risks associated with a product/service that promised to help you perform at your best (e.g., at work), the greater the rewards one might get”). *Social benefits* (alternative2) tested the idea that high PC individuals may be more motivated to purchase high risk products so as to please others (e.g., “It's worth it to me to take high risks associated with a product/service if the result means that others will like me better”). *Consideration of only benefits* (alternative3) tested the idea that high PC individuals focus exclusively on the benefits that the product can offer in terms of facilitating perfection that they ignore risks (e.g., “I want to perform at my best so badly that I'd tolerate any level of risk a product or service that promises such outcomes might offer”). We report all indicators of these alternative mediators in Appendix F.

Next, participants completed scales measuring their PS ($\alpha = .83$) and PC ($\alpha = .83$), similar to Study 1 (Frost et al., 1990). As a manipulation check of risk, participants responded to a set of items that tapped the perceived physical, financial, and health risks associated with the product (1 = low-risk to 7 = high-risk; $\alpha = .83$). Next, they responded to an attention check measure about the main benefit of the supplement they read earlier (1 = improve mental clarity, 2 = help lose weight, 3 = improve vision). Finally, participants reported their age and gender, which did not affect the results and are not discussed further.

4.3 | Study 2 results

A one-way ANOVA on the composite risk score revealed that the manipulations worked as expected. Participants reported greater risk associated with the supplement in the high-risk ($M = 4.32$, $SD = 1.49$) than in the low-risk condition ($M = 3.10$, $SD = 1.41$), $F(1, 395) = 70.35$, $p < .001$.

4.3.1 | Intentions to purchase

Similar to Study 1, the dimensions of perfectionism (PS and PC) were positively related ($r = .57$, $p < .001$) and both dimensions were positively related to intentions to purchase the memory supplement (see Table 1). To test H1a, we regressed the intention to purchase the memory supplement on the main effects of PS (mean-centered), PC (mean-centered), risk manipulation (1 = high risk, -1 = low risk), along with all 2-way and 3-way interactions (Table 3). Consistent with Study 1, we found a main effect of risk, $b = -12.43$, $t(389) = -8.09$, $p < .001$. Unsurprisingly, participants were more willing to purchase the supplement in low-risk ($M = 41.81$) than in high-risk condition ($M = 20.14$). We also found a main effect of PC, $b = 7.46$, $t(389) = 3.81$, $p < .001$. More importantly and consistent with Study 1 and H1a, the interaction between PC and risk was significant and positive, $b = 4.36$, $t(389) = 2.23$, $p = .03$. We also found a significant three-way interaction, $b = 4.27$, $t(389) = 2.32$, $p = .02$. Next, we decompose these regression results.

Consistent with Study 1, we first compared the risk-intention slopes for high-PC (+1SD) and low-PC individuals (−1 SD). The negative effect of risk on intentions was significantly lower for high-PC (slope = −8.51) than for low-PC individuals (slope = −16.36), $b = -7.85$, $t(389) = -2.25$, $p = .03$ (Figure 3, graph on the left), suggesting that high PC individuals are less sensitive to increasing levels of risk.

Next, we compared intention levels between the low- and high-PC individuals at high risk. As predicted by H1a and seen in the left panel of Figure 3, in high-risk condition, high-PC individuals ($M = 29.52$) were more willing to purchase the supplement than were low-PC individuals ($M = 8.24$), $b = 21.30$, $t(389) = 5.39$, $p < .001$. Directly replicating Study 1, this difference in purchase intentions between the two groups disappeared at low risk ($M_{\text{highPC}} = 46.5$, $M_{\text{lowPC}} = 41.0$), $b = 5.58$, $t(384) = 1.12$, $p = .26$. The slope and level comparisons collectively suggest that high-PC (vs. low-PC) individuals are less sensitive to risk (i.e., significantly flatter slope) and are more willing to purchase the supplement when risk is high, confirming H1a.

TABLE 3 Summary of regression analyses for PS, PC and risk predicting intentions to purchase the memory supplement (Study 2)

	Coefficient	t value
PS	0.06	1.03
PC	0.22	3.81***
Risk	−0.41	−8.09***
PS × PC	−0.02	−0.32
PS × risk	−0.08	−1.46
PC × risk	0.13	2.23*
PS × PC × risk	0.12	2.32*
Adjusted R ²	20.2%	
n	397	

Abbreviations: PC, perfectionistic concerns; PS, perfectionistic strivings. * $p < .05$. ** $p < .01$. *** $p < .001$.

While our focal prediction (i.e., positive risk × PC) was supported in Study 2, we also found a significant three-way interaction unique to Study 2. To examine whether this 3-way interaction contradicts H1b, we tested whether our focal effect depended on PS.

First, we compared the negative effect of risk on the purchase intentions of high-PC individuals when their PS was high (+1SD) and low (−1SD) (i.e., by comparing slope differences). As predicted, the negative effect of risk on high-PC individuals was the same when their PS was high (slope = −7.95) as well as low (slope = −9.07), $b = -1.12$, $t(389) = -0.26$, $p = .99$. Next, we examined whether high-PC individuals' intentions to purchase the high-risk product depended on their PS level (i.e., by comparing their mean differences). In the high-risk condition, high-PC individuals were equally willing to purchase the supplement when their PS was high ($M = 31.32$) and when it was low ($M = 27.72$), $b = 3.60$, $t(389) = 0.60$, $p = .93$. In fact, the three-way interaction was due to the effect of PS on the low-PC individuals under the low-risk condition. It seems that PS drives people's purchase intentions when the risk is low. However, PC (not PS) seems to drive purchase intentions when risks are high, not PS. These results support H1a and H1b, respectively.

4.3.2 | Appraisals that the benefits of the product are worth the risks

Unsurprisingly, participants in the high-risk condition were less likely to appraise the benefits of the products as being worth the risk ($M = 2.53$) than those in the low-risk condition ($M = 3.38$), $F(1, 395) = 25.10$, $p < .001$. To test H2, we ran the regression model mentioned above with the proposed mechanism (the benefits of the product are worth the risks) as the dependent variable. Our findings mirrored the findings for purchase intentions. Specifically, we observed a main effect of risk, $b = -0.54$, $t(389) = -5.96$, $p < .001$, and a main effect of PC, $b = 0.42$, $t(389) = 3.65$, $p < .001$. We also

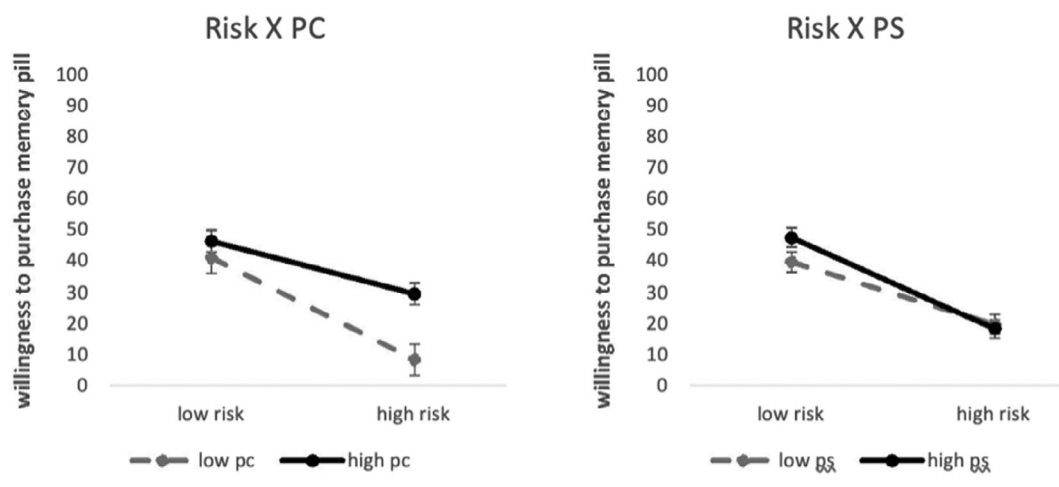


FIGURE 3 Intentions to purchase a memory pill as a function of manipulated risk, perfectionistic concerns (PC), and perfectionistic standards (PS) in Study 2

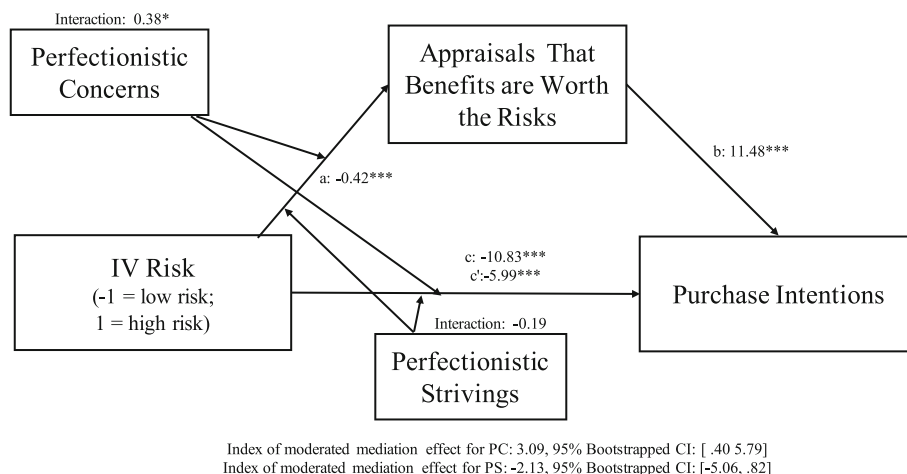


FIGURE 4 Moderated mediation demonstrating the significant indirect path of the IV risk \times perfectionistic concerns interaction on intentions to purchase through appraisals that the benefits are worth the risks. Effect is significant at *** $p < .001$, * $p < .05$

found a significant three-way interaction between risk, PC, and PS, $b = 0.32$, $t(389) = 2.97$, $p = .003$. Note that the significant PC \times risk interaction (i.e., the focal effect in our paper) is robust and holds true in a simpler model without the 3-way interaction $b = 0.27$, $t(389) = 2.39$, $p = .02$.

4.3.3 | Moderated mediation

We estimated a partial moderated mediation using PROCESS model 10 (with 10,000 samples, Hayes, 2015) with risk as the independent variable, purchase intentions as the dependent variable, appraisals that the benefits of the product are worth its risks as the mediator, PC as the first moderator, and PS as the second moderator. We included both PC and PS to demonstrate that PC, not PS, is the key variable interacting with risk. As predicted, a significant moderated mediation effect of PC emerged (index = 3.09, 95% CI = [0.40, 5.79]), indicating that the mediating effect of risk appraisals in driving the effect of risk on purchase intentions is moderated by individuals' PC level (see Figure 4). PS, however, was not significant (index = -2.13, 95% CI = [-5.06, 0.82]). The full set of results are shown in Appendix C; Table C1.

The results suggest that for low-PC individuals (holding PS constant), the estimated indirect effect is negative and significantly different from zero (indirect = -7.50, SE = 1.55, 95% CI [-10.63, -4.49]). However, as predicted, for high-PC individuals (holding PS constant), the negative effect dissipated (indirect = -2.05, SE = 1.52, 95% CI [-5.08, 0.86]). This suggests that high-PC individuals' appraisals do not change as a function of risk and hence, they are more willing to purchase the pill even in the high-risk condition. Collectively, the interaction of risk and PC was partially mediated by appraisals that the benefits of the product are worth its risks, confirming H2.

4.3.4 | Alternative explanations

We show that alternative mediators do not explain these results. Generalized inferences did not differ between the high-risk ($M = 1.85$) and

the low-risk conditions ($M = 1.98$), $F(1, 395) = 1.67$, $p = .17$. The index of moderated mediation was not significant (index = 0.32, SE = 0.76, 95% CI [-1.12, 1.83]). Nor did social benefits differ between the high-risk ($M = 1.76$) and the low-risk conditions ($M = 1.61$), $F(1, 395) = 2.35$, $p = .10$. The index of moderated mediation was not significant (index = 0.26, SE = 0.73 95% CI [-1.68, 1.21]). Finally, consideration of only benefits was not different between the high-risk ($M = 1.54$) and the low-risk conditions ($M = 1.57$), $F(1, 395) = 0.11$, $p = .70$. The index of moderated mediation was not significant (index = 0.42, SE = 1.01 95% CI [-1.52, 2.44]).

4.4 | Study 2 discussion

In Study 2, we replicated our earlier findings (H1a) that high-PC individuals are less sensitive to increasing levels of risk using a different sample and product. We also found support for H2, showing that those high-PC individuals are less sensitive to increasing risks because they appraise the product's benefits as worthy of its risks and these appraisals do not diminish as risks increase. Study 2 seemingly differed from Study 1 in finding a significant three-way interaction. However, this interactive effect of PS only emerged only in the low-risk condition and for low-PC individuals, an effect not relevant for our theorizing. In line with H1a, H1b, and H2 for high-PC individuals, risk insensitivity and purchase intentions at high risk do not depend on their PS levels.

5 | GENERAL DISCUSSION

5.1 | Theoretical contribution

Studies 1, 2 and the replication study in Appendix G show that people's PC (but not necessarily PS) levels matter when understanding how risk impacts purchase decisions. High-PC (vs. low-PC) individuals are less sensitive to increases in decision risk, in part because they believe that the benefit of achieving perfection in the relevant

performance domain (i.e., looking perfect or performing at their best) is worth potential risks. We do not observe this effect for high-PS individuals (vs. low-PS).

Our findings are noteworthy since no research to date has studied whether, why, or how different dimensions of perfectionism influence decision-making under risk. We show the novel finding that PC (but not PS) interacts with risk, making high-PC individuals (vs. low-PC) less sensitive to the risks inherent in product purchase and more likely to buy products that entail high risks. PC also interacts with risk such that individuals with PC are more likely to appraise the benefits of the product as worth its risks.

We also contribute to growing perfectionism literature by uncovering a broader phenomenon that may explain many risky behaviors (e.g., eating disorders) shown to be related to perfectionism (Madigan et al., 2015; Vohs et al., 1999). We show that the PC dimension of perfectionism impacts people's risk sensitivity such that high-PC individuals are more willing to choose solutions or products that aid these individuals in achieving perfectionistic standards. They seem to appraise the benefits as being worth the risks even when risks of such aids increase.

Finally, our findings contribute to work that highlights the impact of individual differences on decision making, including individual difference variables such as need for cognition (e.g., Haugtvedt et al., 1992), promotion/prevention focus (e.g., Zhu & Meyers-Levy, 2007), and need for uniqueness (e.g., Tian et al., 2001). We add to this literature suggesting that the PC dimension of perfectionism is another critical variable that affects individuals' decisions in the marketplace.

5.2 | Implications

The results have policy implications. Specifically, we show that high-PC individuals may be a vulnerable population in purchase contexts where perfection is a potential outcome since they are less sensitive to the increasing risks. These results are important since products and services positioned as means to achieve perfect outcomes (e.g., facial serum perfecting one's skin) frequently come with high levels of financial, health, or other risks. To protect high-PC individuals, policymakers (e.g., in product labeling, advertising claims) may enact standards requiring marketers to make risks highly salient and/or provide more realistic accounts of actual (vs. idealized) benefits from product use, particularly for high-risk products.

The vulnerability of people with PC is particularly strong given the evidence that perfectionism has increased among younger (and more vulnerable/impressionable) people in the US over the last quarter-century (Curran & Hill, 2019). Moreover, even though the marketplace can depict products and services as vehicles or aids to achieve perfection, the characteristics of high-PC individuals indicate that the purchase and use of these products and services may not enhance happiness. Unlike those with high-PS, people with high-PC are motivated to avoid imperfection. Avoiding imperfection only evokes temporary feelings of relief (a reduction of negative feelings),

not happiness (an increase in positive feelings), at having met one's high standards. The vulnerability of high-PC individuals as a consumer group augments research that shows their vulnerability to other negative consequences, including health rumination, bulimia, burnout, alcoholism, and depression (Sirois & Molnar, 2015).

Our research also has marketing implications. These findings can inform companies actions towards more socially responsible communication (Chong, 2017). Millennials' suspicion towards businesses' motives coupled with a desire to actively make an impact on the world has given birth to a new, overwhelming demand for corporate social responsibility. Rather than blindly patronizing corporations with unclear intentions and shady operations, millennials strongly favor businesses with transparency and a clear commitment to give back to society. Our findings can inform companies about vulnerable consumer segments. Further, highlighting the benefits as well as warnings of using such products may help with virtue signaling and improve their authentic and trustworthy image in the eyes of these consumers.

While we measured individuals' trait perfectionism, research also suggests that perfectionism can be induced in context (Boone et al., 2012). Every day, individuals are faced with societal ideals about the amount of money they need to make, the level of success they need to achieve, or the appearance they need to have. These constant pressures seem to have made individuals preoccupied with upward social comparison, experience considerable status anxiety, and adopt materialism as a means of perfecting their lives in relation to others (e.g., de Botton, 2008; Scott et al., 2014). The need to deal with these perfectionistic expectations and anxiety of not achieving them (definition of PC) may increase individuals' risky behaviors and purchases in the marketplace.

5.3 | Limitations and future research

Our research points to opportunities for future research. Researchers might examine whether high-PS individuals are more careful (systematic) processors relative to high-PC individuals, explaining why the former (not the latter) are sensitive to high levels of product risk. Future research might also consider the role of prior experience in the category in influencing the results we show here. This issue is relevant given prior findings that people can be more risk-taking when they have experience in the domain (e.g., Wang, 2009). Future research can also examine whether those high in PC versus high in PS respond differently to appeals promoting perfection. For example, prevention-focused vs. promotion-focused appeals may work differently for perfectionists who are high in different dimensions. Work might also explore how people who are high on PC adjust their behaviors or purchase intentions after multiple risky choices. For instance, if risks do not result in the benefits they expect, PC individuals might adjust future reward perceptions downward. Alternatively, they might continue to believe that benefits are worth the risks entailed, given their quest for perfection.

Our unexpected finding that high-PS consumers may be more open to offerings that involve low risk may be worth examining

further. As individuals with high PS strive for high standards, external aids that entail relatively low risk and still offer benefits to reach one's standards may be appealing to these individuals. In that sense, an approach towards high-risk products can be considered a maladaptive behavior impacted by the maladaptive dimension of perfectionism (i.e., PC), while an approach towards low-risk products can be an adaptive behavior that can potentially increase one's chances of reaching higher standards. Future research might consider this issue.

In an interpersonal relationship and employment context, researchers might also explore the role of perfectionism on workplace-related decisions. Since performing at one's best is highly salient in a work setting, perfectionistic tendencies may influence myriad aspects of behavior at work, including social relationships and teamwork. Our findings suggest that high-PC individuals might pursue high-risk aids to perform at their best and become part of a high-performing team. For example, are high-PC individuals more likely to engage in risky behaviors such as cheating or lying to meet performance goals? Perfectionism in general, including the impact of different dimensions of perfectionism on individuals' responses, is a rich domain for future research.

CONFLICT OF INTEREST

We have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

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How to cite this article: Ceylan, G., Kolsarici, C., & MacInnis, D. J. (2022). Perfectionism paradox: Perfectionistic concerns (not perfectionistic strivings) affect the relationship between perceived risk and choice. *Journal of Consumer Behaviour*, 21(4), 880–895. <https://doi.org/10.1002/cb.2046>

APPENDIX A: KEY MEASURES USED IN STUDY 1 A

Items	Reliabilities
Perceived risk (1 = strongly disagree, 5 = strongly agree)	0.81
I think cosmetic surgery is safe (1)—RC	
I am mostly concerned about unwanted physical consequences of the cosmetic surgery, such as scars and side effects (2)	
I believe that if I were to undergo cosmetic surgery, the results would be satisfactory (3)—RC	
If I were to undergo cosmetic surgery, there is a risk that I might not look as I hoped (4)	
Cosmetic surgery would be a significant expense for me (5)	
The money I might use for cosmetic surgery could probably be put to better use (6)	
Having cosmetic surgery could negatively affect how I feel about myself (7)	
I am very concerned that I may not like the results of cosmetic surgery (8)	
If I were to undergo cosmetic surgery, I would be very concerned that people would notice a big difference in my appearance (9)	
If I were to undergo cosmetic surgery, others might dislike its effect on my appearance (10)	
Multidimensional perfectionism scale (MPS) (1 = strongly disagree, 5 = strongly agree)	
Subscale—Perfectionistic concerns (PC)	0.90
If I fail at school, I am a failure as a person. (1)	
I should be upset if I make a mistake. (2)	
If someone does a task at school better than I, then I feel like I failed the whole task. (3)	
If I fail partly, it is as bad as being a complete failure. (4)	
I hate being less than the best at things. (5)	
People will probably think less of me if I make a mistake. (6)	
If I do not do as well as other people, it means I am an inferior human being. (7)	
If I do not do well all the time, people will not respect me. (8)	
The fewer mistakes I make, the more people will like me. (9)	
Subscale—Perfectionistic strivings (PS)	0.81
If I do not set high standards for myself, I am likely to end up a second-rate person. (1)	
It is important to me that I be thoroughly competent in everything I do. (2)	
I set higher goals than most people do. (3)	
I am very good at focusing my efforts on attaining a goal. (4)	
I have extremely high goals. (5)	
Other people seem to accept lower standards for themselves than I do. (6)	
I expect higher performance in my daily tasks than most people. (7)	

Abbreviation: RC, reverse coded.

APPENDIX B: STIMULI USED IN STUDY 2 B

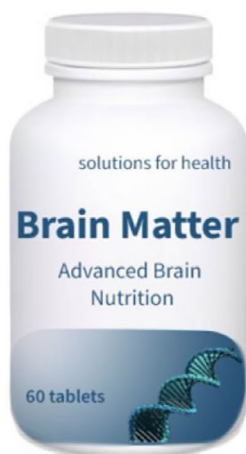
High-risk condition [Colour figure can be viewed at wileyonlinelibrary.com]

**Brain Matter™**

A new supplement called **Brain Matter™** is now on the market. **Brain Matter™** claims to enhance mental focus, foster alertness, and boost memory. This product is especially designed to boost cognitive functioning. Research suggests a significant link between the use of the supplement and improved performance on cognitive tasks.

Despite its benefits, **Brain Matter™** does entail mild-to-moderate risks. Research suggests that this product can cause some side effects such as headaches and blurred vision. **Brain Matter™** is still seeking final approval from the FDA. At \$39.99 for a 30-day supply, **Brain Matter™** is relatively expensive compared to other supplements on the market.

Low-risk condition [Colour figure can be viewed at wileyonlinelibrary.com]

**Brain Matter™**

A new supplement called **Brain Matter™** is now on the market. **Brain Matter™** claims to enhance mental focus, foster alertness, and boost memory. This product is especially designed to boost cognitive functioning. Research suggests a significant link between the use of the supplement and improved performance on cognitive tasks.

On top of its benefits, **Brain Matter™** entails mild-to-no risk. Research suggests that this product does not cause any known side effects. **Brain Matter™** has just received final approval from the Food and Drug Administration. At \$19.99 for a 30-day supply, **Brain Matter™** is relatively affordable compared to other supplements on the market.

APPENDIX C: RESULTS OF THE PARTIAL MODERATED MEDIATION MODEL IN STUDY 2 C

TABLE C1 Ordinary least squares regression coefficients (with SEs) from Study 2 moderated mediation model ($X = \text{risk}$) ($N = 397$)

	Outcome	
	M: Risk appraisals	Y: Intention to purchase the memory supplement
Constant	2.96 (0.82) ^{***}	-2.96 (2.08)
X: High risk (vs. low risk)	-0.42 (0.82) ^{***}	-5.99 (1.02) ^{***}
M: Risk appraisals		11.48 (0.62) ^{***}
PC	0.38 (0.11) ^{***}	2.79 (1.39) [*]
PS	0.10 (0.13)	1.18 (1.54)
Risk \times PC	0.27 (0.11) [*]	2.55 (1.38)
Risk \times PS	-0.19 (0.13)	-1.60 (1.55)
R^2	.12	.59
Moderator	Index of partial moderated mediation	95% bootstrap confidence interval (based on 10,000 bootstrap samples)
PC	3.09	0.40-5.79
PS	-2.13	-5.06 to 0.82

Note: PROCESS Model 10 enabled mean-centering for products.

Abbreviations: PC, perfectionistic concerns; PS, perfectionistic strivings; SEs, standard errors.

* $p < .05$. ** $p < .01$. *** $p < .001$.