

The Self-Fulfilling Effect of Consumers' Stereotypes Regarding Attractiveness and Intelligence

소비자의 신체적 매력과 지능에 대한 편견의 자기실현적(Self-Fulfilling) 효과

Youjung Jun • 전유정

ABSTRACT

Can consumers' subjective perception of their attractiveness impact their consumption and performances related to another trait that is often researched in relation to it—intelligence? Although many associate physical attractiveness with positive characteristics, there is a culturally held stereotype that physically attractive people are unintelligent. The current research demonstrates the self-fulfilling effect of this stereotype on intellectual task performance and consumption. A series of experiments demonstrate that people who believe they are attractive perform worse on tasks associated with intelligence because they conform to the cultural stereotype that attractive people are unintelligent. Consistent with prior research on stereotype threat, those who self-identify with the stereotyped group (i.e., with high self-rated attractiveness) lower their performance on intellectual tasks as well as their consumption of intellectual products (i.e., reading science news rather than celebrity news magazine). When individuals are provided with counter-stereotypical information that disconfirms this social expectation, the relationship between attractiveness and intellectual consumption is attenuated.

Keywords: Attractiveness, Stereotype Threat, Media, Intelligence

Youjung Jun | Yonsei University(youjungjun@yonsei.ac.kr), First and Corresponding Author

초 록

본 연구는 소비자들 본인의 신체적 매력에 대한 주관적 인식이 지능과 관련된 소비 및 성과에 미치는 영향을 연구한다. 신체적 매력과 긍정적 특성을 연관시키는 경우가 많지만, 신체적으로 매력적인 사람들은 지식이 많거나 똑똑하지 않은 것처럼 보여지는 문화적 고정관념도 존재한다. 본 연구는 이러한 편견이 지능과 관련된 소비에 미치는 자기실현적(self-fulfilling) 효과를 보여준다. 세가지의 실험을 통해, 본인의 신체적 매력이 더 높다고 여기는 인식이 인지 능력과 관련된 테스트에서 점수에 부정적 영향을 주는 것으로 나타난다. 선행 연구의 고정관념 위협(stereotype threat)에 관한 결과와 일관되게, (본인의 신체적 매력을 높게 평가 함으로써) 본인이 고정관념 그룹에 속한다고 자신을 인식할 때, 인지 능력과 관련된 테스트 점수에 부정적인 효과가 나타나고, 지적 제품(예: 연예 뉴스가 아닌 과학 뉴스를 읽음)의 소비에도 부정적인 효과가 나타난다. 이 고정관념을 반증하는 반편견적 정보(counter-stereotype)가 제공될 때, 신체적 매력과 지적 소비 간의 관계는 완화된다.

핵심주제어: 신체적 매력, 고정관념 위협, 미디어, 지능

1. Introduction

Despite maxims like “don’t judge a book by its cover,” individuals attribute more valuable characteristics to, and, prefer attractive people to less attractive people (Dion, Berscheid, & Walster 1972). Attractiveness sways social perception such that attractive people are assumed to possess other socially desirable traits, such as intelligence. This tendency to apply a “beautiful-is-good” stereotype to attractive people may explain why they are more likely to be hired for jobs or win political elections (Darby & Jeffers 1988; White, Kenrick, & Neuberg 2013).

While stereotypes of attractiveness have been shown to influence how people respond to attractive individuals, less is known about how attractive people themselves respond to the stereotypes applied to their social category. Efforts to improve consumers’ self-perceived attractiveness are prevalent and important in the marketplace. Marketers try to boost consumers’ perception of their own attractiveness. For example, retailers experiment with the store atmosphere to find a flattering shade of lighting. “Skinny Mirrors” can make consumers look thinner in their reflections which was intended to increase their self-perceived attractiveness, although their uses raised ethical concerns among marketers and consumers alike (Sunstein 2016). In consumer research, prior research found that boosting consumers’ self-perceived attractiveness increases their general self-confidence and leads them to infer less preference uncertainty in subsequent choices (Belmi & Neale, 2014; Jiang et al. 2021). In particular, those who felt highly attractive were found to be less susceptible to context effects of the compromise option, all-average option, and default option. That is, they decreased choice shares of compromise, all-average, and default options in both hypothetical and consequential choices (Jiang et al. 2021). People who perceive themselves as attractive also

have been found to internalize that they have many other positive traits such as self-esteem and social comfort, and behave more confidently in social settings, as predicted by the self-fulfilling role of social stereotypes (Darley and Fazio 1980). Further, increasing self-perceived attractiveness could induce people to think that they belong to a higher social class, as people tend to associate attractiveness with the higher social status (Kalick 1988; Belmi & Neale, 2014).

In the current research, we investigate the self-fulfilling impact of attractiveness stereotype in the domain of intellectual performance and consumption. Investigating this issue in the domain of intelligence is of interest because previous research offers ambiguous findings regarding the relationship between attractiveness and intelligence. Several early studies found a significant positive correlation between other-rated attractiveness and intelligence (Mohr & Lund 1993; Anderson 1921), partly because physical attractiveness signals hereditary benefits or having “good genes” (Thornhill & Gangestad 1993). However, subsequent meta-analyses found that there is a nonsignificant relationship between the test takers’ attractiveness and performance (Jackson, Hunter, & Hodge 1995; Langlois et al. 2000).

We suggest that one reason why the attractiveness halo may be weaker for intelligence, compared to other traits like social competence and self-confidence, is that there exists a prominent negative stereotype regarding attractive people’s intelligence. Among the most widespread depictions of attractiveness in modern culture are ones that propagate the notion that attractive people are not intelligent. Attractive people are frequently portrayed as unintelligent in cultural productions (Eagly, Ashmore, Makhijani, & Longo 1991; Nisbet et al. 2002), and the extensive reach of the mass media strengthens this image (Cohen 2001). For example, Joey from “Friends” and Penny from “The Big Bang Theory” are the primary male and female characters in the respective

TV series, who are both highly attractive but not particularly smart. Furthermore, highly intelligent people are often portrayed as unattractive in cultural productions (Kendall 1999). Given the frequency with which people consume media and are exposed to these depictions, the negative stereotype about attractiveness and intelligence is likely to be salient.

As individuals identify with different social categories, they learn the stereotypes applied to those groups (Darley & Fazio 1980). In particular, research on stereotype threat has established that negative group stereotypes can reduce task performance when individuals become concerned that their low performance may substantiate the stereotype (Steele & Aronson 1995; Spencer, Logel, & Davies 2016). Performance decrements resulting from such stereotype threat can occur even in the absence of cues suggesting that one's group is actually being evaluated by others in a negative light (Purdie-Vaughns et al. 2008). Simply believing that others have a negative stereotype about one's group regardless of whether they actually do, is a known driver of stereotype threat that can instigate behaviors consistent with the stereotype (Voyles, Finkelstein, & King 2014). Therefore, the self-fulfilling effect of a negative stereotype can occur when stereotype threat is induced in the situation. In this research, we induce stereotype threat by having attractive individuals believe that they are taking an IQ test and reminding them of the negative stereotype regarding their intelligence.

For individuals to feel threatened by a negative group stereotype, they must feel they are perceived as a member of that group (Steele & Aronson 1995; Spencer, Logel, & Davies 2016). Thus, people should feel threatened by the negative stereotype applied to attractive people's intelligence when they consider themselves to be part of that stereotyped group—by perceiving that they are attractive. In this research,

we recruit participants with varying levels of self-rated attractiveness and focus on individuals who rate themselves to be highly attractive. Those who believe that they are highly attractive (vs. do not) are likely to experience stereotype threat when the consumption or task performance context is associated with intelligence. Together, we predict that in situations where attractive individuals become concerned that they may substantiate this stereotype—i.e., when a test or a consumed product can be a cue to one's intelligence—they should experience stereotype threat, resulting in reduced consumption and performance. Formally:

H1: The more attractive someone perceives themselves to be, the more they should feel at risk of substantiating negative stereotypes about attractive people, reducing their test performance.

Besides showing the correlation between self-perceived attractiveness and intelligence test performance, we test the effect in various settings to show that the effect occurs when stereotype threat is induced. Since people experience stereotype threat *only* when they believe a task measures an ability that is related to a negative stereotype (Spencer et al. 2016), we predict that the observed relationship occurs only when the same test is framed as an intelligence test (inducing stereotype threat), but not when it is framed as a test of another construct that is unrelated to intelligence. Formally:

H2: Higher self-perceived attractiveness should predict lower test performance only when stereotype threat is induced—that is, when the test is framed as a test of intelligence rather than another construct that is unrelated to intelligence.

Consistent with prior research on stereotype threat, we

also posit that the observed relationship should diminish when people are exposed to a counter-stereotypical message. Exposure to counter-stereotypical contents (i.e., the conjunction of two non-overlapping categories; Prati et al., 2015) is a known factor that reduces stereotype-based attribution (Dasgupta & Greenwald, 2001; Hutter & Crisp, 2005). For example, exposure to a counter-stereotypical model (e.g., a female mechanic) compared to a stereotypical one (e.g., a female nurse) increased the generation of non-stereotypical inferences and behavior (Hutter & Crisp, 2005). Thus, if the negative effect of self-perceived attractiveness is driven by stereotype threat, our effect should be attenuated when stereotype threat is no longer salient; that is, when people are reminded that attractiveness is positively correlated with intelligence. Formally:

H3: Higher self-perceived attractiveness should no longer predict lower consumption of intellectual product when stereotype threat is diminished—that is, when people are exposed to counter-stereotype that predicts higher intelligence among more attractive people.

II. Study Overview

Three studies test our hypotheses. Studies 1 and 2 test the relationship between self-perceived attractiveness and intelligence test performance. Specifically, Study 1 shows that stronger self-perceived attractiveness predicts lower test performance. Study 2 then shows that the self-fulfilling effect of the negative stereotype on intelligence test performance occurs when stereotype threat is induced (i.e., when the test is believed to measure one's intelligence). Study 3 further tests the effect of attractiveness stereotype in a media consumption context. When consumers are given

counter-stereotypical message that disconfirms the expectation (i.e., highly attractive people are more intelligent than their less attractive counterparts), they no longer show a stereotype-confirming consumption behavior. For all studies, we used a consistent set of exclusion criteria: participants were excluded if they failed attention check items that required them to ignore question text and the scale options, and instead select a specific number on a scale (Oppenheimer et al., 2009) and/or reported having technological malfunction (e.g., screen freeze) during the study (yes/no).

III. Study 1

Study 1 tests that the more attractive people perceive themselves to be, the worse they perform on intelligence tests. We also rule out two potential explanations for the negative relationship. First, given the numerous benefits of attractiveness that do not require onerous intellectual training (e.g., popularity; Dion et al. 1972), those who consider themselves attractive may be less motivated to do well on the test. Second, those who consider themselves attractive may perform worse on the test because they are, in fact, less confident in their intellectual ability. While attractiveness generally predicts greater self-esteem (Langlois et al. 2000), people may want to view themselves as highly attractive because they feel they are unintelligent, which could explain the negative relationship between self-perceived attractiveness and intelligence test performance.

IV. Method

This study used a 2 (attractiveness measurement order: before vs. after intelligence test) $\times$ continuous (self-perceived

attractiveness) between-participants design. Two hundred twenty-five U.S. workers on Amazon Mechanical Turk (MTurk) with a minimum HIT approval rate of 95% completed the study. Sixteen participants were removed based on exclusion criteria, leaving the final sample of 209 participants in the analyses (54.5% female, $M_{age} = 35.9$).

To ensure that any observed negative effect of attractiveness on test performance was not contingent on making people focus on their attractiveness before the test, half the participants rated their attractiveness before performing the test, while the remaining half rated their attractiveness after the test (randomly assigned). For those in the “attractiveness measurement before test” condition, participants first rated themselves on 10 personality traits, including how attractive and good looking they are, from 1 (not at all descriptive of me) to 7 (very much descriptive of me). We offered a variety of items such that some traits were more commonly associated with attractiveness (e.g., athletic) than others (e.g., stubborn), in order to reduce participants’ suspicion. Responses to the items “attractive” and “good looking” ($r = 0.92$) were averaged to create an index of attractiveness ($M = 4.53$, $SD = 1.52$). They then completed a filler task that required them to unscramble five sentences (e.g., “poem it an was interesting”) that were unrelated to attractiveness or intelligence (see Supplementary Material for more details).

Next, to ensure that participants experienced stereotype threat, consistent with previous research (Brodish & Devine 2009), participants were told that they would take an intelligence test and that solving the problems requires the ability to deduce information from abstract rules. They were further instructed that they have 30 seconds to complete each question on the test, and their performance would be evaluated in terms of both speed and accuracy. Before taking the test, respondents were presented with a challenging sample item. The test consisted of 10 items from the Raven’s

Progressive Matrices (Raven, Raven, & Court 1998), which is a common component of a nonverbal IQ test that measures fluid intelligence (Motta & Joseph 1999). Each question presented a 3×3 matrix in which the bottom right entry was missing. Participants had to uncover the underlying rules that explained the sequence of shapes in the matrix, and select the correct part of the missing matrix from eight suggested answers. The screen displayed one question at a time, and it moved to the next question automatically after 30 seconds, counting any questions unanswered as zero.

For those in the “attractiveness measurement after test” condition, the procedure was identical to that of the “attractiveness measurement before test” condition, except participants completed the filler task and rated themselves on the 10 personal traits immediately after the test.

Upon completing the intelligence test, all participants indicated their performance motivation on three seven-point scales ($\alpha = .76$) by answering how important it was for them to do well on the test, how motivated they were to do well on the test, and how much effort they put into the test. Distributions of participants’ self-attractiveness rating and performance are available in the Supplementary Material.

V. Results

We examined participants’ score (out of 10) as a function of the following independent variables: condition (1 = attractive measurement after test, -1 = before test), self-perceived attractiveness (mean-centered), and their interaction. As expected, attractiveness negatively predicted intelligence test performance ($b = -0.35$, $SE = 0.13$, $t(205) = -2.72$, $p = .007$), regardless of the order in which attractiveness was measured (attractiveness $\times$ order interaction: $b = 0.01$, $SE = 0.13$, $t(205) = 0.08$, $p = .936$). Consistent with our prediction,

the more attractive people perceived themselves to be, the lower their performance was on the test.

Contrary to what one would expect if the effect were explained by reduced motivation, attractiveness positively predicted performance motivation ($b = 0.15$, $SE = 0.05$, $t(205) = 2.97$, $p = .003$). The interaction between attractiveness and measurement order on performance motivation was not significant ($p = .738$). The finding that attractive people were more (rather than less) motivated suggests that the negative relationship between self-perceived attractiveness and performance cannot be explained by lack of motivation.

In addition, the observed underperformance could not be explained by individuals who perceive themselves as attractive having lower confidence in their intellectual ability, since self-perceived attractiveness positively predicted self-perceived intelligence ($b = 0.24$, $SE = 0.05$, $t(205) = 5.00$, $p < .001$). The interaction between attractiveness and measurement order was not significant ($p = .266$). Therefore, we do not find that those who strongly perceive themselves to be attractive are less motivated to do well on the intelligence test, or consider themselves to be less intelligent, which rules out the aforementioned alternative explanations.

VI. Study 2

Since people experience stereotype threat only when they believe a task measures an ability related to a negative stereotype (Spencer et al. 2016), Study 2 assessed that the observed negative relationship is due to stereotype threat by manipulating whether the same test is framed as an intelligence test (inducing stereotype threat), or a test of another construct that is unrelated to intelligence (no threat). We tested our prediction by having participants perform a task that does not actually measure intelligence but could be credibly

framed as a measure of intelligence.

VII. Method

This study used a 2 (test description: threat vs. no threat) $\times$ continuous (self-perceived attractiveness) between-participants design. Two hundred fifty U.S. workers on MTurk with a minimum HIT approval rate of 95% completed the study, but a final sample of 223 people (53.8% female, $M_{age} = 36.9$) remained in the analyses.

Participants first rated themselves on various personal traits including how attractive and good looking they are ($r = 0.90$). Their responses to these two items were averaged to form an attractiveness index ($M = 4.51$, $SD = 1.56$). After a filler task, participants answered 20 questions of a numeric version of the Stroop test (Windes 1968), which measures attentional control, not intelligence (Gailliot et al. 2007). In the test, participants were presented with blocks of digits where the numerosity of the digits and the numerical values were incongruent (e.g., four 3s: 3333, or five 6s: 66666). For each question, they had to pick the correct answer choice (out of four) that corresponded to the numerosity of the digits, rather than the numerical value of the digits (e.g., “4” is the correct answer in the case of 3333).

Half the respondents were told that the test measures intelligence (threat condition), while the remaining respondents were told that the test measures attention (no threat condition; randomly assigned). Participants were presented with two trials and the corresponding answers before beginning the actual task. For each question, participants were given 2 seconds to click on the correct numerosity of the digits. Any question left unanswered was counted as zero. As a manipulation check, participants indicated (from 1 to 7) how much they thought the test was measuring their intelligence,

as well as other constructs (e.g., impulse control, motor skills, attention, focus, and ability to recognize numbers). Distributions of participants' self-attractiveness rating and performance are available in the Supplementary Material.

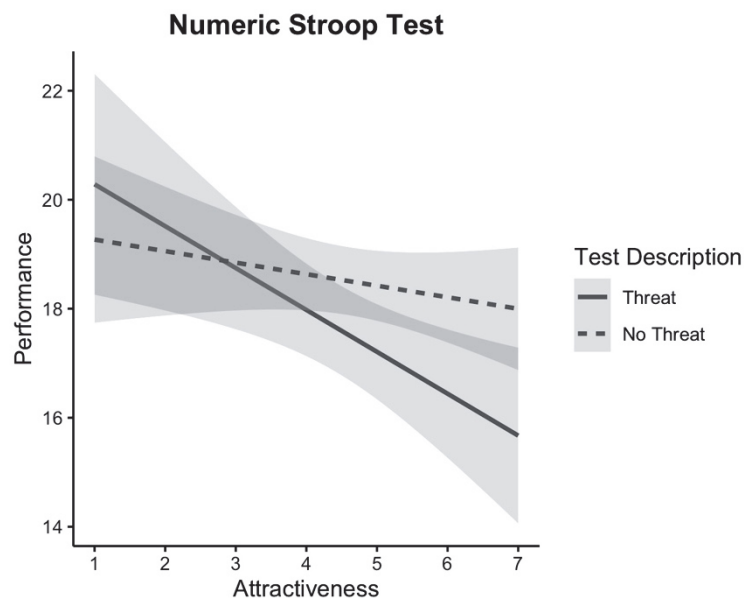
VIII. Results

Results confirmed that those in the threat condition believed the test was measuring their intelligence ($M = 5.05$, $SD = 1.80$) more strongly than those in the no threat condition ($M = 3.69$, $SD = 1.90$; $F(1,221) = 30.36$, $p < .001$). Participants' beliefs about whether the test was measuring other abilities (e.g., impulse control) did not differ by condition ($ps > .110$).

We examined participants' score (out of 20) as a function of the following independent variables: condition (1 = threat, -1 = no threat), self-perceived attractiveness (mean-centered),

and their interaction. Self-perceived attractiveness negatively predicted participants' test performance overall ($b = -0.49$, $SE = 0.17$, $t(219) = -2.94$, $p = .004$), but this effect was qualified by the predicted stereotype threat by attractiveness interaction ($b = -0.28$, $SE = 0.17$, $t(219) = -1.67$, $p = .096$; see Fig. 1). Specifically, when participants believed they were taking an intelligence test (threat condition), attractiveness negatively predicted performance ($b = -0.77$, $SE = 0.24$, $t(219) = -3.16$, $p = .002$). However, when they were told that the test measures attention (no threat condition), the relationship diminished ($b = -0.21$, $SE = 0.23$, $t(219) = -0.93$, $p = .354$). These results support a stereotype threat account for our findings because the negative correlation between self-perceived attractiveness and intelligence test performance was only significant when people believed the test was a measure of intelligence, suggesting that their performance could substantiate the negative stereotype against attractive people's intelligence.

(Fig. 1) Performance (i.e., number of items answered correctly out of 20) on the Numeric Stroop test as a function of self-perceived attractiveness, when participants were told the test was measuring intelligence (Threat) or not (No Threat) in Study 2.



IX. Study 3

The goals of Study 3 are twofold: First, we further test our explanation based on stereotype threat by attenuating the negative effect via counter-stereotypical message. Exposure to messages that dispute a stereotype can attenuate the impact of one's identity on predicting behavior that aligns with the stereotype. Thus, the participants are reminded of either the negative stereotype or counter-stereotype. Second, Study 3 applies the observed findings to a direct marketing context that does not involve achievement testing, by employing a media consumption task. Similar to the stereotypes directed to people, some types of media outlets are considered more intellectual than others. For example, an academic journal is considered more intellectual than celebrity gossips in a magazine. We expect that the observed effects of stereotype threat would manifest in people's consumption of intellectual media. If our effect is driven by attractive individuals' stereotype threat regarding their intelligence, self-rated attractiveness would decrease the time people spend consuming intellectual media unless people are given counter-stereotypical message.

X. Method

Study 3 employed a 2 (stereotype: stereotype vs. counter-stereotype) x 2 (media type: intellectual vs. non-intellectual) x continuous (self-perceived attractiveness) mixed design. Two hundred ten U.S. workers on MTurk with a minimum HIT approval rate of 95% completed the study, but 195 participants (61.0 % female, $M_{age} = 37.2$) remained in the final analyses. We first manipulated stereotype regarding attractiveness and intelligence. All participants read a fabricated news article, which either confirmed or disconfirmed

the stereotype that attractive people are unintelligent. Thus, participants were randomly assigned to read a news article that either described attractive people as more intelligent (counter-stereotype condition) or less intelligent (stereotype condition) than their less attractive counterparts.

Then, participants completed a filler task which asked them to unscramble sentences as in previous studies. Next, in an ostensibly unrelated study about people's internet use, half the participants from each condition (i.e., stereotype or counter-stereotype) were assigned to spend time reading the science section from a national newspaper (Intellectual condition). The other half read an entertainment section from a consumer magazine (Non-intellectual condition). Our choice of stimuli was qualified by a separate pretest on a demographically comparable online sample ($N = 29$, 41% female, $M_{age} = 35.0$) that asked how intellectual and educational the science section from a newspaper and the entertainment section from a consumer magazine are from 1 (Not at all) to 7 (Very much). Results showed that the science section from a newspaper is considered more educational ($M_{science} = 5.66$, $M_{entertainment} = 2.59$ $F(1, 28) = 57.1$, $p < 0.001$) and intellectual ($M_{science} = 5.9$, $M_{entertainment} = 2.6$, $F(1, 28) = 45.4$, $p < 0.001$) than the entertainment section from a consumer magazine.

Our dependent measure was the time (in seconds) people spent reading the media. This was measured by the time participants spent on the media website, either New York Times Science section or Vanity Fair's Hollywood section, which opened only after they clicked the link we offered them. Each media website was programmed so that the website would open on the same window as the one in which the participants were using to complete the study, in order to prevent participants from opening the media page on a separate window while proceeding to the next page of our study. Thus, participants had to spend time browsing the

media page before they could move onto the next section of our study. Participants self-rated their attractiveness (“attractive” and “good looking”, $\alpha = 0.94$) and answered demographic questions.

XI. Results

We expected to find the self-fulfilling effect on consumption when people were reading the intellectual science news, but not when they were reading the non-intellectual entertainment media. Further, this interactive effect between self-rated attractiveness and media type should diminish when people are exposed to a counter-stereotypical message. In order to test our prediction, we conducted a 3-way regression analysis with the following variables as predictors: the media type (-1 = non-intellectual; 1 = intellectual), attractiveness stereotype (-1 = negative; 1 = positive), and the mean-centered self-perceived attractiveness, each of the two-way interactions between these variables and the full interaction among all three variables. We found a 3-way interaction between product type, attractiveness stereotype, and self-perceived attractiveness ($b = 6.25$, $SE = 2.83$, $t(187) = 2.21$, $p = 0.03$). For an educational media, self-rated attractive people spent more or less time reading the science news, confirming positive or negative stereotypes about attractive people’s intelligence, respectively ($b = 11.24$, $SE = 4.04$, $t(187) = 2.78$, $p = 0.01$). Specifically, when consuming educational media, those who consider themselves attractive spent more time reading science articles after reading about a positive expectancy regarding attractive people’s intelligence ($b = 8.99$, $SE = 5.78$, $t(187) = 1.55$, $p = 0.12$), and spent less time reading science articles after reading about a negative expectancy ($b = -13.49$, $SE = 5.64$, $t(187) = -2.39$, $p = 0.02$). This is consistent with the results

from Study 2. However, for non-intellectual entertainment media, there was no effect of self-perceived attractiveness on consumption amount ($b = 1.31$, $SE = 3.96$, $t(187) = 0.33$, $p = 0.74$), regardless of whether they read a positive or negative stereotypes about attractive people’s intelligence ($b = -1.26$, $SE = 3.96$, $t(187) = -0.32$, $p = 0.75$).

Results from Study 3 show that self-perceived attractiveness can even influence everyday consumption behavior that constitutes attractiveness stereotype. The results also rule out the possibility that our findings are due to any factor that is tied to achievement contexts (e.g., performance anxiety). When it comes to consuming intellectual products like science news, self-rated attractive people may be especially vulnerable to the self-fulfilling effects of attractiveness stereotype as they end up consuming less of the intellectual media and conform to the stereotype against attractive people’s intelligence.

XII. General Discussion

Comprehending stereotypes and intelligence holds significance in consumer behavior research (Choi & Na, 2000; Ahn & Ha, 2001; Jeon, 2005; Yeo et al., 2010; Ko & Park, 2022). We demonstrate that the belief that attractive people’s intelligence is negatively stereotyped in society has a detrimental effect on intelligence test performance and consumption. Consistent with prior research on stereotype threat, those who self-identify with the stereotyped group (i.e., with high self-rated attractiveness) lower their performance on intellectual tasks as well as their consumption of intellectual products by consuming less science articles. People who perceive themselves to be attractive perform worse on a test that is merely framed as a measure of (rather than objectively measures) intelligence. Moreover, the

effects are mitigated when these individuals are exposed to counter-stereotypical information that disconfirms the negative stereotype.

Our research complements findings on stereotype threat by illuminating a case in which people's perceptions of how their own group is stereotyped may not match the stereotypes held by others. That is, prior research has focused on cases where a stereotype is inarguably negative in the minds of both the self and others, posing a "threat" of being reduced to this stereotype (Spencer et al. 2016, Steele & Aronson 1995). In our research, attractiveness is associated with *both* a positive (e.g., "beautiful-is-good" stereotype; Darby & Jeffers 1988) and a negative stereotype (e.g., attractive people are not intelligent). The results suggest that in case of such diverging views, physical attractiveness invites a gap in people's thinking such that when they consider themselves attractive, they may fail to consider the positive opinions others hold of them, and instead, focus on a negative stereotype that they believe is applied to them based on their social category. People may give "attractiveness premium" to others, but attractive individuals may have learned to impose "attractiveness penalty" on their own intellectual performance due to the culturally acquired meta-stereotype.

Why is it that we judge attractive others more favorably, but don't expect the same to occur to us? First, people are poor judges of their own physical attractiveness: they focus more on their deficiencies and use harsher standards when evaluating themselves compared to others (Mustein 1972; Langlois et al. 2000). Second, there may be difference in the salience of stereotypes at the time of judgment. Because the cultural learning of the negative stereotype regarding attractive people's intelligence is subtle and indirect (Davies et al. 2002), this may be less subject to conscious introspection when judging others (Jachimowicz et al. 2018), and reliance on stereotype is considered negative when we judge other

people (Plant & Devine 1998). In contrast, drawing inferences about how *others* might judge *us* requires us to examine second-order beliefs. Although such second-order beliefs can incorporate objective judgments to a degree, they are often inaccurate, often leading people to overestimate the extent to which they are negatively stereotyped by others (Vorauer, Hunter, Main, & Roy, 2000). Therefore, while attractive people may be viewed as highly intelligent by others, the belief of attractive people (which impacts their own intellectual performance) may not coincide with this view. Thus, the stereotype that reflects attractive people as unintelligent may be more accessible when people become targets, rather than observers, of attractiveness.

It should be noted that research using archival data from studies conducted in the first half of the 20th century found a significant positive relationship between other-rated attractiveness and intelligence in adulthood (Zebrowitz, Hall, Murphy, & Rhodes 2002). This result, however, is not necessarily conflict with our findings because the data were collected before the advent of television programming. It is unlikely that cultural depictions of attractive people as being unintelligent were widely disseminated in society at that time. Since stereotype threat is found to be driven by cultural influences (Stangor 2000), cultural depictions of attractiveness should exert a strong influence on people's beliefs about how attractive people's intelligence is stereotyped by others. As such, respondents in these data were not expected to formulate a strong belief that attractive people's intelligence is negatively stereotyped.

Uncovering the pervasive impact of negative stereotypes can be troubling, but our results suggest that their effects on intellectual test performance are neither fixed nor unpredictable. Our finding that heightening individuals' exposure to counter-stereotype message can mitigate the negative effect of stereotype threat should inspire cautious

optimism among researchers and policy makers alike. Furthermore, given that second-order beliefs (i.e., people's inferences of other people's beliefs) are more amenable to change than people's own, personal beliefs (Paluck 2009), challenging the existing portrayals of attractive people in the media can prove useful in ameliorating the negative expectation regarding attractive people's intellectual abilities and its impact on their consumption.

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