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Does waist-to-hip ratio (WHR) predict happiness? Belief about a person's essence matters

Ji-eun Shin[a], Eunkook M. Suh[b,*]

[a] College of Liberal Studies, Seoul National University, Seoul, South Korea
[b] Department of Psychology, Yonsei University, Seoul, South Korea

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ABSTRACT

Physical attractiveness (PAT), despite its allure in everyday life, has been an inconsistent predictor of happiness in past studies. In this research, we find that a lay belief about the locus of a person's "essence" moderates the PAT and happiness link. Specifically, we measured how strongly one believes in the diagnostic value of the visible (e.g., status, appearance) over the invisible (e.g., mood, thoughts) aspects of a person in understanding who s/he is. As expected, the more one believed in the value of the visible features, the more central PAT was in the person's overall life, and appearance was compared more often with others (Study 1). More importantly, PAT and well-being correlated significantly only among those who strongly endorsed the visible selfhood belief (Study 2). Compared to past studies on PAT that relied heavily on self-reports, a highly objective measure of attractiveness (waist-to-hip ratio) was employed in this research. Our research uncovers a novel individual difference factor that helps to clarify why PAT predicts the happiness of some, but not of others. Whether one thinks a person's essence *can* be judged by one's "cover" seems to matter in the PAT and happiness link.

Beauty draws social attention. People pay attention to attractive people (Becker, 2017; Maner et al., 2003) and think they are more funny, nice, friendly, and competent than others (Hamermesh, 2011; Langlois et al., 2000). When interacting with an attractive partner, people actively initiate conversations, disclose more about themselves (Brundage, Derlega, & Cash, 1976; Garcia, Stinson, Ickes, Bissonnette, & Briggs, 1991), and behave in a more prosocial manner (Maestripieri, Henry, & Nickels, 2017). This general tendency to associate physical attractiveness (PAT) with positive qualities seems to be biologically ingrained, and often occur automatically (Aharon et al., 2001; Ishizu & Zeki, 2011).

Given the various advantages that follow PAT, one might think that beauty is a significant predictor of happiness. Yet, empirical findings do not offer compelling support for this common view. Although a positive link between PAT and mental health has been reported in several review papers (Feingold, 1992; Langlois et al., 2000), PAT has been most often measured through self-reports that are susceptible to various reporting biases. For instance, a person who thinks favorably of her appearance might also view her general life more positively than others. Thus, it is unclear how strong the association between PAT and happiness might be if the potential inflation created by self-report is controlled. Furthermore, different study methods yield different conclusions about PAT. In one study that analyzed 1100 twins (McGovern, Neale, & Kendler, 1996), the authors concluded that PAT and mental health (depression) are essentially "independent." In contrast, in a more recent longitudinal study, a small but significant association was found between PAT and eudaimonic well-being (Gupta, Etcoff, & Jaeger, 2016).

One of the most systematically controlled studies on PAT and happiness was conducted by Diener, Wolsic, and Fujita (1995). Although a correlation of 0.13 between facial attractiveness and subjective well-being was obtained among college students, this correlation became insignificant ($r = 0.03$; Study 3) when the effects of adornments (e.g., cosmetics, jewelry, clothing) were removed. This led the authors to speculate that the association between PAT and happiness might partly arise from the happy people's motivational (trying more to enhance beauty) and cognitive (self-bias) characteristics rather than from objective beauty per se. Thus, the empirical picture about PAT and happiness seems to change, depending on the method of PAT measurement, study design, or factors controlled for in a given study.

Despite the various advantages enjoyed by attractive people, why are the findings on PAT and happiness inconsistent? One possibility is that the overall association between the two might be clouded by individual difference factors, such as idiographic needs and interests (cf. Diener & Fujita, 1995; Tiefenbach & Kohlbacher, 2015). That is, how much people base their happiness on PAT might vary considerably from

* Corresponding author at: Department of Psychology, Yonsei University, 50 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea.
E-mail address: esuh@yonsei.ac.kr (E.M. Suh).

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one person to another, and this "noisy" individual difference variance might attenuate the association between the two. If so, for whom is PAT more central? In this study, we introduce a novel lay belief that may offer insight to this individual difference question.

As social beings, humans instantly form impressions of others by synthesizing various cues about a particular person (e.g., Fiske, Cuddy, & Glick, 2007). Also, conversely, this framework is likely to be employed when imagining how the self might be appraised by others. Among the vast array of cues relevant for impression formation, some are relatively visible (e.g., clothes, social status, gestures), whereas others are relatively invisible (e.g., beliefs, emotion, aspirations) to the observers. However, individuals might differ in the degree to which they believe the highly visible (versus invisible) aspects of the self are able to reveal the true "essence" of a person.

We predicted that how important PAT is in overall life, and whether it shapes one's happiness would vary according to this personal belief. The more one believes in the diagnostic value of the visible aspects of a person, the more we think the person will incorporate PAT into her happiness judgment. To minimize possible confounds involved in self-reported PAT, we obtained a highly objective measure of PAT among females seldom used in past happiness research (waist-to-hip ratio; WHR) in this study.

1. WHR and women's happiness

Although the general aim of our research is to gain further understanding on the PAT and happiness link, we strategically focused on female samples for two reasons. First, according to evolutionary findings, PAT is a more central mate-quality for females than males (Buss & Schmitt, 1993; Li, Balley, Kenrick, & Linsenmeier, 2002). A strong "beauty premium" exists among women (Maestripieri et al., 2017), which makes PAT a salient domain in women's self-evaluation. In fact, compared to men, PAT is associated more tightly with self-esteem and well-being (Barry, Pietrzak, & Petry, 2008; Feingold, 1992; Hamermesh & Abrevaya, 2013), and leads to more diverse behavioral and cognitive changes among females, especially during the ovulation period (Hill & Durante, 2009; Ko & Suh, 2018). These findings imply that PAT would be more relevant to the happiness of women than men.

Second, to minimize self-reporting biases, we sought to obtain a more "objective" index of attractiveness. One well-established index of physical attractiveness is waist-to-hip ratio (WHR), which is only relevant to women. Whereas body mass index indicates overall thinness of the body, WHR refers to body shape—the ratio of the circumference of the waist to that of the hip. Men find women with a WHR close to 0.70 most attractive (Jasieńska, Ziomkiewicz, Ellison, Lipson, & Thune, 2004; Singh, 1993), a tendency recently confirmed by brain activation patterns (Del Zotto & Pegna, 2017). There is an evolutionary reason. WHR has been closely associated with women's fertility; women close to the 0.7 WHR range have optimal levels of estrogen and are less susceptible to major diseases, while women with higher WHR have significantly lower pregnancy rates (Singh, 1993; Singh & Luis, 1995; Wetsman & Marlowe, 1999).

Although WHR is an established marker of female attractiveness in evolutionary and biological research, to our knowledge, this research is one of the first to measure WHR and examine its association with happiness (c.f., self-reported WHR was examined by Plaut, Adams, & Anderson, 2009). Also, in previous work, the key interest was understanding how WHR affects men's perception of attractiveness (Hughes, Dispenza, & Gallup, 2004; Hughes, Harrison, & Gallup, 2009). How WHR influences the psychological experience of women themselves, on the other hand, are relatively less known. Our study will shed more light on this issue. We believe that WHR, in addition to being a mate choice criterion for men, plays a notable role in women's self-judgments, such as their overall well-being.

2. Belief about a person's essence

Compared to men, existing work suggests that women's happiness is more likely to be affected by PAT. Still, individual difference could exist. Among women, for whom does PAT become a particularly important? One novel possibility we propose is a personally held belief about what aspects of the person reveal who s/he really is (Park & Suh, 2005). Although the self consists of various elements (James, 1890), ranging from concrete possessions ("my car") to metaphysical beliefs ("God's servant"), one major contrast is the degree to which these self-components are visible to others. For instance, the person's social status, wealth, or mannerisms might be relatively visible, whereas her mood, desires, and concerns are not. We think this lay belief—how much of a person's "essence" is believed to be revealed through the visible aspects of the self (termed hereafter as the "visible selfhood")—will predict the weight one places on PAT in evaluating happiness.

Using various terms, social psychologists have pitted the inner/covert against the outer/overt aspects of the person (e.g., Anderson, 1984; Baumeister, 1986; Cheek, 1989). For instance, Fenigstein, Scheier, and Buss (1975) introduced the classic concepts of private self-consciousness (tendency of focusing on the private, internal states of the self) and public self-consciousness (tendency of focusing on the public, external aspects of the self). The visible selfhood we examine in this research, although some conceptual overlaps exist, is distinct from past constructs. Instead of focusing on the chronic "direction" of self-awareness, the visible selfhood idea taps into a personal opinion about which "content" of the self (the more or less visible aspect) is most diagnostic of the person's essential nature.

This personal belief might be a key in predicting for whom PAT is important, and how much it matters in judgments of happiness. When making various self-evaluations, people selectively think about domains that are most meaningful or are key in defining themselves (e.g., Crocker & Wolfe, 2001; Harter, 2015). A similar pattern occurs during self-judgments of happiness (Diener & Fujita, 1995; Oishi, Diener, Suh, & Lucas, 1999); when thinking about how happy they are, people place a premium on a specific domain they regard as important or meaningful. How central PAT is to a person's happiness, we believe, will be partly determined by the degree to which she endorses a highly visible selfhood.

In sum, we examined the role played by the visible selfhood in the relation between an objective index of PAT (WHR) and happiness in two studies. We expected that the visible selfhood would predict who places more personal importance to PAT (Study 1), and whether PAT becomes relevant to one's overall life satisfaction judgment (Study 2).

3. Study 1

In Study 1, we examined whether one's belief about the visible selfhood predicts how much PAT is prioritized in life. Given that physical appearance is one of the most salient and visible features of a person, those who strongly endorse the visible selfhood were expected to place more importance on, and think more often about their PAT in comparison to others. Two other self-aspects that were less visibly salient to others than PAT (personality, academic achievement) were measured for discriminant purposes. The visible selfhood was expected to predict how much psychological importance the person attached to PAT only.

3.1. Method and procedure

3.1.1. Participants

One hundred and thirty female undergraduate students participated in this study for course credit. Although G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that at least 84 participants would be needed to have adequate power ($1\text{-}\beta > 0.80$) to detect medium-sized effects, we included all participants who already signed

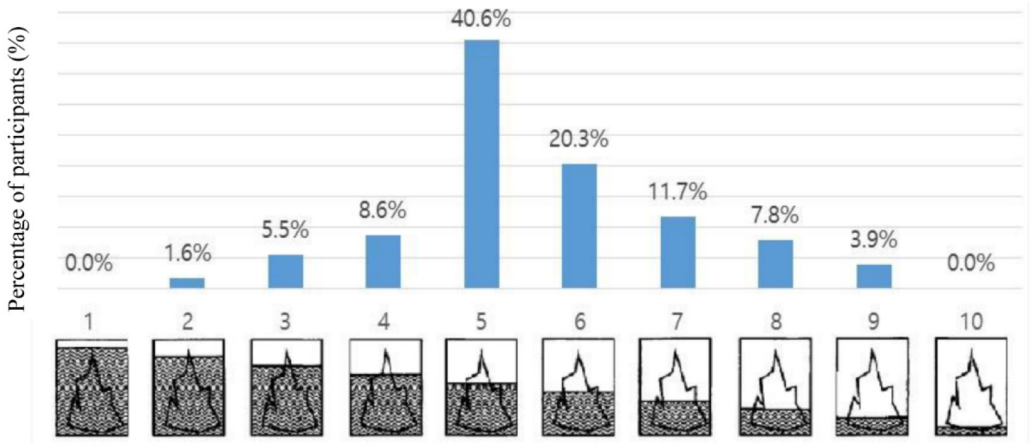

Fig. 1. Frequency distribution of the visible selfhood (Study 1).

up for the study. Two participants were excluded due to incomplete responses, leaving a final sample of 128 participants (M_{age} = 20.73 years, SD_{age} = 0.97).

3.1.2. Measures

To capture people's belief about the visible selfhood in a less direct manner, we adapted material from a previous study on self-bias (Pronin, Kruger, Savtisky, & Ross, 2001). We presented 10 iceberg images (see Fig. 1) that were submerged to varying degrees under the water (iceberg 1 = completely submerged; iceberg 10 = completely above surface). Using iceberg as a metaphor representing a person, participants were asked to select the picture that most resembled their belief about the relative visibility versus invisibility of a person's essence. The following instruction was given:

> *"Broadly speaking, there are two contrasting aspects of the person that reflect who s/he truly is—relatively visible (e.g., behavior, social rank) versus relatively invisible (e.g., thoughts, feelings) aspects. Thus, in some sense, people are like icebergs—some parts of her are visible, whereas some other parts are invisible to others. In your view, how much of a person's "essence" is visible to others? Please select the iceberg that you think most accurately represents your belief."*

After choosing an iceberg, participants indicated on a 7-point scale how important three major self-domains (1 = *not at all important* to 7 = *very important*) were to them: physical appearance, academic achievement, and personality. They also indicated how satisfied (1 = *very dissatisfied* to 7 = *very satisfied*), how much stress they felt (1 = *not at all stressful* to 7 = *very stressful*), and how often they made social comparisons (1 = *never* to 7 = *always*) in each domain. Finally, self-rated PAT was measured (1 = *very unattractive* to 7 = *very attractive*) to check if the person's attractiveness level is related with the endorsement of the visible selfhood theory.

3.2. Results and discussion

Descriptive statistics and zero-order correlations are presented in Table 1. The visible selfhood was measured on a scale, ranging from 1 (totally submerged iceberg) to 10 (completely above surface). As shown in Fig. 1, the mean score was 5.59 (*SD* = 1.46; Skewness = 0.30, Kurtosis = 0.24). A reasonably large individual difference variance was observed in this measure, and the two most popular figures were 5 and 6 (60.9% of the total response). Interestingly, a sizable number of people picked icebergs that were relatively more above than under the surface, suggesting that roughly 1 out of 3 of the female college students in this sample believed that a person's essential character is reflected more by cues observable (than invisible) to others.

Table 1
Descriptive statistics and correlations with visible selfhood across self-domains (Study 1).

	Variables	*M (SD)*	*Correlations*
Importance	Physical appearance	4.12 (1.47)	0.24**
	Academic achievement	4.05 (1.50)	0.07
	Personality	5.88 (0.92)	0.04
Social comparison	Physical appearance	4.65 (1.53)	0.31**
	Academic achievement	4.96 (1.39)	0.14
	Personality	4.33 (1.27)	−0.22*
Stress	Physical appearance	4.48 (1.29)	0.28**
	Academic achievement	5.16 (1.37)	0.03
	Personality	3.95 (1.55)	−0.17†
Satisfaction	Physical appearance	3.99 (1.37)	0.08
	Academic achievement	3.56 (1.68)	0.08
	Personality	4.53 (1.47)	0.06
Self-perceived PAT		4.21 (1.25)	−0.06

Note. PAT = physical attractiveness.
† $p < .09$.
* $p < .05$.
** $p < .01$.

More central to our interest was the correlational pattern between the visible selfhood score and the ratings for each self-domain. As predicted, physical appearance (but not academic achievement or personality) was more important for those who strongly believed in the diagnostic value of the visible self-aspects ($r = 0.24$, $p < .01$). Interestingly, appearance was also a bigger source of stress for the high visible selfhood scorers ($r = 0.28$, $p < .01$), presumably because it carries more psychological meaning for them. This was not due to a general susceptibility to stress, however, because the high scorers experienced marginally less stress about their personality. In terms of social comparison, the visible selfhood score predicted how often the respondents compared their appearance with others ($r = 0.31$, $p < .01$). In the personality domain, arguably the least visible among the three, the visible selfhood score predicted significantly less social comparison ($r = -22$, $p < .05$). Finally, the visible selfhood score was neither related with satisfaction about one's appearance nor with self-ratings of PAT (all correlations below 0.09, *ns*). It implies that greater attention to a person's external character is not necessarily driven by a motive to bolster a personally strong area. That is, belief in the visible selfhood was irrelevant with self-perceived level of attractiveness.

Overall, the current outcomes of the visible selfhood measure are encouraging. Using a pictorial stimulus, the measure was able to uncover a large range of individual difference in the belief about the

visibility of a person's essence. Moreover, this measure yielded correlational patterns with self-domain ratings that were conceptually congruent with our predictions. Those who strongly believed in the visibility of a person's essence were more likely to engage in social comparison, become more stressed, and imbued more importance to their appearance (but not in personality or academic domains). In short, the visible selfhood was discriminant in predicting how central PAT was to a person's life. Based on this outcome, in Study 2, we examined if this belief about a person's essence actually moderates the link between PAT and well-being.

4. Study 2

Study 2 examined whether belief about the visible selfhood interacts with PAT in predicting the actual life satisfaction level of women. It was predicted that PAT would be associated more with the happiness of those who strongly believe in the visibility of a person's essence. In Study 2, to ensure that our earlier finding was not due to an atypical measurement format (iceberg figure), the visible selfhood was measured in a more orthodox manner. Instead of choosing a visual stimulus, we asked participants to rate explicitly in numbers (in terms of ratio, such as "4:6"), the relative diagnostic value of the visible versus the invisible self-aspects in understanding a person. The more one thinks the visible features are informative, the more PAT was expected to relate to her happiness.

4.1. Method and procedure

4.1.1. Participants

As part of a large research project, 301 undergraduates participated in the study for an exchange of $10. Ten participants were excluded either because of missing data ($n = 7$) or were extreme outliers ($3 + SD$ from the mean, $n = 3$). We report the results without the outliers, but inclusion of outliers did not make any notable difference. Among the final sample of 291 participants, we analyzed the reports of 142 female participants ($M_{age} = 18.64$, $SD_{age} = 0.75$). Thirty-three participants (23.2%) were in a romantic relationship and 109 (76.8%) were not.

4.1.2. Procedures

Among the questionnaire package, the following were relevant to our interest: Demographic variables (age, relationship status, and yearly household income) used in the past for control purposes (cf., Langlois et al., 2000), measure of visibility of a person's essence, and life satisfaction. Also, trained research assistants measured the participant's height with a fixed stadiometer and weight with an electronic scale in kilograms. To obtain each person's WHR, hip circumference was measured at the widest point around the greater trochanter, and waist circumference was measured at the narrowest site and at the midpoint between the floating rib and the iliac crest (Hughes et al., 2004).

4.1.3. Measures

Following previous studies (Kraus, Piff, & Keltner, 2009), yearly household income was coded into six categories: (a) under $15,000, (b) $15,000–$35,000, (c) $35,000–$75,000, (d) $75,000–$100,000, (e) $100,000–$150,000, and (f) over $150,000. The visible selfhood was measured by asking participants to estimate the relative diagnostic value of the visible versus invisible features of a person. Instructions were identical to Study 1, except for the response format. This change was made to ensure that our earlier finding was not due to an unfamiliar measurement format (iceberg). Instead of choosing an image, participants were asked to indicate the relative importance of the visible versus invisible aspects by explicitly writing a number (from 0 to 10) next to the "visible" and "invisible" parentheses. It was told that "0" means that the particular aspect tells nothing about the person's essence, whereas "10" means it reveals her completely. Participants were told that the two numbers should add up to 10. For instance, if the person's essence is believed to be reflected equally well by the two aspects, the response should be "5:5." The number wrote next to the visible parenthesis was used as an index of the visible selfhood. Thus, a higher visible selfhood number was interpreted as a stronger belief in the diagnostic value of the person's visible aspects.

The WHR was calculated as waist circumference divided by hip circumference. As WHR increases, women are judged as less attractive (Singh, 1993). BMI, another bodily measure of PAT was included as a covariate (Tovée, Reinhardt, Emery, & Cornelissen, 1998). WHR is found to be a better predictor of attractiveness than BMI (e.g., Furnham, Swami, & Shah, 2006). We measured BMI, weight (kg) divided by height (m^2), to access the impact of WHR above and beyond BMI. Finally, life satisfaction was assessed with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). A sample item reads, "I am satisfied with my life." The response scale ranges from 1 (*strongly disagree*) to 5 (*strongly agree*), and the average of the 5 items (Cronbach's alpha = 0.85) was used as the life satisfaction score.

4.2. Results and discussion

Descriptive statistics and inter-correlations of variables are shown in Table 2. Female participants in our study varied in WHR, ranging from 0.67 to 0.92 ($M = 0.78$, $SD = 0.06$). The mean score of the visible selfhood measure was 3.95 ($SD = 1.56$; Skewness = 0.48, Kurtosis = −0.50). None of the participants mentioned 0 or 10, while more than half of the female undergraduates (54.4%) wrote "3" or "4" in the visible aspect parenthesis.

Among the major variables measured, WHR correlated significantly with BMI ($r = 0.32$, $p < .001$) and relationship status (0 = single, 1 = committed; $r = -0.22$, $p < .01$). Thus, those who had a more attractive body figure (smaller WHR) were less likely to be overweight

Table 2
Descriptive statistics of and correlations between key variables (Study 2).

Variables	*M (SD)*	1	2	3	4	5	6
1. WHR	0.78 (0.06)	–					
2. Visible selfhood	3.95 (1.56)	−0.06	–				
3. Life satisfaction	4.62 (1.01)	−0.08	−0.21*	–			
4. BMI	20.86 (2.31)	0.32***	−0.03	−0.13	–		
5. Age	18.63 (0.74)	−0.03	0.10	−0.04	0.06	–	
6. Yearly household income	3.39 (1.17)	−0.00	0.10	0.17*	−0.02	0.16	–
7. Relationship status (0 = single)	0.23 (0.42)	−0.22**	0.11	0.03	−0.18*	0.14	−0.07

Note. WHR = waist-to-hip ratio, BMI = body mass index. Income ratings were based on 6 categories: (a) under $15,000, (b) $15,000 –$35,000, (c) $35,000 –$75,000, (d) $75,000 –$100,000, (e) $100,000 –$150,000, and (f) over $150,000.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

and were more likely to be involved in a committed relationship. None of the other major variables (income, visible selfhood, life satisfaction) significantly correlated with WHR.

The key question of this study was whether the relevance of PAT to happiness would differ significantly across individuals. To examine this possibility, the moderation analysis was performed using process module in SPSS with 5.000 samples (Hayes, 2013; model 1). Visible selfhood was entered as a moderator between WHR and life satisfaction, after mean-centering the variables. We first examined the main effects. There was a significant main effect of visible selfhood on life satisfaction, b $(SE) = -0.15$ (0.05), $t = -2.80$, $p < .01$, $CI_{95} = [-0.25, -0.04]$. However, no main effect of WHR on life satisfaction was found, b $(SE) = -2.03$ (1.43), $p = .16$. Consistent with several past reports (Diener et al., 1995; Kim, Koo, & Suh, 2006; McGovern et al., 1996), physical attractiveness alone was insufficient for predicting the person's well-being level.

Most importantly, a significant interaction was found between WHR and the visible selfhood, b $(SE) = -2.52$ (0.98), $t = -2.54$, $p < .05$, $CI_{95} = [-4.46, -0.58]$. As expected, the relationship between WHR and happiness varied by one's belief about the visibility of selfhood. As shown in Fig. 2, WHR was a significant predictor of life satisfaction among the high ($+1SD$) visible selfhood scorers, b $(SE) = -5.96$ (2.22), $t = -2.68$, $p < .01$, $CI_{95} = [-10.36, -1.57]$. However, this was not the case among the low (-1SD) scorers, b $(SE) = 1.90$ (1.96), $t = 0.97$, $p = .33$, $CI_{95} = [-1.97, 5.77]$.

We re-analyzed the data after controlling for the three variables that related significantly with WHR (BMI and relationship status) and life satisfaction (household income). Results were largely identical. Again, a significant interaction was observed, b $(SE) = -2.37$ (0.98), $t = -2.42$, $p < .05$, $CI_{95} = [-4.30, -0.44]$. There was a significant main effect of visible selfhood on life satisfaction, b $(SE) = -0.16$ (0.05), $t = -3.13$, $p < .01$, $CI_{95} = [-0.27, -0.06]$, while life satisfaction was not predicted by WHR, b $(SE) = -1.17$ (1.51), $t = -0.78$, $p = .44$. In short, WHR did not predict life satisfaction among the low ($-1SD$) visible selfhood scorers, b $(SE) = 2.53$ (2.03), $t = 1.24$, $p = .22$, $CI_{95} = [-1.49, 6.54]$, but it significantly predicted less life satisfaction among high ($+1SD$) visible selfhood scorers, b $(SE) = -4.87$ (2.25), $t = -2.16$, $p < .05$, $CI_{95} = [-9.33, -0.41]$.

The results suggest that, regardless of their BMI and relationship status, believing strongly in the visibility of a person's essence increases the salience of PAT in women's happiness ratings. PAT salience seems to mainly predict whether low attractiveness (i.e., high WHR) brings down, rather than boosts life satisfaction. Thus, in this sample, one's PAT was (negatively) associated with happiness only in the following condition—when the person strongly endorsed the visible selfhood belief *and* had a high WHR.

5. General discussion

Does beauty buy happiness? Given the various advantages enjoyed by physically attractive people, some might think the answer is a resounding "yes." However, as in the case of other prized items in life (e.g., money, health; Diener, Suh, Lucas, & Smith, 1999; Lyubomirsky, Sheldon, & Schkade, 2005), the correlation between PAT and happiness is not as strong as commonsense suggests (e.g., Diener et al., 1995). Hedonic adaptation (Diener, Lucas, & Scollon, 2006) and heritability of happiness (Weiss, Bates, & Luciano, 2008) offers some explanation for why the correlations between personal resources and happiness tend to be small. In this research, we examined another possibility. In case of PAT, how critical this particular resource is for happiness might vary considerably across individuals. In our data, high PAT did not confer a notable advantage. However, when attractiveness was low, for some, it brought down their life satisfaction.

Past research has found that people selectively weigh certain domains more heavily than others in global life satisfaction judgments (Diener & Fujita, 1995; Oishi et al., 1999; Tiefenbach & Kohlbacher, 2015). Our finding is consistent with this pattern. Physical beauty entered into the happiness judgments of only a select group of individuals. This finding allows a more nuanced understanding for past findings on this topic. First, this boundary condition may have created a ceiling in past studies, yielding relatively small correlations between PAT and happiness. At the same time, however, our finding suggests that PAT should not be completely ignored as a predictor of happiness. For some women, their body figure did predict how dissatisfied they were with life. The main contribution of this research was identifying for whom PAT mattered. During global self-appraisals, people seem to evaluate themselves through a lens they chronically use to comprehend others. People based their happiness more on their looks *if* they think a person's observable features offer a critical window to understanding the individual's core.

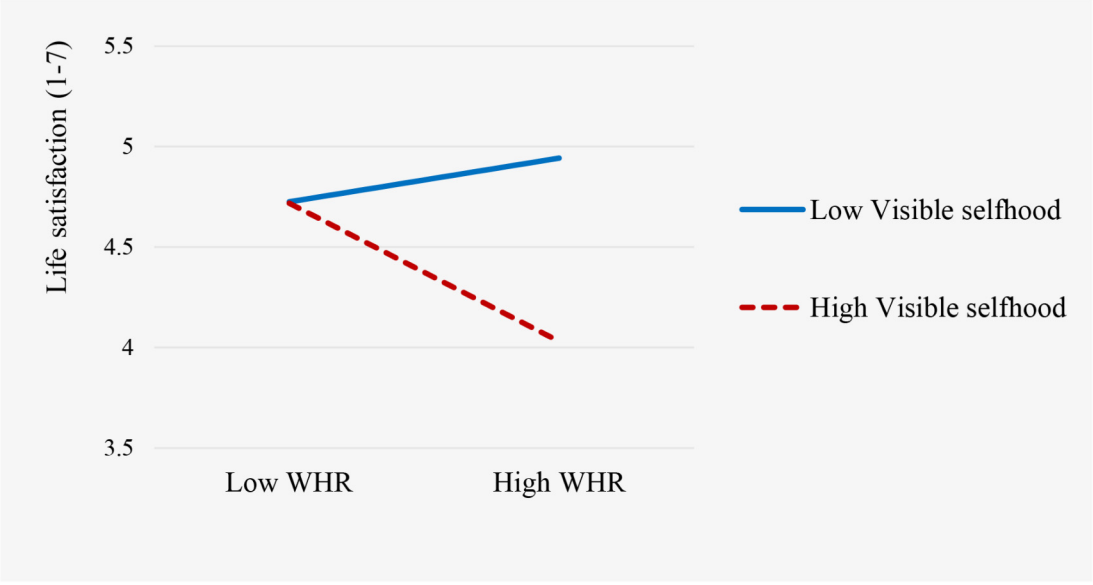

Fig. 2. Life satisfaction as a function of WHR (waist-to-hip ratio) and the visibility of selfhood (Study 2).

Interestingly, our finding seems to extend an earlier report by Plaut et al. (2009). When they compared the association between PAT and well-being across the United States, the two only related significantly in urban (but not in rural) areas. The authors claimed that urban settings promote a "free market" relationship (Fiske, 1991), in which PAT becomes a stronger determinant of relational outcomes and happiness than in rural areas. The strength of the PAT and happiness link, according to Plaut et al., varies according to the details of the sociocultural grounding of relationships (Adams & Plaut, 2003). We found parallel patterns by examining individual differences in beliefs about a person's essence. Despite surface differences, the two findings converge on a point. The association between PAT and happiness may not be inherently strong, but rather, seems to vary according to both contextual and psychological factors that increase the social significance of one's appearance.

One promising research direction is to expand the current visible selfhood notion to other areas of happiness inquiry. How much emphasis the person places on the visible aspects of the self may shape, in various ways, the paths chosen for happiness. For instance, theoretically, those who think the visible aspect is important might be drawn to accomplishments that may lend highly observable outcomes. For instance, they may pursue more extrinsic goals (e.g., fame, Ryan & Deci, 2000), spend more on material than experiential items (Van Boven & Gilovich, 2003), engage in more social comparison (Lyubomirsky, 2001), or value money more than time (Whillans, Weidman, & Dunn, 2016). Unfortunately, all such tendencies are known to predict lower happiness. In fact, our data also reveals that the visible selfhood itself significantly predicts lower life satisfaction ($r = -0.21$, $p < .05$). Contemporary consumer society tends to celebrate "form" over "content," but according to our research, such social endorsements of the visible selfhood may have long-term negative consequences on the individual's psychological well-being. Examining whether and how deeply the visible selfhood belief is involved in various decisions and behaviors relevant to happiness seems worthy of future research.

A few limitations of this study should be noted. Given the correlational nature of our study, the causal direction between the visible selfhood and PAT importance remains unclear. Physical appearance is one among the many specific exemplars of the visible self-aspects. Thus, we are inclined to think that the general belief (visible selfhood) affects the chronic salience of an inclusive element (appearance), but more controlled experiments (e.g., priming study) and longitudinal investigation will offer a more direct insight about the causal direction. Likewise, it also seems plausible that the relationship between WHR and visible selfhood may depend on the level of happiness. We tested this possibility and found that the moderation model proposed in this paper fits better than an alternative model, b (SE) = −4.15 (2.44), $t = -1.70$, $p = .09$, $CI_{95} = [-8.97, 0.67]$. Finally, we recognize the potential shortcomings of the single-item measure used for tapping the visible selfhood. We are currently developing a multiple item measure that should have stronger psychometric properties. Still, probably because of its strong face validity, it was encouraging to find most of the predicted results with this short item.

Our study makes two contributions to the PAT and happiness literature. First, we tried to overcome one persistent methodological shortcoming of this field (heavy reliance on self-reports) by obtaining one well-established index of female attractiveness (WHR) that does not rely on self-report. Second, we propose a novel lay belief about a person's essence (whether primarily visible or invisible) that significantly moderates the association between PAT and happiness. We believe this conceptual tool could be applied for further scrutinizing relationships between happiness and various existing predictors of well-being.

In sum, we did find a link between PAT and happiness among a subgroup in this study, with a slight twist. Rather than being a ticket to more happiness, PAT, if low, seems to become a psychological liability to some females. One belief that the owner of the beauty endorsed was particularly relevant. If she believes that a person *can* be judged by its cover, low PAT seems to have a negative impact on her happiness.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any financial relationships that could be construed as a potential conflict of interest.

Ethics statement

This study was carried out in accordance with the recommendations of the Yonsei University Research Ethics Committee. The protocol was approved by the Yonsei University Institutional Review Board. Participants gave written informed consent in accordance with the Declaration of Helsinki.

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