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BMI, age, Mate Value, and Intrasexual Competition in Chilean Women

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Abstract Attractiveness is the most important component of women intrasexual competition and it certainly has an impact in female's perceived mate value (i.e., the value of an individual to the opposite sex as a potential mate). In the realm of intrasexual competition women are eager to emphasize their attractiveness and compete with rivals displaying these cues. Accordingly, age is an important feature of women's appeal to the opposite sex; youth is highly valued by men, and is perceived by women as an important component of their attractiveness. Another trait that is a reliable cue of health and fertility is Body Mass Index (BMI). A large body of literature has associated BMI to female attractiveness. However, more information is necessary about the associations of BMI and age with mate value, and female intrasexual competition. In the present research we report two studies that examined the associations of BMI and age with estimates of self-perceived mate value and intrasexual competition in Chilean women (18–39 years). More specifically, we hypothesized inverse relationships of BMI and age with mate value (N=234), and intrasexual competition (N=308). We found partial support to our propositions. The results revealed inverse associations between BMI, mate value and mating success, but BMI with intrasexual competition were not related. In contrast, age had a strong and negative effect on intrasexual competition. We discuss our results within the framework of Evolutionary Psychology and consider the central role of attractiveness (estimated from BMI and age) in the mating strategies of women.

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Sexual selection (SS) is a process that heightens efforts to display characteristics preferred by the opposite-sex (intersexual selection) and competition among members of the same sex for access to reproductive mates (intrasexual competition; Buss and Schmitt 1996; Darwin 1859). In humans, SS has shaped evolved sex-differences in mating behavior that have been extensively documented within Evolutionary Psychology, by Buss (1989), Cramer et al. (1996), Schmitt and 118 members of the International Sexuality Description Project (2003), and more recently by Schwarz and Hassebrauck (2012). Accordingly, men and women differ in their mating strategies in realms where they have faced distinct reproductive problems (Symons 1979; Trivers 1972), and when seeking a mate, males are highly attracted and motivated by physically attractive women which are characterized by youth and fertility (Buss and Shackelford 2008; Singh 1993), while women seek out socially dominant men which are more attractive to them than physically attractive features on the opposite sex (by Schwarz and Hassebrauck 2012). Similarly, the intensity with which sex-typical mating behavior is expressed depends on mate value (MV); i.e., the theoretical value of an individual to the opposite sex as a potential mate (Kirsner et al. 2003; Fisher et al. 2008). In women, one characteristic that strongly impacts their mate value is physical attractiveness (Buss and Shackelford 2008). Female attractiveness in humans and other animals reflects health and fertility (Singh 1993; Roney 2009), and attractiveness is the most important component of both intrasexual competition among women (Cashdan 1998; Fisher 2004; Fisher and Cox 2009, 2011) and intersexual selection (Buss 1989). In fact, attractive women have better possibilities for marriage and more children than their unattractive counterparts (Jokela 2009; for a longitudinal study please see Benzeval et al. 2013). Therefore, in the realm of intrasexual competition (Buss and Shackelford 2008; Campbell and Willburn 2010; Landolt et al. 1995), Evolutionary Psychology predicts women are eager to emphasize their attractiveness and compete with rivals in displaying these cues (Buunk and Fisher 2009; Buunk et al. 2011; Fisher 2004; Fisher and Cox 2011; Puts 2010). However, evidence about reliable female attractiveness indicators that are associated with their self-assessments of mate value, and intrasexual competition is scarce.

Age is an important feature of women's appeal to the opposite sex, youth is highly valued by men in a romantic partner (Buss 1989; Schwartz and Hassebrauck 2012), and youth is perceived by women as an important component of their attractiveness (Lynn 2009). Similarly, age is inversely related to fertility (Campbell 2004); compared to their older counterparts young women receive elevated responses of jealousy from men (Peters et al. 2002), and women when at the peak of their fertility (before 27 years; cf. Dunson et al. 2002; Dunson et al. 2004; Campbell 2004), exhibit more aggressive intrasexual responses compared to their older peers. For example, in Canada, US, and Australia, murders of an opposite-sex partner by females are 10 times more likely when the woman is younger than 25 (Wilson et al. 1993; Mouzos and Shackelford 2004; Shackelford 2001).

On the other hand, there are anthropometric traits which have been considered as reliable indicators of attractiveness in women (Kościński 2013) which are signals of health and fertility. For example, there is vast literature that supports the important role of the waist-to-hip ratio (WHR) in female attractiveness (e.g., Platek and Singh 2010;

Singh 1993). Another trait that signals health (e.g., Flegal et al. 2013) and fertility (e.g., Lake et al. 1997) in women is the Body Mass Index (BMI). The World Health Organization considered as healthy normal values, a BMI between 18.5 and 25. Underweight women (BMI<18.5) or in contrast overweight women (BMI>25) have a poorer physical condition in comparison to normal BMI women, and are at a high risk to develop serious diseases (e.g., osteoporosis and ovulatory dysfunction in overweight women, see Coin et al., 2000 and Green et al. 1988, respectively; Cardiovascular diseases and anovulatory cycles see Kopelman, 2000 and Green et al. 1988, respectively). These evidences have supported the notion of BMI as a reliable signal of Body (Gallup and Wilson 2009; Lynn 2009; Rosenblum and Lewis 1999; Tom, et al. 2006; Tovée and Cornelissen 2001; Tovée et al. 1998) and facial (Hume and Montgomerie 2001) attractiveness in women. In fact, a study by Tovée and Cornelissen (2001) revealed that BMI accounts for over 70 % of the variance in attractiveness ratings of women. And more recently Kościński (2013) found that BMI could explain twice as much as the variance accounted for by WHR in judgments of women's attractiveness independent of the rater's sex. Accordingly facial attractiveness is inversely associated to BMI since it has a strong positive relationship with ratings of facial adiposity (Coetzee et al. 2010; Tintlin et al. 2012), and facial adiposity is considered a good indicator of poor psychological and physical condition (Coetzee et al. 2010;Tintlin et al. 2012; for a negative relationship with longevity please see Reither et al. 2009).

Cross cultural studies have supported the negative relationship of BMI with attractiveness in women (Swami et al. 2008). However, there are cross-cultural differences that have supported the notion of preferences by both slim healthy normal BMI women (e.g., BMI=19-21 in Swami and Tovée, 2007; 19–20 in Tovée et al. 1999), and underweight-unhealthy BMI women in some countries (e.g., BMI=17.3 in Kościński 2013; Underweight stimuli in Swami et al. 2008). These results can be plausibly attributable to cultural variations (Swami et al., 2008), or to maladaptive responses to a social group with a supernormal food stimuli (typical of many countries, including the Chilean population on the present study), which in turn produces a heavy preference by slenderness (Kościński 2013). In any case, the preferences by unhealthy BMI increases the predicted negative association of BMI with attractiveness.

Based on this evidence, BMI is highly associated to female attractiveness which impacts the value of women in the mating market. Therefore, BMI can be studied as an anthropometric trait that influences the self-perception of mate value (i.e., the ability to attract a mate) and the intensity of intrasexual competition (i.e., the competition for a mate) within an evolutionary approach to female mating.

The present research reports two initial studies that examined the associations of BMI and age with different aspects of female mating. Specifically, we sought to estimate the relationships of BMI and age with mate value and mating success (both in study 1), and BMI and age with intrasexual competition (study 2).

Study 1: BMI, age, and Mate Value

Mate value (MV) has been defined as the theoretical quantitative estimate of an individual's reproductive potential, mating success, or their value as a partner in a reproductive relationship (Brase and Guy 2004; Fisher et al. 2008). MV is dependent

on self-perceived attractiveness and the more objective physical and psychological cues that are preferred by the opposite sex at a particular moment (Edlund and Sagarin 2010; Fisher et al. 2008). Therefore, it is plausible, and it has been documented, that females who perceive themselves as possessing desirable attributes are more selective and demanding when choosing a mate (Buss and Shackelford 2008; Campbell and Willburn 2010). Other contextual traits, such as a woman's age and marital status (Brase and Guy 2004; Kenrick and Keefe 1992), and anthropometric indicators (e. g., WHR, cf. Singh 1993; voice and face cf. Feinberg 2008) contribute to women's perceived MV. Self-esteem has also been documented to correlate with MV, which makes sense because self-esteem is a construct that reflects being appreciated by significant others and attracting opposite-sex individuals (Zeigler-Hill and Myers 2010). Furthermore, targets with high self-esteem are evaluated as highly attractive mates by other individuals, and self-esteem is significantly predicted by MV, especially in women (Brase and Guy 2004; Zeigler-Hill and Myers 2010).

In the first study, we sought to inquire whether mate value, age and BMI were empirically associated. As mentioned previously, BMI and MV are affected by aging (Brase and Guy 2004; Davies et al. 2008; Fisher et al. 2008). To finely tune the relationship with self-perception of their reproductive success, we decided to also evaluate the relationship of female's BMI and age with mating success, a subscale of the MV scale we used. This subscale has been previously considered as an independent test of the self-perception of an individual to successfully attract a mate (Landlot et al.1995). Similarly, relationship status has been found to contribute to a heightened mate value perception in women (Brase and Guy 2004), which is a common ground for evolutionary and gender role theory (Eagly and Wood 2011).

Consequently, in the first study, we expected that both MV and mating success will be negatively predicted by age and BMI. And according to the evidence showing age is highly related to attractiveness in women, it was also predictable to find differences in MV and mating success between young women (i.e., women at their peak of fertility) and mature women. Secondarily, we expected to find that mate value will be higher in women who were involved in a committed relationship.

Material and Methods

Participants. The sample consisted of 234 young heterosexual women of middle socioeconomic status that completed an online study that inquired about interpersonal relationships and mating (age M=24.45, SD=5.15). All methods and procedures of this study were approved by the Ethical Committee of Universidad de Santiago de Chile. At the beginning of the experiment, participants provided informed consent and then completed a general demographic questionnaire about their sex, age, height, weight, and their relationship status. All women participated voluntarily and received no compensation for participation.

Mate value components. Participants completed a Chilean adaptation (Fernandez et al. 2014) of the Mate Value Components Scale (Fisher et al. 2008), which is composed of 22 statements about the dimensions of mating success (e.g., "members of the opposite sex notice me" see the independent test in Landolt et al. 1995, possession of traits preferred by the opposite sex (e.g., "I would like members of the

opposite sex to consider me sexy"), sociality (e.g., "I run into friends wherever I go"), desirability as a mate (e.g., "I can have as many sexual partners as I choose"), fear of failure (e.g., "I often worry about not having a date"), and parenting (e.g., "I would make a good parent"). Participants responded to each item on a 7-point Likert scale (1=strongly disagree to 7=strongly agree). The internal consistency of the present study (Cronbach's α=.85) was similar to that found in the original construction in Canada (Cronbach's α=.83).

BMI estimation. We obtained BMI values from participants' self-reports of height and weight. The self-reporting of BMI has been associated with objective measures of this dimension (Himes et al. 2005; Goodman et al. 2004), although there is a tendency for self-report to result in a relatively small overestimation of BMI (Gorber et al. 2007). However, self-reported BMIs can be considered to be a valid representation of measured BMIs, which have been used in many studies (e.g., Lynn 2009; ter Bogt et al. 2006; Rosenblum and Lewis 1999).

Statistical Analysis. Due to non-normal distributions of BMI, age, and MV, all data underwent logarithmic transformations before conducting the analyses (e.g., Deaner et al. 2012; Gallup et al. 2011). To asses if MV and mating success are predicted by age and BMI, we performed multiple stepwise linear regression tests with MV, first, and mating success secondly as dependent variables, while age, relationship status and BMI were introduced as independent variables. Next, to evaluate differences according to age, we compared young women and mature women in MV and mating success, BMI was a covariate in an ANCOVA that included two age categories as fixed factors. Participants were separated in two age groups based on biological criteria that have been used in other research, e.g., fertility decreases and infertility increases after the age of 26 (from Dunson et al. 2002, and 2004, respectively) and the peak of fertility at around 25 years of age (Campbell 2004). The first age group corresponded to young women at their peak of fertility between the ages of 18 and 26 years old, and the second age group was composed of mature women between 27 and 39 years old (see Table 1). Finally, for the ANCOVA analyses, we decided to include relationship status (i.e., being on a relationship: N=157; Not being in a relationship: N=77) as another factor, since relationship status is positively related to MV and Mating success (Brase and Guy 2004).

Table 1 Study 1: Descriptive statistics for the total sample, the younger and older group of women (M ± SD)

	Total Sample (18–39 years)	Young women (18–26 years)	Mature women (27–39 years)
Age	24.4±5.15	21.5±2.47	30.7±3.59
BMI	23.21±3.25	22.9±3.18	23.4±3.41
MV	93.6±17.97	93.4±18.70	94.2±16.35
Mat. suc	25.4±8.27	25.1±8.37	26.1. ± 8.07

Note: Mat. suc=mating success. Total population N=234, Young women N=160, Mature women N=74

Results

Descriptive Values are Summarized in Table 1

MV was significantly predicted (R^2=.05, $F_{(1)}$=11.63, p<.001) by BMI (beta=-.22, p<.001; see Fig. 1), although age (beta=.04, p=.49), and relationship status (beta=.08, p=.17) were excluded from the model. Similarly, mating success was also predicted significantly (R^2=.10, $F_{(1)}$=26.92, p<0.001) by BMI (beta=-.32, p<.001; see Fig. 1) but not by age (beta=-.081, i=.20), and relationship status (beta=.11, p=.08). These results show that as BMI decreases (i.e., attractiveness increases) both mating success and MV are increased independently of both the age and relationship status of women. On the other hand, ANCOVA test confirms that neither age groups nor relationship status have a significant effect on MV or on mating success (see Table 2).

Discussion of study 1

In this first study, we investigated age and BMI (as indicators of attractiveness) and their association with self-perceived MV and mating success in a group of heterosexual Chilean women. We set forth two predictions for the first study that were partially supported. We sustained the hypothesized inverse relationship between MV and mating success with BMI. However, and contrary to our expectations, age did not have an effect on MV or mating success.

The study did not replicate other studies that have reported significantly higher MV in young women compared to older women (Buss 1989; Kenrick and Keefe 1992; Massar et al. 2012). Accordingly, our results propose that both age groups are similar in the intensity of both MV, and mating success. Physical attractiveness is especially

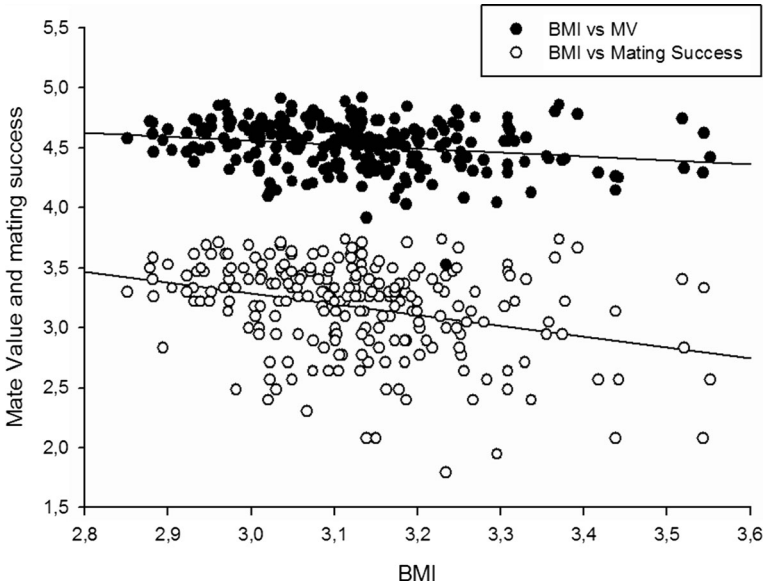

Fig. 1 MV and Mating success predicted by BMI. Variables are log transformed. BMI = Body Mass Index, MV = Mate Value

Table 2 Study 1: ANCOVA considering age groups and relationship status as factors and BMI as covariate

Variable	Parameter	B	SE	t	sig.
MV	Intercept	5.59	.30	18.16	$p<.001$
	Age Group[a]	−.01	.02	−.46	$p=.64$
	Relationship Status[b]	−.03	.02	−1.2	$p=.22$
	BMI	−.33	.09	−3.45	$p<.001$
Mating Success	Intercept	6.10	.55	10.98	$p<.001$
	Age Group[a]	−0.47	.05	−.89	$p=.37$
	Relationship Status[b]	−.07	.05	−1.52	$p=.12$
	BMI	−.92	.17	−5.21	$p<.001$

Note: a "Young age group" was codified as 1 and "Mature age group" as 0. b "Without a relationship" was codified as 1 and "having a relationship" as 0

important to the self-perceived possibility of obtaining a reproductive mate in women. And our results are consistent with the notion that independently of their age, physical appearance is an important trait to explain mate value and mating success in women.

Similarly, the finding that relationship status was not a significant predictor of MV or mating success is unexpected based on Brase & Guy (2004) results of relationship status directly related to MV. But it remains plausible that relationship status may be important for an overall assessment of mate value in samples with more variability in status (like having a substantial proportion of the sample in a married or a cohabiting relationship, which was very low in our sample). Therefore, results do not support the idea that just having a relationship would be associated with increased mate value in women. While a physical feature of women's attractiveness such as BMI did have an inverse association with MV and mating success.

Furthermore, this last result of the first study brings indirect support to an evolutionary approach to mate value versus a purely social perspective, by showing that solely having a partner did not affect a women's mate value per se. While gender role interpretation of women's assessment of her worth will predict that this variable should affect women's social appraisal of their mate value, decreasing her inequalities and increasing their power relationships in reference to other women (Eagly and Wood 2011).

Study 2: BMI and Intrasexual Competition

Intrasexual competition is common in men and women (Fisher et al. 2013; Symons 1992) and can be conceptualized as the struggle between members of the same sex for access to members of the opposite sex (Ridley 1996). In humans, both sexes engage in competition with same-sex individuals to obtain a reproductive partner (Buunk and Fisher, 2009), and each sex adopts the strategies that best fit their purpose in this contest. Women compete for men who vary in their ability to protect offspring and to provide resources (Buss and Shackelford 2008; Wilson et al. 1980; Buss 1989). Therefore, women continually strive to initiate and maintain long-term bonds with men who seem able to provide prolonged aid and provisions for their common offspring (Campbell 2004; Benenson 2009).

As stated previously, intrasexual competition in women has been described in the context of attractiveness (Cashdan 1998; Fisher 2004; Fisher and Cox 2009, 2011), because attractiveness reflects health and fertility (Singh 1993; Roney 2009). Female attractiveness can be estimated from age and other physical traits and has been linked to sex-specific aggressive repertoires for competing in the intrasexual field. For example, age has been inversely linked to the tendency to gossip and derogate other women (Massar et al. 2012), and BMI is a trait that can signal attractiveness which has been negatively related to the use of anger and verbal aggression in adolescent women (Muñoz-Reyes et al. 2012). However, as far as we know, the relationship between age and BMI has not previously been studied with a specific scale for intrasexual competition (for studies on other traits, see attachment style and BMI in Hintsanen et al. 2010, and intrasexual competition with fluctuating asymmetry in Simpson et al., 1999).

In our second study, we evaluated the relationship between age and BMI with a relatively novel scale for estimating individual differences in intrasexual competition (Buunk and Fisher 2009). We expected that ICS would be negatively predicted by both women's BMI and age. Accordingly, it was anticipated that age groups would show differences in intensity of ICS, i.e., young women would show more intense intrasexual competition compared to mature women.

Material and Methods

Participants. Using a new sample of women we followed the same data collection procedure detailed in Study 1. Thus, we obtained informed consent and acquired survey data. One outlier with a BMI that was more than three standard deviations above the mean was excluded from all analyses (e.g., Apicella et al. 2008). Our remaining sample consisted of 308 heterosexual women aged between 18 and 39 years (age M=22.91, SD=5.85).

Intrasexual Competition Scale (ICS). Participants completed a Chilean adaptation of the Intrasexual Competition Scale (Buunk and Fisher, 2009). The measure is composed of 12 items that assess the degree of competition with same-sex peers (e.g., "I tend to look for negative characteristics in attractive women"). Answers to the items of the ICS are given on a seven-point Likert scale (1=not applicable at all to 7=completely applicable), and the ICS has a high degree of cross-national equivalence (e.g., in Canadian and Dutch populations in Buunk and Fisher 2009). The internal consistency obtained in the present study was similar to those observed in the original article by Buunk and Fisher (2009) using an equivalent age group (our study: α=.85; Dutch population: α=.87; Canadian Population: α=.88).

BMI Estimation. We Followed the Same Protocol Used in the First Study to Estimate BMIs

Statistical Analysis. Due to non-normal distribution of BMIs, ICS and age, we again performed logarithmic transformations of the variables. We employed stepwise multiple linear regression tests to analyse the effect of BMI and age on ICS. Finally, to evaluate differences in intensity of ICS between the age groups an ANCOVA tested age

group as a factor and BMI as a covariate. We used the same criteria of study 1 to conform age groups.

Results

The descriptive values obtained from the total sample and both age groups are listed in Table 3. Our results show that ICS was significantly predicted (R^2=.09, $F_{(1)}$=31.01, p<.001) by age (beta=-.30, p<.001; see Fig. 2) while BMI was excluded from the model (beta=-.01, p=.86). According to the intensity of ICS from the ANCOVA test, we confirmed the previous result showing that women at their peak of fertility have more intensity in intrasexual competition than mature women (see Table 4).

Discussion of study 2

In the present study, we evaluated and documented a negative relationship between age and the intensity of intrasexual competition as estimated with the ICS. We found the predicted differences according to age group in the intensity of intrasexual competition, being young women more intense in ICS than mature women. However, we did not observe a negative association between BMI and ICS. We considered this relationship plausible since BMI has been inversely related to attractiveness (e.g., Gallup and Wilson 2009; Tovée et al. 1998), and attractiveness is a crucial characteristic in female intrasexual competition (Buss 1989; Buss and Shackelford 2008).

Our results provide support for the hypothesis that young women exhibit intense intrasexual competition strategies (Campbell 2004, e.g., see also the increased tendency to gossip reported in Massar et al. 2012) because young females are at a critical stage in their life for attracting a valuable reproductive mate (Davies et al. 2008). We supposed that attractive young women are more highly valued by men (Peters et al. 2002), and for that reason, they would be more competitive in their attempts to attain more attractive partners. Moreover, there is evidence suggesting that women more so than men, look in general for a romantic partner that is more attractive than themselves (Clark et al. 2005). However, highly attractive men appeal to many suitors and report more sexual partners than their less attractive counterparts (Gangestad et al. 2001; van Dongen and Gangestad 2011). Therefore, it is probable that attractive young women employ intense intrasexual competition tactics to attract a potential reproductive mate (see the use of competitor derogation in Fisher and Cox 2009).

Table 3 Study 2: Descriptive statistics for the total sample, the younger and older group of women (M ± SD)

	Total population (18–39 years)	Young women (18–26 years)	Mature women (27–39 years)
Age	22.91±5.85	20.02±2.38	32.05±3.82
BMI	22.84±3.04	22.61±3.16	23.57±4.01
ICS	27.05±10.16	28.45±10.4	22.64±7.82

Note: Total population N=308, Young women N=234, Mature women N=74

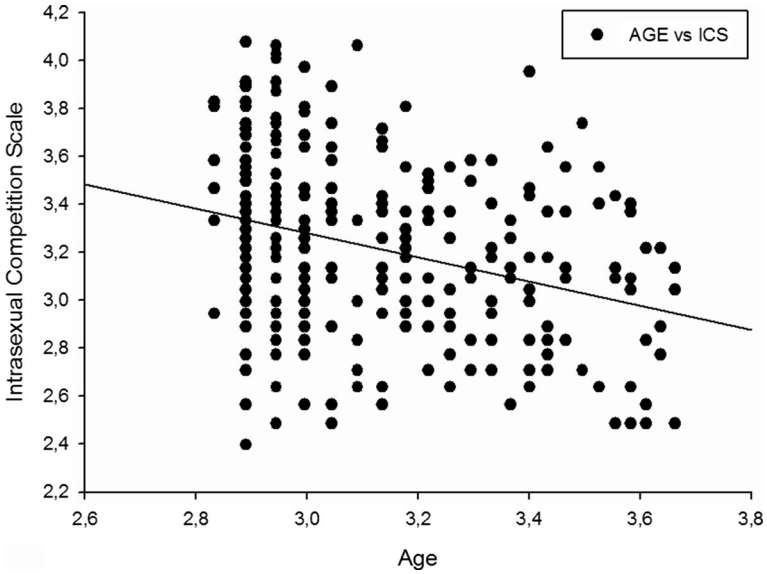

Fig. 2 ICS predicted by Age. Variables are log transformed. ICS = Intrasexual Competition Scale

In contrast, the results of our study suggest that BMI was not associated to the intensity of intrasexual competition, the same tendency was observed when splitting our sample in age groups. We speculate that intrasexual competition may be supported by other bodily or face traits that signal female attractiveness such as WHR (Singh, 1993) or fluctuating asymmetry (van Dongen and Gangestad 2011), respectively. Fluctuating asymmetry is a trait that affects the use of more intense intrasexual competition tactics (Furlow et al. 1998). In this sense, it is also probable that other traits not linked to physical attractiveness (e.g., academic level) could also have an effect in the level of intrasexual competition in women. This possibility may be more conceivable in Western societies in which women can obtain important social positions and economic well-being independently of investments from men (for an analysis of the mutual benefits of same-sex friendships see Bleske-Rechek and Lighthall 2010).

In conclusion, age was inversely related to intrasexual competition in women, being young women who showed the more intense intrasexual competition compared to mature women. Therefore, our study replicates in a novel context previous research that suggested the reasonable assumption that age may affect the possibility of obtaining a valuable reproductive mate.

Table 4 Study 2: ANCOVA test considering age groups as factor and BMI as covariate

Variable	Parameter	B	SE	t	sig.
MV	Intercept	3.54	.46	7.68	$p<.001$
	Age Group[a]	−.21	.04	−4.38	$p<.001$
	BMI	−.15	.14	−1.04	$p=.29$

Note: a "Young age group" was codified as 1 and "Mature age group" as 0

General Discussion

In the present research, we investigated the relationships between BMI and age with two components of female mating. The results revealed inverse associations between BMI, MV and mating success, but no relationship of BMI with ICS. In contrast, age had a strong and negative effect only for ICS.

As other studies have suggested (Jones et al. 2007; Williams 1975), young women are more fertile and have greater reproductive value than older women, which is why younger women are more preferred by men (Buss 1989; Lynn 2009; Peters et al. 2002), and are considered much more attractive than their older counterparts, they receive more favors, and are more frequently the object of male selection compared to mature women (Davies et al. 2008). We know that attractiveness is a central piece of women's struggle to attain reproductive success (e.g., Fisher 2004; Fisher and Cox 2009, 2011). Therefore, if we admit the importance of BMI as a cue to attractiveness (Gallup and Wilson 2009; Hume and Montgomerie 2001; Lynn 2009; Rosenblum and Lewis 1999; Tom et al. 2006; Tovée and Cornelissen 2001; Tovée et al. 1998), linked to both reproductive success (e.g., Pawłowski and Dunbar 2005), and aggressive behaviors (i.e., the use of anger and verbal aggression in Muñoz-Reyes et al. 2012), we should expect that it influences many aspects of human mating, especially in young women who are in a period of intense intrasexual competition (Campbell 2004; Fisher 2004). An example of this is that BMI as well as WHR have been linked to more complex emotional functioning such as attachment style in both sexes (Hintsanen et al. 2010).

However, our results suggest that BMI in particular has a powerful effect on mate value and mating success, but this effect is surprisingly independent of age. These outcomes integrated with the absence of a negative relationship between BMI and intrasexual competition, lends support to the notion that physical traits like BMI influence reproductive success more so than age; but BMI is not related to the intensity of intrasexual competition that women undergo in the struggle to attract a reproductive partner.

Our findings suggest that young women independently of their BMI compete in a more intense manner with same sex individuals. Therefore, it seems that women try to take advantage of this limited time period, being young at their peak of fertility, which allows them to seek the best mate available to them (Davies et al. 2008). Considering that men value youthfulness highly (Buss 1989; Lynn 2009; Peters et al. 2002), it is not surprising that women strategically compete more with their counterparts when having the higher reproductive potential to maximize their fitness. In the same way, an attractive physical appearance at any age, estimated in the present study from BMI, is considered by women as a relevant indicator of their mate value and is associated to their mating success (Mikach and Bailey 1999; Singh 2004). Therefore it is expectable that BMI strongly influences men's mating decision. However, we do not know if men prefer an attractive BMI more so than youthfulness when selecting a long-term mate. In this sense, future studies will be useful if they consider men's assessment of female attractiveness according to BMI at different ages, in addition to other physical indicators of attractiveness such as WHR, breast size or fluctuating asymmetry (Dixson et al. 2011; Jasieńska et al. 2004; Singh et al. 2010; Swami and Tovée 2013; van Dongen and Gangestad, 2011).

Alternatively, social constructivist perspectives attribute socialization and proximate cultural influences to the sex differences we observe in mating nowadays (Eagly &

Wood 2011), and they emphasize social inequalities as the leading cause of stereotypical sex roles. Nevertheless, specific differences attributed to BMI and age in the self-assessment of mate value and intrasexual competition respectively, cannot be interpreted as the influence of societal pressures on women's attractiveness ratings quite precisely, since it would be expected to affect the relationship of women towards men, but not to alienate them from other women. But, from an evolutionary approach, the influence of attractiveness in the perceived mate value of females is understood as a cue to health and fertility for the opposite sex, and more specifically influencing the behavior of women towards other women in the struggle to attract a mate (Campbell 2004; Fisher and Cox 2011). Important limitations of our results are the method we used to obtain data about BMIs and the other variables, relying only on participants self-reports. Similarly, the assessment of BMI with self-estimated height and weight is an easily implemented and rapid method, but there are studies that have found differences between the actual measurement of BMI and self-estimations of BMI (Himes et al. 2005). There is also some evidence that women tend to indicate low values for their weight, which would affect BMI, but this inaccuracy would have affected the total sample systematically (Gorber et al. 2007). Therefore, our results have to be considered as an approximation to the influence of BMI on the mating process of women, and will need to be confirmed in future studies with objective measurements and a controlled, causal design.

To conclude, our findings support the hypotheses that BMI can be considered an important component of female mating strategies (i.e., associated to MV and mating success) at any age. This influence was not found for intrasexual competition, being age the variable that may be more directly associated to differences in the intensity of ICS. This makes sense considering that age is a crucial factor affecting female fertility and attractiveness to the opposite sex, although other variables associated to age may add up to the findings of our study. Following this logic, women have to compete with other women to obtain the best candidate available with whom to reproduce and share the high levels of parental investment implied by caring for the progeny. It is quite probable that human females obtain the best partner possible according to their physical attributes at any age, however, the intensity in the competition for an attractive suitor is more pronounced during youthfulness.

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