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The role of self-perceived mate value and intrasexual competitiveness in tanning behaviour

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Abstract

Research suggests that women engage in attractiveness enhancing techniques to increase their self-perceived mate value. These techniques, such as tanning behaviors are driven by evolutionary mechanisms in relation to increasing one's self-perceived mate value in the mating market. We explored whether intrasexual competition and self-perceived mate value predicted attitudes towards sunbed use (study 1, $n=93$) and time spent in the sun to gain a tan (study 2, $n=193$). In study 1, we found that self-perceived mate value negatively predicted attitudes towards sunbed use. Those with higher self-perceived mate value reported negative attitudes towards sunbed use. In study 2, we found that intrasexual competition positively predicted time spent tanning. Those who reported more days in the sun reported greater intrasexual competition. To our knowledge, this is the first paper to find an association between intrasexual competition and tanning behavior.

Keywords: sunbed use, tanning behavior; self-perceived mate value, intrasexual competition, attractiveness

Public significance statement: Women's attitudes towards tanning are influenced by how they see themselves as a romantic partner. Furthermore, the time women spend in the sun with an aim to get a tan is influenced by intrasexual rivalry with other women.

The negative consequences of some attractiveness enhancement practices are well documented in the literature. Health psychologists and healthcare practitioners have created education programs designed to raise awareness of the risks associated with risky health practices. Sunbed use is a risky behavior, which can enhance one's attractiveness (Schneider et al. 2013). Research suggests that women typically engage in the use of attractiveness enhancing risky practices, such as sunbed use, even when they are aware of the risks associated with UV exposure (see Nasser, 1988; Olson et al. 2008), which is driven by the goal of enhancing one's physical attractiveness and self-perceived mate value. As men place significant importance on youth and beauty, as these signal health and fertility, attractiveness enhancement techniques, such as tanning behavior have evolved to increase a women's self-perceived mate value in the mating market (Saad & Peng, 2006). Although life history theory focuses on risk taking behaviors prevalent in men, research shows that life history theory can explain several risk-taking behaviors in women which are particularly focused on appearance enhancement (Low, 2005). For example, women expose themselves to UV rays through sun tanning to a greater degree than men (Saad & Peng, 2006).

Further research is needed to explore the determinants of tanning behaviors, considering skin cancer rates have dramatically increased over recent years, with melanoma skin cancer incidence rates having increased by half (50%) in the UK over the past decade, and with incidence rates for melanoma skin cancer projected to rise by 7% in the UK between 2014 and 2035 (Cancer Research UK, 2018).

The World Health Organization (2017) suggests that the main factors that predispose a person to the development of skin cancer are recreational exposure to the sun, a history of sunburn, and regular use of sunbeds which can significantly increase a person's chances of getting skin cancer (WHO, 2018). Sunbed use is a serious issue in the UK. In support, Williams et al. (2013) found that almost a fifth (18.6%) of the women aged 18-34 in their study had used

a sunbed at least once in the past month, with most participants agreeing that a tan looked good (80%). The findings differ dramatically to research with men, with just 7% of men reporting using a sunbed in the past month (18–34-year-old men, see Owens et al., 2016).

Research suggests that women engage in tanning behavior due to partner preferences for tanned skin (Mosher & Danoff-Burg, 2005). Since men value physical attractiveness in a mate far more than women (Bhogal et al., 2019), women do compete with one another to be physical attractive, which may lead to attractiveness enhancing practices. This rivalry can be explained by intrasexual competition, which is defined as members of the same sex competing on characteristics which are attractive to the opposite sex (Keys & Bhogal, 2018), in this case, competing to be attractive through tanning. Banerjee et al. (2008) found that tanned skin is rated as more attractive and healthier to men (not women) compared to light or medium tanned skin. In addition, they found that women engaged in tanning behavior to increase their physical attractiveness to potential mates. Therefore, attitudes towards sunbed use and tanning behavior may be motivated by mating goals (Pettijohn et al., 2011). Research suggests that attractiveness enhancement, specifically, social-self-representation, largely predicts engagement in risky health practices (Leary & Jones, 1993). Previous research into alternative risky attractiveness enhancing behaviors such as cosmetic surgery has been found to be driven by female short-term mating effort (Bradshaw et al., 2019). In relation to tanning behaviors, Leary and Jones (1993) found that women who engaged in sunbed use were aware of its risks. However, the immediate benefits associated with increased physical attractiveness outweighed their long-term health concerns. Hill and Durante (2011) explored whether activating mating goals (through priming, showing women attractive same-sex and opposite sex faces) increased women's willingness to engage in tanning behavior. Through two experiments, they primed participants with courtship stimuli and neutral stimuli, finding women were more willing to take diet pills and engage in tanning when intrasexual competition was high. Furthermore,

when mating goals were activated, women were less likely to believe they were susceptible to the health risks posed by diet pills and tanning. We believe an evolutionary approach is crucial to understand why women engage in tanning behaviors when women are aware of the risks associated with UV exposure.

Study 1: We hypothesized the following:

H1: Self-perceived mate value will be related to attitudes towards sunbed use.

H2: Intrasexual competitiveness will be positively related to attitudes towards sunbed use.

Study 1

Method

Design and participants

A cross-sectional design was adopted to explore whether intrasexual competition and self-perceived mate value predicted attitudes towards sunbed use. The sample consisted of 93 heterosexual women recruited via social media sites such as Twitter and Facebook ($M_{age}=28.83$ years, $SD=11.82$). Qualtrics was used as the host data collection survey builder. As per the requirement by the ethics committee, studies 1 and 2 were advertised as studies exploring factors associated with tanning behavior.

Materials¹

Attitudes towards sunbed use

The 13-item *Attitudes towards sunbed use* scale (Owen et al., 2013) was used to explore participants' attitudes towards sunbed use, with each item measured on a 1 (strongly agree) to 5 (strongly disagree) Likert scale. An example from the scale is '*Tanned people look healthy*'. The scale was reliable in our sample ($\alpha=.72$).

Self-perceived mate value

The 17-item *Self-perceived mate value Inventory Short Form* (MVI-7; Kirsner et al., 2003) was used to measure the participants' self-perceived mate value. The MVI-7 lists 17 characteristics which are scored on a 7-point Likert scale ranging from “-3=Extremely low on this characteristic” to “+3=Extremely high on this characteristic”. High scores reflect high self-perceived mate value. Example items include “*attractive face*” and “*financially secure*”. The scale was reliable in our sample ($\alpha=.77$).

Intrasexual competition

The 12-item *intrasexual competition scale* (Buunk & Fisher, 2009) was used to measure intrasexual competition. The items are measured via a 1 (not at all applicable) to 7 (completely applicable), with higher scores reflecting high intrasexual competition. An example item is '*I always want to beat other women*'. The scale was reliable in our sample ($\alpha=.90$).

¹ All reliability analyses were computed using Cronbach Alpha.

Procedure²

Once participants provided informed consent, they were asked to provide demographic details such as age, sex, sexual orientation, and complete the questionnaires outlined above (the order of questionnaires was randomized using the randomizer function on Qualtrics). Finally, participants were fully debriefed, online.

Results

Descriptive statistics are presented in Table 1. Bivariate Pearson's correlations between all variables are presented in Table 2. Table 2 shows that there was a small to medium significant, negative relationship between self-perceived mate value and attitudes towards sunbed use, in that higher self-perceived mate value was associated with more negative attitudes towards sunbed use.

Multiple regression was conducted to predict attitudes towards sunbed use (see Table 3) from self-perceived mate value and intrasexual competition. The model explained 9.3% of the variance in attitudes towards sunbed use, $F(2, 90)=4.60, p=.013$. Self-perceived mate value was a significant, negative predictor of attitudes towards sunbed use. VIF and Tolerance values show no multicollinearity in the model.

Findings from study 1 showed that self-perceived mate value was related to attitudes towards sunbed use. H1 was supported, and H2 was unsupported. There was no correlation between intrasexual competition and attitudes towards sunbed use.

² The procedures were identical for each study.

Study 2

We conducted study 2 to examine whether self-perceived mate value and intrasexual competition predicted frequency of actual tanning behavior, specifically days spent in the sun over a given month with the aim of getting a tan. We collected this data at points where COVID-19 restrictions were varied in the UK (during summer 2021). As a result, we examined time spent in the sun with an aim of getting a tan rather than actual time spent in a tanning studio, as sunbed use has been associated with intentional sun exposure (Savoyee et al., 2018).

The hypotheses for study 2 were as follows:

H1: Self-perceived mate value will be negatively related to tanning behavior.

H2: Intrasexual competitiveness will be positively related to tanning behavior.

Design and participants

A cross-sectional design was adopted to explore whether intrasexual competition, and self-perceived mate value predicted how many days participants spent in the sun in the past month with the intention of getting a tan. Consistent with Williams et al. (2013) we decided to ask participants to reflect on days spent in the sun over the past month rather than hours or minutes per day. The sample comprised of 193 heterosexual ($n=182$) and bisexual ($n=11$) women recruited via social media sites such as Twitter and Facebook ($Mage=30.31$ years, $SD=11.33$). Qualtrics was used as the host data collection survey builder.

Materials

The same scales used in study 1 were used for study 2. All scales were reliable in our sample (Self-perceived mate value, $\alpha=.84$ and intrasexual competition, $\alpha=.89$).

Results

Descriptive statistics are presented in Table 4. Bivariate Pearson's correlations between all variables are presented in Table 5. There was a small, positive, significant correlation between the number of days spent in the sun and intrasexual competitiveness. Multiple regression was conducted to predict the number of days women spent in the sun with an intention of getting a tan (see Table 6) from self-perceived mate value and intrasexual competition. The model explained 3.9% of the variance in tanning behavior, $F(2, 190)=3.82$, $p=.024$. Intrasexual competition was a positive, significant predictor of the number of days spent in the sun to gain a tan, providing support for H2. H1 was unsupported.

Discussion

The aim of this paper was to explore whether self-perceived mate value and intrasexual competition were related to attitudes towards sunbed use and tanning behavior. We find partial support for our hypotheses. In study 1, self-perceived mate value was a strong negative predictor of attitudes towards sunbed use. In study 2, intrasexual competition was a positive predictor of tanning behavior, in that high intrasexual competition was associated with more days spent in the sun with an intention to get a tan.

Our findings suggesting intrasexual competition and self-perceived mate value predict attitudes towards sunbed use and actual tanning behavior are somewhat consistent with the notion that women engage in tanning behaviors to enhance their physical attractiveness, as tanned skin has been found to be attractive in mate choice contexts (Mosher & Danoff-Burg, 2005).

In study 1, the negative relationship found between self-perceived mate value and attitudes towards sunbed use could reflect that those who have higher self-perceived mate value may not necessarily need to engage in tanning behaviors frequently to increase their attractiveness, as they may consider themselves to already possess the traits and qualities

which add to their overall self-perceived mate value. However, those with lower self-perceived mate value may have more positive attitudes towards sunbed use since using sunbeds can increase one's physical attractiveness. To our knowledge, this is the first empirical study to report an association amongst self-perceived mate value, intrasexual competition and tanning behavior.

There are possible limitations regarding the methodology in our studies. In Study 2, participants were asked "*How many days in the past month have you spent in the sun with the aim of getting a tan?*" This was quite a broad measure, and in future, it would be useful to utilize more specific forms of measurement. For example, participants could be asked to keep a diary for the previous month, writing exact times of when they spent time in the sun with the intention of tanning their skin. Future research could explore the role of body esteem, tanning behavior and intrasexual competition. In support, Strand et al. (2021) found that body image concerns are strongly related to sunbed use.

Finally, this study explored the role of self-perceived mate value and intrasexual competition in attitudes towards sunbed use and tanning behavior. We find self-perceived mate value to be negatively related to attitudes towards sunbed use, and intrasexual competition to positively predict the number of days people spend in the sun with an aim to get a tan.

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Table 1: Descriptive statistics (study 1)

Variable	Mean (<i>SD</i>)
Attitudes towards sunbed use	2.59 (.66)
Self-perceived mate value	4.91 (.70)
Intrasexual competitiveness	2.36 (1.16)

Table 2: Bivariate correlations (study 1).

	1	2	3
1. Attitudes towards sunbed use	-	-.28**	-.11
2. Self-perceived mate value	-	-	-.02
3. Intrasexual competitiveness	-	-	-

Note: $p < .01$ **

Table 3: Multiple regression (study 1).

Variable	β	p	t	CI (95%)	Tolerance	VIF
Self-perceived mate value	-.285	.006	-2.83	-.46 -.08	1.00	1.00
Intrasexual competitiveness	-.112	.268	-1.22	-.18 .05	1.00	1.00

Table 4: Descriptive statistics (study 2)

Variable	Mean (<i>SD</i>)
No. of days spent in the sun	8.01 (11.91)
Self-perceived mate value	4.84 (.67)
Intrasexual competitiveness	2.26 (.95)

Table 5: Bivariate correlations (study 2).

	1	2	3
1. Days spent in the sun	-	.13	.16*
2. Self-perceived mate value	-	-	.05
4. Intrasexual competitiveness	-	-	-

Note: $p < .05^*$

Table 6: Multiple regression (study 2).

Variable	β	p	t	CI (95%)	Tolerance	VIF
Self-perceived mate value	.118	.100	1.65	-.40 4.59	.998	1.002
Intrasexual competitiveness	.152	.034	2.14	.15 3.69	.998	1.002