Crimson Conundrum: Does Red Lipstick Truly Captivate Male University Students?

Apriliya Wahyu Putri, Priskila Andia Kristianti, Zalfa Awwala Qurrota A'yun, Lintang Ayunda Kinasih Dewanti, Laila Indra Lestari

Bachelor of Psychology, Department of Psychology, Universitas Negeri Malang

Abstract

Attractiveness is a highly valued attribute in a partner, particularly in short-term relationships. This research examined whether there was a significant difference among experimental subjects in their ratings of females wearing red lipstick as attractive. This was explored through the lens of the Madonna–whore complex, assessed based on lipstick color, with pink speculated to represent the Madonna and red representing the whore, based on Freudian concepts. This research employed a quasi-experimental design for hypothesis testing. The subjects consisted of 61 male university students. The subjects were presented with visual stimuli featuring two AI-generated female photographs, differentiated by two lipstick colors: red or pink. The instrument was validated using relevant theories and an answer distribution test. The hypothesis testing, conducted using a Wilcoxon signed-rank test, revealed a significant difference among experimental subjects in rating females wearing red lipstick as attractive ($Mdn = 4$, $IQR = 3$, $p = .001$, $r = .22$). This significant finding contributes importantly by highlighting the relevance of the Madonna–whore complex framework within the Indonesian cultural context, opening opportunities for exploring new variables and emphasizing the importance of considering cultural and gender norms in the perception of attractiveness.

Abstrak

Daya tarik atau keatraktifan adalah atribut yang sangat dihargai pada pasangan, terutama dalam hubungan jangka pendek. Penelitian ini menguji apakah ada perbedaan signifikan di antara subjek eksperimen dalam penilaian mereka terhadap wanita yang memakai lipstik merah sebagai menarik. Hal ini dieksplorasi melalui lensa *Madonna-whore complex*, yang dinilai berdasarkan warna lipstik, dengan merah muda berspekulasi untuk mewakili Madonna dan merah mewakili *whore*, berdasarkan konsep Freudian. Penelitian ini menggunakan desain *quasi-experimental* untuk pengujian hipotesis. Subjek terdiri dari 61 mahasiswa pria. Subjek disajikan dengan rangsangan visual yang menampilkan dua foto wanita yang dihasilkan AI, dibedakan oleh dua warna lipstik: merah atau merah muda. Instrumen divalidasi menggunakan teori yang relevan dan *answer distribution test*. Pengujian hipotesis yang dilakukan menggunakan Wilcoxon *signed-rank test* mengungkapkan perbedaan yang signifikan di antara subjek eksperimen dalam menilai wanita yang memakai lipstik merah sebagai menarik ($Mdn = 4$, $IQR = 3$, $p = .001$, $r = .22$). Temuan penting ini memberikan kontribusi penting dengan menyoroti relevansi kerangka *Madonna-whore complex* dalam konteks budaya Indonesia, membuka peluang untuk mengeksplorasi variabel baru dan menekankan pentingnya mempertimbangkan norma budaya dan gender dalam persepsi daya tarik.

Correspondence concerning this article should be addressed to Apriliya Wahyu

Putri, Building B4, Semarang Street No. 5,
Malang, East Java 65145, Indonesia.
Email:
apriliya.wahyu.2108116@students.um.ac.id

INTRODUCTION

The Madonna–whore complex is a dichotomy in which male perceptions of female sexuality are polarized into two opposing categories: "virtue" and "extreme vice." This dichotomy is related to the Madonna–whore complex idea of Sigmund Freud. Freud conceptualized this phenomenon as a psychological condition where males compartmentalize females into "Madonna," representing purity and nurturing qualities, and "whore," associated with promiscuity and moral transgression (Hartmann, as cited in Cooper, 2019). This dichotomy reflects deep-seated patriarchal attitudes and supports various sexist ideologies (Kahalon et al., 2019; Testoni et al., 2020). This dynamic is particularly relevant in conservative societies where traditional gender roles are strictly upheld (Golec de Zavala et al., 2021; Ronen, 2021), such as Indonesia (Afrianty, 2020; Cameron et al., 2023). Females perceived as embodying the "Madonna" archetype are often deemed deserving of respect and affection. In contrast, those categorized as "whore" (who engage in sexual behavior that is deemed inappropriate or immoral by societal standards) are subjected to stigmatization and sexist behaviors (Sibley, as cited in Cooper, 2019). This dichotomy has significant implications for "how females are perceived and treated" in Indonesia.

This complex can manifest in visual perceptions, where female are judged based on their appearance, mainly through the lens of cosmetics like lipstick. The color of lipstick can significantly influence perceptions of femininity and attractiveness (Tanaka, 2016; Tian et al., 2023). Physical attractiveness represents a multidimensional construct encompassing not only physical aspects like facial symmetry, morphological proportionality, and phenotypic features linked to reproductive viability and health but also involves dynamic interactions between cultural constructs, social perceptions, and psychological mechanisms; this convergence of cultural and social psychological perspectives reveals how cultural norms shape attractiveness constructs and interpersonal dynamics (Deaux & Verkuyten, 2014), while evolutionary selection mechanisms and cultural contexts modulate aesthetic perceptions of attractiveness (Goode, 2023).

The dichotomy can lead to societal pressures on females to conform to specific beauty ideals and behavior, affecting their self-esteem and social interactions Klein et al. (2024). Research by Kahalon et al. (2019) suggests that awareness of these dichotomies can help in developing interventions aimed at changing perceptions about female sexuality and promoting healthier relationships. In this research, Freud's Madonna–whore complex merits renewed examination within societies with strong patriarchal and Eastern values, particularly in how it perpetuates dichotomous perceptions of female sexuality. This construct becomes especially relevant when analyzing visual perception elements, such as lipstick color, which serve as crucial indicators for understanding broader gender dynamics and societal attitudes toward femininity and sexuality.

Birkás et al. (2018) found that attractiveness, as a construct, is associated with short-term relationship preferences. The publications of Lehmiller (2022) and Jauk et al. (2016) support previous assertions that males who are towards sexual attractiveness and short-term interactions, which do not require emotional closeness (Jonason et al., 2015; Koladich & Atkinson, 2016; Lyons et al., 2015; Marcinkowska et al., 2015), tend to be more attracted to partners with physically attractive and visually striking characteristics. This corresponds to more impulsive and sexually oriented behavior. Nev-

ertheless, the relevance of these characteristics in the Indonesian context indeed requires further substantiation.

The implications of these personality traits extend to perceptions of attractiveness, particularly regarding lipstick color. This research builds on these findings, exploring how Indonesian male university students, as a sample representing both traditional cultural values and varying psychological profiles, perceive female attractiveness in relation to visual cues such as lipstick color. The focus on male university students is justified by this stratification, which provides a basis for examining the influence of psychological traits on attractiveness perception within a controlled demographic. The sample was selected to align with the research purpose, which is to test previous studies on males who tend to be attracted to individuals with physically attractive and visually striking characteristics.

In terms of physical and sexual attractiveness, studies have shown that certain colors can evoke emotional responses and influence perceptions of attractiveness (Killian et al., 2018). The article "Assessment of Color Preference, Purchase Intention, and Sexual Attractiveness of Lipstick Colors Under Multiple Lighting Conditions" by Tian et al. (2023) shows that red has a significant effect in enhancing sexual attractiveness compared to other colors, such as orange-red or cameo red. The increased contrast between lips and skin that true red provides reinforces the impression of femininity, health, and attractiveness that is evolutionarily associated with fertility and higher estrogen levels. The research also found that males consistently rated red lipstick as the most sexually attractive. However, both men and women agreed that red has strong associations with sexual attractiveness. The research highlights the role of red as an effective symbol of sexual attractiveness in both social and evolutionary contexts. Research by Williams et al. (2017) also confirmed that the color red significantly increased ratings of perceived visual and sexual attractiveness and was most strongly observed when men rated women. Furthermore, the influence of color in cosmetics, particularly lipstick, on social perceptions can be profound. A work by Tanaka (2021) indicates that lip color can affect how individuals process facial attractiveness, suggesting that females' choices in cosmetics are not merely aesthetic but also carry significant social implications (Mileva et al., 2016; Tanaka, 2021).

Previous experimental research conducted in bars showed that the color red strongly influences male perception and can significantly increase female attractiveness (Guéguen, 2012). Karja (2021) highlights the psychological influence of color on human perception and behavior. Color and psychology are closely related to stored memory. Colors stored in memory have their impressions, which can take the form of atmosphere, objects, nature, animals, and other things. Karja also emphasizes that color is not just a therapeutic visual perception but can affect the way we think, feel, and behave. For example, the color red can have a physical effect on someone, increasing their heart rate and pulse, which gives the impression that time passes more quickly. The red color can also activate the fight-or-flight instinct. How colors can affect someone psychologically can be seen from their intensity. According to Karja, the color may appear saturated if it is too deep, while it may be tranquil if the intensity is reduced. A vigorous tone of deep red has the capacity to evoke an invigorating reaction. In contrast, a subtle tint of pink might instigate feelings of tranquility and reassurance.

Moreover, the perceptions of attractiveness are further supported by findings from Jonason et al. (2009), who noted that individuals with higher levels of narcissism are more likely to engage in short-term mating strategies, which can influence their preferences for female attractiveness. This aligns with the notion that male students in competitive fields are associated with desires for power and status and may be more inclined to view females through a lens that emphasizes sexual allure. It can influence how male students perceive and interact with females (Vedel & Thomsen, 2017). This dynamic reinforces the idea that students may be more susceptible to societal pressures that dictate

standards of beauty and femininity—leading to a preference for female assertive and attention-grabbing expressions.

This research is constrained by its reliance on assessments solely based on physical appearance. This research aims to evaluate the perception of female attractiveness through the application of red lipstick, using the Madonna–whore complex theoretical framework. In this research, the color red lipstick can serve as a visual symbol representing the "whore" category in the Madonna–whore dichotomy, symbolizing sensuality, sexual appeal, and a sense of boldness. The research hypothesis states that females who use red lipstick will be judged as more attractive than females who use pink lipstick, reflecting the role of the color red in reinforcing stereotypes of sexual attractiveness. This research is inspired by Freud's idea and research by Guéguen (2012) but adapted to the Indonesian cultural context, where the use of red lipstick as a marker of attractiveness has not been widely explored in local culture. This research focus is expected to contribute to understanding the perception of visual attractiveness in a society with strong gender norms.

The problem of this research lies in the lack of empirical data regarding the relationship between lipstick color and the perceived attractiveness of Indonesian men. This question was addressed through experimental research that was designed with two stimuli: red and pink lipstick. These variables aimed to evaluate the differences in men's perceived attractiveness towards each color category. The research hypotheses were formulated more purposefully: (1) the null hypothesis (H_0) states that there is no substantial difference in perceived attractiveness between red lipstick and pink lipstick; (2) the alternative hypothesis (H_a) states that there is a significant difference with female using red lipstick being perceived as more attractive. The findings are expected to contribute to the development of visual attractiveness theory in the Indonesian cultural context as well as reinforce the importance of experimental approaches in exploring social dynamics.

METHODS

Research Design and Subjects

The research design used was quasi-experimental (Creswell, 2014). The subjects were undergraduate students in all public universities in Malang City with the following characteristics: (1) active students; (2) male; (3) aged 18–28 years; (4) have a sexual orientation as heterosexual—lover of women. Subjects were taken using a purposive sampling technique. The subjects involved in this research were 61 male students.

Measurement Tools and Validity-Reliability Check

The measuring instrument used to measure attractiveness is a scale created based on a replicated journal consisting of two female AI-generated photo objects, each divided into different lip colors: red and pink. The following stimulus pictures were given to the participants.

A single-item measure method was used for concrete and simple constructs with predictive qualities equivalent to multiple-item measures (Bergkvist & Rossiter, 2007; Nagy, 2002). In the context of this research, the use of single-item measures is relevant because the research indicates that for constructs that are "doubly concrete," i.e., those with clear objects and concrete attributes, short measures are sufficient to produce valid data (Bergkvist & Rossiter, 2007).

In this research, theoretical validity was employed, referring to the literature that supports the relationship between the color red and male attraction to females (Guéguen, 2012). In addition, the answer distribution test, considered an alternative reliability test (Allen et al., 2022; Saris & Gallhofer, 2014), is conducted by evaluating the distribution of answers to ensure that the responses exhibit sufficient variation and do not exhibit extreme bias. This approach is often used to determine whether

an item can accurately capture a variation in response, which can indirectly help assess whether the item is reliable for measuring the preference in question.

Figure 1.
AI Photo Stimulus

Figure 2.
Experiment Sheet

Treatment Procedure

Each subject will be given two photos: (1) a woman wearing red lipstick (representation of whore); (2) a woman wearing pink lipstick (representation of Madonna). Then, subjects will be given a photo scale related to attractiveness, which is created based on the replicated journal (Guéguen, 2012). After that, subjects must fill out a manipulation check at the end of the photo scale.

Experiment Process

Subjects will enter the room. Before the test, subjects will be outside the room to fill out the attendance form. After the attendance is filled in, subjects are directed to sit randomly. Subjects were provided

with chairs and tables during the experiment. Before experimenting, subjects will be presented with informed consent and given 3–5 minutes to read and sign. After that, the experimental activity will be opened if the subjects are complete. Then, papers were distributed containing: (1) identity; (2) two comparison photos (red color >< pink color) with an instrument created based on journal replication; (3) essential questions about age, race, and sexual orientation; and (4) a manipulation check. Subjects will be asked to fill in their identity and observe the two photos while filling in the given instrument.

The instrument uses a comparison scale: *very strongly choose the right photo*, *choose the right photo*, *choose the neutral* (neither), *choose the left photo*, and *very strongly choose the left photo*. When filling out the instrument, subjects only need to select one of the five scale options by crossing out the choice that best represents their views on their attraction to the woman in the photo. After 15 minutes, subjects were informed that the time was over. Then, all the experimenters and researchers gathered in the classroom and thanked the subjects for their time. When it finished, participants were allowed to leave the experiment room.

Manipulation Check

At the end of the scale, the question, "What are the salient differences between the two pictures?" was required. This question served as a manipulation check, aiming to ensure that subjects actually paid attention to the lipstick color during the experimental process.

Data Analysis

To analyze the preference for red lipstick, a one-sample t-test or Wilcoxon signed-rank test was performed to test whether the average score of the respondents was significantly higher than the neutral point (3). As part of parametric statistics, the basic assumption should be that the research data is normally distributed. In addition, the descriptive analysis included a frequency distribution and the percentage of respondents who gave a score of 4 or higher to identify more obvious preference trends. To assess the strength of the effect of these differences, Cohen's *d* or the rank-biserial correlation coefficient (*r*) provides an indication of how strongly respondents tend to choose red lipstick.

RESULTS

The descriptive analysis revealed a mean preference score of 3.33 for red lipstick and a median of 4.00, suggesting a positive inclination among respondents toward this color. The observed standard deviation of 1.546 signifies substantial variability in respondent preferences, spanning the entire scale from 1 to 5. A slight negative skewness of -.407 in the data distribution indicates a marginal preponderance of higher scores (4 and 5) relative to lower scores. Furthermore, a kurtosis value of -1.367 demonstrates a platykurtic distribution, implying a broader, less concentrated dispersion of responses compared to a normal distribution.

Table 1.
Descriptive Statistical Values

	Mean	Median	Std. Deviation	Skewness	Kurtosis
Red & Pink Lipstick Value	3.33	4.00	1.546	-.407	-1.367

This research conducted assumption tests, namely normality tests with the Kolmogorov–Smirnov test and the Shapiro–Wilk test. The significance value obtained was .000 ($p < .05$), indicating that the research data were not normally distributed. Because the research data were not normally distributed, the one-sample t-test was not used. Instead, the Wilcoxon signed-rank test was used for the analysis.

Table 2.
Assumption (Normality) Test Results

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*Sig.*	Statistic	*df*	*Sig.*
Red & Pink Lipstick Value	.225	61	.000	.834	61	.000

Due to the data distribution not meeting the assumptions of normality, non-parametric analysis was selected. To further substantiate the analysis, the effect size calculation was used according to the recommendations of Tomczak and Tomczak (2014) using the following formula.

$$r = \frac{4 \left| T - \left(\frac{R_1 + R_2}{2} \right) \right|}{n(n + 1)}$$

The one-sample Wilcoxon signed-rank test analysis is part of a non-parametric statistical test used when the data is not normally distributed. The Wilcoxon signed-rank test showed a significant difference in the preference for attractive lip colors among male university students. The results of the Wilcoxon signed-rank test showed that the preference for red lipstick was significantly higher than the neutral point (*Mdn* = 4, *IQR* = 3), *p* = .001. The size effect was calculated using the rank biserial correlation coefficient, which indicates the strength of the small-medium effect (*r* = .22) (Cohen, 2013; Funder & Ozer, 2019; Gignac & Szodorai, 2016). A total of 55.74% of respondents gave a score above the neutral point (4–5), 11.48% were neutral (3), and 34.47% chose a score below neutral (1–2). Although conventional reliability was not calculated for the single-item measure in this research, the distribution of answers and medium-sized effects (*r* = .22) supported the consistency of red lipstick preference tendencies in this sample.

Table 3.
Response Percentage of Respondents

Category	Frequency	Percentage
Pink Preference (1–2)	21	34.47%
Neutral (3)	7	11.48%
Red Preference (4–5)	34	55.74%

Table 4.
Hypothesis Test Summary

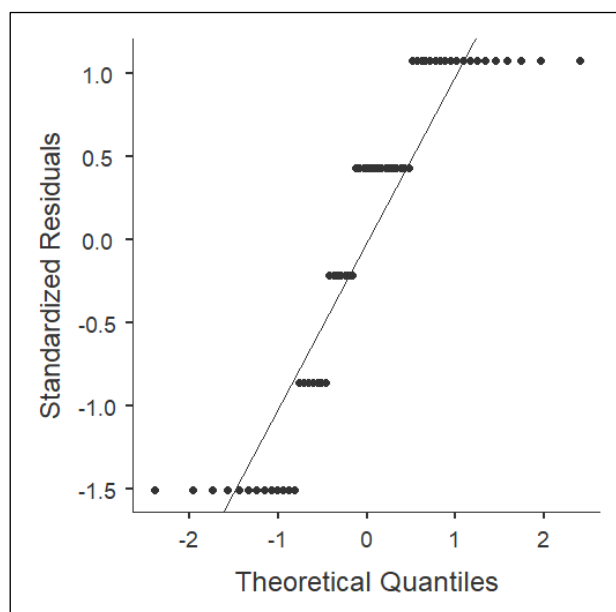| Null Hypothesis	Test	*Sig.*	Decision
The median of red and pink lipstick equals 4.	Wilcoxon signed-rank test	.001	Reject the null hypothesis

Figure 3.
Q-Q Plot

As a manipulation check, each subject was required to answer a question at the end of the experiment. The question was, "What are the salient differences in the two pictures?" In this experiment, the subjects who were given the question were aligned with the topic of the experiment, specifically those who directly addressed the difference between lip color or lipstick. Reviewing the results of data collection in this research revealed that 44 (72.13%) students saw prominent differences in lips and lipstick from the presentation of images. In addition to the primary findings, the following observations were noted.

Table 5.
Response Percentage of Respondents in Manipulation Check

Category	Frequency	Percentage
Unspecified color variations	1	1.64%
Makeup differences	5	8.20%
Visual aspect changes	1	1.64%
Natural beauty alterations	1	1.64%
No differences in lipstick color	2	3.28%
Irrelevant responses	7	11.48%

DISCUSSION

Based on the results presented, the findings in this research align with those of previous research, specifically "Does Red Lipstick Really Attract Men? An Evaluation in a Bar" by Guéguen (2012). In this research, the alternative hypothesis was accepted, namely that females using red lipstick were perceived as more attractive. The results showed a significant difference regarding the preference of lip color (lipstick), which was considered more attractive by male university students. More specifically, this research shows that students of university have an attraction to female with red lipstick, which exemplifies one of the characteristics associated with Whore.

This research confirms a study by Elliot and Niesta (2008) regarding the effect of red on attractiveness in the context of laboratory experiments, showing that men who see women with red attributes report higher levels of sexual attraction. The difference in how men responded to women wearing red compared to a neutral color was statistically significant, demonstrating a strong effect. The analysis

revealed a notably large effect size, suggesting that color had a considerable influence on perception. However, the biserial correlation coefficient indicated that while the effect was present, its strength was on the borderline between small and medium when measured in terms of rank correlation (Cohen, 2013; Funder & Ozer, 2019; Gignac & Szodorai, 2016). Although the effect is relatively small to moderate, it remains relevant in the context of social or behavioral research. This is supported by a very low p-value, indicating a statistically significant result and suggesting that the observed effect is unlikely to be due to chance.

The marginal effect in this research ($r = .22$) may be due to methodological differences. On the other hand, findings from Guéguen (2012) proved the tendency of men in bars to be attracted to and choose women with red lipstick, which represents whore characteristics. This discrepancy may have occurred due to differences in location and culture at the research site, where this research focused on the campus environment in contrast to the previous research that took place in a bar.

The results of this research support the initial hypothesis regarding the relationship between attractiveness and the use of red lipstick in females. This research can be further enriched with the various perspectives, although physical attractiveness plays a significant role in short-term relationships (Birkás et al., 2018). Other factors, such as proximity, similarity, emotional intimacy (self-disclosure), and social dynamics, can also influence mate preferences (Goode, 2023). Goode (2023) further posits that in a collectivistic culture, mate preferences may prioritize group compatibility and social harmony over individualism, with a focus on familiarity and comfort being paramount in relationship formation. Consequently, attractiveness is not merely a biological phenomenon but a complex and dynamic social construct that evolves in response to cultural contexts and social interactions. Individuals who are highly attracted to physically attractive and visually striking characteristics may prioritize sexual attractiveness over long-term qualities in partners (Jonason et al., 2015; Koladich & Atkinson, 2016; Lyons et al., 2015; Marcinkowska et al., 2015), but these findings suggest that their aesthetic preferences might be more nuanced and not solely linked to short-term orientations. A more comprehensive understanding would require a nuanced approach that considers the diverse cultural norms and values within the multicultural context of Indonesia.

This research holds significant implications, both theoretically and practically. Theoretically, this research expands our understanding of the Madonna-whore complex within the local Indonesian cultural context by examining the relationship between perceptions of attractiveness and the color of lipstick. Practically, the research findings can inform more profound social psychological studies or be applied in developing marketing strategies for beauty products. Regarding beauty products, de Nadai (2015) discusses the "lipstick effect," which explains the increased purchase of cosmetics, including red lipstick, during economic downturns. This effect is linked to efforts to boost self-esteem and achieve personal happiness.

This research has its limitations, specifically in presenting objects in the form of photos of AI-generated females. This can cause attention bias in subjects during the data collection process. After the manipulation check process, several subjects did not pay attention to the main focus of the research, which prioritized the difference in lipstick color on the lips. Therefore, for future research, it is advisable to employ a true experiment scheme, allowing the data obtained to describe the measured constructs more accurately. The use of true experiments can be applied by involving humans (not AI), with consideration given to the risks associated with using them as experimental stimuli, thereby ensuring the research results are more valid. Suppose future studies intend to utilize AI-based visualization. In that case, it is proposed that they adopt the methodological rigor outlined by Killian et

al. (2018), including the use of original color imagery to enhance understanding of the role of cosmetics, such as red lipstick, in influencing perceptions of attractiveness.

However, this research focuses solely on physical appearance without considering other factors such as personality or social context. Further validation with a more diverse population is necessary to strengthen the generalizability of the findings and to investigate situational and cultural factors that may contribute to this relationship.

The significant results in this research have important contributions to the literature. Theoretically, the findings suggest that the Madonna-whore complex framework is entirely relevant in the Indonesian cultural context, providing opportunities to consider other mediating and/or moderating variables that influence perceptions of attractiveness. In terms of methodology, this research offers an experimental framework that can be refined to examine non-physical or cross-cultural factors influencing visual appeal. In addition, these results highlight the role of cultural context and gender norms in shaping perceptions, which differ from the red color association with sexual attractiveness commonly found in Western cultures.

CONCLUSION

The results of the statistical analysis obtained from this research significantly support the alternative hypothesis, indicating a significant difference in the assessment of visual attractiveness towards females who use red lipstick ($Mdn = 4$, $IQR = 3$, $p = 0.001$, $r = 0.22$) compared to those who use pink lipstick. Supported the consistency of red lipstick preference tendencies among male university students in this sample. These findings have interesting methodological implications and challenge common assumptions regarding the influence of color on perceptions of beauty or visual appeal, opening up opportunities for further research with more complex experimental designs.

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