Effects of Money on Attractiveness
(Hot or not?)
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Introduction

Money, arguably the most sought-after thing that humans desire. 79% of Americans believe that money is the root of all happiness (Becker, 2022). This highly debated topic is the result of many relationships, but it is also the "kryptonite" in many relationships (Becker, 2022). Resources and status influence a feeling of safety and better survival and generally involve high levels of respect and admiration for others (Rahal et. al, 2021). Because of this, many people tend to be more attracted to this sense of security and safety in others, demonstrated through wealth. As aforementioned, higher income is associated with less daily sadness (Phycologia, nd). Happiness often has a direct positive relationship to income due to the feelings of control and safety associated with wealth. In the long run, this leads toward a healthier and happier lifestyle, meaning higher income is associated with an increased chance of finding a romantic partner (Phycologia, nd). Although feelings of attraction vary between different people and age groups, resources such as intelligence, income, and education play a key role in determining which partner would be best for them, no matter the age (Lu, 2021). The feeling of being taken care of is also a highly valuable amenity from an evolutionary perspective, but it is currently being debated whether humans value financial net worth or physical attraction more when choosing a partner. Almost 100% of people reported they would want to get married to their current partner, and about 58% stated that the only reason they would not was because of financial status (Pew Research Center, 2019). Despite the common belief that many only get married due to physical attraction, almost 5-in-10 people say that their partner is not financially ready for becoming engaged or married, demonstrating the economic incentive of marriage. **The purpose of this experiment was to utilize psychology and human behaviour to determine if money can make someone more attractive.** *If some high schoolers, middle schoolers, and adults are prompted to numerically rate individuals after being shown pictures and shown their salaries, then the people with higher salaries will be rated higher because resources and status influence a feeling of safety and better survival and are more desirable than physical traits (Rahal et. al, 2021).*

Methodology:

First, a Google Forms survey was created, containing pictures of 10 different individuals, 5 male and 5 female, with set annual salaries grouped as High, Medium, and Low (**Independent Variable**). The low salary group included those with salaries ranging from $0-$100,000. The medium-salaried group included those with salaries ranging from $101,000-$250,000. The high-salaried group included those with salaries over $251,000. These numbers were chosen randomly. The survey also included a place to rank the individuals based on attraction on a scale of 1-5 (**Dependent Variable**). These individuals were all adults. The groups of people tested contained 10 middle schoolers, 10 high schoolers, and 10 adults/college students of random socioeconomic status(**Test Subject**), meaning each group will contain 30 people (**Sample Size**). Then, the first group of people was given the survey without salaries, while group 2 was given the survey that showed the yearly incomes of each person. To strive for consistency, the people pictured, the salaries pictured, and the forms for each group were kept the same **(Constants)**. This form will be given out over a month

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(Frequency), then it will be locked and discarded. The standard of comparison used will be the attraction scores without any salary, because it is the initial thought before any factors are able to alter the scores **(Control)**. This experiment will be replicated twice, therefore having two biological replicates (**# of replicates**). Finally, the averages of each group will be calculated. To calculate variation in the experiment, standard deviation and standard error **(Statistical Analysis)** will be applied to evaluate statistical differences in the data. One material used for this experiment was a laptop, in order to create the forms in which people will fill out. Google Forms, a well-known website which helps create quick and accurate surveys, was also used. Lastly, emails were used in order to send out the form so that it is applicable to all who click the link and answer the survey.

Materials:
The only material that was used to run the experiment was a Google Form. Both trials used the same 4 Google Forms, which were all slightly different. *Image 1* and *Image 2* included the same people, and *Image 3* and *Image 4* included the same people. *Image 1* and *Image 3* included salaries above the picture in the description of each image, while *Image 2* and *Image 4* did not include salaries.

Image 1: Form 1 WITH Salary

This is Marcus. He is a chief executive with a yearly income of $213,020. With the given information, rate him on his attractiveness 1-5.

	1	2	3	4	5
	○	○	○	○	○

Image 2: Form 1 WITHOUT Salary

This is Marcus. With the given information, rate him on his attractiveness 1-5.

	1	2	3	4	5
	○	○	○	○	○

Image 3: Form 2 WITH Salary

This is Edward. He is a massage therapist. His yearly salary is $58,000. Rate him based on attractiveness. (1-5)

	1	2	3	4	5
	○	○	○	○	○

Image 4: Form 2 WITHOUT Salary

This is Edward. Rate him based on attractiveness (1-5).

	1	2	3	4	5
	○	○	○	○	○

Results:

The data shown in the figures below shows attraction scores given to high, medium, and low-salaried earners in images. It is important to note that for one set of respondents, salaries were shown, while the other set of respondents had no salaries pictured. This experiment was repeated a total of two times, so the data below show averages, standard deviation, and standard error values for these replicates.

Table 1: Attraction scores of high, medium, and low-salaried earners, with and without salaries included

	High Salary	Medium Salary	Low Salary
Without Salary	2.7	2.5	3.3
SD	0.07	0.07	0.2
SE	0.05	0.05	0.15

With Salary	3.6	3.2	2.2
SD	0.07	0.14	0.14
SE	0.05	0.1	0.1

Annotation:

The table shows that the highest scores were given to the people in the "High (includes salary)" group, and the lowest given to the "Low (includes salary)" group. Since the SD for each group was minimal, there was a lower spread in the data, with the largest spread in the "Low (includes salary)" group. None of the scores were higher than 3.6 or lower than 2.2. Overall, the "High Salary" and the "Medium Salary" groups both saw an increase (from 2.7±0.05 to 3.6±0.065 for "High Salary" and from 2.5±0.05 to 3.2±0.1 for "Medium Salary") from when salaries weren't present to when they were present. However, the "Low Salary" group saw a decrease from when salaries weren't pictured to when they were pictured (from 3.3 to 2.2).

Figure 1: Attraction scores of high, medium, and low-salaried earners, with and without salaries included from humans

Attraction scores of high salaried earners, medium salaried earners, and low salaried learners, with and without their salaries included from humans
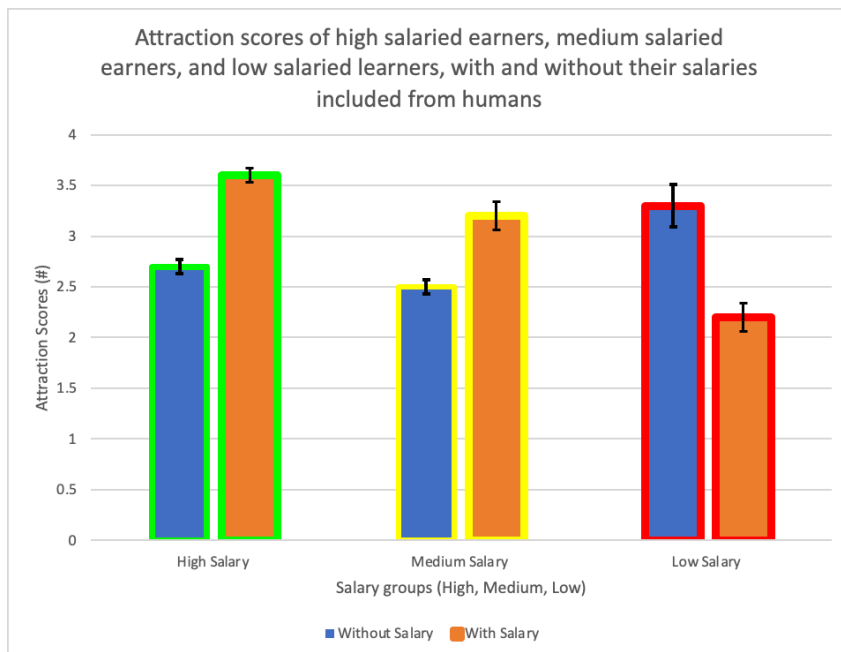
Annotation:

In each group, the attraction scores with salaries pictured are statistically different from the attraction scores without salaries included. This is due to there being no overlap in the error bars in each group. The highest score comes from the high-salaried group with salaries pictured, and a close second group is the low-salaried group without salaries pictured. Also, the low-salaried group has the largest difference between the attraction scores with and without

salaries picture with 3.3 and 2.2, respectively. High and medium groups that included salaries were both statistically different because there was no overlap in their error bars, as well as in both groups without salaries. These scores are more similar in comparison to the low group. The highest score from all groups without salary pictured came from the low group with a score of 3.3, statistically higher than all the other groups without salary pictured.

Summary of Data:

The data suggest that the high-salaried group, when salaries were pictured were scored the highest. It also suggests that the low-salaried group produced the highest scores when salary was not included.

Discussion:

Before the experiment, the original hypothesis was: "*If some high schoolers, middle schoolers, and adults are shown pictures of people and then some are shown their salaries and are asked to rate them, then the people with higher salaries will be rated higher because resources and status influence a feeling of safety and better survival* (Rahal et. al, 2021)". This is shown by the trends in the data shown in Graph 1: *Attraction scores of high, medium, and low-salaried earners, with and without salaries included from humans*. The graph supported that humans typically are attracted to people who make a lot of money. On the graph, the "High" (salaried) group, when salaries were pictured, produced the highest average score of 3.6. This specific category was statistically different from every group. In contrast, the lowest rated group was the "low" (salaried) group, which included salaries. This group, on average, was rated 2.2 on the attraction scale. This was likely because when given the choice between more money or less money, it was supported in the data that humans would rather with more money, regardless of their looks.

Money causes a positive effect on the brain (Leung, 2022). In order to survive, humans need resources in order to help them not only live a healthy life, but also a happy life. The main goal for parenting and reproduction is for the offspring to be healthy; therefore, their offspring are also able to grow and reproduce (Leung, 2022). The human brain connects not only the feeling of safety with money, but also the feeling of reassurance, as it is seen that there will be no lack of resources for the person, as well as their possible offspring (Leung, 2022). Because of this feeling of safety and reassurance with money, the brain will develop an attachment to it and the idea of it. For that reason, the more money a person has, the easier it will be to access these resources or other necessities for a happy and healthy survival (Leung, 2022). Looking deeper into this idea, it is clear to see that salary has a large impact on the quality of life and happiness people have. A study run in 2014 by Thomas Gilovich showed that spending money on experiences is the best way to spend money to bring happiness (Leung, 2022). This is supported by the data produced because the highest-salaried group averaged a score of 3.6, which was produced due to the feelings of safety and happiness that money provides. In comparison, the group with the medium salaries had scores that averaged about 3.2, which is

still fairly close to 3.6, but when presented with salaries even higher, it made sense that the medium-salaried group was rated slightly lower.

In addition to happiness, the human brain craves safety (Gordon, 2018). It is one of the brain's main organizational materials, and most other tasks revolve around the brain's consistent need for safety (Gordon, 2018). When the brain senses an unsafe situation, the brain comes into play, trying its best to regulate the situation and make it more "safe" (Gordon, 2018). These internal safety surges vary in size, but the brain does what it can to create a safe environment or to ensure safety in any given situation if it can (Gordon, 2018). This is because again, the brain is hardwired to value and prioritize safety to maximize human survival, a trait selected for throughout generations (Gordon, 2018). Money is associated with safety, as a lot of money is known to be able to provide good resources keen to survival (Rahal et. al, 2021). Therefore, the brain will prioritize the most money, as it can promise safety. Money also encourages a happy feeling (Leung, 2022). When the brain experiences pleasure, dopamine, a neurotransmitter that is released when the body experiences pleasure, is released (Wu, 2017). This is all a part of the brain's reward system (Watson, 2021). High levels of dopamine and norepinephrine, and a related hormone, are released during attraction (Wu, 2017). These chemicals often can create an energetic, euphoric sensation that can take over the brain and greatly affect decision-making (Wu, 2017). Brain scans of people in love have concluded that the main "reward" centers of the brain, including the ventral tegmental area and the caudate nucleus release large amounts of these chemicals when people are shown a photo of someone they are very much so attracted to, compared to when they are shown someone they feel neutral towards (Wu, 2017). Dopamine releases are often in the presence of money due to its amazing opportunities and benefits.

Money makes both men and women more attractive (Rodrigeuz, 2021). Psychologists believe that this is completely normal, and evolutionary scientists also support that a human is more likely to pick a partner who has access to resources (Mehta, 2012). This ensures a life of stability for not only them but generations to come after them. In a study, it was found that 10x in income was enough for a man to move up two points on the scale of attractiveness; women needed a 10,000x to achieve the same increase in attractiveness (W, 2022). Even though the experiment was not gender specific, trends supported that people were more likely to rate the people on the survey who had higher salaries, much higher than people with lower salaries. A relevant experiment was conducted where men waited in a parking lot off o popular street next to cars (W, 2022). One of them was near a nice Audi that retailed for over $70,000, one near a year-old Renault Mégane that retailed for over $29,000, and one near a 15-year-old Renault 5 Super Campus that cost roughly $970. Six men participated in this experiment, and the results are astounding (W, 2022). When asked to decide between the men, roughly 23% of the women voted for the man with the luxury Audi, 13% voted for the man with the one-year-old car, and only 9% voted for the man with the 15-year-old car (W, 2022). This means that regardless of the man's physical attractiveness, the money that he possesses does matter (W, 2022). If the money had not had an effect on the women's decision, the outcome of this experiment would have been a lot different. "Gold Digging'' is also a term thrown around when it comes to judging a man because of his money. However, what women do today in some cases may be referred to as gold digging, but it is also human nature to pick someone wealthier. When evaluating a possible mate's attractiveness, one may think more "in the moment," meaning that they may prioritize looks over income when deciding (Bell, 2019). In contrast, when one thinks of long-term memory, they are evaluating the type of environment and lifestyle this person can provide (Bell, 2019). Long-term thinkers are usually more concerned with income because, as

stated previously, previously can promise stability and resources (Leung, 2022). However, both come into play. One may make a quick decision, but a lot lies beneath the surface. For example, women, again, often have more of a "pull" from men with more money (Mehta, 2012). In the long-term reference, this could be because women only produce a few offspring, and value them to be cared for and protected, as stated earlier (Mehta, 2012). Men are not as adamant about this, as their circumstances are different. If a woman isn't thinking about her offspring, she often is thinking about herself (Mehta, 2012). She, like anyone, wants to be well provided for; however, the circumstances vary, as a lot of women are very successful on their own and don't value or require a man's money (Mehta, 2012). All in all, money is a very important and highly valuable commodity that a lot of people seek.

Money's constant relevance in society today allows for it to have a huge impact on romantic relationships, both short and long term (Chan, Li, J, Li, M, Zhang, 2016). When observing the effects of age on attractiveness, the data suggest that the age of the participants was not a factor when choosing the most attractive individual. Meaning originally, there was a thought that age would play a significant role in the numerical value assigned to each photo, but after collecting the data, there was no visible effect. Prior research revealed that the maturity level in younger humans was at a lower level than older humans (Meikne, 2019). Therefore, this was thought to translate into the experiment, which was false. It was assumed that middle school and high school groups would only care about one thing or the other, money or attractiveness, but this was entirely false. Every group responded similarly to each other. Age, however, does greatly affect decision-making in general (Meikne, 2019). One's brain nears the end of its emotional maturity in their late 20s, but it is also influenced by the life they are living (Johnson, 2022). For example, someone who's through college and living life on their own, making their income, is going to think a lot differently than someone living in their parents' basement, meaning that not all brains finish developing in your late 30s. This is relevant because a lot of the adults who took the surveys did choose responsible answers, weighing in both money and attraction, and what would create the best lifestyle for them. However, in the experiment run, high schoolers and middle schoolers who took the survey had very similar scores to the adults' scores. Although the transition from youth to older age includes a shift in close social relations, this does not suggest that attractiveness relates to age (Ben-Zeev, 2019).

Attraction is completely subjective, meaning that everyone finds different traits and qualities attractive (Rodriguez, 2021). Typically, Someone's physicality plays a huge role in relationships, but that isn't always entirely true (Rodriguez, 2021). Aside from obvious physical features, someone's passions, personality, and income are also major "deal makers or breakers" (Rodigeuz, 2021). This is relevant because it provides reasoning on why someone would choose someone who may just be average from a physicality perspective, but makes a lot of money, versus someone who may be very attractive but makes low income. Researchers believe this to be a result of evolution, as attraction standards are ever-changing (Rodrigeuz, 2021). It's important to note that every individual is different, so the scores represented in the data are not universal because there can be great variation between individuals (Rodrigeuz, 2021).

All of these factors may lead to attraction, but how does the brain feel attraction in the first place? Taking a deeper look into the brain and how it processes attraction can lead to a larger explanation of the reasons why money affects the attraction of human beings. Romantic love is considered to be a collection of feelings associated with the acquisition and retention of emotions needed to survive and reproduce (Seshadri, 2016). Because of this, our brain is

hardwired to find people attractive to reproduce, and although people have different "tastes" in other people, the idea surrounding survival and safe reproduction is a part of the human brain. Sexual craving is mediated by testosterone and estrogen and has the amygdala as an important center. Attraction is mediated by hormones of stress and reward, including dopamine, norepinephrine, cortisol and the serotonergic system and has the nucleus accumbens and the ventral tegmental area as key mediators (Seshadri, 2016). Looking deeper into the human brain, dopamine, happiness, and the idea of attraction are all closely linked with the feeling of safety and reassurance within the relationship between reproduction and romantic feelings (Seshadri, 2016).

Therefore, as shown in *Table 1, Attraction scores of high, medium, and low salaried earners, with and without salaries included from humans* and *Figure 1 Attraction scores of high, medium, and low salaried earners, with and without salaries included from humans*, the proposed hypothesis of, *If some high schoolers, middle schoolers, and adults are shown pictures of people and then some are shown their salaries and are asked to rate them, then the people with higher salaries will be rated higher because resources and status influence a feeling of safety and better survival. (Rahal e.t al, 2021),* Was supported. The attraction scores were the highest for the people with high salaries. With this, people cared most about the money over any other factor, such as appearance. Thus, a **claim** is that **money is desired and ensures stability in people, so attraction scores will be higher in those who make more money**.

One common source of error dealt with the people filling out the surveys. There were some people who just put the same score ten times and did not take it seriously, which caused some inconsistencies in our data. This happened with all ages. Being able to give out a survey to many people, especially people who were taking the surveys with their friends and found it funny to rate the "1s as "5s, caused many errors in our data, especially as the people who were doing this were not being honest with their scores. The best way to fix this was to give the survey to many people; in case some would joke around with their answers, this way, there would be many answers to base the data off of. Another source of error was the graphical representation. When it came time to graph the results, it was hard to find a good way to represent the data that was easy to follow. This resulted in multiple failed attempts and a lot of confusion over what people were looking at. After closer analysis, the best way to display the data was in bar graph form, where there were grouped salary categories together instead of using each person and age, and this was found through trial and error.

Another source of error was that the number of variables that were originally included in the experiment made it very complicated, and there should have been just one. The two variables were the age of the participants AND the salaries grouped. The ages ended up not being relevant, so that variable was removed. But in the future, it would be smart to only stick to one variable. Because there were so many variables, the graphs, tables, and data were hard to follow. This resulted in deeper research regarding the effect age could have on attractiveness. It was concluded that age was not relevant to the attraction scores; therefore, it made the graphs and data much easier to follow, as well as easier to understand and less time-consuming.

One future experiment that could be run is maybe this experiment, but only including a single person. This person could have a completely average score, which would allow for an even more accurate way to see how earnings affect attraction. This would be beneficial because not only would it allow for accurate scores, but it would be able for comparison and contrast of opinions on one person, instead of 8. If there is one average score, the experiment would be

much simpler and easier to calculate the average and the differences between attraction scores for each person.

Another future experiment that could be beneficial towards this research would be looking at how race could affect attractiveness. Would one's race influence how people perceive their smarts? Could someone create stereotypes of how much money they make? This could be a very interesting experiment looking at attractiveness, because there are many factors that affect how different people find others attractive. For example, the same study could be given to the same number of people, but maybe this time, instead of their salary, the people are given the person's race or religion and asked to choose their attractiveness. This would be an accurate and interesting experiment considering that, as human beings, human beings naturally evaluate everything we come in contact with. People especially try to gain insight and direction from our evaluations of other people (L. Greene, nd). Looking deeper into this idea of attraction and the different effects that human nature and feelings have on it could be a very interesting future experiment that could show a great impact and explanation towards the idea of attractiveness and one's ability to be attracted to others.

This experiment had not only a big connection to the real world, but also was very interesting to explore and discover about attraction and how it connects to the human brain. This is relevant to everyday life because many people every day are looking for someone with whom they want to start a family or relationship, and it is very interesting to see what certain aspects of the brain or the feeling of safety could have an effect on these decisions for every person. In 2023, society is very reliant on the security of money and how it will affect your everyday life. Because of this, it was important to understand the effects this could have on someone's choice of their attraction towards different individuals. Most people are looking for a romantic relationship or partner, or are just looking to see who is attractive in their eyes. As similarly stated in the introduction, money is not only wanted but needed for survival (Becker, 2022). Money is also proven to improve emotional health and reduce daily sadness (Phycologia, nd). The effect money and income could have on the person looking for a partner could be critical if they are looking for a long-term relationship or for somebody they can trust with their safety. Even if it is a subconscious decision to believe someone is more attractive due to their money, it is still an everyday occurrence in the lives of many people who are looking to start a relationship. In conclusion, this experiment was very relevant to real life because it connects many people and the experiences of much of the human population.

In summary, the data and research suggests that when humans are given a survey and are asked to rate people in pictures with certain given information (salary pictured vs salary not present), than higher scores will be given to those with higher salaries because of the sense of safety and better survival due to the more resources that money can provide (Rahal, 2021). It is also concluded that romantic love is considered to be a collection of feelings associated with the acquisition and retention of emotions needed to survive and reproduce (Seshadri, 2016). Since attraction is fluid, many people will see others as attractive. Also, money makes both men and women more attractive (Rodrigeuz, 2021). It also causes a positive effect on the brain (Leung, 2022). Therefore, **money is desired and ensures safety in the lives of people, so attraction scores will be higher in those who make more money**.

Sources

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