Love and Happiness: Supplementary Materials

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Study 1

Method

Forty participants logged on voluntarily to Amazon Mechanical Turk to complete an online questionnaire. Each participant received $0.25 compensation.

The study used a 2 x 2 between-subject design, in which we independently manipulated *concept* (happiness vs. unhappiness) and *evaluation* (good life vs. bad life). Thus, each participant received one of the following vignettes followed by the accompanying question.

Happiness/Good Life. Maria is the mother of three children who all really love her. In fact, they couldn't imagine having a better mom. Maria usually stays pretty busy taking care of her children. She often finds herself rushing from one birthday party to the next, and is always going to pick up some groceries or buy school supplies. While Maria has been preoccupied with her children, she does get to see her old friends occasionally. Almost every night she ends up working on some project for the next day or planning something for her children's future.

Day to day, Maria usually feels excited and really enjoys whatever she is doing. When she reflects on her life, she also feels great. She can't think of anything else in the world that she would want to spend her time doing and feels like the success she's had is definitely worth whatever sacrifices she has made.

- Do you think Maria is happy?

- Compared to other people, do you think Maria has a good life?

Happiness/Bad Life. Maria wants to live the life of a celebrity in L.A. In fact, she has even started trying to date a few famous people. Maria usually stays pretty busy trying to become popular. She often finds herself rushing from one party to the next, and is always going to pick up some alcohol or a dress. Maria is so preoccupied with becoming popular that she is no longer concerned with being honest or nice to her old friends unless they know someone famous. Almost every night she ends up either drunk or doing some type of drug, just like the famous people she wants to be like.

Day to day, Maria usually feels excited and really enjoys whatever she is doing. When she reflects on her life, she also feels great. She can't think of anything else in the world that she would want to spend her time doing and feels like the success she's had is definitely worth whatever sacrifices she has made. When Maria tells her best friend she feels this way, her friend is just confused and asks 'What are you talking about?'

- Do you think Maria is happy?

- Compared to other people, do you think Maria has a good life?

Unhappiness/Good Life. Maria is the mother of three children who all really love her. In fact, they couldn't imagine having a better mom. Maria usually stays pretty busy taking care of her children. She often finds herself rushing from one birthday party to the next, and is always going to pick up some groceries or buy school supplies. While Maria has been preoccupied with her children, she does get to see her old friends occasionally. Almost every night she ends up working on some project for the next day or planning something for her children's future. .

        But whenever Maria thinks about her life, she feels really terrible. She can't stop thinking that the people she cares most about are always lying to her. She feels even worse when she starts to think that the people she sacrifices so much for probably love drugs more than her.

- Do you think Maria is unhappy?

- Compared to other people, do you think Maria has a good life?

Unhappiness/Bad Life. Maria wants to live the life of a celebrity in L.A. In fact, she has even started trying to date a few famous people. Maria usually stays pretty busy trying to become popular. She often finds herself rushing from one party to the next, and is always going to pick up some alcohol or a dress. Maria is so preoccupied with becoming popular that she is no longer concerned with being honest or nice to her old friends unless they know someone famous. Almost every night she ends up either drunk or doing some type of drug, just like the famous people she wants to be like

        But whenever Maria thinks about her life, she feels really terrible. She can't stop thinking that the people she cares most about are always lying to her. She feels even worse when she starts to think that the people she sacrifices so much for probably love drugs more than her. When Maria tells her best friend she feels this way, her friend is just confused and asks 'What are you talking about?'

- Do you think Maria is unhappy?

- Compared to other people, do you think Maria has a good life?

Both questions were answered on a scale from 1 ('No') to 7 ('Yes'), with the midpoint marked 'In Between.' In addition, all participants received a question about whether Maria was more likely to have voted for Obama or McCain. This last question was included only to disguise the true purpose of the experiment and will not be discussed further.

Results

        The question about whether Maria has a good life was included as a manipulation check. Data from this question were analyzed using a 2 (concept) x 2 (evaluation) ANOVA. The results showed a main effect for evaluation, $F(1, 36) = 12.6$, $p = .001$. There was no significant main effect of concept, $F(1, 36) = 2.17$, $p = .15$, and no significant interaction effect, $F(1, 36) = .6$, $p = .44$. These results simply indicate that participants interpreted the manipulations of evaluation as expected.

        Before analyzing the ratings for happiness and unhappiness, we reverse coded the ratings within the unhappiness condition. After this reverse coding, higher ratings always indicated more

positive feelings (greater happiness or lesser unhappiness), while lower ratings always indicated more negative feelings (lesser happiness or greater unhappiness).

Descriptive statistics for happiness and unhappiness by condition are displayed in Table 1.

	Mean	Standard Deviation
Happiness		
Good Life	6.4	0.70
Bad Life	3.5	2.46
Unhappiness		
Good Life	3.1	2.13
Bad Life	2.9	1.85

Table 1. Attributions of happiness and (reverse coded) unhappiness by condition.

The data were analyzed using a 2 (evaluation) x 2 (concept) ANOVA. There was a main effect of evaluation, $F(1, 36) = 6.6$, $p < .05$, and a main effect of concept, $F(1, 36) = 10.5$, p $< .01$. Most importantly, there was a significant interaction effect, $F(1, 36) = 5.0$, $p < .05$, such that the impact of evaluation on ratings was greater for happiness than for unhappiness.

We then used individual t-tests to compare good life and bad life conditions for each concept. Participants were significantly more inclined to attribute happiness in the good life condition than in the bad life condition, $t(18) = 3.9$, $p < .01$. However, there was no significant difference between good life and bad life in the unhappiness condition, $t(18) = .22$, $p = .83$.

Study 2

Method

Sixty participants logged on voluntarily to Amazon Mechanical Turk to complete an online questionnaire. Each participant received $0.20 compensation.

Participants were randomly assigned either to the 'good guy' condition or the 'bad guy' condition. Participants in the good guy condition received the following vignette:

> Susan is caught between two men who are both interested in dating her. One of them is named Paul and the other is named Heath, but except for their interest in Susan, they have almost nothing in common. Paul is nicer and usually treats Susan gently, while Heath

often makes fun of Susan and occasionally is aggressive. Paul has just started a good job after finishing school, while Heath makes money by working as a bartender and selling drugs on the side. Even their friends are different. Paul's friends ask Susan about the things she is interested in, while Heath's friends just treat Susan like she isn't as cool as they are. In fact, Paul and Heath look very different too. Paul is much more clean and athletic looking than Heath, who is overweight from drinking, is missing a few teeth and has kind of dirty hair.

At first, Susan has feelings for both Paul and Heath. She says it is hard because she feels that both Paul and Heath have a power over how she feels. In the end, though, she is just overpowered by her feelings for Paul.

After they begin dating, Susan does not regret it at all, and day-to-day, she feels happy and enchanted by her new boyfriend. As time goes by, things are not always easy in their relationship. But even when things are hard, Susan realizes that she's never been more attracted to another man. She even tells her new friends she couldn't ever imagine spending her life with anyone else.

Participants in the bad guy condition received a vignette that was exactly the same, except that the last sentence of the second paragraph was replaced with: 'In the end, though, she is just overpowered by her feelings for Heath.'

All participants then received three questions:

Using all the information available to you, please make your best guess about how long this relationship will last.

__Year(s) and __Month(s)

Among all the things Susan feels…

a. Do you think she is experiencing lust?

b. Do you think she is experiencing love?

The question about how long the relationship would last was included only to disguise the true purpose of the experiment, and results for that question will not be discussed further. The questions about lust and love were each answered on a scale from 1 ('no') to 7 ('yes'), with midpoint marked 'in between.'

Results

Descriptive statistics for the love and lust questions in each condition are displayed in Table 2:

	Mean	Standard Deviation
Love		
Good Guy	5.7	1.58
Bad Guy	3.6	1.96
Lust		
Good Guy	3.8	1.92
Bad Guy	4.4	2.13

Table 2. Attributions of love and lust by condition

Participants were more inclined to say that Susan was experiencing love in the good guy condition than they were in the bad guy condition, $t(58) = 4.6$, $p < .001$. However, there was no effect of condition on judgments about whether Susan was experiencing lust, $t(58) = 1.1$, $p > .2$. If anything, there was a slight trend whereby participants were more inclined to attribute lust in the bad guy condition than in the good guy condition.

To examine the differences between the two questions, the data were subjected to a 2 x 2 mixed-model ANOVA, with condition (good guy vs. bad guy) as a between subject variable and question type (love vs. lust) as a within-subject variable. There was a main effect of evaluation, $F(1, 58) = 5.7$, $p = .02$, but no main effect of question type, $F(1, 58) = 2.0$, $p = .16$. Most importantly, there was a highly significant interaction effect such that the difference between the good guy and bad guy conditions was greater for love than for lust, $F(1, 58) = 13.3$, $p = .001$.

Study 3

We began by using Google to identify passages that contained expressions of the form 'He values x,' 'She values x,' 'He thinks x is good' and 'She thinks x is good.' (The distinction between 'he' and 'she' is of no importance to the study and will not be discussed further.) The coding of these passages proceeded in a series of distinct stages.

The first step was to exclude passages in which the writer does happen to use a sequence of words of the form 'she values x' or 'she thinks x is good' but does not actually assert that anyone values something or thinks it is good. Such passages might involve questions ('Are you sure she thinks it is good?'), reports of other people's statements ('He says she thinks it is good.'), or denials ('It's not as though she thinks it is good.'). We also excluded passages that only ascribed a certain degree of valuing ('She values money less than friendship.') and passages

that described people as thinking an object was good only for a particular purpose ('She thinks that he is good at torturing people.').

We started off by selecting the first 50 passages (25 for 'values,' 25 for 'thinks good'). Each of these passages was coded by two of the authors. Interrater agreement on these first 50 passages was 90%, $\kappa = .79$. Disagreements were resolved after discussion, and 42% of passages were excluded at this stage. We regarded the level of interrater reliability as acceptable, and the remainder of the passages were each examined by only one of the authors.

For the second stage of coding, one of the authors selected a total of 162 passages that were deemed to actually be asserting that a person valued something or thought it was good (81 for 'values,' 81 for 'thinks good'). In this second stage, the passages were coded into four categories:

1. Those in which the writer believes that the object is good

2. Those in which the writer does not believe that the object is good

3. Those in which it is not possible to tell whether the writer believes that the object is good

4. Those in which the writer is not asserting that a person values something or thinks it is good (meaning that we determined that one of us had been in error in our first round of coding).

We began this second stage of coding by picking 50 passages to be coded by two of the authors. On these 50 passages, interrater agreement was 82%, $\kappa = .73$. We decided that this level of reliability was acceptable, and the remaining 112 passages were coded by only one of the authors.

In all, 8.0% of passages were coded as not asserting that a person values something or thinks it is good (9.8% of 'valuing' passages, 6.2% of 'thinks good' passages), and 27.2% were coded as passages in which it was not possible to tell whether the writer believed that the object was good (25.6% of 'valuing' passages, 28.8% of 'thinks good' passages). Analyses were then conducted only on the remaining passages.

In the 'thinking good' passages, the writer was coded as thinking that the object actually was good 40% of the time. This percentage did not differ from chance $\chi^2 (1, N = 52) = 1.92$, p = .17. In the 'valuing' passages, the writer was coded as thinking that the object actually was good 93% of the time. This percentage is both significantly greater than chance, $\chi^2 (1, N = 53) =$

3.982, p < .001, and significantly greater than the percentage observed for 'thinking good' passages $\chi^2 (2, N = 149) = 3.21$, p < .001.