

## **Does Frequency of Sex Influence Happiness?**

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### Note

This paper was written for the Data Science class (Winter 2020) as a part of independent data analysis project.

## Introduction

We all want to be happy; everyone is in pursuit of happiness, constantly seeking what happiness is and how to find it in their life. Many scholars have delved into this question by analyzing the social and personal determinants of happiness, such as marital status (Haring-Hidore et al. 1985; Veenhoven 1994), physical health (Dolan et al. 2008), friendship networks (Myers 1999), income (Easterlin 2003; Graham and Pettinato 2002), and sex (Blanchflower and Oswald 2004). In particular, income has long been considered to have a positive relationship with self-reported happiness, though increased workload and stress level often offset the positive effects of higher income (Fischer 2008). While all such factors vary to some extent, this research focuses on sex which is considered undeniably important in one's life as it constitutes the daily lives of many. Past research demonstrates that sex is one of the activities that produce the single largest amount of happiness (Kahneman et al. 2004), and that frequency of sex is a significant predictor of both general and marital happiness even after accounting for potential confounding factors, e.g. age, gender, income, and health (Jackson 2011).

The first research on the relationship between frequency of sex and happiness, using the General Social Survey data, was conducted in 2004. The researchers illustrated that respondents who engage in sexual intercourse more frequently reported higher levels of happiness (Blanchflower and Oswald 2004). While the degree to which sexual activities influence the success of marriage is still being debated (Watson et al. 2017; Fileborn et al. 2017), little research was done recently on whether frequency of sex still affects happiness. Do the previous findings on the relationship between frequency of sex and general/marital happiness still persist among married adults in the U.S.? In light of this research question, the hypothesis is that married adults who have sex more frequently would report higher happiness both in their marriage and life in

general. This research extends the Blanchflower and Oswald's work to 2018 and examines the relationship between frequency of sex, general and marital happiness. This study aims to fill the time gap by providing evidence that, in the year of 2018, frequency of sex affects the happiness in marriage, which leads to happiness of life in general.

### **Data & Methods**

The dataset of this research consists of 7 variables obtained from the 2018 General Social Survey (GSS). The GSS has been collecting demographic, behavioral, and attitudinal information from non-institutionalized adults in the United States since 1972. It is conducted by the National Opinion Research Center (NORC) at the University of Chicago to monitor and examine social trends encompassing virtually every aspect of American society, from marijuana use to attitude towards working mothers. Not only is it nationally representative, but it is one of the most commonly studied datasets both in academia and industry, using a multistage, stratified probability sample of households (Davis and Smith 1992). Although many scholars use multiple years in statistical analyses using the GSS data for generalizability purposes, this research focuses on the 2018 data due to time constraints; this, however, does not indicate that the validity of the data is completely compromised, because the dataset has a sufficiently large sample size.

The final dataset after the data cleaning and pre-processing procedure, including removing missing values, contains 5 variables and 360 responses. This research adopts the cross-sectional research design in order to compare the responses to 4 questions[variables] across the sample in the year of 2018. In this section, I briefly introduce each variable to provide a better understanding of the data. One of the variables is the respondent ID that was uniquely assigned to each individual. The first independent variable, respondent's frequency of sexual activities in the last 12 months,

was measured with 7 different categories: 0 (Not at all), 1 (Once or twice), 2 (Once a month), 3 (2-3 times a month), 4 (Weekly), 5 (2-3 per week), and 6 (4+ per week). The dependent variable, respondent's happiness, was measured by *happy* variable where they report their happiness in general with the options of "very happy," "pretty happy," and "not too happy." Likewise, *hapmar* measures the respondent's rating of happiness in their marriage with the same three levels with the *happy* variable<sup>1</sup>.

For analysis purposes, the happiness variables were transformed into binary variables where 1 indicates "happy," and 0 means "not happy." In other words, "very happy" and "pretty happy" were coded as 1[happy], while "not too happy" was coded as 0[not happy]. Dichotomization of quantitative variables have substantial negative consequences, such as loss of information about individual differences and the potential to overlook non-linear relationships in the data (MacCallum et al. 2002). This research acknowledges such limitations that may lead the analysis to inaccurate or incorrect interpretation. However, many previous studies using the GSS data have employed this practice as the connotation of two levels—"very happy" and "pretty happy," are similar as they both indicate happiness, while distinct from the other one implying the opposite, unhappiness (Doran and Price 2014). Although this research proceeds with dichotomized variables for the ease of interpreting the coefficients, future research will benefit from applying standard methods of regression and correlation analysis to original measures (MacCallum et al. 2002).

As the dependent variables are binary, this research uses logistic regression and mediation analysis to analyze the relationship between variables of interest. Logistic regression analyses explore the relationship among variables, providing valuable insights into how frequency of sex,

<sup>1</sup> All respondents in the dataset were married at the time of the survey.

general and marital happiness influence each other. Mediation analysis was included to test if there is a causal relationship between frequency of sex and happiness, mediated by happiness in marriage.

## Results

### Logistic Regression

**Table 1.1**

*Logistic Regression Model: Frequency of sex and happiness*

Effect	Estimate	SE	<i>p</i> - value
Intercept	−.896	.273	.001**
Once or twice	.464	.465	.318
Once a month	.622	.376	.095 .
2-3 times a month	1.28	.481	.007**
Weekly	.933	.379	.013*
2-3 per week	1.01	.413	.014*
4+ per week	.724	.552	.19

*Note.* Number of Fisher Scoring iterations = 6, total *N* = 360.

Table 1 shows the logistic regression result with sex frequency and general happiness. It is notable that “Once or twice” and “4+ per week” have no significant impact on the respondent’s self-rated happiness. Also, using an alpha level of .05, the *p*-value of “Once a month” suggests that the null hypothesis cannot be rejected, thus insignificant. This might be due to the small number of respondents in those categories; that is, the data does not have enough sample in the category to detect a potential relationship, while there is also a chance that there exists no relationship at all. As for the ones that had a significant impact, first, it seems that one’s happiness would decrease

by  $-.896$ , which means getting closer to “not happy,” when a respondent has not had sex at all in the last 12 months. Second, having sex 2-3 times a month, versus having sex once a month, changes the log odds of happiness by  $1.28$ . In a similar vein, having sex weekly increases the log odds of happiness by  $.933$  compared to having sex 2-3 times a month. Lastly, having sex 2-3 times per week changes the log odds of happiness by  $1.01$ . It is important to note that the true coefficients for each term should be the difference between the coefficient value and the intercept coefficient; for example, it is not correct to conclude that having sex 2-3 times a month would lead to absolute happiness.

**Table 1.2**

*Multiple Logistic Regression Model*

Effect	Estimate	SE	<i>p</i> - value
Intercept	$-.896$	$.592$	$.13$
sexfreq			
Once or twice	$.277$	$.481$	$.56$
Once a month	$.606$	$.407$	$.13$
2-3 times a month	$1.38$	$.581$	$.01^*$
Weekly	$.736$	$.399$	$.06$
2-3 per week	$.803$	$.429$	$.06$
4+ per week	$.921$	$.631$	$.14$
hapmar	$1.9$	$.551$	$< .001^{***}$
realrinc	$< .001$	$< .001$	$.47$

*Note.* Number of Fisher Scoring iterations = 8, total  $N = 360$ .

Table 2 reports the logistic regression result with *sexfreq* as an independent variable and *happy* as a dependent variable, when we controlled for marital happiness and respondent's income. There are only two factors that have a significant impact on the self-reported happiness: having

sex 2-3 times a month and marital happiness. Having sex twice to three times a month rather than having sex once a month will increase the log odds of happiness by 0.606. In other words, respondents who have sex 2-3 times a month are more likely to feel happy about their life in general than having sex once a month. This result makes sense in a way that having sex more often contributes to greater happiness in general; however, all the other levels turn out to be insignificant. On the other hand, marital happiness has a strong impact on respondent's happiness in this analysis. Each one-unit change in marital happiness will increase the log odds of general happiness by 1.9, which means when a respondent feels happy about their marriage, they are also more likely to feel happy about their life in general. In addition, its extremely low *p*-value indicates strong evidence against the null hypothesis, therefore suggesting that the impact of marital happiness is significant. The result is partially in line with the original prediction; however, the full effect of frequency of sex is not observed.

### Mediation Analysis

Based on the multiple regression results, mediation analysis was conducted to test if there is any mediating effect of marital happiness in the relationship between frequency of sex and general happiness of respondents. For this analysis, I have followed the four steps proposed by Baron and Kenny (1986) to investigate the significant of the coefficients. First, simple logistic regression analysis with *sexfreq* predicting *happy* to test for path *c* was significant ( $\beta = .173$ ,  $p = .01$ ). Second, the path *a* from *sexfreq* to *hapmar* was also significant ( $\beta = .077$ ,  $p < .001$ ). Third, the path *b* between the mediating variable and dependent variable showed a strong relationship with the coefficient of 1.93 ( $\beta = 1.93$ ,  $p < .001$ ). Lastly, a multiple regression analysis suggests that *sexfreq* is still significant ( $\beta = .36$ ,  $p = .018$ ), while *hapmar* also shows a significant result ( $\beta =$

3.45,  $p < .001$ ); the last step tells us if the mediating effect remains significant after controlling for the independent variable. In this analysis, full mediation is found as presented in the table below.

**Table 2**

*Mediation Analysis*

lhs	op	rhs	label	est	se	z	pvalue
hapmar	~	sexfreq	a	0.004295369	0.006826979	0.6291756	5.292341e-03
happy	~	hapmar	b	0.521817249	0.199539060	2.6151133	8.919786e-03
happy	~	sexfreq	c	0.017402388	0.009602441	1.8122879	6.994172e-02

This table shows the result of mediation analysis which was bootstrapped 3,000 times to average out the potential coefficient values calculated with different biases; at an alpha level of .05, the direct effect,  $c'$ , is insignificant ( $\beta = .017$ ,  $p = .069$ ). Both path a and b, i.e. indirect effect, are significant, confirming the mediating effect of marital happiness in the relationship between frequency of sex and general happiness in life. Frequency of sex was no longer a significant predictor of happiness after controlling for the mediator variable, happiness in marriage.

## Discussion

This research investigates to what degree frequency of sex and marital happiness is associated with self-reported general happiness. The logistic regression analysis shows that, with a few exceptions, individuals who have sexual intercourse more often were more likely to consider their life to be happy, compared to those who do not have sex at all. Building off of the multiple regression results, I constructed the mediation model in which frequency of sex affects one's marital happiness, which in turn leads to greater general happiness in their life. The result confirms the causal relationship between frequency of sex, marital and general happiness. Respondents who



have sex more often reported themselves to be happier in their marriage, which contributed to general happiness in their life.

However, these findings are not easily generalizable to the general public, as the variables were transformed from their original form to binary form; as discussed in the beginning of this paper, the dichotomization process renders it difficult to fully explain the individual differences between “very happy” and “pretty happy.” This may erase critical implications within the relationship between variables in the original form. Thus, the regression and mediation analyses should be taken with caution. In addition to this, there is another major limitation in this research. The analysis did not account for potential confounding variables that might exist within the relationship between frequency of sex and general/marital happiness, such as age, income, sexual orientation, and all the other factors that influence one’s happiness. Since the GSS data do not provide detailed happiness index, future research would be able to run more thorough investigation with original levels of variables or more in-depth datasets, such as the World Happiness Report.

### References

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Appendix

Figure 1: Mediation model

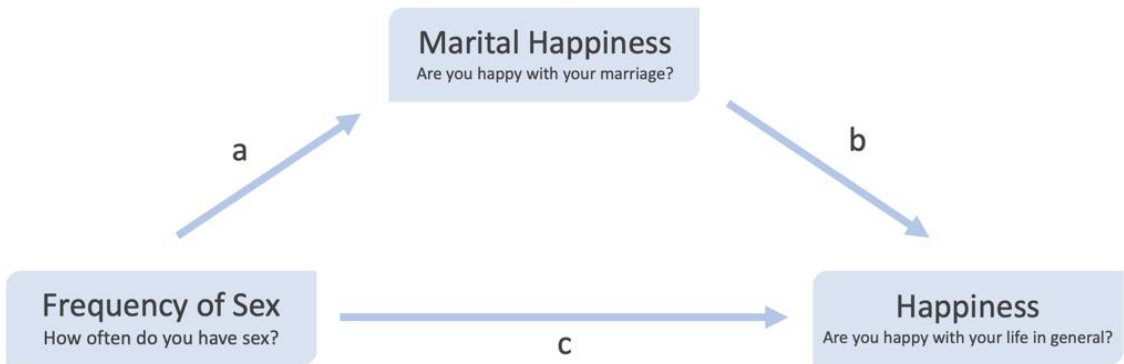


Figure 2: Frequency of Sex by gender and relationship status

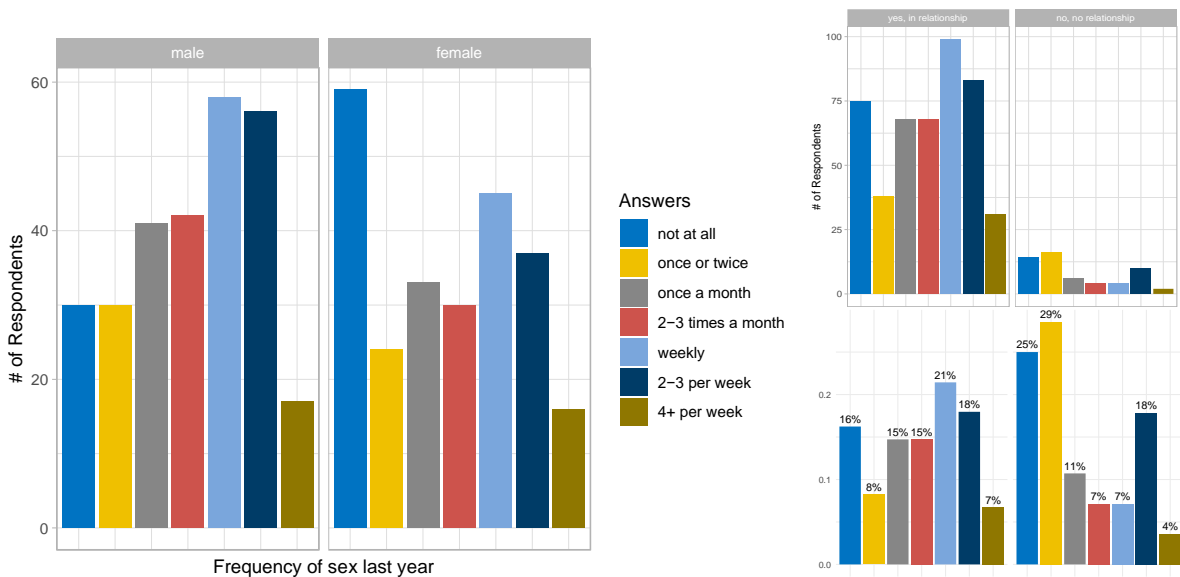


Figure 3: Happiness by Frequency of Sex

