



HEALTH SCIENCES

Does Money Buy Happiness? Disentangling the Association Between Income, Happiness and Stress

LAURO M. DEMENECH, RAIMUNDO B. ALMEIDA, LUCAS NEIVA-SILVA & SAMUEL C. DUMITH

Abstract: Although there is evidence of an inverse relationship between stress and happiness, less is known about the interrelationship between income, happiness and stress. The purpose of this research brief was to investigate whether and how income and stress shape the distribution of happiness. A population-based cross-sectional study was conducted in the city of Rio Grande, Southern Brazil, with 1,168 individuals aged 18 years or older. The data were collected in 2016 and analyzed in 2019. Wealthiest people tended to be happier and less stressed. Less-stressed people had higher levels of happiness, which remain stable regardless of their income. Most-stressed individuals had lower prevalence of happiness throughout all income subgroups. Happiness levels among both rich and poor respondents decreased as stress levels increased. Nonetheless, this reduction was more pronounced among the poorest respondents. Concluding, stress plays an important role in the relationship between income and happiness. Although there is some evidence that money can exert influence on happiness, it seems that this association is highly dependent of individuals' stress levels.

Key words: Happiness, income, stress, epidemiology, inequalities.

INTRODUCTION

There is an extensive debate about whether happiness is the main goal of human life. Happiness levels and subjective well-being are known to be related to a wide range of positive health outcomes (Barreto 2017). Nevertheless, can money buy happiness? Popular belief says yes, even though social scientists are less certain. If this statement is true, then it is possible that thousands of people are unhappy due to avoidable reasons in countries marked by economic inequality, such as Brazil.

Happiness is considerably affected by income (Subramanian et al. 2005, Headey et al. 2008). However, it is possible that money may be a more effective tool to buffer sadness than enhancing happiness (Kushlev et al. 2015).

Income is the socioeconomic position indicator that directly measures the material resources component. Converting money into health-protecting and health-enhancing goods and services may be the most plausible explanation for how money affects well-being (Subramanian & Kawachi 2006).

Furthermore, richer individuals experience happiness more frequently (but not more intensely) possibly due to a greater number of opportunities of engaging in active leisure activities (e.g., pursuing hobbies) (Jachimowicz et al. 2020). However, relative (e.g., the comparison between economically unequal individuals) and contextual (e.g., the deterioration of public structures, crime and violence) effects can also jeopardize the health and quality of life

of populations (Subramanian & Kawachi 2006, Kondo et al. 2009, Boyce et al. 2010).

Although the free market has led Western societies to great prosperity, economic inequality has been increasing worldwide (Buttrick et al. 2017). Consequently, both the need for productivity (Cunliffe 2016) and structural social adversities (Solar & Irwin 2010) can become stressful and hamper health. Even though there is evidence of an inverse relationship between stress and happiness (Schiffrin & Nelson 2010), less is known about the interrelationship between income, happiness and stress. While most of the research on this topic focuses on the link between income and happiness, it is not clear whether and how stress can play a role in this association. Therefore, we aimed to investigate whether and how income and stress shape the distribution of happiness among adults from Southern Brazil.

MATERIALS AND METHODS

The current study was a cross-sectional population-based study conducted in the municipality of Rio Grande, Brazil, in 2016. The target population was individuals aged 18 years or older of both sexes living in an urban area. The sampling strategy was conducted in multiple stages based on the Censo Demográfico do Brasil de 2010. The details of the methodological procedures is published elsewhere (Dumith et al. 2018). This research was approved by the Comitê de Ética em Pesquisa da Universidade Federal do Rio Grande (protocol number 20/2016).

Happiness was measured using a face scale, which consists of seven faces ranging from “very happy” to “very unhappy”. Those who reported themselves as identifying with the first three faces were considered to be happy. This strategy of assessing happiness levels is in line with current recommendation on the selection

of measures of well-being in multi-purpose studies (VanderWeele et al. 2020). Stress was measured with the Perceived Stress Scale, translated and validated to Brazilian population (Luft et al. 2007). Those scoring in the highest quintile of this instrument were considered as the most stressed individuals. Family income was measured by summing the income of each individual in the household and converting the value into a dollar amount.

The following covariates were also assessed to test for interactions and to control for possible confounders: sex, age, skin color, marital status, housing situation, schooling, smoking status, excessive alcohol consumption, physical inactivity, unhealthy food consumption, excess of body weight, chronic morbidities, chronic back pain, health insurance, consultation with a physician and sleep quality. The details on how these variables were assessed are described elsewhere (Dumith et al. 2018).

Statistical procedures were conducted in Stata 15.1 software. Bivariate analyses were carried out to test for group differences through chi-square tests for heterogeneity and linear trends. Interaction tests were performed to assess whether income moderates the relationship between all of the independent variables described above in the occurrence of happiness through a Poisson regression. We opted to present the results using an equiplot figure. This graph shows the coverage (of happiness) for each subgroup (of family income), stratified by stress levels (in quintiles). The gaps between these groups and inequality structure may be easily visualized (for more details: <http://www.equidade.org/equiplot>).

RESULTS

Among the 1,429 individuals eligible for this study, 1,300 were interviewed (response rate

of 91.0%). For this paper, we analyzed data from 1,168 participants who had complete information for all of the variables used in this study. The sample consisted of 56.3% women, and the majority reported a white skin color (83.6%). The mean age of the participants was 49.5 years (SD=17.2), while age ranged from 18 to 96 years old. The median family income was US\$ 700 (interquartile range US\$ 440 to US\$ 1,240). The mean perceived stress score was 23.6 (SD=7.4), and 78.9% (95% CI 76.2% to 81.7%) of the participants considered themselves happy.

The prevalence of happiness increased with increment of family income (p value for linear trend < 0.001). The prevalence of individuals in the most stressed group decreased with

increment of family income (p value for linear trend < 0.001). Prevalence of happiness for least stressed group did not vary according family income (p=0.820), whereas for the most stressed group it was about twice for the richest (76%) compared to the poorest (34%, p value for linear trend < 0.001).

As seen in Figure 1, the overall prevalence of happiness decreased for more stressed group and the disparities between socioeconomic level increased. Prevalence of happiness was higher in the richest group (compared to the poorest one) only among the most stressed individuals (for others, there was no significant differences.

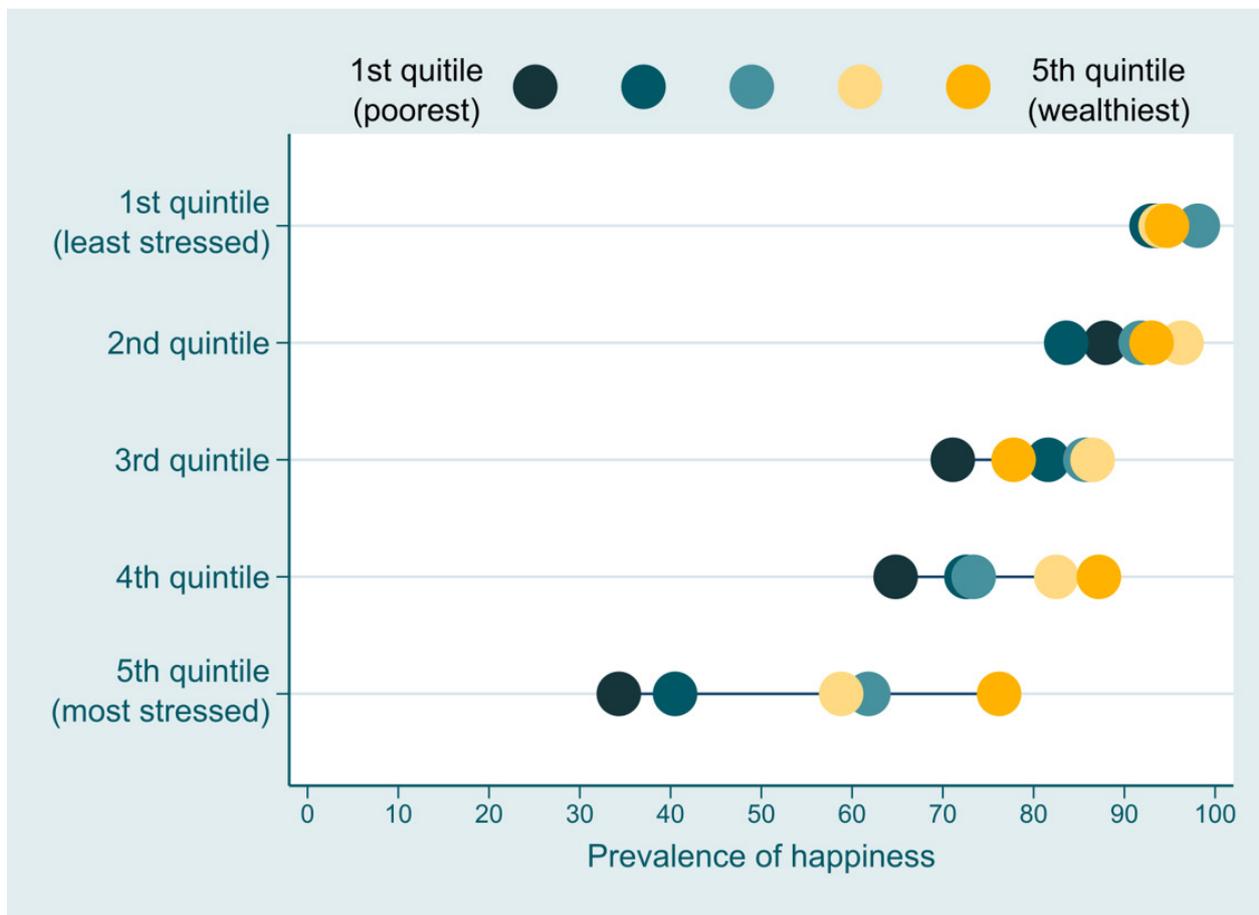


Figure 1. Equiplot with the distribution of happiness according to family income, stratified by stress levels. Rio Grande, Brazil, 2016.

DISCUSSION

There is strong evidence that income predicts happiness (Subramanian et al. 2005). Our results are in line with the literature, since higher income was associated with higher levels of happiness and lower levels of stress. Higher income is probably a result of better education and occupation (with better working conditions), which are related to better resources to protect health and promote well-being (Solar & Irwin 2010).

However, it was observed that among the less-stressed respondents, income seems to have no influence on happiness. Although the prevalence of more-stressed individuals was higher among the poorest ones, it is possible that individual characteristics can contribute to an optimal balance of stress regardless of income, thus allowing individuals to be happy. It is noteworthy that the prevalence of happiness was higher among the less-stressed poorest respondents than among the most-stressed richest respondents (Figure 1), reinforcing the importance of stress on the income-happiness relationship.

Individuals tended to be less happy when they are more stressed. This reduction was more pronounced among the poorest respondents, even when controlling for a diversity of covariates. A possible hypothesis is that stress seems to be more harmful among poor individuals than rich individuals. Rich people may have more work-, and productivity-related stress (Damaske et al. 2016). On the other hand, poorer individuals may face harsher situations, such as financial instability, poor housing and transportation conditions, violence, food insecurity and hunger (Buttrick et al. 2017, Solar & Irwin 2010).

Methodological strengths and limitations should be considered. This study used a large population-based sample. However, the

cross-sectional design does not allow the establishment of temporality. Thus, we cannot assert that income predicts stress, which then affects well-being. Furthermore, happiness and stress were assessed through subjective measures, whose meanings may vary among the participants; however, this variation may not necessarily be a limitation since one's own perception might be a reliable information.

CONCLUSIONS

While prior studies have described links between income and happiness, in the current research it was highlighted that stress may play an important role in this association. More specifically, money tended to increase the probability of being happy and less stressed, but at low stress levels, income does not influence happiness. Although stress exerts a happiness-reducing association on everyone, this reduction seems to be more pronounced among the poorest respondents. Reducing inequalities may have an impact on the occurrence of both stress and happiness, thereby generating profound and lasting improvements in the well-being and quality of life of all citizens.

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LAURO M. DEMENECH^{1,2}

<https://orcid.org/0000-0002-7285-2566>

RAIMUNDO B. ALMEIDA¹

<https://orcid.org/0000-0002-6017-3080>

LUCAS NEIVA-SILVA^{1,3,4}

<https://orcid.org/0000-0002-7526-2238>

SAMUEL C. DUMITH^{2,5}

<https://orcid.org/0000-0002-5994-735X>

¹Universidade Federal do Rio Grande, Centro de Estudos sobre Risco e Saúde, Campus Carreiros, Av. Itália, Km 8, 96203-900 Rio Grande, RS, Brazil

²Programa de Pós-Graduação em Ciências da Saúde, Universidade Federal do Rio Grande, Unidade Saúde, Rua Visconde de Paranaguá, 102, 96200-190 Rio Grande, RS, Brazil

³Programa de Pós-Graduação em Psicologia, Universidade Federal do Rio Grande, Campus Carreiros, Av. Itália, Km 8, 96203-900 Rio Grande, RS, Brazil

⁴Programa de Pós-Graduação em Saúde Pública, Universidade Federal do Rio Grande, Unidade Saúde, Rua Visconde de Paranaguá, 102, 96200-190 Rio Grande, RS, Brazil

⁵Grupo de Pesquisa em Atividade Física e Saúde Pública, Universidade Federal do Rio Grande, Unidade Saúde, Rua Visconde de Paranaguá, 102, 96200-190 Rio Grande, RS, Brazil

Correspondence to: **Samuel de Carvalho Dumith**

E-mail: scdumith@yahoo.com.br

Author contributions

LM Demenech supervised the analyses, wrote the manuscript, and approved the final version; RB Almeida and L Neiva-Silva contributed in the manuscript writing, revised and approved the final version of the manuscript; SC Dumith conceived the manuscript, performed the data analysis and critically revised the manuscript.

