

# Neuroticism, Materialism, Pay and Job Satisfaction

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## Abstract

**Background:** This study aimed to explore the relationship between trait Neuroticism, materialism, pay and job satisfaction which is a topic of interest to many different disciplines and professionals. **Method:** Over 1000 participants completed four standardized questionnaires online. **Results:** As hypothesised, individuals with high Neuroticism and materialism scores tended to experience significantly less pay and job satisfaction. In a regression, salary, Neuroticism and materialism accounted for 18.2% of the variance of pay satisfaction, while for job satisfaction 12.7% were explained by the variables, of which salary itself only accounted for a very small amount. Interaction effects (salary-materialism and Neuroticism-materialism) were found on pay and job satisfaction, as well as a three-way interaction (salary-Neuroticism-materialism) on job satisfaction. **Conclusion:** The results support the often disputed fact that actual pay (salary), pay satisfaction and job satisfaction are very weakly positively associated, and that materialism and neuroticism are more closely linked to both job and pay satisfaction.

## Keywords

Salary, Personality, Materialism, Neuroticism, Pay Satisfaction, Job Satisfaction

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## 1. Introduction

The relationship between pay and job satisfaction has been explored over many studies (Heneman III & Judge, 2000, Lawler, 1971; Locke et al., 1980; Millán et al., 2013; Stringer et al., 2011). Job satisfaction is usually defined as an affective reaction to a job that is based on one's self-evaluation when comparing desired to actual outcomes (Judge, 1993). Similarly, pay satisfaction is, according to eq-

uity theory (Adams, 1963), often primarily based on the relative comparison of one's rewards to those of someone else. The intensity of social comparison however may vary depending on the pay/reward difference between individuals (Tang et al., 2004).

Numerous studies have looked at the relationship between pay and job satisfaction. In a celebrated meta-analysis by Judge et al. (2010), small-medium correlations were found between pay level and job satisfaction ( $r = .15$ ) and pay satisfaction ( $r = .23$ ). There are also many studies on individual difference (demography, ability, personality, belief system) correlates of both satisfactions (Arya et al., 2019). It is also known that money beliefs and attitudes are linked to a number of demographic and personality factors (Furnham, 2020; Furnham & Grover, 2020, 2021; Furnham & Horne, 2021; Furnham et al., 2014a, 2014b). In this study, we will concentrate on two correlates of pay and job satisfaction: Trait Neuroticism and materialistic values.

Much of the literature on work motivation has focused on self-determination theory (Deci & Ryan, 2000), arguing that employees are intrinsically motivated to work towards psychological goals (affiliation, competence and autonomy), and work environments that encourage this are therefore more motivating, engaging and satisfying, and also increase well-being (Schreurs et al., 2014). Conversely, self-determination theory suggests that extrinsic rewards, such as financial compensation, can be demotivating as they often undermine the need for autonomy (Ryan & Deci, 2020).

Materialism, due to its negative effects on well-being and motivation (Deckop et al., 2010; Unanue et al., 2017), has been theorised to divert a worker's attention from the above intrinsic factors (Kernis, 2003; Wang et al., 2017) to extrinsic rewards, at the expense of their well-being. Indeed, researchers have suggested a moderating relationship between pay level and job satisfaction, in which the correlation was even stronger for individuals who were driven by exogenous factors (Bateman & Crant, 2003; Malka & Chatman, 2003). Furthermore, Tang et al. (2004) suggested that "love of money" would both moderate and mediate the relationship between pay and job satisfaction.

In this study, we focus on materialism, which has three central ideas: *firstly*, that possession and acquisition of material items is central to life; *secondly*, that possessions are central to life satisfaction and well-being; and *thirdly*, that possessions equate to personal value (Richins, 1994). Belk (1985) measured materialism and identified three facets envy, possessiveness, and non-generosity. These all relate to discontentment of current material wealth, compared to the wealth of others, or their own ideal wealth. Materialism generally declines with age, but some analyses have shown it has a U-shaped relationship. While materialism peaks in adolescence, materialism begins to rise again after 55 - 60 years old (Chaplin & John, 2007; Jaspers & Pieters, 2016). Younger samples have notably only found linear relationships (Martin et al., 2019).

Research suggests that materialistic people suffer from worse subjective well-being due to the neglect of their psychological needs in pursuit of their material goals

(Dittmar et al., 2014). Indeed, there is evidence to suggest that materialism reduces well-being through negative emotion, often measured by trait Neuroticism. Watson (2014) showed substantial correlations between materialism and Neuroticism over large samples of university students ( $.24 < r < .39$ ). Further, it has been suggested that Neuroticism mediates the relationship between materialism and well-being (Górnik-Durose & Boroń, 2018). In a longitudinal study of Chinese students, it was shown that materialism impairs individual need satisfaction, which then decreases subjective well-being and increases depression (Wang et al., 2017). Neuroticism and age have shown a small negative correlation (Donnellan & Lucas, 2008; Steiner et al., 2012), but Allemand et al. (2008)'s longitudinal study suggests that Neuroticism, while higher in adolescents and the elderly, drops between 30 - 40 years of age.

While many studies have focused on the effects of materialism on subjective well-being via negative emotion, a similar relationship may exist with job and pay satisfaction. Unanue et al. (2017) showed over two employed Latin American samples that psychological need frustration (which materialism encourages) decreases well-being and increases negative emotions at work. Materialism could also predict pay level, as students higher in materialism have also been shown to choose higher paid jobs in less known companies (over the opposite), despite predicting worse job satisfaction for themselves (Styśko-Kunkowska & Kwinta, 2020).

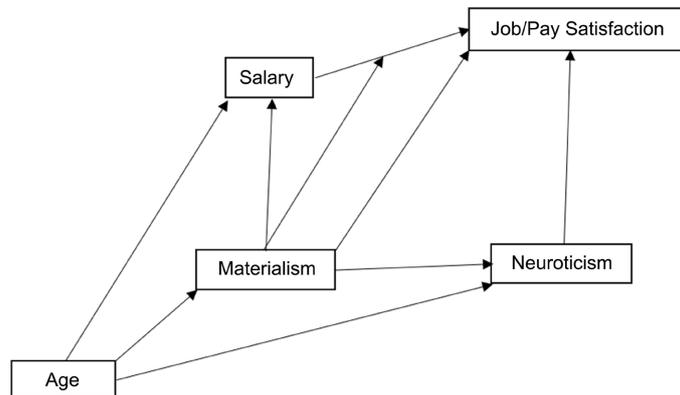
## 2. Current Study

This study uses a large sample to attempt to replicate previous findings testing two new models, one using job and the other pay satisfaction. Each model has materialism moderating the relationship between pay and satisfaction, pay mediating the relationship between materialism and satisfaction, and Neuroticism further mediating the relationship between materialism and satisfaction. Based on previous findings, we expect materialism to significantly moderate the relationship between pay, and job and pay satisfaction; pay to partially mediate the effect of materialism on satisfaction; and that neuroticism will fully mediate the effects of materialism on job and pay satisfaction. Due to the younger age of our participants, we also expect age to negatively predict Neuroticism and materialism (See Figure 1).

## 3. Method

### 3.1. Participants

In total 1203 individuals participated in an online survey study. Incomplete and invalid cases were removed, leaving 1093 suitable participants. The average participant was 32.14 years old, ranging from 18 - 73 ( $SD = 11.4$ ); no information was collected on participant sex. Most participants were employed, with 51.7% working full-time, 18% part time, and 10.7% self-employed; the remaining 19.6% were unemployed and had been working within the last 12 months. 379



**Figure 1.** Hypothesised model between variables.

(34.9%) of the sample were students. The sample was international, but participants were mostly from English speaking countries, with 195 UK, 537 USA, 90 Canadian; 43 Australian, 14 Philippines, 20 Singapore, 12 Malaysia, and 14 Indian participants.

### 3.2. Measures

*The Belk Materialism Scale* (Belk, 1985) measured participant materialism across three factors, envy, possessiveness and non-generosity, using a 5-point scale. The questionnaire itself has had varied reliability (Cole et al., 2015; Ryan & Dziurawiec, 2001), and reasonable validity. A mean score was created from the 24 items ( $\alpha = .76$ ).

*Pay Satisfaction Questionnaire* (Heneman III & Schwab, 1985) measured four dimensions, satisfaction with level of pay, benefits, raises, and structure/administration, on a 5-point scale. The measure has strong internal reliability and validity of the measure (Judge, 1993). A mean score was made from the 18 items measured ( $\alpha = .95$ ).

*Job Opinion Questionnaire* (Campbell et al., 1976, as cited in Grandey et al., 2005) was used to measure participant job satisfaction. This questionnaire focuses on intrinsic motivation, such as self-improvement, affiliation, and fulfilment. While originally bipolar, a unidimensional 7-point scale was used with the items on the left-hand-side of the original scale. A mean score was made from the nine items ( $\alpha = .93$ ).

*Neuroticism* was measured using 24 statements from the International Personality Item Pool (IPIP) on a 5-point scale. A mean score was created from all the items ( $\alpha = .89$ ).

*Demography.* Salary was measured in the following intervals: less than £10,000; £10,000 - £19,999; £20,000 - £29,999; £30,000 - £39,999; £40,000 - £49,999; £50,000 - £74,999; £75,000 - £99,999; £100,000+ . Student and employment status were also measured.

### 3.3. Procedure

Participants were contact through associates of the authors. Ethics approval was

sought and granted. Participants were selected if they were at least 18 years old and had worked within the last 12 months and gave informed consent before participating. Participation was incentivised with an invitation to an exclusive flash-sales fashion website upon completion, and no monetary reward. The questionnaire took between 5 - 10 minutes to complete. Data was inspected and cleaned before analysis. This research was funded by the authors and no outside body.

## 4. Results

### 4.1. Sample Analysis

First, comparisons were made between employment status (full-time, part-time, self-employed and unemployed). A series of ANOVAs were run to compare employment differences for materialism, neuroticism and satisfaction variables. After a significant result from ANOVA, contrasts were made between those employed full-time, and those part-time, and those self-employed and those unemployed. Contrasts emphasised full-time employees jointly due to that being the largest group, and employed participants logically having the most relevance to this study's goals. **Table 1** shows the results of the initial one-way ANOVAs and **Table 2** the following contrasts.

Materialism was the only variable that had a non-significant difference result between groups. Currently, unemployed participants had significantly lower salary, job and pay satisfaction, and higher neuroticism, than full-time employed participants. Full-time employees had higher job satisfaction than part-time employees, but lower than self-employed participants. There were no significant differences of Neuroticism between full-time, and part-time and self-employed participants. Full-time employed participants had significantly higher salary than the other groups.

Due to their differences from the full-time sample, data from unemployed participants was removed from further analysis. This left 879 participants, including 228 students. Comparisons were then made between students and non-students of the currently working sample (see **Table 3**). There were no significant differences in any of the individual difference variables, but salary was considerably higher for non-students ( $d = 1.03$ ). Despite the salary differences, job and pay satisfaction had no significant differences between the two groups. This could be explained by their definitions, with both satisfaction variables being described as a comparison between actual and ideal/other's outcomes (Adams, 1963; Judge, 1993). Perhaps, therefore, students have lower expectations of an acceptable rewards for the job they do than non-students. As a result, student data was also removed from further analysis to create a homogenous, working, non-student sample; those with incomplete data for salary were also removed, leaving a final sample of 636 participants. The average participant was then 35.17 years old ( $SD = 10.63$ ); 479 were in full-time employed, 76 part-time, and 81 self-employed.

**Table 1.** One-way ANOVAs comparing variables by employment status.

Variable	Employment Status	N	M	SD	<i>F</i>	<i>p</i>
Job Satisfaction	Full-time	565	4.78	1.33	11.430	.000
	Part-time	197	4.74	1.27		
	Self-employed	117	5.32	1.16		
	Unemployed	214	4.43	1.38		
Pay Satisfaction	Full-time	565	3.20	.814	5.938	.001
	Part-time	197	3.01	.741		
	Self-employed	117	3.04	.841		
	Unemployed	214	2.97	.719		
Materialism	Full-time	565	2.84	.472	1.531	.205
	Part-time	197	2.91	.466		
	Self-employed	117	2.81	.487		
	Unemployed	214	2.86	.528		
Neuroticism	Full-time	565	2.69	.026	5.214	.001
	Part-time	197	2.77	.608		
	Self-employed	117	2.63	.660		
	Unemployed	214	2.87	.650		
Salary	Full-time	551	4.02	2.06	105.267	.000
	Part-time	193	1.88	1.44		
	Self-employed	112	3.25	2.41		
	Unemployed	170	1.55	1.52		

**Table 2.** Contrasts following the comparing mean differences.

Variable	Contrast	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Job Satisfaction	FT-PT	.358	760	.720	–
	FT-SE	–4.035	680	.000	–.433
	FT-Un	3.210	777	.001	.258
Pay Satisfaction	FT-PT	2.892	760	.004	.244
	FT-SE	1.908	680	.057	–
	FT-Un	3.562	777	.000	.299
Neuroticism	FT-PT	–1.463	760	.144	–
	FT-SE	.973	680	.540	–
	FT-Un	–3.410	777	.001	.279
Salary	FT-PT	13.339	760	.000	1.20
	FT-SE	3.513	661	.000	.343
	FT-Un	14.455	719	.000	1.36

Key: FT—Full-time, PT—Part-time, SE—Self-employed, Un—Unemployed.

**Table 3.** One-way ANOVAs comparing variables by student status.

Variable	Student Status	N	M	SD	<i>t</i>	<i>p</i>	<i>d</i>
Job Satisfaction	Student	228	4.83	1.34	-1.57	.875	-
	Non-Student	651	4.85	1.30			
Pay Satisfaction	Student	228	3.07	.763	-1.53	.127	-
	Non-Student	651	3.16	.819			
Materialism	Student	228	2.86	.469	.467	.641	-
	Non-Student	651	2.84	.475			
Neuroticism	Student	228	2.74	.641	1.12	.264	-
	Non-Student	651	2.69	.634			
Salary	Student	220	2.01	1.56	-12.22	.000	1.03
	Non-Student	636	3.93	2.14			

## 4.2. Descriptive Statistics

Shapiro-Wilk tests were then run on each variable and all had significant non-normal distributions ( $p < .01$ ). Therefore, Kendall's tau correlation coefficients were calculated to show the association between variables to reduce type 1 error (Puth et al., 2014). Kendall's tau was chosen over Spearman's rho as, due to the differing number of variables used to create mean scores, no values were expected to tie (Puth et al., 2015). Table 4 shows descriptive statistics and correlations between the variables. Age had a large positive correlation with salary ( $r_t = .274$ ,  $p < .001$ ), a small positive correlation with pay satisfaction ( $r_t = .054$ ,  $p = .046$ ), and a small negative correlation with materialism ( $r_t = -.075$ ,  $p = .006$ ). Salary had no association with job satisfaction but had a positive correlation with pay satisfaction ( $r_t = .174$ ,  $p < .000$ ) and negative correlations with materialism ( $r_t = -.059$ ,  $p = .038$ ) and Neuroticism ( $r_t = -.073$ ,  $p = .010$ ). The strongest correlation was the positive association between materialism and Neuroticism ( $r_t = .303$ ,  $p < .000$ ). Neuroticism and materialism both had negative associations with both satisfaction variables. Pay and job satisfaction were positively correlated ( $r_t = .255$ ,  $p < .000$ ).

## 4.3. Path Analysis

Further analysis was run in *R* (R Development Core Team, 2011) using the *lavaan* package (Rosseel et al., 2020). Robust maximum likelihood estimation and oblimin rotation were used in calculations, and mean scores from individual scales were treated as observed variables. Adequate fit was determined using fit statistics recommended by Kline (2015). Thresholds for each statistic are:  $X^2/df < 3.00$  (Van Dam, 2015), SRMR  $< .08$  (Hu & Bentler, 1998), CFI  $> .95$  (Hooper et al., 2008), RMSEA  $< .05$  (MacCallum et al., 1996).

## 4.4. Pay Satisfaction

The hypothesised model for pay satisfaction had poor fit, meeting none of the

**Table 4.** Descriptive statistics and Kendall's tau correlation coefficients between variables.

Variable	M	SD	1.	2.	3.	4.	5.
1. Age	35.17	10.63					
2. Salary	3.93	2.14	.274**				
3. Neuroticism	2.69	.634	-.041	-.073*			
4. Materialism	2.85	.473	-.075**	-.059**	.303**		
5. Pay Satisfaction	3.16	.822	.054*	.174**	-.141**	-.199**	
6. Job Satisfaction	4.85	1.30	.045	.027	-.233**	-.183**	.255**

N = 636; \* $p < .05$ , \*\* $p < .01$ .

recommended thresholds ( $X^2 = 2288.153$  ( $df = 5$ ,  $p < .000$ ), CFI = .118, RMSEA = .847 (90% CI .818, .877), SRMR = .205). To improve the fit of the model, non-significant pathways were then removed; namely the moderation of materialism and salary on pay satisfaction, age was no longer set to predict Neuroticism, and materialism was no longer set to predict salary. Fit indices also indicated that Neuroticism should covary with salary. The new, resultant model (See **Figure 2**) had fit indices exceeding recommended guidelines ( $X^2 = 3.505$  ( $df = 3$ ,  $p = .320$ ), CFI = .998, RMSEA = .016 (95% CI (.000, .071), SRMR = .021). Mediation analysis within this model showed that materialism has both a significant direct and indirect effect (through Neuroticism) on pay satisfaction. Mediation analysis between materialism, salary and pay satisfaction was not carried out as materialism was not associated with salary (see **Table 5** for results).

#### 4.5. Job Satisfaction

Again, the hypothesised model for job satisfaction had poor fit, not meeting any of the recommended thresholds ( $X^2 = 2290.458$  ( $df = 5$ ,  $p < .000$ ) CFI = .114, RMSEA = .848, Lower = .819, Upper = .877, SRMR = .191). Due to mostly the same variables being used, the model was adjusted in a similar way to the pay satisfaction model, with the exception that salary that, while related to pay satisfaction, was not related to job satisfaction. The resultant new model had fit indices exceeding the recommended thresholds ( $X^2 = 5.727$ , ( $df = 4$ ,  $p = .221$ ), CFI = .994, RMSEA = .026 (95% CI .000, .070) SRMR = .025; See **Figure 3**). Mediation analysis showed that materialism had a direct and indirect effect (through Neuroticism) on job satisfaction (See **Table 6**).

### 5. Discussion

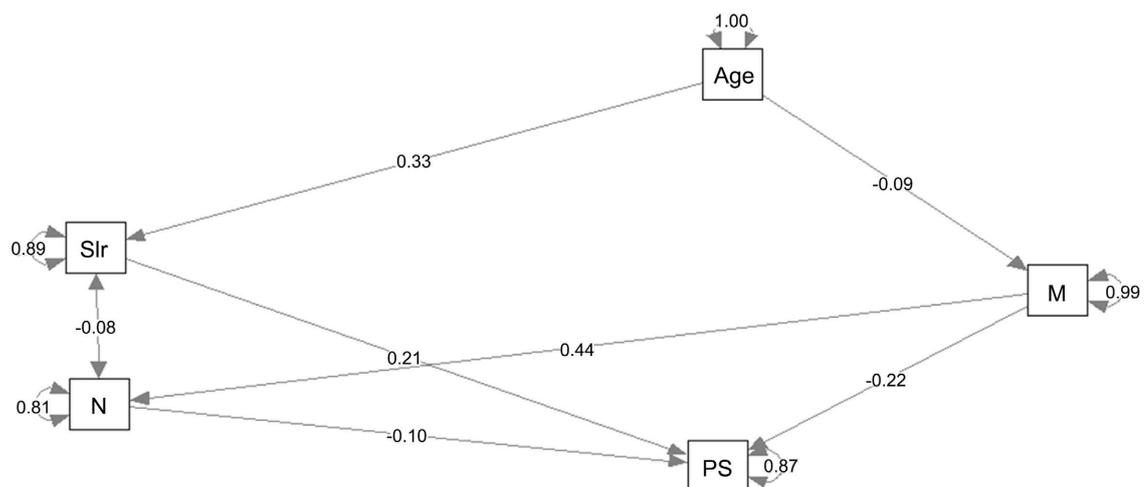
In this study, we first examined job status differences in Neuroticism, materialism, salary, age, and job and pay satisfaction. Models were constructed around job and pay satisfaction variables which mostly agreed with previous findings. Our results partially supported conclusions of [Unanue et al. \(2017\)](#), showing that Neuroticism does partially mediate the effects of materialism on job and pay satisfaction.

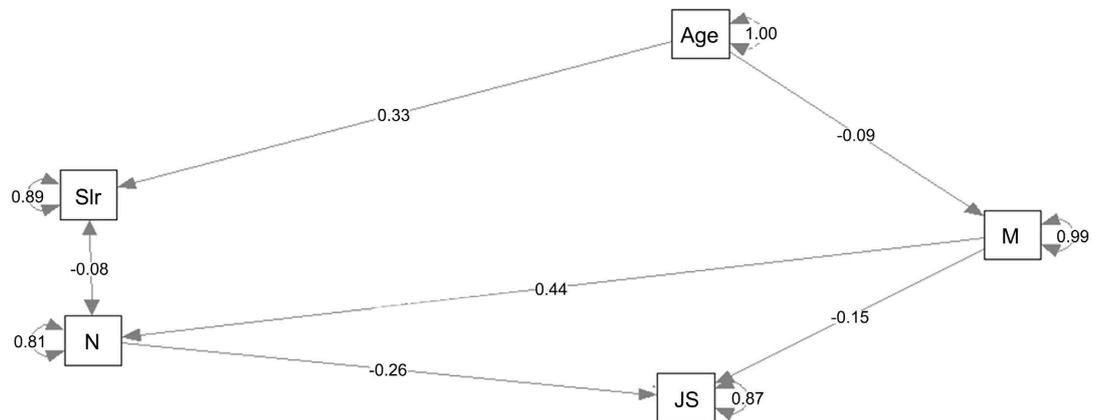
**Table 5.** Regression and mediation analysis results for the pay satisfaction model.

Outcome	Predictors	Estimate	SE	z	p	R <sup>2</sup>
Pay Satisfaction	Neuroticism	-.130	.059	-2.215	.027	.131
	Materialism	-.390	.079	-4.956	.000	
	Salary	.081	.015	5.205	.000	
Neuroticism	Materialism	.582	.051	11.383	.000	.189
	Salary	.066	.008	8.454	.000	.108
Materialism	Age	-.004	.002	-2.521	.024	.009
Mediation Analysis		Estimate	SE	z	p	
Indirect: Materialism -> Neuroticism -> Pay Satisfaction		-.227	.048	-4.681	.000	
Direct: Materialism -> Pay Satisfaction		-.130	.059	-2.215	.000	
Total Effect		-.357	.059	-6.081	.000	

**Table 6.** Regression and mediation analysis for the job satisfaction model.

Outcome	Predictors	Estimate	SE	z	p	R <sup>2</sup>
Job Satisfaction	Neuroticism	-.541	.098	-5.526	.000	.125
	Materialism	-.406	.113	-3.596	.000	
Neuroticism	Materialism	.582	.051	11.383	.000	.189
	Salary	.066	.008	8.454	.000	.189
Materialism	Age	-.004	.002	-2.251	.024	.009
Mediation Analysis		Estimate	SE	z	p	
Indirect: Materialism -> Neuroticism -> Pay Satisfaction		-.315	.062	-5.076	.000	
Direct: Materialism -> Pay Satisfaction		-.406	.113	-3.596	.000	
Total Effect		-.720	.105	-6.837	.000	

**Figure 2.** Path analysis for the pay satisfaction model.



**Figure 3.** Path analysis for the job satisfaction model.

Contradicting previous conclusions however (Bateman & Crant, 2003; Malka & Chatman, 2003; Tang et al., 2004), no evidence was found for a moderating relationship of salary and materialism onto pay/job satisfaction variables. Further, salary alone had no significant correlation with job satisfaction, considerably less than Judge et al. (2010) found in their meta-analyses. This could be due to Job Opinion Questionnaire (Campbell et al., 1976) emphasising intrinsic values of jobs, not focusing on pay or extrinsic motivation in its measurement compared to other job satisfaction measures, which may be more holistic. Still, no moderation was found with the Pay Satisfaction Questionnaire (Heneman III & Schwab, 1985) scores, which does focus explicitly on extrinsic motivations at work. While highly materialistic people would be expected to be more satisfied with a higher salary, perhaps they have higher expectations of salary from these jobs, knowing that it's needed to compensate lower job satisfaction (Styśko-Kunkowska & Kwinta, 2020). Further research would be needed to test this hypothesis, however.

As expected, age was negatively associated with lower materialism. Given the younger age of our sample, it is likely that the rise in materialism seen later in life is not representative enough to show in the analysis (Chaplin & John, 2007; Jaspers & Pieters, 2016), as has been previously suggested (Martin et al., 2019). Age showed no significant association with Neuroticism, however as this effect has been shown to be rather weak and U-shaped, our sample might not be large enough to show a distinct, linear relationship (Allemand et al., 2008; Donnellan & Lucas, 2008; Steiner et al., 2012).

As seen by the group comparisons at the beginning of this study, students and non-students differed considerably in work salary, but had no significant differences in job satisfaction or pay satisfaction. This supports the idea that satisfaction is comparative, rather than absolute. Due to their not being any differences in materialism or Neuroticism either, this supports the use of student samples, especially when they are choosing hypothetical jobs or salary (Styśko-Kunkowska & Kwinta, 2020). These results also highlight the need to quantify an individual's ideals and expectations for their job in job satisfaction research. For example, job

seekers likely have higher salary expectations for jobs working in urban areas with high housing prices, compared to the same job in a more rural area with lower housing costs. Cross-cultural studies could help illuminate the different expectations of intrinsic and extrinsic fulfilment from jobs across countries.

A clear limitation of this study is its measurement. The cross-sectional nature of the questionnaire makes it difficult to infer any causal relationships between the variables. The salary variable was measured in intervals instead of using raw amounts, which may have dampened potential relationships. We did not measure a number of other potentially important variables like gender, perceived wealth and general happiness. Most importantly although it was a large sample it was far from representative of the population which could have affected the results. Nevertheless, it confirmed various findings like the very low correlation between pay, pay satisfaction and job satisfaction which still astounds many lay people.

### Acknowledgements

We would like to thank Nathan Polius and Patrick Fagan for help in data collection.

### Ethics Approval

UCL Psychology Dept number CEHP/514/2013 granted permission for this study to be done.

### Informed Consent

As part of the introduction to this study all participants gave their consent.

### Conflicts of Interest

There is no conflict of interest in this research or paper.

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