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## Financial distress and money attitudes

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## **Abstract**

This study was concerned with the construction and validation of a Financial Distress Index (FDI). A stratified (UK) sample of 2000 adults completed the new measure as well as measures of financial anxiety, general stress and money attitudes. The FDI correlated highly with general stress and financial anxiety, establishing concurrent validity. For the FDI, men scored lower than women, there was an inverse association with age and FDI was lower for the highest income bands. A unit increase in seeing money as security was associated with a reduction in the FDI of 16%, whereas unit increases in money as generosity, freedom, or power and status were associated with an increase in the FDI of, respectively 21%, 24% and 19%. Implications and limitations are discussed.

**Keywords:** financial distress; financial anxiety; stress; money attitudes;

## **Introduction**

Because of its fundamental importance there has been a great deal of interest in individual's financial well-being (Abdullah et al., 2019; Bruggen et al., 2017), capability (Atkinson et al., 2006; Taylor, 2011), risk-taking (Blais & Weber, 2006; Dohmen et al., 2011; Keller & Siegrist, 2006) and satisfaction (Gasiorowska, 2015) but much less on financial distress. Clearly financial distress can be a function of many things and can have very considerable consequences for individuals and their families. For example, it is argued that financial capability or literacy plays a major part in people's lives because the better-informed

make better life as well as money-related decisions. This study is concerned with the development and validation of a new measure of Financial Distress.

The determinants of adult financial capability, financial distress, financial knowledge and financial welfare matter, because they affect a person's health and general welfare (Fenton, O'Creevy & Furnham, 2020). There are various measure of financial literacy and well-being (Bruggen et al., 2017; Folk et al., 2019) but many fewer on financial distress. Prior work on the experience of stressful life events has been dominated by the use of checklist style indices (e.g. Zautra et al., 1986, Dohrenwend, 2006). However, to date there has been little attention to the important sub-category of indicators of financial distress.

A very short financial distress inventory was produced by Fenton-O'Creevy and Furnham (2020) and showed important relationships to financial capabilities and money attitudes. However, this scale is of very modest length (six adverse financial life events) and has not been validated relative to established measures of stress and anxiety. Research on financial behaviour and its antecedents and consequences could benefit significantly from a validated index of financial stressors. Such a measure may also have useful application in identifying and working with individuals experiencing financial distress.

It is highly likely that financial distress will be linked to general money attitudes. There are many studies on how attitudes to money act as direct and mediator effects on financial outcomes (Abdullah et al., 2019; Gasiorowska, 2015). In this growing literature there are similar money themes which researchers have identified: Achievement and Success, Power and Status, Mindful and Responsible, as well as Saving Concerns and Financial Literacy Worries. However, many clinical and differential psychologists have identified money being associated with four factors: Freedom/Autonomy, Love/Generosity, Power and Security (Furnham, 2014). Goldberg and Lewis, (1978) showed that money can represent *security* (a primary way of

staving off anxiety), *power* (a method to gain importance, dominance and control), *love* (a manifestation of and substitute for affection) and *freedom* (a necessity to acquire what you want). This classification has been supported empirically (Furnham, 2014; Furnham, Wilson & Telford, 2012; Klontz, Britt, Archuleta & Klontz, 2012; von Stumm et al., 2013).

Lay and Furnham (2019) devised a short measure which has a financial worries measure and taps into the potential dark side of money and the negative emotions that may be caused when individuals perceive they do not have enough money. Recently Furnham (2019) found individuals with *Financial Literacy Worries*, which may be due to their tendency for intense and sudden enthusiasm and disenchantments for people and projects. This may also extend to how they see and feel about money, thus explaining why they associate money with stress and anxiety around their own financial literacy.

### **This study**

Whereas there has been a concerted effort to study and assess financial literacy and well-being there has been much less work on financial distress. Just as it has been shown that unhappiness is not strongly negatively correlated with happiness, and job dissatisfaction with satisfaction so it is the case that financial well-being is not the same as financial distress. That is, just because a person has low financial well-being does not mean they are financially distressed any more than a low score on financial well-being necessarily indicates a person feels financially secure and able. Given the apparent growing incidence of financial distress it is important to be able to assess it both accurately and comprehensively,

The present study has two main purposes. First to construct a financial distress inventory, test its internal consistency and reliability and examine its relationship to measures of general stress and of financial anxiety.

We hypothesise that: -

*H1: the financial distress inventory will show a significant correlation with measures of financial anxiety and general stress.*

The second aim was to examine the potential protective or exacerbating role of money attitudes in relation to financial distress. There are now an increasing number of studies which have demonstrated that money beliefs are associated with a wide range of financial behaviours. There is a consistent theme in these studies that those who associate money with security, but not generosity/love, freedom and power/status seem to exhibit greater financial probity, monitoring, and wise spending (Furnham & Horne, 2021). Thus, we hypothesise: -

*H2: associating money with security will predict lower financial distress, while associating money with generosity, freedom or power and status will predict greater financial distress.*

## **Methods**

### **Participants**

The final sample was 2000 participants. The sampling aim was to achieve a stratified sample with similar proportions of participants in each category of age, gender and income. The sample size was calculated, using G\*Power (Faul et al., 2009), to exceed that needed to reliably detect an effect in the Poisson regression used in the analysis such that a unit change in the independent variable produced a 10% change in the value of the dependent variable at a power of .99 with alpha error probability of .001. Achieved sample proportions were: *Age*: 1. 18-34 (20%), 2. 35-44 (19%), 3. 45-54 (18%), 4. 55-64 (22%), 5. 65+ (21%); *Gender*: 0. male (40%), 1. female (60%); *Income* (household income per annum) (£s): 1. 0 – 15,000 (17%), 2. 15,001 - 25,000 (22%), 3. 25,001-35,000 (19%), 4. 40,001-60,000 (22%), 5. over 60,000 (20%).

## Measures

In this study we used four measures: Three of which are established psychometric tests and one which was devised for this study:

1. *Financial anxiety* ( $\alpha = .92$ ): The financial anxiety scale (Shapiro & Burchell, 2012) is a reliable measure of financial anxiety that is distinct from depression and generalized anxiety and which has been shown to be associated with avoidance of aversive financial stimuli. Sample items: “Thinking about my personal finances can make me feel anxious”, “Discussing my finances can make my heart race or make me feel stressed” (on a 4 point Likert scale from 1 – “completely untrue” to 4 – “very true”). The scale was calculated as the mean score of all items so ranges from 1 to 4.
2. *General stress* ( $\alpha = .94$ ): Measured using the perceived stress scale (PSS: Cohen et al., 1983). Sample items “In the last year, how often have you felt that you were unable to control the important things in your life?”, “In the last year, how often have you felt nervous and ‘stressed’?” (on a 5 point Likert scale from 1- ‘never’ to 5, ‘very often’). This 10 item scale was shortened to six items for this study, and the reference period was adjusted to 1 year (from the more normal 1 month) to align with the period for which we asked about the occurrence of stressful financial life events. The scale was calculated as the mean score of all items so ranges from 1 to 5.
3. *Money attitudes*: These four scales were designed to assess attitudes to money (Fenton-O’Creevy and Furnham, 2020, von Stumm et al., 2013). The 16 items are categorized into four scales: money as security (Cronbach's alpha = .65), money as autonomy (Cronbach's alpha = .64), money as power (Cronbach's alpha = .76), and money as generosity (Cronbach's alpha = .64). Example items: “The best thing about money is that it means you can influence others” (power); “I would rather save money than spend it” (security); “The main point of earning money is to feel free and be

free” (autonomy); and “I often demonstrate my love to people by buying them things” (generosity). The scale was calculated as the mean score of all items so ranges from 1 to 4. Items were on a 5-point scale from ‘1 strongly disagree’ to ‘5 strongly agree’ and the scale was calculated as the mean score of all items, so ranges from 1 to 5.

#### 4. *Financial Distress Inventory*

This is discussed in the results.

### **Procedure**

The present study was conducted in collaboration with a large financial services organization. Data were collected by a market research firm that recruited participants from a (United Kingdom) national panel of adults, via an online questionnaire. The survey contained two attention check items and responses which failed an attention check or were completed implausibly quickly were discarded. The survey was conducted in October 2020, during the Covid-19 pandemic, a time at which financial stressors were likely to be increasingly common in the general population.

Informed consent was taken both in recruiting to the panel and for completion of the questionnaire. Participants were informed of their right to exit the survey before completion (in which case their data would be deleted) or to request deletion of their data subsequently. Their informed consent included that their data could be analysed and processed by third parties, subject to no information that could identify them being shared. Ethics approval was provided by the university’s Human Ethics Research panel.

### **Results**

#### 1. *Financial Distress Index*

The authors (with a background in research on the psychology of money) and two financial behaviour experts from the collaborating financial services firm, drew up an initial



long list of 50 indicators of financial distress, drawing both on experience of work with financial services clients and a review of prior work. The goal was to develop an inventory of indicators of financial distress that covered a range from modestly to highly stressful, that was clear and easy to understand. Items were included to cover both stressful life events (e.g. “Having a large unplanned bill to meet”, “Being denied credit”) and behaviours indicating financial anxiety and stress (e.g. “Constantly checking your banking app out of anxiety as a result of your financial situation”, “Not looking at bills, bank statements or credit card statements because of how they make you feel”).

Items were selected to cover a range from everyday stressors to more extreme events and behaviours, and to include both external events beyond the control of respondents and events and behaviours within their influence. The item list was narrowed down to 38 after discarding items that might cause confusion or difficulties in recollection or were ambiguous in the extent to which they may be associated with stress. Participants were asked to indicate whether they had personally experienced each item in the last year. Table 1 reports inventory items and the proportion of respondents reporting experiencing them in the last year.

Please indicate which of the following you have personally experienced in the last year:	%
Regularly worrying about your job security	28.8%
Constantly checking your banking app out of anxiety, as a result of your financial situation	28.6%
Having no savings in case of emergencies (e.g., repairing a boiler / car)	23.7%
Having a large unplanned bill to meet	21.5%
Worrying about paying for things like Christmas, children's birthdays	19.8%
Failing to pay off a credit card in full each month	18.9%
Going on a day out and worrying about the additional expenditure / the cost of eating out	17.6%
Not being able to afford a holiday when everyone else is going away	17.3%
Regularly spending more than your income	16.8%
Not looking at bills, bank statements or credit card statements because of how they make you feel	16.6%
Running out of money before your next pay date and having to rely on borrowing from credit card, overdraft, payday loan or similar	15.8%
Worried about being able to afford heating your home	15.5%
Worried about the price of a meal when eating out in a group	15.3%
Running out of money before your next pay date and having to rely on borrowing from friends or family	14.0%
Not finding time to keep track of your financial affairs	13.3%
Seen peers earning more money and also spending more than you do. Feel pressure to keep up and spend the same on items such as cars, houses, holidays and hobbies	13.1%
Experiencing a major fall in income (e.g. through being made unemployed)	12.3%
Buying something expensive you know you can't really afford	11.7%
Having larger debts than you can comfortably manage	11.4%
Pressure to afford things for kids – such as days out, school trips, new school uniform, big Christmas presents	10.9%
Having to pay a fine (e.g: a parking ticket or a speeding ticket)*	10.1%
Having a major life event coming up and worrying about how you will afford it, e.g: wedding, new baby, child going to university	9.7%
Not being able to afford to take part in work events e.g. drinks after work, secret Santa	9.3%
Being unemployed but needing to work to meet bills	9.2%
Unable to meet payments on a debt	7.7%
Going into overdraft with your bank without a prior arrangement	7.7%
Being denied credit	7.6%
Paid for something with a loan or credit card and have no idea how I'll eventually pay it off	6.8%
Going over the spending limit on your credit card	5.5%
Unable to pay a rent or mortgage payment when it was due	5.4%
Not meeting minimum payments on a credit card debt	5.0%
Difficulties funding childcare	3.3%
Had a house sale / purchase fall through*	2.6%
Having a house repossessed due to failure to meet mortgage payments	2.3%
Being made bankrupt, or entering into an Individual Voluntary Arrangement, or similar, due to debts you could not pay	2.2%
Having a car repossessed due to failure to meet payments	1.7%
Having possessions seized due to a court order relating to a debt	1.6%
Being evicted due to failure to meet rent payments	1.6%

Notes: \* = item dropped from scale after analysis

**Table 1: initial items in financial distress inventory**

Items were selected to cover a range from everyday stressors to more extreme events and behaviours, and to include both external events beyond the control of respondents and events and behaviours within their influence. The item list was narrowed down to 38 after discarding items that might cause confusion or difficulties in recollection or were ambiguous in the extent to which they may be associated with stress. Participants were asked to indicate whether they had personally experienced each item in the last year. Table 1 reports inventory items and the proportion of respondents reporting experiencing them in the last year.

The suitability of the inventory as a single scale was assessed using Mokken scaling, as implemented in the Mokken library in R (van der Ark, 2011). A Mokken scale is a probabilistic, non-parametric version of a Guttman scale. Both Mokken and Guttman scales assume that items are hierarchically ordered by percentage of respondents who answer items affirmatively. In Guttman scaling, the items higher in the hierarchy (less commonly answered affirmatively) imply affirmative answers to those which are lower in the hierarchy (more commonly answered affirmatively). By contrast in Mokken scaling, affirmative answers to items higher in the hierarchy only imply that items lower in the hierarchy are *more likely* to be answered affirmatively. The scalability of the scale is measured by coefficient H. H compares the number of departures from Guttman assumptions to the expected number if items were unrelated, such that higher H implies fewer departures from assumptions.

In the first step of the analysis, the Mokken automated item selection procedure was used to examine whether the items formed a single scale (Mokken, 1971). This showed all items to load on a single scale with two exceptions: “Having to pay a fine (e.g: a parking ticket or a speeding ticket)” and “Had a house sale / purchase fall through”. Both also showed low item correlations with the financial anxiety and general stress scales (all less than .2). These two items were dropped from subsequent analysis, leaving 36 dichotomous items. Next, the 36-item scale was checked for any breaches of the Mokken assumptions (monotonicity,

invariant item ordering and non-intersecting item step response functions). No breaches of assumptions were found.

H scores were calculated for the scale and each item and both Cronbach's alpha and lambda reliabilities were calculated for the scale. Scale H = .41, item H vary from .31 to .52. Reliabilities: lambda = .93, alpha = .93. Reliabilities and H values were comfortably in excess of the threshold values required for a well formed scale ( $H > .3$ ,  $\lambda > .7$ ) proposed by Sijtsma and Molenaar (2002).

In further analysis, the financial distress inventory was calculated as the count of all items experienced in the last year. Although, items vary in the level of stress they will be associated with, the Mokken structure of the scale ensures that the most stressful, least common items imply other less stressful, more common, items will also be selected. Whereas the reverse will not be the case.

However, as a robustness check, a weighted version of the scale was also calculated (participants rated each item on how stressful they thought it to be, and the mean stress scores were used to produce a weighted version of the scale). There was no significant difference in the correlations between the different versions of the FDI and financial anxiety or general stress.

## *2. Relationship of financial stress inventory to financial anxiety, general stress, and demographics.*

Table 2 shows Spearman rank correlations between the financial stress inventory, general stress, financial anxiety, money attitudes and demographic variables, and means and standard deviations on the diagonal (non-parametric correlations are used as the FDI is highly non-normal).

Spearman's rho correlations, means and standard deviations										
	1	2	3	4	5	6	7	8	9	10
1. FDI	4.22 (5.98)									
2. General Stress	.57***	3.02 (1.03)								
3. Financial Anxiety	.67***	.61***	2.02 (.82)							
4. Generosity	.14***	.17***	.15***	3.30 (.88)						
5. Security	-.02	.14***	-.11***	.12***	3.51 (.69)					
6. Freedom	.21***	.14***	.21***	.26***	.17***	3.44 (.84)				
7. Power & status	.18***	.15***	.32***	.21***	.13***	.46***	2.51 (.90)			
8. Gender	.11***	.23***	.07**	.10***	.05*	-.02	-.08**	.60 (.91)		
9. Age	-.42***	-.34***	-.38***	-.08**	-.15**	-.13**	-.15**	-.17***	3.06 (1.43)	
10. Income	-.03	-.04	-.07**	.12***	.13***	.04	.05*	-.03	-.21***	3.07 (1.39)

\* p < 0.05 level (2-tailed), \*\* p < 0.01 level (2-tailed), \*\*\* p < 0.001 level (2-tailed).  
Means (standard deviations) on the diagonal.

**Table 2: Correlations between the major variables and descriptives**

The financial distress inventory correlated significantly with general stress (.57) and financial anxiety (.67). Offering support for H1. It was also lower for men than women and showed an inverse association with age. The correlation with income was non-significant at  $p < 0.05$  (although subsequent regression analysis suggests this may be because of a non-linear relationship). The results also showed that financial anxiety was associated with age, sex and income similarly to the FDI scores.

### 3. Money attitudes and demographics as predictors of the financial distress inventory

Given the non-normal count data distribution of the financial distress inventory, ordinary least squares regression is not suitable for analysis with the inventory as dependent variable. Instead in the following analysis loglinear Poisson regression, is used (using the SPSS generalized linear models procedure); which is suitable for count data as dependent variable (DV). Age, gender and income were entered as factors, and money attitudes as covariates.

**Table 3: Poisson regression of Financial Distress Inventory on demographics and money attitudes**

	Model 1				Model 2			
	B	Std. Error	Exp(B)	Wald Chi-Square	B	Std. Error	Exp(B)	Wald Chi-Square
(Intercept)	1.96	0.04	7.12	2830.04***	0.669	0.08	1.95	66.56***
Gender - female	0.08	0.02	1.09	13.28***	0.124	0.02	1.13	27.62***
- male (reference)	0 <sup>a</sup>		1.00		0 <sup>a</sup>		1	
Age - 65+	-1.54	0.04	0.21	1172.53***	-1.43	0.05	0.24	997.78***
55-64	-0.97	0.04	0.38	723.25***	-0.82	0.04	0.44	503.55***
45-54	-0.31	0.03	0.73	98.16***	-0.26	0.03	0.77	68.99***
35-44	-0.05	0.03	0.95	3.21	-0.06	0.03	0.94	4.83*
18-34 (reference)	0 <sup>a</sup>		1.00		0 <sup>a</sup>		1	
Income - over £60,000	-0.40	0.04	0.67	112.57***	-0.4	0.04	0.67	113.66***
£40,001 - £60,000	-0.24	0.04	0.79	43.23***	-0.27	0.04	0.76	56.48***
£25,001 - £35,000	0.00	0.04	1.00	0.00	-0.03	0.04	0.98	0.47
£15,001 - 25,000	0.02	0.04	1.02	0.27	0.03	0.04	1.03	0.89
£0 - £15,000 (reference)	0 <sup>a</sup>		1.00		0 <sup>a</sup>		1	
Generosity					0.19	0.01	1.21	187.34***
Security					-0.18	0.02	0.84	125.51***
Freedom					0.21	0.02	1.24	168.87***
Power/Status					0.17	0.01	1.19	172.14***
Log Likelihood	-8133.5				-7568.18			
Likelihood Ratio Chi-Square (df)	2313.35 (9)***				3444.00(13)***			
McFadden pseudo Rsq	0.12				0.19			

\* p < 0.05 level (2-tailed), \*\* p < 0.01 level (2-tailed), \*\*\* p < 0.001 level (2-tailed).  
The McFadden pseudo Rsq is calculated as 1 minus the ratio of the log likelihood of the model under consideration over the log likelihood of the null model (-9290.18).  
a. set to zero as redundant parameter.

Table 3 shows the financial distress inventory regressed on demographic variables and money attitudes.

This analysis uses the log of the expected value of the dependent variable. Hence, to recover the original scale of the dependent variable it is necessary to calculate the exponential of each parameter. These can be interpreted as having a multiplicative effect on the value of the dependent variable with all other variable values held constant.

In model 1 we see that the value of FDI is higher (by 9%) for women than men. FDI decreases with increasing age and is 79% lower for the oldest age band than the youngest age band ( $1 - 0.21 = .79$ ). There is no significant difference in FDI between the three lowest income bands. However, FDI is significantly lower in the top income band (by 33%) and second highest income band (by 21%) compared to the bottom income band.

Adding the money attitude variables in model 2 leads to a substantive improvement in log-likelihood and in R squared. Parameters for age, gender and income remain of similar size. Parameters for all four money attitudes are significant, but with a different sign for money as security to money as generosity, freedom or power/status. Thus, for a unit increase in the (1 to 5) scale, money as security is associated with a reduction in the FDI of 16%, whereas unit increases in money as generosity, freedom, or power/status are associated with an increase in the FDI of, respectively 21%, 24% and 19%.

## **Discussion**

In this study we devised a robust new index of financial distress: the FDI. This is important for both researchers but also those in the financial industry attempting to assist their clients.

We found, as expected, that FDI was correlated with gender and age, but interestingly not with income. However, we must note that the results of the correlation and regression analysis did differ. Although income was unrelated to financial distress in the correlations it was negatively associated with financial distress in the regressions, as might be expected. This is most likely explained by the non-linear relationship of income with the FDI with FDI only declining with income above an annual household income of £35,000.

The strongest demographic correlate of financial distress was age indicating perhaps that although people have to take on more financial responsibilities as they get older, they learn more about money management.

We found as hypothesised that our measure was related to a shorter and different measure of financial anxiety which served as an index of concurrent validity. Moreover, it was related to a measure of general stress, though it is not clear whether state-trait anxiety is a cause or consequence of stress; or indeed with reciprocal causality people spiral down into a state of general stress and anxiety. There is however data from many previous studies that suggest that people who score high on Neuroticism (which is associated with anxiety and depression) report more money worries (Furnham, 2014), yet it unclear whether this trait effects general “negative affectivity” such that they report stress associated with nearly all aspects of their lives.

Perhaps the most interesting results are those shown in Table 3 which examines the role of general money attitudes and the FDI. There are now a growing number of studies which have demonstrated that money beliefs are associated with a wide range of financial and non-financial behaviours (Furnham & Horne, 2021). There is a consistent theme in the results of these studies which is



supported here: those who associated money with security, but not generosity/love, freedom and power/status seem to be more stable, successful and happy. Associating money with security tends to be associated with financial probity, monitoring and wise spending.

In this study all four of the money attitudes were associated, as hypothesised, with financial distress but the results of the correlational analysis were also interesting. Here money with security was not associated with financial distress though it was positively associated with general stress and negatively associated with financial anxiety. It could be that people who worry are concerned with their general security which is inevitably linked to money, though their negative correlation with financial anxiety (and distress in the regression) suggests that money security is a separate issue.

The regressions indicated that those who associated money with generosity, freedom and power had most financial distress and those associating money with security had least financial distress. This aligns with many other studies that suggest that people who associate money with generosity, freedom and power are fickle and unwise in their financial affairs. Those who associate money with generosity and love tend to spend money on themselves and others unwisely and it is often associated with impulsive and compulsive spending (Fenton-O'Creevy & Furnham, 2019). Equally, those who see money as power often have a form of learned helplessness when they believe they do not have sufficient funds to further their ends (Furnham, 2014). Equally those who associated money with freedom are always concerned with being trapped with few options if they do not have more money.

This, like all studies, was not without its limitations. Using cross-sectional survey data, we cannot be sure of causal direction. Ideally, we would have had an even bigger sample of heterogeneous participants. It would also have been desirable to have more details on each participant's financial situation (salary, savings, debt). Nonetheless, we suggest this new financial distress inventory may have value in both future research and as a simple diagnostic instrument when working with financial clients.

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