

# A Study of the Financial Crisis and its Effect on Psychological Well-Being, Health, Satisfaction, and Financial Incapability

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## Abstract

This study explores the effect of the financial crisis on the consumer and its impact on psychological well-being and life satisfaction with the core question investigating what effect the financial crisis has on the psychological well-being and life satisfaction of household heads in the United Kingdom. The reversed model approach used in the study analysed from two perspectives before and after the financial crisis. One is to investigate the psychological well-being using the general health questionnaire and its effect on health, life satisfaction and financial incapability. The second is to investigate financial incapability and its effect on health, life satisfaction and psychological well-being based on the British Household Panel (1991-2009) and Understanding Society (2010) Surveys.

They are two integrated large nationwide panel surveys commissioned by the United Kingdom government as an instrument to measure social and economic indicators at the individual and household level. The result of the analysis indicates that overall life satisfaction and financial incapability are important determinants of psychological well-being. The paper further explores the impact of the financial crisis on a household head before and after the crash. The results suggest that satisfaction with life, health implications, psychological well-being, and financial capability were significantly lower after the financial crisis. In conclusion, the results explain why overall life satisfaction generally affects individuals' psychological well-being and financial capability, and why those with high financial incapability have poor psychological well-being.

**Keywords:** Financial crisis • Psychological well-being • Financial incapability • Life satisfaction • Health

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## Abbreviation

GDP: Gross Domestic Product; GHQ: General Health Questionnaire; BHP: British Household Panel; US: Understanding Society.

## Introduction

In the first quarter of 2008, preceding the recession, the Gross Domestic Product (GDP) of the United Kingdom peaked at £422,328 million, dropping by 6.1% over the next five quarters. Not only was the GDP severely affected, but the Net National Income also fell by 11.9% with continuous decline till the end of 2011. At the same time, the unemployment rate in the nation increased from 5.2% in that year to as high as 8.5% by October 2011 Boyle et al. [1] Not only were there devastating economic implications of the financial crisis for the country, individuals and households, the media also reports observations from its effects in multiple areas. From social relationships to health to housing and family income and finances, the downturn also affected the psychological well-being of the people (Austin, 2015).

Observing the upheavals caused by the crisis, the British government took the first measures in 2011 by launching a programme to ensure the national well-being of the people in the United Kingdom [1]. The Office for National Statistics (2015), from their measure of National Well-being reported, high rates of individuals' satisfaction with life since the focus on the care for well-being in 2011. The result encourages an examination of pre-recession levels of well-being to determine how it changed in the United Kingdom following the Great Recession [1]. Another effect of the global financial crisis was the

exposure of a systemic lack of financial capability across multiple scales of economic structure, from the individual household to the nation-state. The events of 2008/09 highlighted the vital need to rethink what is entailed by financial incapability, and in particular, to stress the significance of preparing for future uncertainties. Lack of such adequate provisions was seen as a chief cause of the crisis in individuals, whose lives were thrown from positions of economic well-being into disarray in the wake of the financial crisis [2]. The outcome of the financial crisis saw the fall of real income for many UK households despite the constant increase in the cost of living [3]. Situations like this further show the seriousness of financial incapability [3] and other researchers have reported associations between various indicators of financial capability and psychological well-being.

There is research dedicated to providing potential solutions to the issue of psychological well-being in the context of the global financial crisis. However, studies related to the effect of psychological well-being on satisfaction, health implications and financial capability is minimal. This research establishes close links in the areas of literature. It also indicates possible opportunities through a new and integrated approach towards not only focusing on a combination of relationships among more than three dependent variables, but also reversing the dependent variable to dig deeper into any unseen relationships. This study uses data from The British Household Panel Survey and Understanding Society, UK longitudinal surveys to measure life satisfaction, health and financial incapability both before and after the financial crisis of 2008, to test nine hypotheses, and their effect on well-being.

This research is grounded in the broad question: what effect does the financial crisis have on the psychological well-being of heads of UK households? A total of nine hypotheses guide this research, of which three relate to psychological well-being, two to financial incapability and four to the pre and post-financial crash comparisons.

- H1: Satisfaction with life will be related to poor psychological well-being (GHQ score).
- H2: Negative implications of health (factor score) will be positively related to poor psychological well-being (GHQ score).
- H3: Overall financial incapability (factor score) will be positively related to poor psychological well-being (GHQ score).

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- H4: Overall financial incapability (factor score) will be negatively related to satisfaction with life.
- H5: Overall financial incapability (factor score) will be positively related to negative implications of health.
- H6: Satisfaction with life (factor score) will be significantly higher before the crash (mean 2006/07) than after (mean 2010/11).
- H7: Negative implications of health (factor score) will be significantly lower before the crash (mean 2006/07) than after (mean 2010/11).
- H8: Overall financial incapability (factor score) will be significantly lower before the crash (mean 2006/07) than after (mean 2010/11).
- H9: Poor psychological well-being (GHQ score) will be significantly lower before the crash (mean 2006/07) than after (mean 2010/11).

The paper is organized as follows. Section 2 reviews the literature on the association between psychological wellbeing, financial incapability, satisfaction, and health. Section 3 presents the data and methods. Section 4 presents the results. The results are discussed in Section 5, and Section 6 concludes.

## Literature Review

### Psychological well-beings

Well-being is a concept that is rich outside of the discipline of philosophy. Politics, economics, and health studies have generated discourses centred around well-being. It has inevitably proved to be an essential concept within health studies and clinical psychology. It allows people to feel good about themselves and the world around them, as well as being important for physical health. More generally, research finds a strong association between positive affect and physical health, and life satisfaction and perceived physical health, with both being an essential component of well-being.

A study by Oskrochi et al. [4] explored factors affecting psychological well-being in Great Britain while considering the influence of financial situations and demographic characteristics. Findings from the study indicated that those who expected better future financial situations had significantly less (better) GHQ [1] average scores while those who expected deterioration in their current financial situation had higher (lower) GHQ scores. The study also showed that age as a demographic covariate was significant with an increase (decline) in GHQ scores. While the specific factors that both positively and negatively impact on psychological well-being may be disputed, and their patterns and logic are subject to debate, it is clear that across multiple academic disciplines well-being emerges as a normative concern [5]. Well-being is multifaceted enough as a concept to serve as an umbrella concept over the research presented in this thesis, precisely because it is so useful as a general overarching measure. It is also necessary to resolve additional concepts at a different level of granularity to be able to ask more specific questions which can afterwards be referred to in the overall question of well-being. Essentially, these sub-concepts all discretely affect well-being in different ways, and they are in this research as a means of breaking down psychological well-being into constitutive parts [5]. While the entirety of factors that constitute well-being cannot be assessed in a single study, the three sub-concepts chosen here to focus the analysis are 'life satisfaction', 'implications for poor health', and 'financial incapability'. Overall, these three concepts impact well-being, yet each presents a distinct dimension, differentiated from the others. The three concepts do not exhaust well-being or account for every aspect of it, but they do provide a necessary level of specificity to the particular questions of well-being, that the research is geared towards answering.

1) The General Health Questionnaire (GHQ-12) consists of 12 items, each assessing the severity of a mental problem over the past few weeks using a 4-point scale (from 0 to 3). The score was used to generate a total score range from 0 to 36, with higher scores indicating worse condition.

### Satisfaction

'Life satisfaction' is a psychological construct 'concerned not with what

people have or what happens to them but with how they think and feel about what they have and what happens to them'. (Maddux, 2018) It is, therefore positioned within the subjective approach to measuring well-being. A crucial distinction to be made is that life satisfaction differs distinctly from well-being as a metric since its value is a wholly subjective experience (Maddux, 2018). Where well-being may be looked at from the position of welfare economics and evaluated objectively, life satisfaction can only be self-reported and is often considered a 'reflective cognitive judgement' [6]. The classic formulation of the interrelationship of subjective well-being and life satisfaction comes from the work of Diener: 'A person is said to have high (subjective) well-being if she or he experiences life satisfaction and frequent joy, and only infrequently experiences unpleasant emotions such as sadness or anger. Contrariwise, a person is said to have low (subjective) well-being if she or he is dissatisfied with life, experiences little joy and affection and frequently feels negative emotions such as anger or anxiety' [7]. Thus, subjective well-being is a function of life satisfaction.

Since the early 1960s, life satisfaction has been accepted as an important predictor of other social and economic factors [8]. The most dominant form of engagement with life satisfaction has been related to jobs. Impact on satisfaction with life' study carried out by [9], provides evidence of satisfaction with life before the crash (2006/07) and after (2010/11). The study concludes that before 2008, LS (life satisfaction) was higher; mainly showing a strong negative relationship with unemployment that lasted several years. They also found that the long-term decline in LS after the start of the financial crisis tended to occur in the higher socio-economic groups. The results of life satisfaction studies have varied, but certain strong themes have emerged. Multiple studies have reported on the strong correlation between satisfaction with marriage and positive life satisfaction, and satisfaction with employment and positive life satisfaction [10,11]. In contrast, personal circumstances such as widowhood, unemployment and disability have been associated with lower levels of life satisfaction [6]. However, what is crucial to observe from existing literature dedicated to life satisfaction, is the centrality it brings to subjective experience and the significant gap which exists on the question of financial incapability.

### Health

Health is a task which again implicates issues of subjectivity and objectivity. Some studies have suggested that objective measures of what constitutes good health, such as life expectancy or HIV infection rate, do not appear to correlate strongly with well-being in cross-cultural studies [12]. A significant impetus for the study of health and psychological well-being has come from the increasing evidence that mental well-being impacts physical health [13, 14]. The study of Stuckler et al. on 'The health implications of the financial crisis: a review of the evidence' concludes that available evidence suggests that health is at risk in times of rapid economic change, both in times of boom and bust. The study makes the point that the impact on health is exacerbated after the bust, particularly where people have accessibility to means to harm themselves. The study concludes that health implications are ameliorated by the presence of strong social cohesion and social protection systems, but health issues were lower before the crash compared to after.

Health may include a range of conditions-some physical, some mental, some imposed from outside, and others endogenous. The temporality of health is also subject to variation and may be sporadic or chronic. The periodicity of poor health has particular implications for financial well-being as cycles of poor health may follow (or induce) cycles of low financial capability [15,16].

Fitzpatrick asserted that while poor health may be the cause of poverty in some circumstances, it is statistically more likely that the chain of causality works in the other direction and poverty is then considered as a primary cause of poor health. However [17], Diener et al. more recently highlight how questions of causality between health and well-being are often raised and that, most likely, causality may go both ways with health and illness impacting well-being, and well-being, in turn, influencing health and illness.

### Financial incapability

In 2006, before the global financial crisis, the UK Financial Services Authority launched a study which identified the elements of financial capability

as comprising knowledge and understanding, skills, confidence and attitudes, all of which are influenced by a person's experience and circumstances, as well as by their personality. From the study, it emerged that the key determinants were managing money (being able to live within one's means), planning, making choices (being aware of, and sufficiently informed about), the financial products that were on offer, and getting help (being aware of, and being able to access, available sources of support, advice, and protection [18].

The study by Taylor et al. [5] of financial incapability in British Households is a crucial document in this context since it provides foundational distinctions of the main groups of variables related to financial incapability: 'measures of perceived financial well-being; saving behaviour; housing payment problems; and material well-being'. Importantly, these variables are considered to be independent of income level-having a high income does not entail a high degree of financial capability, just as having a low income may not entail a low degree of financial capability [5]. This study for the Financial Services Authority was produced immediately after the global financial crisis, as a direct response to the anticipated repercussions the crisis would have for those lacking in financial capability. The origin of the study thus coincides with the aims of this thesis, though what it benefits from is the availability of BHPS data for the years both preceding and succeeding the financial crisis-only the former being available for the study by Taylor et al. [5].

A further essential contribution of the Taylor et al. [5]. study was its formulation of financial incapability indices based on the BHPS survey data which detailed a variety of headings under which financial capability could be assessed. Some of them were:

- Reporting worsened financial situation since the previous year
- Whether the individual concerned saves
- Whether he/she has housing, rent payment problems
- Whether he/she has been at least two months late in housing arrears in the last 12 months.

The indices of financial incapability were found to be significantly associated with 'gender, age, migrant status, marital status, number of children, household size and structure, health, employment status of the individual and other household members, job type, housing tenure, house value and housing costs, and income, and also with changes in marital status, the number of children, household structure, health, employment status of the individual and other household members, housing tenure, costs and income'.

In research carried out into 'Levels of Financial Capability in the UK' Atkinson et al. [18] conclude that poor financial decisions affect satisfaction with life and happiness, and there is a need for financial education work to be focused on managing money. Xiao et al. [19], propose a similar argument for the relevance of financial capability to well-being and the importance of financial education, based on the findings of their study. They find that financial satisfaction increases in response to desirable financial behaviour but decreases in response to risky financial behaviour. Of even greater relevance to this study, they find that financial literacy is positively related to overall financial satisfaction.

In studies of financial capability, more generally, it is often difficult to determine whether psychological distress or poor mental health come about because of financial incapability or other confounding variables such as income and employment status. To address this, Taylor et al. [3] conducted a study which examined the impact of financial capability on psychological health in Britain, while distinguishing between financial capability, income poverty and economic resources.

## Data and Methods

### Study design

The study design used a reversed study approach [20]. The reverse model design approach adopted is used when two events influence each other simultaneously, which in this case represents financial incapability and

psychological well-being. The approach was used to investigate psychological well-being using the general health questionnaire (poor well-being) and its effect on health, life satisfaction and financial incapability, in which GHQ/poor well-being is the dependent variable, and the reverse, financial incapability is the dependent variable. In contrast, life satisfaction, health and GHQ/poor well-being are independent variables.

**Data:** Data used in the study comes from the British Household Panel (BHPS) and Understanding Society (US) Surveys. The survey which began in 1991 and remains current follows the same representative sample of households for years. The BHPS also utilizes the same sample of individuals within the panel for years. The survey is household-based and is structured around interviewing adult members within sampled households. The BHPS was later changed to the Understanding Society (2009 to the present), which is also financed by the British government. The BHPS/US data provides information on the demographic and socio-economic aspects of the participants as it covers a broad array of themes such as family life, education, employment, finance, health, and well-being. The scope of the research constitutes only 2,670 PIDs (11% of the full dataset) that responded to both BHPS and US surveys to at least one of the questions covered by the research. The research sample constitutes 1,005 PIDs (38% of the PIDs in scope), and the selection criterion was that each PID in the sample individually had less than 25% missing data on the dependent variable-GHQ Score.

The analyses are restricted to individuals identified in the data as UK household heads. In our analyses, we use panel data from 2006/2007, the period before the financial crisis and 2010/2011, the period after the financial crisis, from the British Household Panel (BHPS) and Understanding Society (US) Surveys.

The years 2010 and 2011 were selected as most relevant as they were just after the global financial crisis. For most of the variables of interest 2012 had far more missing data compared to 2010 and 2011. 2013 and 2014 were not selected, as they are further away from the crisis, and thus impacted by additional factors, interventions, and policies beyond the scope of the current study.

**Data analysis:** The analysis of the secondary data, and testing the hypotheses and models, was done using SPSS, (Version 21.0) and specifically descriptive statistics, correlation, and t-test were conducted. The Pearson Correlation Test helped determine whether there was a linear relationship between the independent variables (life satisfaction, health implications and financial incapability) on the psychological well-being of the participants of the survey. Financial incapability was used as a second dependent variable. This was used to look in the opposite direction to determine whether a linear relationship existed between the independent variables (life satisfaction, health implications, and psychological well-being). T-tests were used to determine if there were differences in psychological well-being with life satisfaction, health implication, and financial incapability in 2006/07 and 2010/11. T-tests were also used to check for differences between pre-and post-crash data.

## Results

### Descriptive statistics

Descriptive statistics for the 2006/07 and 2010/11 datasets are presented in Tables 1 and 2 respectively. These describe sample size, and minimum, maximum, mean and standard deviation of the variables used in the study (Table 1).

Descriptive Statistics for the Mean 2006/07 dataset was conducted and no data outside expected limits were found. Tests for skewness and kurtosis were run. George and Mallery state that "skewness and kurtosis values between +/- 1.0 are considered to be excellent while values between +/-2.0 are acceptable. The only item beyond this limit on both skewness and kurtosis was Health 2, but this item did not exceed the limits in the 2010/11 dataset on either, (see below), and so the variable was retained (Table 2).

Descriptive Statistics for the Mean 2010/11 dataset was conducted and

once again, no data outside expected limits were found. Tests for skewness and kurtosis were again run. All items were below the George and Mallery limit of +/-2.0, and so all items are acceptable.

### Hypotheses testing

Hypotheses 1, 2, 3, and 9 were important in establishing the relationship between life satisfaction, health implications, and financial incapability on psychological well-being as well as to determine whether poor psychological well-being was significantly lower before the crash than after it. Hypotheses 4, 5, and 8 were important in examining the relationship between the independent variables (life satisfaction, health implications, and psychological well-being) and financial incapability, as well as to determine whether poor psychological well-being was significantly lower before the crash than after it. Finally, Hypotheses 6 and 7 respectively help to determine whether satisfaction with life was significantly higher before the crash than after it as well as whether negative implications of health were significantly lower before the crash than after it. The t-test was explicitly used to measure differences in the independent groups for the dependent variables in the two different periods.

### Correlation

The result in Table 3 examines the relationships the independent variables (life satisfaction, health implications, and financial incapability) and psychological well-being in 2006/07 and 2010/11.

Correlation between the independent variables and poor psychological well-being (Table 3).

Result from Table 3 above shows a negative correlation between the life satisfaction factor and poor psychological well-being,  $r=-0.310$ ,  $p<0.01$  (2006/2007) and  $r=-0.244$ ,  $p<0.01$  (2010/2011). Overall, there was a weak, negative relationship and decreases in life satisfaction were correlated with

increases in poor psychological well-being. Based on this result, we accept the null hypothesis that satisfaction with life (factor score) will be negatively related to poor psychological well-being (GHQ score).

A negative correlation also existed between the health implications factor and poor psychological well-being,  $r=-0.166$ ,  $p<0.01$  (2006/2007) and  $r=-0.238$ ,  $p<0.01$  (2010/2011). Overall, there was a weak, negative relationship, and decreases in health implications were correlated with increases in poor psychological well-being. Based on this result, we reject the null hypothesis that health implications (factor score) will be positively related to poor psychological well-being (GHQ score).

Lastly, the result shows a positive correlation between the financial incapability factor and poor psychological well-being in 2006/2007,  $r=0.168$ ,  $p<0.01$  but a negative relationship in 2010/2011,  $r=-0.170$ ,  $p<0.01$ . An overall weak relationship exists between the two periods. The result, however, suggests that in the period 2006/2007, increases in financial incapability are associated with increases in poor psychological well-being, while in 2010/2011, decreases in financial incapability are associated with increases in poor psychological well-being. The deviation in 2010/2011 may be due to the financial crisis affecting everyone, regardless of past financial decisions or tendencies. Based on this result, we accept the null hypothesis that financial incapability (factor score) will be positively related to poor psychological well-being (GHQ score) for the period 2006/2007 and reject the hypothesis for period 2010/2011.

In reverse, Table 4 examines the relationships between the independent variables (life satisfaction, and health implications) and financial incapability in 2006/07, and 2010/11.

Correlation between the independent variables and financial incapability, (Table 4).

The result from Table 4 indicates that life satisfaction factor shows a

**Table 1.** Descriptive statistics for the variables (2006/07).

|                      | N    | Min  | Max  | Mean  | Std. Dev   | Skewness | Kurtosis  |
|----------------------|------|------|------|-------|------------|----------|-----------|
| GHQ Score            | 990  | 23   | 36.5 | 28.43 | 2.26       | 0.02     | -0.4      |
| F1 Life Satisfaction | 987  | 6.3  | 28   | 19.39 | 3.62       | -0.54    | 0.63      |
| F2 Poor Health       | 846  | 5.5  | 13   | 10.43 | 1.24       | -1.19    | 1.56      |
| F3 Fin Incapability  | 1005 | 4.3  | 11.5 | 7.47  | 1.22       | 0.13     | -0.07     |
| CV Age               | 1005 | 18.5 | 92.5 | 52.22 | 16.07      | 0.1      | -0.7      |
| CV Employed or not   | 1005 | 0    | 1    | 0.61  | 0.43       | -0.46    | -1.53     |
| CV Consumables N.    | 1005 | 0    | 9    | 7.15  | 1.87       | -1.38    | 1.93      |
|                      |      |      |      |       | Std. Error | 0.08     | 0.15-0.17 |

**Table 2.** Descriptive statistics for variables (2010/11).

|                      | N    | Min. | Max. | Mean  | Std. Dev.  | Skewness | Kurtosis  |
|----------------------|------|------|------|-------|------------|----------|-----------|
| GHQ Score            | 840  | 21   | 32.5 | 26.18 | 1.96       | 0.27     | -0.29     |
| F1 Life Satisfaction | 844  | 4.7  | 28   | 18.81 | 4.22       | -0.41    | -0.25     |
| F2 Poor Health       | 849  | 5    | 13   | 11.48 | 1.68       | -1.39    | 1.69      |
| F3 Fin Incapability  | 1005 | 4.9  | 9.4  | 7.09  | 0.66       | -0.1     | 0.19      |
| CV Age               | 1005 | 22.5 | 96.5 | 56.22 | 16.07      | 0.1      | -0.7      |
| CV Employed or not   | 1005 | 0    | 1    | 0.44  | 0.41       | 0.33     | -1.53     |
| CV Consumables N.    | 1005 | 0    | 9    | 5.41  | 2.61       | -1.1     | -0.02     |
|                      |      |      |      |       | Std. Error | 0.08     | 0.15-0.17 |

**Table 3.** Correlation between the independent variables and poor psychologic well-being.

|                              | PHBGHQ<br>2006/07 | PHBGHQ<br>2010/11 |
|------------------------------|-------------------|-------------------|
| Life Satisfaction Factor     | -.310**           | -.244**           |
| Health Implications Factor   | -.166**           | -.238**           |
| Financial Incapability Fact. | .168**            | -.170**           |
| N                            | 990               | 840               |

\*\* Correlation is significant at the 0.01 level

significant negative relationship with the financial incapability of UK household heads in 2006/07 ( $r=-0.299$ ) and 2010/11 ( $r=-0.288$ ). Also, the health implications' factor shows a statistically significant negative relationship with financial incapability in 2006/07 ( $r=-0.244$ ) and 2010/11 ( $r=-0.291$ ). Overall, there was a weak, negative relationship. This suggests that decreases in life satisfaction and negative health implications were correlated with increases in financial incapability. Based on this result, we accept the null hypothesis that overall life satisfaction (factor score) will be negatively related to financial incapability in both periods.

We also reject the hypothesis that overall financial incapability (factor score) will be positively related to negative implications of health.

### Independent sample T-test

**Independent sample T-test for psychological well-being:** Psychological well-being, is divided into good and bad well-being, based on factor scores. The result of the test will compare the means of the two well-being groups for life satisfaction, health implications, and financial incapability (Table 5).

Table 5 presents the 2006/2007 means of overall life satisfaction, financial incapability and negative implications of health for poor and good psychological well-being. On life satisfaction, the result shows that life satisfaction factor was higher for good psychological well-being ( $M=20.81$ ,  $SD=3.11$ ) than poor well-being ( $M=18.21$ ,  $SD=3.69$ ) with a statistically significant difference among the groups,  $t(598)=9.34$ ,  $p<0.01$ . The result suggests that life satisfaction does affect psychological well-being. Specifically, when individuals, especially household heads, have life satisfaction, they tend to show higher good GHQ scores.

Secondly, concerning health implications, the result also shows that health implications factor was higher for good psychological well-being ( $M=10.77$ ,  $SD=1.06$ ) than poor well-being ( $M=10.29$ ,  $SD=1.25$ ) with a statistically-significant difference among the groups,  $t(511)=4.73$ ,  $p<0.01$ . This suggests that the health implications factor does have an effect on well-being, and household heads tended to show higher good psychological well-being when they have health implications. This result disputes real-life occurrences;

**Table 4.** Correlation between the independent variables and financial incapability.

|                            | FIN Inc<br>2006/07 | FIN Inc<br>2010/11 |
|----------------------------|--------------------|--------------------|
| Life Satisfaction Factor   | -.299**            | -.288**            |
| Health Implications Factor | -.244**            | -.291**            |
| N                          | 1005               | 1005               |

\*\* Correlation is significant at the 0.01 level

however, the types of health issues in the health implications factor could have contributed to the final results.

Regarding financial incapability, the result also shows a significant difference in the scores for good psychological well-being ( $M=7.15$ ,  $SD=1.11$ ) and poor well-being ( $M=7.72$ ,  $SD=1.33$ ) with poor well-being having a higher score. This also shows the effect financial incapability has on psychological well-being, and how household heads tend to have higher poor well-being when they possess financially-incapable behaviours or traits (Table 6).

Table 6 presents the 2010/2011 means of overall life satisfaction, financial incapability and negative implications of health for good and poor psychological well-being. On life satisfaction, the result shows that life satisfaction factor is higher for good psychological well-being ( $M=20.00$ ,  $SD=4.32$ ) than poor well-being ( $M=17.78$ ,  $SD=3.90$ ) with a statistically-significant difference between the groups,  $t(660)=6.92$ ,  $p<0.01$ . Concerning health implications, the result also shows that the health implications factor is higher for good psychological well-being ( $M=11.88$ ,  $SD=1.50$ ) than poor well-being ( $M=11.17$ ,  $SD=1.68$ ) with a statistically significant difference between the groups,  $t(665)=5.78$ ,  $p<0.01$ . Also, regarding financial incapability, the result shows a significant difference in the scores for good psychological well-being ( $M=6.90$ ,  $SD=0.63$ ) and poor well-being ( $M=7.15$ ,  $SD=0.73$ ), with poor well-being having a higher score. The results in this period corroborate the inference from 2006/2007 for all the independent variables with psychological well-being. The findings support the notion that people tend to have good psychological well-being when they are satisfied with their lives, and have non-threatening health issues, but develop poor well-being when they exhibit financial incapable behaviours or tendencies.

**Independent Sample T-test for financial incapability:** Financial incapability is divided into high and low financial incapability based on factor scores. The result of the test will compare the means of the two financial incapability groups for life satisfaction, health implications, and psychological well-being (GHQ) (Table 7).

Table 7 presents the 2006/2007 means of overall life satisfaction, psychological well-being and negative implications of health for high and low financial incapability. On life satisfaction, the result shows a significant difference in the scores for low financial incapability ( $M=20.52$ ,  $SD=3.21$ ) and high financial incapability ( $M=18.17$ ,  $SD=3.93$ ) with low incapability having a higher score. This suggests that an individual (household heads in particular) tend to have higher mean scores for low incapability compared to high incapability when they are satisfied with their life. This means that individuals with life satisfaction have lower financial incapability scores. For health implications, the result also shows a significant difference in the scores for low financial incapability ( $M=10.72$ ,  $SD=1.05$ ) and high incapability ( $M=10.07$ ,  $SD=1.45$ ), with low incapability having a higher score. This

**Table 5.** T-test between the independent variables and psychological well-being (2006/2007).

|                               | Group   | N   | Group Statistics |      | t-test for quality of means |     |      |
|-------------------------------|---------|-----|------------------|------|-----------------------------|-----|------|
|                               |         |     | Mean             | SD   | t                           | df  | Sig. |
| Life Satisfaction Factor      | Good WB | 300 | 20.81            | 3.11 | 9.34                        | 598 | 0.00 |
|                               | Poor WB | 300 | 18.21            | 3.69 |                             |     |      |
| Health Implications Factor    | Good WB | 253 | 10.77            | 1.06 | 4.73                        | 511 | 0.00 |
|                               | Poor WB | 260 | 10.29            | 1.25 |                             |     |      |
| Financial Incapability Factor | Good WB | 306 | 7.15             | 1.11 | -5.76                       | 608 | 0.00 |
|                               | Poor WB | 304 | 7.72             | 1.33 |                             |     |      |

**Table 6.** T-test between the independent variables and psychological well-being (2010/2011).

|                               | Group   | N   | Group Statistics |      | t-test for quality of means |     |      |
|-------------------------------|---------|-----|------------------|------|-----------------------------|-----|------|
|                               |         |     | Mean             | SD   | t                           | df  | Sig. |
| Life Satisfaction Factor      | Good WB | 345 | 20               | 4.32 | 6.92                        | 660 | 0.00 |
|                               | Poor WB | 317 | 17.78            | 3.9  |                             |     |      |
| Health Implications Factor    | Good WB | 347 | 11.88            | 1.5  | 5.78                        | 665 | 0.00 |
|                               | Poor WB | 320 | 11.17            | 1.68 |                             |     |      |
| Financial Incapability Factor | Good WB | 349 | 6.9              | 0.63 | -4.73                       | 667 | 0.00 |
|                               | Poor WB | 320 | 7.15             | 0.73 |                             |     |      |

**Table 7.** T-test between the independent variables and financial incapability (2006/2007).

|                                | Group statistics |     |       |      | t-test for quality of means |     |       |
|--------------------------------|------------------|-----|-------|------|-----------------------------|-----|-------|
|                                | Incapable        | N   | Mean  | SD   | t                           | df  | Sig.  |
| Life Satisfaction Factor       | Low              | 325 | 20.52 | 3.21 | 8.34                        | 646 | 0 .00 |
|                                | High             | 323 | 18.17 | 3.93 |                             |     |       |
| Health Implications Factor     | Low              | 280 | 10.72 | 1.05 | 6.1                         | 562 | 0 .00 |
|                                | High             | 284 | 10.07 | 1.45 |                             |     |       |
| Psychological Well-being (GHQ) | Low              | 332 | 28.06 | 2.27 | -4.96                       | 646 | 0 .00 |
|                                | High             | 316 | 28.92 | 2.16 |                             |     |       |

**Table 8.** T-test between the independent variables and financial incapability (2010/2011).

|                                | Group Statistics |     |       |      | t-test for quality of means |     |       |
|--------------------------------|------------------|-----|-------|------|-----------------------------|-----|-------|
|                                | Incapable        | N   | Mean  | SD   | t                           | df  | Sig.  |
| Health Implications Factor     | Low              | 375 | 11.89 | 1.22 | 7.28                        | 615 | 0 .00 |
|                                | High             | 242 | 10.97 | 1.92 |                             |     |       |
| Life Satisfaction Factor       | Low              | 376 | 19.57 | 4.14 | 6.54                        | 611 | 0 .00 |
|                                | High             | 237 | 17.31 | 4.24 |                             |     |       |
| Psychological Well-being (GHQ) | Low              | 373 | 26.01 | 1.92 | -3.6                        | 611 | 0 .00 |
|                                | High             | 240 | 26.59 | 1.94 |                             |     |       |

**Table 9.** T-test between variables pre-crash (2006/07) vs. post-crash (2010/11).

|                               | Group Statistics |      |       |          | t-tests for equality of means |      |               |
|-------------------------------|------------------|------|-------|----------|-------------------------------|------|---------------|
|                               | Group            | N    | Mean  | Std. Dev | t                             | df   | Sig. (1-tail) |
| Financial Incapability Factor | Pre-crash        | 1005 | 7.47  | 1.22     | 8.68                          | 2008 | 0 .00         |
|                               | Post-crash       | 1005 | 7.09  | 0.66     |                               |      |               |
| Poor health Factor            | Pre-crash        | 846  | 10.43 | 1.24     | -14.62                        | 1693 | 0 .00         |
|                               | Post-crash       | 849  | 11.48 | 1.68     |                               |      |               |
| Life satisfaction factor      | Pre-crash        | 987  | 19.39 | 3.62     | 3.18                          | 1829 | 0 .00         |
|                               | Post-crash       | 844  | 18.81 | 4.22     |                               |      |               |
| Poor wellbeing (GHQ)          | Pre-crash        | 990  | 28.43 | 2.26     | 22.56                         | 1828 | 0 .00         |
|                               | Post-crash       | 840  | 26.18 | 1.96     |                               |      |               |

suggests that an individual (household heads in particular) had higher mean scores for low incapability compared to high incapability when they have had health implications. Regarding psychological well-being, the result also shows a significant difference in the scores for low financial incapability (M=28.06, SD=2.27) and high financial incapability (M=28.92, SD=2.16), with high incapability having a higher score (Table 8).

Table 8 presents the 2010/2011 means of overall life satisfaction, psychological well-being and negative implications of health for high and low financial incapability. On the health implications factor, the result shows a significant difference in the scores for low financial incapability (M=11.89, SD=1.22) and high financial incapability (M=10.97, SD=1.92), with low incapability having a higher score. This suggests that an individual (household heads in particular) had higher mean scores for low incapability compared to high incapability when they had health implications. For life satisfaction, the result also shows a significant difference in the scores for low financial incapability (M=19.57, SD=4.14) and high financial incapability (M=17.31, SD=4.24), with low incapability having a higher score. This suggests that an individual (household heads in particular) had higher mean scores for low incapability compared to high incapability when satisfied with life. Finally, with regard to psychological well-being scores, the result shows that the psychological well-being (GHQ) factor is higher for high financial incapability (M=26.59, SD=1.94) than low incapability (M=26.01, SD=1.92), with a statistically-significant difference between the groups,  $t(611) = -3.60, p < 0.01$ . The results in this period also corroborate the inference from 2006/2007 for all the independent variables to financial incapability. The findings support the notion that people tend to have low financial incapability when they are satisfied with their lives and have non-threatening health issues.

### Independent sample T-test pre and post financial crash

Table 9 presents the means of overall life satisfaction, psychological well-being and negative implications of health pre and post-financial crash (Table 9).

We hypothesized that satisfaction with life (factor score) would be significantly higher before the crash than after. The result in Table 9 supports the hypothesis because the result indicates the mean score of satisfaction with life (factor score) is significantly higher before the crash (M=19.39, SD=3.62) than after the crash (M=18.81, SD=4.22). For negative health implication, the mean score of negative implications of health (factor score) is significantly lower before the crash (M=10.43, SD=1.24) than after the crash (M=11.48, SD=1.68). Based on this result, we accept the null hypothesis that negative implications of health (factor score) will be significantly lower before the crash (mean 2006/07) than after (mean 2010/11). The null hypothesis that financial incapability (factor score) will be significantly lower before the crash (2006/07) than after (mean 2010/11) was rejected because the t-test result shows that mean score of overall financial incapability (factor score) is significantly higher before the crash (M=7.47, SD=1.22) than after the crash (M=7.09, SD=0.66). Lastly, the null hypothesis that poor psychological well-being (GHQ score) will be significantly lower before the crash (2006/07) than after (2010/11) was also rejected because the t-test shows that the mean score of poor psychological well-being (GHQ score) is significantly higher before the crash (M=28.43, SD=2.26) than after the crash (M=26.18, SD=1.96).

## Discussion

### Psychological well-being

Our analysis shows that poor psychological well-being was statistically-

significantly higher before rather than after the crash. Although this shows that a linear relationship exists between the independent and dependent variables, the result is consistent with the correlation findings as psychological well-being is significantly higher before the crisis than after. This result is inconsistent with findings that indicated an increase in low psychological well-being, especially concerning indebtedness after the 2008 crisis [21]. The study of Chang et al. on the 'Impact of the 2008 global economic crisis' evidences a move towards poor psychological well-being and provides evidence of pre-and post-crash psychological well-being differences. The study reported increased suicide rates after the 2008 economic crisis compared to before.

Struckler et al. [14] also found that the rise of premature deaths resulting from suicide and alcohol consumption was among the most immediate effects of the financial crisis [22]. Karanikolos et al. also indicated that the effect of the global financial crisis was most immediate on those already in vulnerable positions who depended on the state support and welfare to maintain their level of well-being.

Government cutbacks affected health funding and the health benefits of those in vulnerable precarious situations (especially after the crisis). These made them doubly imperilled.

### Psychological well-being and satisfaction

The first hypothesis in the study proposed that there would be a statistically-significant negative relationship between life satisfaction score and poor psychological well-being score. The study results confirmed the hypothesis. It suggests that a decrease in the life satisfaction of an individual leads to a decrease in well-being, and that life satisfaction has a significant effect on psychological well-being. Also, in comparing the satisfaction pre and post-recession, we were able to know that satisfaction with life had a more significant effect on psychological well-being in periods before the crisis. The literature supports this result. Satisfaction with life is confirmed in [23] Ryff and Keyes's study as having a strong negative relationship with poor psychological well-being, especially when compared with other dimensions of wellness [7]. The study by Diener et al. also showed the interrelationship between psychological well-being and life satisfaction by concluding 'a person is said to have high [subjective well-being] if she or he experiences life satisfaction and frequent joy, and only infrequently experiences unpleasant emotions such as sadness or anger. A person is said to have low (subjective well-being) if she or he is dissatisfied with life, experiences little joy and affection and frequently feels negative emotions such as anger or anxiety,' thereby making well-being a function of life satisfaction. Moreover, in a large representative sample of the world [24], Geerling and Diener found that differences between nations in terms of life satisfaction were associated with differences in subjective well-being. The studies of [7,23,24] Ryff and Keyes Diener et al. and Geerling and Diener linked satisfaction with life to psychological well-being. However, none of the literature reviewed studied the relationship between the indices of satisfaction (satisfaction with income, leisure time, and health), although [1] Boyce et al. did include changes in income (not satisfaction with income) in their analysis of the impact of the recession on life satisfaction. Nevertheless, statistics presented by the NHS showed that the average income in Britain increased over the last fifty years, and people in the UK have become richer. Despite this, findings from population surveys focused on measuring personal happiness or mental well-being show that mental well-being has not improved at an equivalent rate (NHS, 2015).

### Psychological well-being and health implication

Studies suggest that objective measures of what constitutes good health do not appear to correlate strongly with well-being in cross-cultural studies (Deaton,) [12]. However, there is increasing evidence that mental well-being impacts physical health (Keyes, 2013) [13] with a plethora of studies over the past 20 years finding a connection between well-being and health. Nevertheless, this study did not find such a connection, with the hypothesised positive relationship between negative implications of health and poor psychological well-being not being supported. A closer look revealed that negative implications of health and health implications that causes one to be less careful than usual proved to be the significant predictor in both periods.

It was also noted that health implications interfering with social activities in 2010/2011, was a strong predictor. The result showed a statistically-significant negative linear relationship between the two variables. This result was not anticipated, essentially because there was an expectation that negative aspects of health impact work and social activities, which lead to life restrictions, which further invariably lead to measures of an individual's well-being deteriorating (e.g Keyes) [13].

### Psychological well-being and financial incapability

The result of the analysis supports the third hypothesis. The result proposes a statistically-significant positive linear relationship between overall financial incapability and poor psychological well-being. This indicates that the higher the financial incapability of a person, the higher the probability of poor psychological well-being. This is supported by [5] the study, of Taylor et al., which concludes that financial incapability defined as 'people's inability to manage and take control of their finances,' leads to poor psychological well-being. The poorer a person is at managing their finances, the worse their psychological well-being becomes. This is also further supported by the study of Taylor et al. [3], which found that financial capability had a significant effect on psychological health, even beyond income and material well-being.

This study's finding of a relationship between financial incapability and well-being is particularly significant as financial incapability produces an array of negative effects on consumers [24]. In particular, the approach individuals take to managing their debt situations caused by poor financial decisions can have a significant impact on mental well-being regardless of their financial circumstances [25,26]. Richard (2017) for the NHS reiterates the idea that stress associated with debt can bring on or exacerbate pre-existing mental health conditions, which will lead to poor psychological well-being. Moreover, as Taylor [3] point out, financial incapability becomes even more critical during times of economic recession when there is an increase in stress and anxiety associated with financial management. This is particularly pertinent in light of findings from a Citizen Advice (2015) report which notes that (at the time) 9.5 million people in the UK who were fraught financially were less organised with money and were more likely to have debts in the form of personal and payday loans. Under such conditions, people who are better equipped to manage their finances experience the positive psychological benefits compared to those who are not [3].

This finding is also consistent with those from Taylor [5] about the Financial Services Authority data. The result from that data indicated that the relationship between financial incapability and psychological well-being varies over the distribution of financial incapability. The variation was found to be the strongest at the bottom of the distribution. This implies that increasing financial capability will improve the poor psychological well-being of most people. The outcome of this confirms that focusing on those with the highest levels of financial capability will have less effect on psychological well-being.

### Financial incapability

Results show that the hypothesis that states that overall financial incapability will be significantly lower before the crash (2006/2007) than after (2010/2011) was not supported as the mean score of overall financial incapability is higher before than after the crash. One of the effects of the global financial crisis was to expose a systemic lack of financial capability across multiple scales of economic structure, from the individual household to the nation-state. Newton [2] also noted that the events of 2008/09 highlighted the important need to rethink what is entailed by financial incapability and to stress the significance of preparing for future uncertainties. Lack of such adequate provisions was a chief cause of the crisis in individuals in the wake of the financial crisis, whose lives were thrown from positions of economic well-being into disarray. Without adequate financial capability (defined not as capital but as know-how), many individuals were unable to respond to the crisis and suffered a lasting drop in the quality of their financial and social lives, as well as their overall condition of health. Further evidence of this is in the result of Pathak's [27] study, which concluded that there is evidence of an increase in financial capability after the recession.

Another cause for lower financial incapability after the crash may be due

to the subjective nature of financial incapability, as is the case in this study which used self-report measures of financial incapability. As O'Conner et al. [28] highlight in a recent review of factors underlying financial vulnerability; individuals often demonstrate a disconnect between their actual financial situation and their perceived financial situation, where they tend to think it is better than it is. Thus, it is possible that the magnitude of the financial crisis and the widespread negative impact it had on the finances of many UK households, led individuals who were not as negatively impacted (e.g. those with higher education, older) to rate their financial capability as higher. Indeed, research finds that social comparisons, whereby individuals compare their situation to others, can have an impact on how they see their financial position (Brown and Gray) [29]. Thus, given the subjective nature of financial incapability measures, it is possible to theorise that a drop in financial incapability post-recession may be due to social comparison effects.

### Financial incapability and satisfaction

The correlational analysis results for Hypothesis 4 that overall financial incapability will be negatively related to satisfaction with life-reveal that low satisfaction with life is predicted by high overall financial incapability. This confirms that the more people are incapable of taking control of their finances, the less satisfied they are with life in general. This claim is supported by the study of Atkinson et al. [24] study, which indicates that the poor financial decisions people make affect satisfaction with life and happiness.

Hence, there is a strong correlation between financial education (financial well-being) and life satisfaction. This is not only in the domain of finance itself but also in the domains of academic performance and satisfaction, as demonstrated by [30]. The correlational analysis results for Hypothesis 4 attempted to close the gap that existed in the investigation of the effect of financial incapability and its relationship to satisfaction with life.

### Financial incapability and health implications

The analysis result indicated that there was no positive relationship between overall financial incapability and negative implications of health. This suggests that an increase in overall financial incapability leads to a decrease in the negative implications of health. This is surprising because the negative implications of health are expected to increase as overall financial incapability increases. This is because, without adequate financial capability (defined not as capital but as know-how), many individuals were unable to respond to the financial crisis and suffered a lasting drop in the quality of their financial and social lives, as well as their overall condition of health. However, Xiao and Porto's [31] study show that subjective financial literacy, desirable financial behaviour, and a financial capability have strong correlations, which affects health either positively or negatively, and hence the result is still supported by literature since no study specifically investigated the type of the relationship between financial incapability and negative implications of health. A correlation has been found to occur frequently between poverty (which might have occurred from financial incapability or socio-economic onset of the financial crisis) and poor health as they amplify and prolong each other. The periodicity of poor health has implications for financial well-being as cycles of poor health may follow (or induce) cycles of poor financial capability (McLloyd and Wilson) [15]. Interestingly, research also finds an inverse relationship here, where debt avoidance, a feature of financial capability, is known to have health benefits [32,33]. Nonetheless, it is clear from the literature that some level of financial incapability causes debt, and it brings with it an outcome of negative forms of well-being.

The result of the correlation analysis mainly supports this hypothesis that the negative implications of health were statistically significantly lower before the crash (2006/2007) than after (2010/2011) [34-36].

The study by Stuckler et al, concluded [14], after a review of the research, that available evidence suggests that health is at risk in times of rapid economic change in both boom and bust. The study pointed out that the impact on health is exacerbated after the bust, particularly where people have easy access to the means to harm themselves. The study concludes that health implications are ameliorated by the presence of strong social cohesion and social protection systems, but health issues were lower before the crash compared to after.

Such findings are further supported by the more recent study of Whitehead and Bergeman [26], who found that individuals who experienced a decline in their subjective financial situation, during the recession period, and an increase in perceived stress, were more likely to have poorer physical health. Indeed, stress appears to be an important link between financial situation and physical health, with previous empirical studies finding that the stress of managing a low income can lead to biochemical changes in the body which are associated with poor health [37].

### Financial incapability and satisfaction with life

Satisfaction with life is pivotal in determining whether it will be statistically significantly higher before the crash (2006/2007) than after (2010/2011). The result confirms that satisfaction with life, in general, was found to be significantly higher before the financial crash than after. This result is consistent with the findings from the study by Clench and Holte [9] which noted that before 2008 LS (life satisfaction) was higher, particularly showing a strong negative relationship with unemployment that lasted several years. They also found that the long-term decline in LS after the start of the financial crisis tended to occur in the higher socio-economic groups. There was a sharp decrease in LS at the beginning of the crisis in 2008, and another, but not so severe, decline in 2011, each of them of short duration. However, there was also a slight and progressive yearly decrease in LS that continued to at least three years after the financial crisis that was independent of the effect of being unemployed [9].

However, a study by Boyce et al. [1], which looked at how the recession impacted life satisfaction in the UK, hypothesised that the effect of the financial recession on life satisfaction would be worse for some sub-groups of the population (e.g., unemployed) and potentially positive for others (e.g. older, more educated). Their hypotheses were supported with negative changes in life satisfaction found for the unemployed, those who had experienced a loss in income and were sick or disabled, while life satisfaction did not change significantly post-recession for many others and improved for some. Thus, the impact of the financial recession on life satisfaction appears closely tied to the financial situation of the individual. [38-40]

In this regard, it is expected that recurring debts of an individual caused by poor financial decisions inhibit satisfaction with life and happiness, [24] thereby making it improbable for satisfaction with life to increase after the financial crash. In looking at the specific categories of life satisfaction and their effects on psychological well-being, results in table indicate satisfaction with leisure time as a significant predictor of psychological well-being in periods before the crash and satisfaction with health in periods after the crash. [41,42]

## Conclusion

This research makes unique and new contributions in the areas of longitudinal research, lending support for policy, academic theory, new contributions to current literature not found elsewhere, especially mental health management policy. This study had some limitations that include missing data, and specifically the failure of participants to respond to questions on the amount of debt, possibly due to the sensitivity of some items. Further research is suggested, based mainly on the limitations of this study noted above. Future studies might consider looking further into the individual effect of satisfaction with health, satisfaction with income, satisfaction with leisure time, and satisfaction with life overall and psychological well-being.

Further investigation could be conducted to assess if each of the items within the independent variables, and not just the overall construct, has a positive or negative relationship with psychological well-being. There is a need to investigate the effects and value of advice interventions, not only on financial incapability but also on life satisfaction, the negative impact of health, and psychological well-being. A longitudinal study might well prove valuable.

Problems were identified due to inconsistency in respondents completing the survey annually and to a lack of consistency in the systematic answering of questions. As a result of this, some important constructs found in the literature could not be incorporated. This is an area that requires further exploration. Overall, the findings of this study highlight the potential importance of policies



which focus on financial incapability in the context of psychological well-being, debt and the financial crisis. When much of the policy responses to the financial crisis have focused on structural changes to the broader regulation of the financial domain, this study highlights that policies should more strongly consider how financial incapability and debt can impact the well-being of individuals and seek to address this.

However, given the complexity of such factors, it is likely that any improvements in this domain will require a multi-factorial approach; one which seeks to not only empower debtors but also closely monitor the practices of lenders.

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## Data Availability

The data that support the findings of this study are available from the author upon request

## Compliance of Ethical Standard

This article does not contain any studies with human or animal subjects performed by the author.

Informed consent: Informed consent was obtained from all patients for being included in the study

## Conflict of Interest

The author hereby declares no conflict of interest with affiliation.

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