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Financial Hardship and Mental Health: The Role of Psychological Factors

by

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ABSTRACT

FACULTY OF SOCIAL, HUMAN AND MATHEMATICAL SCIENCES

Psychology

Thesis for the degree of Doctor of Clinical Psychology

FINANCIAL HARDSHIP AND MENTAL HEALTH: THE ROLE OF PSYCHOLOGICAL FACTORS

Charlotte Jane Frankham

A review of the literature investigating the role of psychological factors in the relationship between financial hardship and mental health was completed. The review sought to identify which factors have been most consistently and reliably indicated, and the mechanisms by which these factors are proposed to contribute to the association between hardship and mental health. Although the review identified that a broad variety of factors have been investigated, skills related to personal agency and coping were most frequently and reliably associated with the relationship between financial hardship and mental health outcomes. Just over half of the studies reviewed concluded that the psychological factor investigated was either eroded by financial hardship, increasing vulnerability to mental health difficulties, or protected mental health by remaining intact despite the effects of financial hardship. The remaining studies found no such effect or did not analyse their data in a manner in which a mechanism of action could be identified. The methodological quality of the research included in the review was variable. The valid and reliable measurement of financial hardship, and conclusions regarding causation due to the use of predominantly cross-sectional design were areas of particular weakness.

In a longitudinal study the psychological factors of economic locus of control, self-esteem, hope and shame were explored for their impact on the relationship between financial hardship and mental health. Participants completed measures of financial hardship, the psychological factors and measures of mental health at three times at three-monthly intervals. A hierarchical regression analyses indicated that subjective financial hardship, hope and shame significantly predicted mental health outcomes. A mediation analyses demonstrated that hope mediated the relationship between subjective financial

hardship and depression, stress and wellbeing; that shame mediated the relationship between subjective financial hardship and anxiety; and that neither shame nor hope mediated the relationship between subjective financial hardship and suicide ideation.

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DECLARATION OF AUTHORSHIP

I, Charlotte Frankham, declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Financial Hardship and Mental Health: The Role of Psychological Factors

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signed: .....

Date: .....

Acknowledgements

Dedicated to the memory of my lovely Grandad, for his eternal love, support and faith in me.

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Chapter 1: Literature Review: A review of the psychological factors associated with financial hardship and mental health

1.1 Introduction

1.1.1 Poverty

Poverty is experienced when an individual's resources cannot adequately meet the basic needs deemed reasonable within their societal context (Goulden & D'Arcy, 2014). Government figures for 2014/15 indicate that 21% of the UK population were in relative poverty (McGuinness, 2016), defined as households with disposable income below 60% of the median for the population.

Insufficient financial and material resource has consequences for food, shelter, warmth, leisure, and social participation. The lack of which exposes individuals and their families to economic and social disadvantages which may be detrimental to their health, such as inadequate housing, poor nourishment, discrimination and social isolation (Wilkinson & Marmot, 2003).

1.1.2 Poverty and Physical Health

Poverty and low socioeconomic status (SES) have long been associated with poor health outcomes. People experiencing deprivation are at increased risk of illness and disability, for example demonstrating greater prevalence and mortality from cardiovascular disease (Lee & Carrington, 2008) and cancer (Quaglia et al, 2013); worse outcomes in diabetes (Grintsova, Maier & Mielck, 2014); and higher rates of obesity (El-Sayed, Scarborough & Galea, 2012). Additionally people living in deprived areas have an average life expectancy seven years shorter than people of a high SES (Department of Health, 2011), and can expect to experience disability up to 16 years earlier (Office for National Statistics, 2016).

1.1.3 Poverty and Mental Health

The link between mental health and poverty is also well established with poverty implicated as both cause and consequence (Fell & Hewstone, 2015). Social drift theory proposes that the detrimental effects of poor mental health on areas such as employment and housing, increase vulnerability to experiencing poverty (Timms, 1998).The Monitoring Poverty and Social Exclusion report (MacInnes et al., 2015) indicates that 26% of women and 23% of men in the lowest socioeconomic

group were assessed as being at high risk of developing a mental health difficulty. The prevalence of depression (OR = 1.81, Lorant et al., 2003) and psychosis (OR = 2.6, Harrison et al., 2001) is higher among people in low SES groups; and they are more likely to be admitted to psychiatric hospital (Koppel & McGuffin, 1999).

The relationship between mental health and poverty is complex. Poverty exposes individuals to chronic long-term stressors, such as crime and violence (Belle et al., 1981), poor housing (Evans et al., 2000), and inadequate financial resources (Salomon, Bassuk & Brooks, 1996). These stressors may promote fear, worry and hopelessness (Gallo & Matthews, 2003) and a sense of powerlessness to exert control over their situation (Goodman, Smyth & Banyard, 2010). Additionally the lack of material resource may undermine the formation and maintenance of supportive social relationships (Payne, 2000); while the stigma and discrimination associated with living in poverty and claiming welfare payments can be experienced as humiliating and shameful (Davis & Hagen, 1996).

Whilst the evidence paints a stark picture about the challenges that people experiencing poverty have to endure and negotiate, it is also clear that not all people in poverty will go on to develop mental health disorders. In fact people can demonstrate great resilience and agency in times of adversity (Marttila et al., 2013). Whilst measures of poverty assume a lack of resource, income is not a reliable and effective indicator of resource or deprivation (Layte et al., 1999), given variable costs and circumstances, such as housing, travel, number of dependents and health needs.

1.1.4 Financial Hardship and Mental Health

The concept of financial hardship directly measures the nature and extent of deprivation that a person is experiencing due to a lack of financial resource and relative to their own needs (Mack & Lansley, 1985). Difficulty paying bills, purchasing food and clothes, and affording suitable housing, utilities, health care and transport costs are examples of the areas that have been assessed as indicators of financial hardship (Lewis et al., 1998; Lorant et al., 2007; Mack & Lansley, 1985; Mirowsky & Ross, 1999).

Depression's closer association with financial hardship, rather than measures of income and SES (Butterworth, Olesen & Leach, 2012), supports the notion that hardship may be a more reliable measure of how deprivation and disadvantage are implicated in the development of mental health difficulties (Fryers, Melzer & Jenkins, 2003). Past and present financial difficulties are more strongly associated with the

development of common mental health problems than measures of current or past SES (Lahelma et al., 2006). Debt may also be an important contributor to the concept of hardship as depression, psychosis, suicide and substance use have greater prevalence in people experiencing debt (Richardson, Elliott & Roberts, 2013).

People experiencing financial hardship are at an increased risk of developing mental health problems (OR = 2.94, Kiely et al., 2015), and hardship may be the factor most predictive of moderate to severe mental disability (Crosier, Butterworth & Rodgers, 2007). Financial hardship has been associated with depression (Mirowsky & Ross, 2001) and increased self-harm behaviours (Barnes et al., 2016). Increases in suicide rates have also been associated with times of economic crises (Branas et al., 2015; Korhonen, Puhakka & Viren, 2016).

1.1.5 Psychological Variables

Financial hardship and mental health research does however raise the same questions as the evidence of the link between poverty and mental health: not all people experiencing financial hardship will develop mental health difficulties.

Neo-material theories contend that these outcomes are a direct consequence of the challenges of material deprivation and reduced access to the benefits that resource can purchase (Lynch et al., 2000). The Stress Process Model (Pearlin et al., 1981) contends that the impact of chronic stressors is not limited to the direct effect of reduced resources on mental health; they also impact upon personal and social resources which may prevent or mitigate their harmful effects. Chronic stressors, such as financial hardship, may therefore erode psychological resources, such as mastery and self-esteem, increasing vulnerability to the development of mental health problems. The stress buffering hypothesis (Wheaton, 1985) proposes that where these resources remain intact despite exposure to stressors they may protect mental health from their effects.

Burgeoning research in this area has identified characteristics such as locus of control (Culpin et al., 2015), personality type (Cuesta & Budría, 2014) and self-esteem (Barnes et al., 2016) as resources implicated in the development of or protection from mental health difficulties.

While the stress process theory views the diminishing of these resources as a process of gradual erosion consequent of stress, the Conservation of Resources model (Hobfoll, 1989) proposes that the loss of any resource, be it material, social or

psychological, triggers efforts to replace or offset it in a manner akin to homeostasis. When financial resource is lost it is likely that the resources of stability, status and structure attached to housing and employment remain or become unavailable, increasing the likelihood of further losses. In addition the absence of resources makes attempts to offset losses high in both cost and chance of failure, which has consequences for mental health.

Other theories propose that the perception of financial hardship mediates between objective economic strain and mental health, for example the multilevel model of economic stress (Sinclair et al., 2010). Psychological factors are assumed to moderate the relationships between objective and subjective financial difficulty, and subjective difficulties and mental health.

1.1.6 Purpose of the review

Though there is considerable evidence of the detrimental impact that financial hardship can have on mental health, a lack of attention has been paid to the possible mechanisms by which this occurs. Evidently not all people who are experiencing financial difficulties go on to develop a diagnosable mental health condition, highlighting the importance of understanding how variations in personal experience ameliorate or worsen the risks of hardship to mental health.

While a variety of psychological characteristics, variables and traits have been considered in relation to this relationship, as yet, to the author's knowledge, there has been no review of the evidence pertaining to these factors. This systematic review therefore aims to review all studies which have considered psychological factors in the context of the relationship between financial hardship and mental health, with the purpose of identifying which factors are most consistently and reliably implicated. The review also seeks to establish the mechanisms by which these factors are proposed to contribute to the association between hardship and mental health.

1.2 Method

1.2.1 Databases and search terms

The electronic databases of Web of Science and PubMed were searched in the months of October and November 2016. The following combination of search

terms were used to search all fields: ‘mental health’ or ‘mental illness’ or ‘mental disorder’ or ‘depression’ or ‘anxiety’ or ‘suicide’ or ‘eating disorder’ or ‘psychosis’ or ‘schizophrenia’ or ‘stress’ or ‘distress’ or ‘drugs’ or ‘alcohol’ and ‘poverty’ or ‘financ* difficult*’ or ‘financ* hardship’ or ‘economic difficult*’ or ‘economic hardship’ or ‘debt’ or ‘indebtedness’ or ‘state benefits’ or ‘low income’.

1.2.2 Inclusion and exclusion criteria

Papers were included in the review if they were research studies of any design, including secondary analyses, featured in a peer-reviewed journal and written in English. Thus reviews, commentaries and analyses relating to the area were not included.

For inclusion in the review studies had to explore the impact of the experience of financial difficulties on mental health in adults, and consider the influence of one or more psychological constructs, defined as qualities, attributes, traits or emotional states of the individual. Studies were excluded if they also focussed on the impact on mental health of another major variable, for instance a physical health condition or domestic violence.

Inclusion required that both mental health and psychological variables were quantified using a standardised measure. Financial difficulties must have been explicitly measured with at least one question pertaining to the manageability of participants’ financial situation, and analysed with regard to this measure. Papers were therefore excluded where financial status was assessed on the basis of income alone; was presumed by the community, service or population from which participants were sampled, such as residing in a deprived area; or if questions relating to financial difficulties were included within scales that also assessed other constructs and were not analysed separately. Research studies on financial difficulties resulting from poor mental health were also excluded.

1.2.3 Search procedure

Papers were initially screened at title for relevance to the inclusion/exclusion criteria. The abstracts of those titles which indicated or suggested the study of financial hardship, mental health and a psychological variable were reviewed. The papers accepted at the abstract received a full paper review. A record was kept of

the reasons for rejection. Finally, each paper included in the review was hand-searched for additional references.

1.3 Results

1.3.1 Search Results

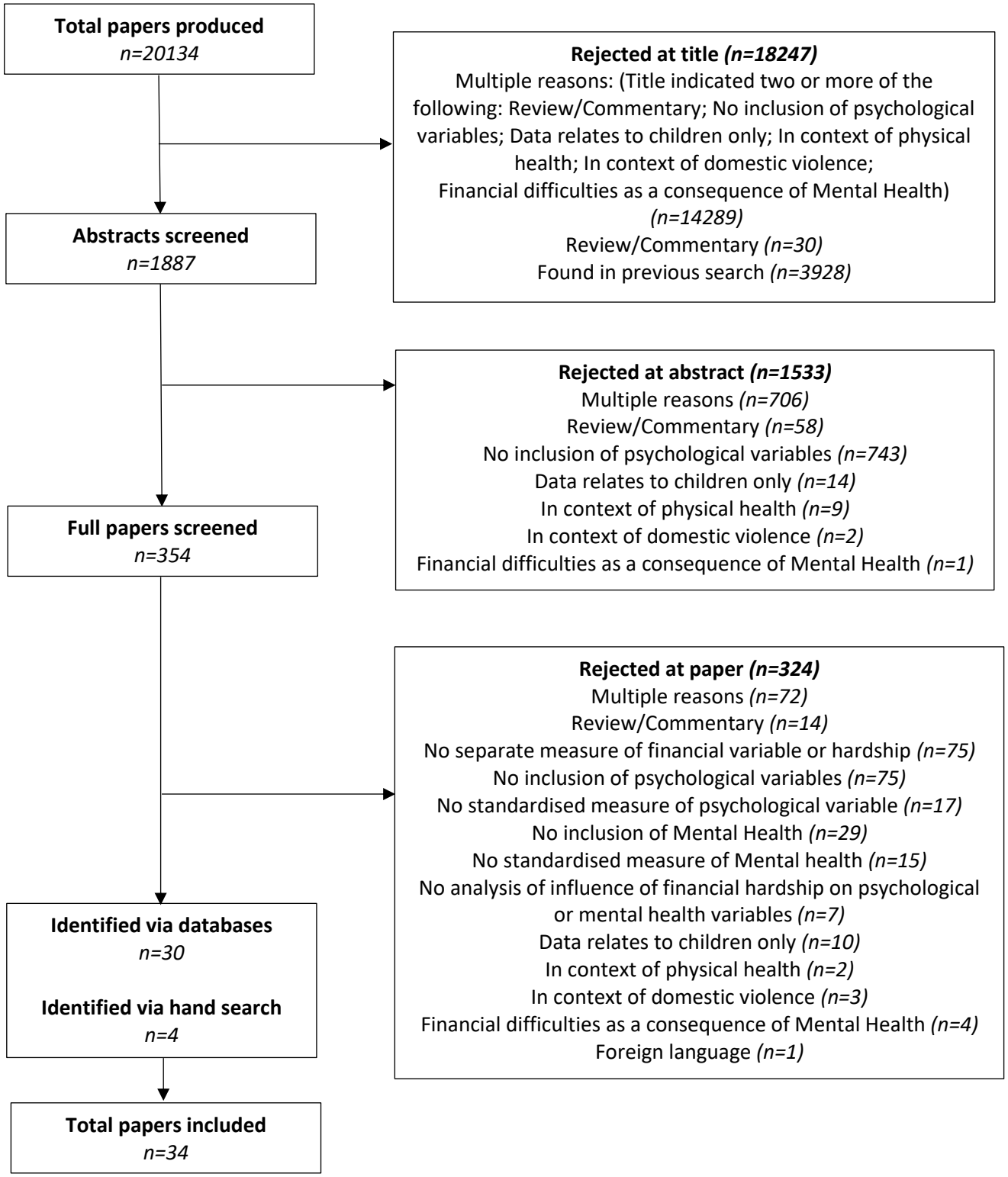
A flow diagram of the systematic search is shown in figure 1. The search terms on two databases retrieved 20134 papers in total. Of these 1887 abstracts were screened, and a full review was completed of 354 papers. Thirty papers were accepted as meeting the criteria, and a further 4 papers were identified from the reference lists of these papers, resulting in a total of 34 papers to be reviewed.

At the title review stage papers were most commonly rejected for being not relevant, as the broad range of search terms meant the majority did not relate to the area of interest of mental health and financial difficulties. Papers were also commonly rejected for having multiple reasons for exclusion, meaning that they fulfilled two or more of the following exclusion criteria: Review or commentary; no consideration of psychological variables; study conducted with children only; financial difficulties and mental health considered in the context of physical health or domestic violence; and financial difficulties studied as a consequence of mental health.

At the abstract and full paper review stages papers were most commonly rejected for demonstrating no inclusion of a psychological variable, having no separate measure or analysis of financial hardship, or not assessing mental health or the psychological variables using standardised measures.

Figure 1.

Flow diagram of systematic search



1.3.2 Characteristics of Studies

The key characteristics of the identified studies are summarised in Tables 1 to 7 in terms of methodological design, sample, measures used, main findings and confounding variables considered. It also includes a rating of methodological quality using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Heart Lung and Blood Institute, 2014) as these study designs were most predominantly used in the literature reviewed.

The majority of the studies were conducted in the US (*n*=16), Australia (*n*=6) and Hong Kong (*n*=3). Two studies were conducted cross-nationally, one in Belgium, Germany, Portugal and Spain; and the other in Finland and the UK. One study per country was carried out in Austria, Canada, Finland, Iceland, Sweden, New Zealand and the UK.

In terms of methodological design, studies were principally cross-sectional (*n*=17), of which three were retrospective, and longitudinal (*n*=10), of which six were prospective and four retrospective. Other designs used were panel studies (*n*=2), psychological autopsy (*n*=2), retrospective cohort (*n*=2), and randomized controlled trial (*n*=1). Methodological quality was rated as fair in the majority of studies (*n*=20). Eight studies were rated as good and six were given a rating of poor using the assessment tool (see table 8).

1.3.3 Measures

The analyses of the studies in this systematic review will refer only to those findings from validated measures of psychological variables and mental health, and will not include any relationship to non-psychological variables that may also have been assessed.

1.3.3.1 Measures of Financial Hardship

Financial hardship was predominantly assessed by replicating or adapting scales that have been used in other research studies (*n*=13), of which seven were assessed for internal reliability; or via author constructed questions specifically for the study (*n*=13), of which three studies assessed internal reliability.

Validated measures were used in seven studies, most commonly the Economic Health Questionnaire (EHQ, Lempers, Clark-Lempers & Simons, 1989)

(*n*=3); and The Conservation of Resources Evaluation (Hobfoll & Lilly, 1993) (*n*=2). The financial subscales of the Checklist of Problems and Concerns (Berman & Turk, 1981) and the Latent and Manifest Benefits Scale (Muller et al., 2005) were each used in one study.

All but one study were self-report measures of financial difficulty, the exception using The Life Events and Difficulties Schedule (LEDS, Brown & Harris, 1989) and detailed financial questioning to objectively rate the extent of financial difficulties in participants.

1.3.3.2 Measures of Mental Health

The studies most commonly used general tools to measure mental health outcomes (*n*=21). The General Health Questionnaire (GHQ) in standard (Goldberg & Hillier, 1979) and shortened form (GHQ-12, Goldberg, 1992) were used by seven studies. Three studies used the Brief Symptom Inventory (Derogatis, 1993), and another three used the Structured Clinical Interview, one using the DSM-III-R (Spitzer et al., 1992) version and two studies using the DSM IV (First et al., 1995) version. The Hopkins Symptom Checklist (HSCL, Derogatis et al., 1974) was used by two studies, as was the Kessler Psychological Distress Scale (K10, Kessler et al., 2003). The Shortened Present State Examination (PSE, Wing, Cooper & Sartorious, 1974), the Short Form 36 Health Survey Questionnaire (SF-36, Ware et al., 2000), The Symptom Checklist-90-Revised (SCL-90-R, Derogatis & Unger, 2010) and Turner's Emotional Well-being Scale (Turner, 1981) were all used by one study each.

Whilst some studies only used a general measure (*n*=16), others used these in conjunction with measures of specific mental health difficulties (*n*=5) or specific measures alone (*n*=13). Depression was the mental health condition most commonly measured (*n*=14) and was predominantly measured using the original or a shortened version of the Centre for Epidemiological Studies Depression Scale (CES-D, Radloff, 1977) (*n*=14). The Beck Depression Inventory (BDI, Beck, Steer & Brown, 1996) was used in four studies, including one study which used the BDI in conjunction with the Research Diagnostic Criteria (RDC, Spitzer, Endicott & Robins, 1978). Three studies utilised the depression scale from the Profile of Mood States (POMS, McNair, Lorr & Droppleman, 1981); while the Goldberg Depression Scale (Goldberg et al., 1988) and the depression scale from the SCL-90-R (Derogatis & Unger, 2010) were each used in one study.

Anxiety was measured in five studies. Two utilised the anxiety trait subset from the State-Trait Anxiety Inventory (Spielberger et al., 1983); while the Penn State Worry Questionnaire (PSWQ, Meyer et al., 1990), and the anxiety scales from the SCL-90-R (Derogatis & Unger, 2010) and the POMS (McNair, Lorr & Droppleman, 1981) were each used by one study. Two studies measured stress, one each using the Perceived Stress Scale (PSS, Cohen, Kamarck & Mermelstein, 1983) and the stress subscale from the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995).

1.3.3.3 Measures of Psychological Factors

A variety of psychological variables were investigated across the studies, with 10 assessing more than one. The most frequently examined variable was self-esteem (*n*=9), and five studies investigated it as the sole psychological factor. Eight studies used the Rosenberg Self-Esteem Scale (Rosenberg, 1965), one of which also used the Global Self Worth subscale from the Adult Self Perception Profile (ASPP, Messer & Harter, 1986). One study used the Self-Esteem Inventory (Coopersmith, 1967).

Variables related to a sense of personal agency were also commonly assessed. Mastery was measured in six studies, and was predominantly assessed using the Pearlin Mastery Scale (Pearlin & Schooler, 1978) (*n*=6). Four studies explored the impact of locus of control, which was most commonly measured using the Internal-external Locus of Control Scale (Rotter, 1996) (*n*=3), while one study utilised the Economic Locus of Control Scale (Furnham, 1986). Two studies utilised the General Self-Efficacy Scale (Schwarzer & Jerusalem, 2010).

The ability of participants to manage difficulties was frequently investigated. Three studies looked at the influence of coping. The Coping Strategies and Resources Inventory (CSRI, Berman & Turk, 1981) was used in one study; and another constructed and validated a measure within the course of the study itself (Meyer & Lobao, 2003). One study used both the Coping Efficacy measure (Sandler et al., 2000) and Responses to Stress Questionnaire (RSQ, Connor-Smith et al., 2000) to measure coping. Capacity for problem solving (*n*=3), was assessed using the Social Problem-Solving Inventory (SPSI, D'Zurilla & Nezu, 1990) (*n*=2), and The Communication Skills Test (Stanley et al., 2001) (*n*=1). Psychological flexibility was investigated in one study via the Acceptance and Action Questionnaire-II (AAQ II, Bond et al., 2011); and one study used the Resilience Scale (Wagnild & Young, 1993).

Studies also explored the impact of psychological dispositions. Neuroticism was commonly assessed (*n*=3), in each case utilising Eysenck's Personality Questionnaire (Eysenck, 1991). Impulsivity was investigated in three studies, via the Impulsivity Rating Scale (IRS, Lecrubier et al., 1995) (*n*=2) and in one study the Dickman Functional and Dysfunctional Impulsivity Scales (Dickman & Meyer, 1988). One study measured self-control using the Brief Self-Control Scale (Brief SCS, Tangney, Baumeister & Boone, 2004).

Emotions were also assessed for their impact: anger in one study using the State version of the State-Trait Expression Inventory (STAXI, Spielberger, 1988); and another looking at shame using the 10-item Shame Scale (Harder & Zalma, 1990).

Other psychological variables investigated were sense of coherence (*n*=3) along the domains of comprehensibility, meaningfulness and manageability using Antonovsky's (1987) short orientation to life questionnaire. The SCL-90-R Interpersonal Sensitivity (Derogatis & Unger, 2010) scale; the Self-Evaluation and Social Support schedule (SESS, O'Connor & Brown, 1984); the Multigroup Ethnic Identity Measure (Phinney, 1992); and the Money Attitude Scale (Yamauchi & Templer, 1982) were used by one study each.

1.3.4 Self-Esteem

Self-esteem refers to a person's evaluation of their self-worth (Rosenberg, 1965). The studies investigating self-esteem are shown in table 1. Each study used the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

1.3.4.1 Findings of Self-Esteem Studies

The retrospective analysis by Wickrama et al. (2012) of data from the Iowa Youth and Families Project and the Iowa Midlife Transition Project found a clear role for self-esteem in the relationship between financial hardship and mental health in spouses. Financial hardship served to diminish self-esteem which led to later depression; and self-esteem and depression had a mutual and longitudinal influence on one another.

Two of the studies conducting secondary analyses utilised the same data from the Welfare, Children, and Families (WCF) project (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013). Burdette and Hale (2011) used the WCF data to investigate the mediatory influence of self-esteem on the relationship between poor housing quality

and mental health outcomes, with financial hardship treated as a potentially confounding variable. Though in the mediation analysis they found no effect attributable to self-esteem, a multivariate analysis indicated that self-esteem and financial hardship were significant contributory factors to a model of changes in psychological distress. This finding does not however give any insight into the mechanism by which these two factors interact with one another to impact mental health. Utilising the same data, Hill, Reid and Reczek (2013) found that the protective effects of marriage against psychological distress, were mediated by financial hardship but not self-esteem.

Ritter et al. (2012) also focussed solely on depression, but in a sample of pregnant women. Though income and economic strain predicted depression, positive self-esteem did not counter these effects. Waters and Muller (2003) considered depression and anxiety in addition to a general measure across two projects reported in the same study of unemployment. They found no clear evidence for self-esteem as a significant influence on mental health in the context of financial challenges.

1.3.4.2 Evaluation of Self-Esteem Studies

Generalisability of the findings to a wider population is supported by the culturally diverse sample in the majority of studies (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013; Ritter et al., (2012); furthermore the oversampling of those experiencing relative poverty in the WCF project supports generalisability to low-income communities. However the studies of Waters and Muller (2003) and Wickrama et al. (2012) are limited by their small size and sample of only white people respectively.

In the majority of studies financial hardship was measured using comprehensive questions with good face validity, and which demonstrated acceptable reliability (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013; Wickrama et al, 2012). However the remaining studies either used a single question or lacked detail about how hardship was measured, raising issues for their validity and reliability (Ritter et al, 2012; Waters & Muller, 2003). In contrast the vast majority of scales measuring mental health and psychological factors demonstrated acceptable reliability, even when modified to account for sample specific variations.

Confounding variables were analysed in the majority of studies (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013; Ritter et al., 2012; Wickrama et al., 2012), as was any potential bias introduced by attrition (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013; Ritter et al., 2012). The study by Wickrama et al. (2012) was the only study in the literature reviewed to measure financial hardship prior to the outcomes.

Difficulties in analyses are demonstrated in the Ritter et al. (2012) study, which amalgamated life stressors thus preventing analysis of the individual interactions with psychological and mental health variables, and Waters and Muller's (2003) study which grouped self-esteem and mental health together. Furthermore Waters and Muller's (2003) addition of a second arm to the study to ameliorate the effects of attrition and develop longitudinal evidence does not address the change in measures or difference in demographics across the two studies.

Table 1

Studies of self-esteem

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Burdette and Hale (2011)	Retrospective longitudinal	- 2402 Low-income Women - USA	- BSI-18 - ACQ on household disrepair and emotional support - RSES - Survey questions on FH (13 items)	- Current household disrepair positively associated with symptoms of psychological distress (b =0.04, p<.001). - Emotional support and self-esteem don't explain the association between disrepair and distress.	Age, baseline psychological distress, city of residence, education, employment, marital status, no. of children, race/ethnicity and welfare.	Good
Hill et al (2013)	Retrospective longitudinal	- 2402 Female Caregivers - USA	- ACQ on self-reported health, social support and intoxication - BSI - RSES - Survey questions on FH (13 items)	- FH mediated effect of continuous marriage on psychological distress (b =-.10, p<.001).	Age, education, employment, ethnicity, no. of children and welfare status.	Good
Ritter et al (2000)	Prospective longitudinal	- 232 pregnant Women - USA	- Shortened BDI - Measure of severity of depression symptoms from modified RDC Interview - SSQ-6	- Decreases in depression predicted by less stress, satisfaction with social support and increased income (x^2(83, N=191) = 146.31, p<.001). - Positive self-esteem not predictive of reduced depression.	Age, education, family income, marital/ romantic status and no. of children.	Fair

			- ACQ on stressful life events, incl. FH (no. unknown) - RSES	- Economic Stressors significantly (p<.01) contributed to the latent construct of Stressful life Events.		
Waters & Muller (2003)	Longitudinal	- Study 1 - 201 unemployed - Study 2 - 113 long-term unemployed - Australia	- FH question (1 item, Rowley & Feather, 1987) - Study 1 - POMS – depression and anxiety subscales - Global self-worth subscale from adult self-perception profile - Study 2 - GHQ - BDI - RSES	Study 1: - Financial deprivation (β =.12) and deprivation of time structure (β =.39) significantly predicted psychological distress and accounting for 35% of variance at baseline. - Financial deprivation not a significant predictor at follow-up. Study 2: - Financial deprivation (β =.35) and deprivation of time structure (β =-.44) significantly predicted psychological distress at baseline - At 6 month follow-up 28% of variance in distress explained by time structure (t(68) = 2.56, p<.05) and financial deprivation (t(68) = -5.24, p<.05). - Relationship between financial deprivation and distress not significant at 12 month follow up.	None	Poor
Wickrama et al (2012)	- Prospective longitudinal	- 370 husbands and wives - Rural areas	- ACQ on Family FH (27 items) - RSES - SCL-90 – depressive symptomatology subscale	- Chronic FH influences depression via self-esteem in husbands (x^2 (14 df) = 24.84) and wives (x^2 (14 df) = 26.8). - Self-esteem and depression in husbands and wives forms a mutually reciprocal process, initiated by early financial hardship (x^2 (50 df) = 74.66). - Economic hardship has a greater impact on husband's self-esteem.	Education and gender	Good

Abbreviations: ACQ = Author Constructed Questions; BDI = Beck Depression Inventory; BSI = Brief Symptom Inventory; FH = Financial Hardship; GHQ = General Health Questionnaire; POMS = Profile of Mood States; RSES = Rosenberg's Self-Esteem Scale; SCL-90 = Symptom Checklist; SCS = Self-Control Scale.

1.3.5 Personal Agency

Personal agency can be defined as the sense of having control and effectiveness within one's actions. Eight studies considered psychological variables related to a sense of personal agency. The studies explored the influence of mastery, locus of control, self-efficacy and sense of coherence in the context of financial hardship and mental health. These studies are summarised in table 2.

1.3.5.1 Findings from Personal Agency studies

All three studies assessing mastery, the sense of being knowledgeable or skilled, used the Pearlin Mastery Scale (Pearlin & Schooler, 1978). In Drentea and Reynolds' (2014) panel study of the general population, financial hardship caused reductions in mastery which independently mediated the relationships between financial hardship and depression and anxiety. The findings of Ennis, Hobfoll and Schröder's (2000) study of women on low incomes was less clear about the role of mastery, as it was demonstrated to protect against depression in the context of hardship in European Americans, but not in African Americans, for whom social support served the same protective role.

Crowe and Butterworth's (2016) retrospectively analysed data from the Australian cohort study, the Personality and Total Health (PATH) Through Life Project, also a large population sample, with participants aged 20-24 at outset. Mastery and financial hardship were identified as important mediators of the relationship between unemployment and depression, but potential interaction relationships between these two variables were not explored.

The concept of self-efficacy, an individual's belief in their ability to complete tasks and meet goals, was measured by Selenko and Batinic (2011) in a relatively small sample of clients at a debt counselling service in Austria. They found that only perceived financial strain, rather than debt was related to mental health, and that this effect was moderated by self-efficacy.

Locus of control describes the extent to which a person believes they have the ability to be in control of their own fortunes (Rotter, 1966). Both studies investigating this variable utilised the Internal-external Locus of Control Scale (Rotter, 1996). Krause (1987) conducted a panel survey with the over 65's assessing

depression; while Jessop, Herberts and Solomon's (2005) cross-sectional study compared general mental health outcomes of British and Finnish students.

Krause (1987) found that locus of control reduced the impact of financial strain on depression, and that the effects of chronic financial strain on depression were exacerbated in those with external control orientations. In addition Krause's (1987) analysis separated out the effects of hardship from depression to ensure that negative evaluations of financial position were not a consequence of depression. In contrast, Jessop, Herberts and Solomon's (2005) work found that while financial stress was predictive of poor mental health and emotional disturbance leading to role limitation, there was little evidence of a mediatory role for locus of control.

Antonovsky's (1987) Short Orientation to Life Questionnaire was used in two studies. It measures sense of coherence (SOC), along three components: comprehensibility, manageability and meaningfulness. Kivimäki et al. (2002) looked at the role of SOC in sickness absence in a large sample of employees in Finland; while Olsson and Hwang (2008) compared its influence on parents of children with Intellectual Disabilities and control parents in Sweden. Kivimäki et al. (2002) found that increased psychological distress, indicated by increased anxiety and GHQ ratings and lowered SOC caused behavioural changes, the sum of which mediated the relationship between financial difficulties and sickness absence. The global concept of psychological distress unfortunately does not allow conclusions as to the nature or extent of SOC's impact. Olsson and Hwang (2008) found that SOC protected mental health from the negative effects of hardship.

1.3.5.2 Evaluation of Personal Agency Studies

The sample of all the personal agency studies was largely representative of the general population. Drentea and Reynolds' (2014) and Ennis, Hobfoll and Schröder's (2000) oversampling of populations with physical disabilities and pregnant women respectively may reduce general representativeness, but may be more indicative of the stressors and consequences faced by people living with low incomes and reflect the reality that poverty is disproportionately a concern for mothers (Tucker & Lowell, 2015).

The measurement of financial hardship in these studies was of mixed quality. The studies predominantly used detailed measures which appear to have face

validity in their assessment of the construct of financial hardship, and which also demonstrated acceptable reliability (Drentea & Reynolds, 2014; Ennis, Hobfoll and Schröder, 2000; Jessop, Herbert & Solomon, 2005; Krause, 1987; Olsson & Hwang, 2008; Selenko & Batinic, 2011). The remaining studies raise some major issues in both the assessment and analysis of financial hardship. Changes in the measure used, insufficient detail and no assessment of internal consistency (Crowe & Butterworth, 2016; Kivimäki et al., 2002) raise concerns about validity and reliability. In addition the dichotomisation of scale scores (Crowe & Butterworth, 2016; Olsson & Hwang, 2008) risks the loss of information relating to individual differences and may lead to the overestimation of effect sizes and statistical significance (MacCallum et al., 2002). The validity and reliability of the personal agency and mental health measures was predominantly acceptable across the studies.

Half the studies used a longitudinal design to explore the effects of variables over time thus allowing some conclusions to be drawn regarding causation (Crowe & Butterworth, 2016; Drentea and Reynolds, 2014; Kivimäki et al., 2002; Krause, 1987). Unfortunately Drentea and Reynolds (2014) only factored the influence of prior mental health into the analysis. Analysis of how mastery and mental health changed over time as a consequence of financial situation in this sample would have given more information regarding causation. Interpretations of the remaining studies are limited by their cross-sectional design (Ennis, Hobfoll & Schröder's, 2000; Jessop, Herbert & Solomon, 2005; Olsson & Hwang, 2008; Selenko & Batinic, 2011).

Table 2

Studies of personal agency

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Crowe & Butterworth (2016)	Retrospective Cohort	- 2404 general population - Australia	- Goldberg Depression Scale - Pearlin's Mastery Scale - Survey questions on FH (4 items) and Social Support	- Significant (p<.05) relationship between Unemployment and Depression (OR=1.55). - Association mediated by: Financial Hardship (OR=1.87) and Mastery (OR=4.05). - Financial Hardship accounted for 28% and 17% of the relationship between Depression and Unemployment and Underemployment respectively.	Age, dependent children, education, gender, marital status and physical health.	Fair
Drentea & Reynolds (2014)	Panel study	- 1463 general population - Oversampling of disabled people - USA	- CES-D - State Anxiety Inventory - "How I Feel" Instrument (Anger) - ACQ on FH (4 items), debts, assets and social support, and home ownership and value - Pearlin and Schooler Mastery Scale	- Economic Hardship and Debt are independent risk factors for mental health problems. - Economic Hardship has a significantly greater impact on mental health than debt. - Mastery significantly mediates the relationship between Economic Hardship and Depression (b =-4.423, p<.001), Anxiety (b =-.911, p<.001) and Anger (b =-1.155, p<.001), accounting for 38%, 28% and 33% of the association respectively.	Age, disability, education, employment, gender, health insurance coverage, marital status, no. of children, physical disability, race/ethnicity and prior mental and physical health.	Good

Ennis et al (2000)	Cross-sectional	- 1241 Single, Low-income Women - USA	- POMS depression scale, short form - SSQ-6 - Pearlin and Schooler Mastery Scale - Conservation of Resources Evaluation	- Material loss related to greater depressive mood in African Americans (β =.298, p<.001) and European Americans (β =.316, p<.001). - In African Americans and European Americans, Mastery (β =-.336, p<.001 and β =-.347, p<.001 respectively) is associated with less depressive mood. - Resources have stress buffering effects on depressive mood when loss occurs: greater effect of social support for African Americans (β =-.116, p<.01) and mastery for European Americans (β =-.101, p<.001).	Age, education, employment, ethnicity, no. of children and pregnancy.	Good
Jessop et al (2005)	Cross-sectional	- Students - 89 British - 98 Finnish	- ACQ on debt, financial concern (6 items), smoking and alcohol consumption, work - SF-36 - Internal-External Locus of Control Scale	- Poor health predicted by financial concern rather than amount of debt. - Financial concern significantly predicted greater role limitation due to emotional problems (F_{change} (1, 150) = 16.13, p<.001) and worse mental health (F_{change}(1, 151) = 33.95, p<.001).	Age, alcohol use, gender, hours worked and smoking.	Fair
Kivimaki (2002)	Retrospective Cohort	- 796 Men - 2195 Women - Permanent municipal employees of eight towns - Finland	- Survey questions on stressful life events, incl. FH (3 items), and tobacco and alcohol consumption - Anxiety-trait scale - GHQ-12 - Antonovsky's short Orientation to Life Questionnaire - Sickness absence from employee records	- In men: Psychological problems and health-risk behaviours partially mediate the relationship between life stressors (violence and financial difficulties) and sickness absence. - Men more vulnerable to the impact of stressful life events. - In women: Stressful life events related to psychological distress, but not work absence through sickness.	Age and gender.	Good
Krause (1987)	- Panel study	- 351 retirees - over 65	- CES-D - FH questions (4 items, Pearlin et al., 1981)	- Financial strain significantly impacts later depressive symptoms (β = .192, p<.05).	Age, education,	Good

		- non-institutionalised - USA	- Rotter's Internal-External Locus of Control Scale (7 item version)	- Baseline depression does not impact later financial strain. - Baseline financial strain significantly impacts later financial strain (β=.406, p<.001). - Locus of control reduces the impact of financial strain on depression (b= -.032, p<.05). - Effects of chronic financial strain on depression greater for those with external control orientations (b=.345, p<.001).	gender and marital status.	
Olsson & Hwang (2008)	- Cross-sectional	- 62 Mothers/49 Fathers of children with intellectual disabilities - 183 Mothers/141 Fathers control parents - Sweden	- BDI-2r - ACQ on FH (13 items) and satisfaction with work, leisure and social activities - FIQ - Antonovsky Short Orientation to Life Questionnaire	- Mothers of children with ID have lower levels of well-being compared to fathers and control parents - Differences in FH (β =.17, p<.001) predicted well-being. - Sense of coherence (mothers (β =-.64, p<.01) and fathers (β =-.32, p<.07)) protective against the effects of hardship.	Age of child, education years, income, no. of children and single parent status.	Fair
Selenko & Batinic (2011)	- Cross-sectional	- 106 debt counselling clients	- ACQ on perceived financial strain (6 items) - GHQ-12 - Access to Categories of Experience Scale - GSES	- Perceived financial strain negatively correlated with Mental Health (r(106) = -.54, p<.001). - Amount of debt not correlated with Mental Health or perceived financial strain. - Only perceived financial strain was related to Mental Health, accounting for 26.8% of variance (F(1, 102)=41,10, p<.001). - The effect of financial strain was moderated by self-efficacy, social contacts and collective purpose.	Education and gender.	Fair

Abbreviations: ACQ = Author Constructed Questions; BDI = Beck Depression Inventory; CES-D = Centre for Epidemiologic Studies Depression Scale; FH = Financial Hardship; FIQ = Family Impact Questionnaire; GHQ = General Health Questionnaire; GSES = General Self-Efficacy Scale; OR = Odds Ratio; POMS = Profile of Mood States; SF-36 = Short Form 36 Health Survey.

1.3.6 Personal Agency and Self-Esteem

Four studies explored the impact of both personal agency and self-esteem on the relationship between financial hardship and mental health. These studies are summarised in table 3.

1.3.6.1 Findings from Studies Investigating both Personal Agency and Self-Esteem

The results of these studies indicated that both mastery and self-esteem are implicated in the experience of mental health difficulties in the context of financial stress. Positive racial identity was found to guard self-esteem and mastery from the eroding effects of economic strain, thus protecting mental health in a sample of African Americans (Hughes, Kiecolt & Keith, 2014) from the National Survey of American Life (Jackson et al., 2006).

Lange and Byrd (1998) explored two aspects of personal agency, economic locus of control and SOC, in conjunction with self-esteem in students in New Zealand. Path analyses of their findings revealed that financial strain impacts upon the sense of manageability and comprehensibility, both of which then influence the internal locus of control, the latter via the chance dimension of economic locus of control. Comprehensibility, in conjunction with meaningfulness, effect self-esteem, and both self-esteem and the internal dimension of locus of control influence depression, while the internal dimension alone impacts anxiety.

Marjanovic et al. (2015) sampled participants from multiple countries in Europe and considered financial threat in addition to financial situation. They concluded that threat partially mediated the relationship between financial situation and mental wellbeing, and that both self-efficacy and self-esteem were associated with higher levels of financial threat. The absence of an analysis of this association prevents conclusions as to its nature and the contribution to mental health.

Vilhjálmsson, Sveinbjarnardottir and Kristjansdottir (1998) investigated suicidal ideation in a general population sample from Finland. Their findings indicate associations between financial stress, self-esteem, locus of control, depression and anxiety, however satisfactory conclusions cannot be made about the nature or strength of these relationships as analysis focussed on their contribution to suicidal ideation, and did not look at interaction effects.

1.3.6.2 Evaluation of Studies Investigating Personal Agency and Self-Esteem

Measures of psychological variables and mental health were predominantly validated and demonstrated satisfactory reliability in the studies investigating the influence of both self-esteem and personal agency. However, the design and analysis of financial hardship raised methodological issues across the studies. The use of limited numbers of questions (Lange & Byrd, 1998), or sufficient questions but no assessment of reliability within the sample populations (Hughes, Kiecolt & Keith, 2014; Marjanovic et al., 2015; Vilhjálmsson, Sveinbjarnardottir and Kristjansdottir, 1998), raises uncertainty as to the validity of their findings. In addition, half the studies (Hughes, Kiecolt & Keith, 2014; Vilhjálmsson, Sveinbjarnardottir and Kristjansdottir, 1998) did not utilise the potential value of the continuous data in analysis, either trichotimising or encoding scores into a dummy variable increasing the risk of bias in their results (MacCallum et al., 2002). The analysis of confounding variables was also generally limited.

Overall the methodological limitations of these studies do therefore raise questions about the value of the data pertaining to personal agency and self-esteem as co-existing psychological variables. In addition, the use of cross-sectional designs prevents conclusions regarding causality.

Table 3

Studies investigating personal agency and self-esteem together

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Hughes et al (2014)	Cross-sectional	- 3570 African Americans - USA	- CES-D – 12 item - ACQ on FH (9 items), social identity and social relationships - RSES - The Mastery Scale	- Racial identity reduced the impact of financial stress on depressive symptoms, through positive group evaluations (*b*=-1.09, *p*<.05). - Racial identity protects psychological resources, especially self-esteem, from financial stress. - Mastery and self-esteem explain 26-46% of the protective effects of racial identity	Age, education, gender, income and marital/partner status.	Fair
Lange and Byrd (1998)	Cross-sectional	- 237 Students - New Zealand	-ACQ on FH (2 items) and current and future debt - HCSL - Antonovsky's short Orientation to Life Questionnaire - Economic Locus of Control Scale - Self-Esteem Inventory	- Psychological well-being related to perceptions of financial situation. - Path analysis: - Current debt and daily financial stress affects sense of being able to manage finances (.193, *p*<.05). - Perceived level of future debt and chronic financial strain related to the ability to understand financial situation (-.173, *p*<.05). - Self-esteem (.410, *p*<.01) and Locus of Control (internal (.604, *p*<.01) and chance (-.353, *p*<.01)) related to comprehensibility of finances. - Anxiety related to internal locus of control (-.632, *p*<.01). - Depressed affect related to internal locus of control (-.592, *p*<.01) and self-esteem (-.617, *p*<.01).	None	Fair

Marjanovic et al (2015)	Cross-sectional	- Cross-cultural - General Population - 275 Belgium - 78 Germany - 231 Portugal - 222 Spain	- FTS - ICS - EHQ - JIS - PSWQ - GSES - RSES - MBI-GS - GHQ-12	- Higher levels of financial threat associated with tendency to worry, low self-efficacy and low self-esteem. - The relationship between financial situation and wellbeing is partially mediated by perceptions of financial threat.	Age, country and gender.	Fair
Vilhjálmsson et al (1998)	- Cross-sectional - Retrospective	- 825 general population - Iceland	- ACQ on life stress (incl. financial stress – 9 items), perceived stress, shyness, alcohol use, chronic illness, pain, hopelessness, loneliness - SEQ - RSES - Rotter Locus of Control Scale – short form - SCL-90 – depression and anxiety scales	- Factors significantly associated with suicidal ideation: perceived stress, self-esteem, external locus of control, hopelessness, loneliness, depression and anxiety (all p<.001) and Financial Stress (p=.007).	Age, education, employment, gender, marital status and personal income in the previous year.	Fair

Abbreviations: ACQ = Author Constructed Questions; CES-D = Centre for Epidemiologic Studies Depression Scale; EHQ = Economic Hardship Questionnaire; FH = Financial Hardship; FTS = Financial Threat Scale; GHQ = General Health Questionnaire; GSES = General Self-Efficacy Scale; HCSL = Hopkins Symptom Checklist; ICS = Income Change Scale; JIS = Job Insecurity Scale; MBI-GS = Maslach Burnout Inventory – General Survey; PSWQ = Penn State Worry Questionnaire; RSES = Rosenberg's Self-Esteem Scale; SCL-90 = Symptom Checklist; SEQ = Support Exchange Questionnaire.

1.3.7 Managing Difficulties

Four studies investigated how the relationship between financial hardship and mental health is influenced by an individual's ability to apply strategies to support the management and resolution of difficulties experienced in life. These studies are summarised in table 4.

1.3.7.1 Findings from Managing Difficulties Studies

Meyer and Lobao (2003) retrospectively analysed a large sample of data from one time point of the Ohio study, selected for its association with an economic farming crisis. Analysis of the use of different coping strategies indicated a deleterious effect of withdrawal/denial and support seeking, significantly increasing depression, while active styles of coping served a protective effect from depression. Nelson's (1989) research with separated and married mothers provides further evidence for the protective role of coping on emotional well-being, suggesting that such skills buffer against the negative effect of life strains in the short and long-term.

Wadsworth et al. (2011) completed a randomized control trial based on extensive research into poverty and family related stressors (e.g. Wolff, Santiago & Wadsworth, 2009). The preventative program targeted poverty, with one area of the curriculum focussed on stress and coping skill training. Teaching skills for managing poverty stressors reduced financial concerns and the use of maladaptive coping strategies; and decreases in depression were predicted by the increased use of adaptive coping strategies.

Renner et al. (2015) sampled a large number of students, finding correlations between financial hardship and both psychological flexibility and distress. All three of these variables significantly contributed to a model explaining days out of role.

1.3.7.2 Evaluation of Managing Difficulties Studies

There was a wide variation in methodological quality of these studies. Causation cannot be attributed given the cross-sectional design of half the studies (Meyer & Lobao, 2003; Renner et al., 2015). Generalisability of results is complicated by low or unreported response rates in half the studies (Nelson, 1989; Renner et al., 2015), and though samples were generally representative of the population,

monetary reward for participation and the removal of participants behaving inappropriately or lacking language skills, has possible consequences for compliance, attrition and therefore generalisability of the effectiveness of the intervention trialled in Wadsworth et al. (2011), as such incentives and actions may not be possible in standard delivery of an intervention.

Overall the validity and reliability of the assessment of financial, psychological and mental health measures was inconsistent. A lack of clarity regarding the questions used and a single item used to assess financial hardship (Nelson, 1989; Renner et al., 2015); and the internal consistency of other measures was either not assessed or suggested questionable reliability (Meyer & Lobao, 2003).

Table 4

Studies of managing difficulties

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Meyer & Lobao (2003)	Cross-sectional	- Farmers - 531 Men - 497 Women - USA	- ACQ on stress - CES-D - Debt-asset ratio - Validated FH questions (3 items) - Control of farm problems scale - Religious affiliation - Religious coping scale	- Subjective ratings of economic hardship were strongly related to depression and stress. - Sense of mastery over challenges negatively impacted on stress and depression. - Personal characteristics, social support and effective coping skills had a small protective effect on mental health outcomes.	Age, education, health and religious affiliation.	Fair
Nelson (1989)	Prospective longitudinal	- 30 Separated Mothers - 60 Married Mothers - Canada	- Emotional Well-Being Scale - Modified Coping Strategies and Resources Inventory - Modified CPC, incl. Financial Concerns Subscale - ACQ on Positive and Negative Changes	- Life strains are inversely related to emotional well-being. - Coping can buffer the negative impact of life strains on well-being. - Separated women are at a higher risk for emotional problems than married women ($F(1,80) = 4.56$, $p<.05$), due to greater financial concerns ($F(1,76) = 4.03$, $p<.05$).	Income level and marital status.	Fair
Renner et al (2015)	Cross-sectional	- 3950 students - Australia	- ACQ on FH (1 item) - AUDIT - K10 - AAQ-II	Days out of role significantly and independently associated with: - economic hardship (β =.09, $p<.001$) - increased psychological distress (β =.32, $p<.001$) - less psychological flexibility (β =.16, $p<.001$)	Age, attendance, first person in family to attend university,	Fair

					gender, language background, level of study, relationship status, student type and travel time.	
Wadsworth et al (2011)	Randomized Control Trial	- 173 couples with at least one child - USA	- EHQ - CES-D - The Coping Efficacy Measure - The Communication Skills Test - Problem Solving - Responses to Stress Questionnaire	Teaching skills for managing poverty-related stress led to: - reductions in financial worries, disengagement coping and involuntary disengagement - increases in primary control coping and problem solving. Decreases in depressive symptoms predicted by: - increased coping - decreased financial stress and involuntary engagement stress responses.	Gender and pre-intervention depression	Good

Abbreviations: AAQ-II = Acceptance and Action Questionnaire; ACQ = Author Constructed Questions; AUDIT = Alcohol Use Disorders Identification Test; CES-D = Centre for Epidemiologic Studies Depression Scale; CPC = Checklist of Problems and Concerns; EHQ = Economic Hardship Questionnaire; FH = Financial Hardship; K10 = Kessler Psychological Distress Scale.

1.3.8 Personality Traits

Personality traits are characteristics which are distinct to an individual. They remain fairly stable over time and influence individuals' actions and behaviour. Four studies explored the influence of personality traits on mental health outcomes in the context of financial difficulties, predominantly focussing on neuroticism. Studies of personality traits are summarised in table 5.

1.3.8.1 Findings from Personality Traits Studies

Both Handley et al. (2013) and Lee et al. (2000) investigated the influence of neuroticism in suicidal ideation in rural communities and post-natal depression in Chinese women respectively. Though both studies demonstrated that neuroticism and financial difficulties predicted poorer mental health, these studies say little about how these variables interact with one another.

Creed, Muller and Machin's (2001) study of unemployed people demonstrated that financial strain and neuroticism predict poor mental health. These factors were also significantly correlated with each other. Unfortunately these relationships were not explored further so no conclusions can be made as to the nature of their interactions.

Cole, Logan and Walker (2011) also evidenced a predictive effect of personality traits, in this case self-control, and financial difficulties on stress, as well as demonstrating associations between the variables in individuals accessing a substance abuse service. However these correlations were also not explored in greater detail.

1.3.8.2 Evaluation of Personality Traits Studies

The conclusions that can be drawn from these studies about the relationships between the variables are limited, either by a cross-sectional design (Creed, Muller & Machin, 2001, Cole, Logan & Walker, 2011) or a lack of analysis of variables' interactions (Handley et al., 2013; Lee et al., 2000). Though all the studies demonstrated a significant predictive effect of both financial hardship and personality traits on mental health, and some showed associations between the variables, potential pathways and interaction effects were not explored.

Low participation rates, high rates of attrition and samples unrepresentative of the general population also impact upon the extent to which the findings of these studies can be considered to be generalizable (Creed, Muller & Machin, 2001; Handley et al., 2013; Lee et al.,2000).

All of the studies raise questions as to either the validity or reliability of their assessment of financial hardship, personality traits and mental health. Scales were either inadequate, significantly altered or not assessed for their internal consistency within the samples.

Table 5

Studies of personality traits

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Creed et al (2001)	Cross-sectional	- 81 unemployed people - Australia	- GHQ-12 - Eysenck Personality Questionnaire Revised – neuroticism scale - FH questions (4 items, Ullah, 1990)	Psychological distress predicted by: - Financial strain (β =.32, p<.01) - Neuroticism (β =.43, p<.001)	Age and gender.	Fair
Cole et al (2011)	Cross-sectional	- 787 Substance abuse service users - USA	- PSS - Perceived discrimination scale - ACQ on FH (8 items), subjective social standing, personal control, substance abuse and social support - Brief SCS	Perceived stress significantly (p<.001) related to: - financial hardship (β =.182) - perceived control over life (β =-.217) - self-control (β =-.324). - These factors contributed to 57% of the variance in perceived stress.	Age, alcohol use, days incarcerated, drug use, education, employment, gender, income, physical health, race and satisfaction with social support.	Fair
Handley et al (2013)	- Longitudinal	- 2639 general population - Rural and remote areas - Australia	- Survey questions on suicidal ideation, perceived FH (1 item) and concerns about	- Psychological Distress significantly associated with (OR=1.30, p<.001) and predictive of (OR=1.16, p<.001) suicidal ideation.	Baseline suicidal ideation, employment,	Fair

			infrastructure and services - K10 - AUDIT - Berkman Syme Social Network Index - ISSI – Availability of Attachment Scale - Sense of Community Index - 12 Item Eysenck Scale – brief form (for neuroticism)	- Neuroticism significantly associated with (OR=1.15, *p*<.005) and predictive of (OR=1.17, *p*=.013) suicidal ideation. - Financial difficulties significantly associated with suicidal ideation (OR=6.72, *p*<.001), but not predictive of.	gender and study phase.	
Lee et al (2000)	Prospective longitudinal	- 220 Post-partum Chinese Women - Hong Kong	- BDI - GHQ-30 - SCID-NP - Eysenck Personality Questionnaire – Neuroticism subscale - Medical Outcome Study Social Support Survey - Life Event Scale - ACQ on FH (no. unknown), marital relationship and past depressive episodes	Postnatal depression associated with: - Financial difficulties (OR =3.4) - Neuroticism (OR=1.3)	None	Poor

Abbreviations: ACQ = Author Constructed Questions; AUDIT = Alcohol Use Disorders Identification Test; BDI = Beck Depression Inventory; BSI = Brief Symptom Inventory; FH = Financial Hardship; GHQ = General Health Questionnaire; ISSI = Interview Schedule for Social Interaction; K10 = Kessler Psychological Distress Scale; OR = Odds Ratio; PSS = Perceived Stress Scale; SCID-NP = Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, non-patient version; SCS = Self-Control Scale.

1.3.9 Other Psychological Variables

Four studies considered psychological variables unique to other studies. A summary of their findings is shown in table 6.

1.3.9.1 Findings of Studies of Other Psychological Variables

The studies of Braver et al. (1989) and Brown and Moran (1997) sampled mothers in the context of marital status, looking at the effects of divorce in the US and changes in relationship status in the UK respectively. Negative economic events predicted psychological distress on the HCSL (Derogatis et al., 1974) in Braver et al. (1989), and the psychological variable of interpersonal sensitivity was also elevated above norms, though the nature of its effect in relation to financial hardship is not analysed.

Brown and Moran (1997) longitudinally measured a number of non-psychological variables, as well as self-evaluation in the domains of personal attributes, competence and self-liking using the SESS (O'Connor & Brown, 1984). Their results indicated that financial hardship was associated with chronicity of depression and increased negative evaluations of the self. They proposed a model in which hardship creates a sense of humiliation and entrapment, which has negative consequences for self-evaluation and self-liking, leading to an increased vulnerability to depression.

Hurwich-Reiss et al. (2015) considered the influence of ethnic identity (EI) in an ethnically diverse sample of parents. Overall EI did not moderate the relationship between economic hardship and mental health. However, in African American fathers with strong EI, the association between hardship and distress was weaker.

The impact of shame among unemployed people was explored by Creed and Muller (2006). They found that shame and financial distress contributed significantly to a model of psychological distress. The authors therefore concluded that they impacted independently on wellbeing, as additional analysis indicated there was no interaction effect, but could not establish what aspect of participants' experience shame arose from.

1.3.9.2 Evaluation of Studies of Other Psychological Variables

Conclusions regarding causation and generalisability from the study by Braver et al. (1989) are limited by the cross-sectional design and restricted diversity in the sample. In addition the assessment of financial hardship has questionable validity and reliability, and confounding variables were not assessed, despite the potential importance of factors such as age and number of children.

Brown and Moran (1997) were the only researchers in this review to use an objective measure of financial hardship, rated by the interviewers. Ratings showed good inter-rater reliability, but raters may not have been fully blinded to life events that may be implicitly linked to financial difficulties. Women with any level of hardship were amalgamated into one group for analysis perhaps providing an overly conservative assessment of the impact of economic difficulties.

The Creed and Muller (2006) study comprehensively assessed the validity, reliability and independence of all the scales used, demonstrating acceptability in all domains. Causation is unclear given the cross-sectional design; and the lack of a satisfactory explanation of the relationship of shame to other factors leaves unanswered questions as to its role in the model identified.

The cross-sectional design of the Hurwich-Reiss et al. (2015) study also prevents attributions regarding causation. Financial hardship was assessed with a valid and reliable measure and ratings of economic hardship were similar across the groups allowing for more reliable comparison.

Table 6

Studies of other psychological factors

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Braver et al (1989)	Cross-sectional	- 77 Mothers - USA	- HCSL - ACQ on FH (4 items) and Income	- Drop In Income and Negative Economic Events significant predictors of Psychological Distress.	None	Fair
Brown and Moran (1997)	Longitudinal	- 404 Mothers - UK	- Shortened PSE - Self-Evaluation and Social Support Schedule - Life Events and Difficulties Schedule - Childhood Experience of Care and Abuse Schedule - FH Objectively rated by researcher	Risk of depression onset: - Almost double among women in FH (p=.001). - FH associated with chronicity of depression. - Negative evaluations of self (p<0.01, df=2), lack of a 'true' Very Close Other (p<0.001, df=2) and Childhood Adversity (x^2 trend, p<0.02, df =1) more common in those experiencing FH.	Employment and marital status.	Good
Creed & Muller (2006)	Cross-sectional	- 125 unemployed people - 133 full-time workers - Australia	- GHQ-12 - Latent and Manifest Benefits Scale (six subscales: time structure, social support, collective purpose, status, activity and financial distress - 10-item Shame scale	- Shame, Psychological Distress and Financial Strain more prevalent among the unemployed (F(8,243)=38.59, p<.001. - Financial Distress (β =.28, p<.001) and Shame (β =.16, p<.05) contributed significantly to a model of Psychological distress which accounted for 32.4% of variance. - No support for an interaction between Financial Distress and Shame.	Age, employment and gender.	Fair
Hurwich-Reiss et al (2015)	Cross-sectional	- 123 African Americans - 134 European Americans - 98 Latinos	- MEIM - EHQ - BSI - PCRI	- FH associated with increased emotional distress in all ethnicities (x^2(3) = 1.08, p= .36, CFI = 1.00, RMSEA = .02). - In African Americans, stronger ethnic identity associated with reduced emotional stress (β =-.267, p<.01).	Ethnicity and gender	Fair

	- Parents in long-term relationships - USA	- Ethnic Identity did not moderate the relationship between economic hardship and emotional distress.

Abbreviations: ACQ = Author Constructed Questions; BSI = Brief Symptom Inventory; EHQ = Economic Hardship Questionnaire; FH = Financial Hardship; GHQ = General Health Questionnaire; HCSL = Hopkins Symptom Checklist; MEIM = Multigroup Ethnic Identity Measure; PCRI = Parent-Child Relationship Inventory; PSE = Present State Examination.

1.3.10 Multiple Psychological Variables

Five studies looked at a combination of psychological variables in relation to financial difficulties and mental health, which tended to be an assessment of general mental health or depression. A summary of their findings is shown in table 7.

1.3.10.1 Findings of Studies of Multiple Psychological Variables

Chen et al. (2006) conducted a case-controlled psychological autopsy study comparing suicides in Hong Kong with age and gender matched controls from the general population to establish risk and protective factors for suicide. The original data included assessment of the psychological variables of compulsivity, impulsivity and social problem solving, the latter two of which were included in the analysis by Law et al. (2014). Law et al. (2014) retrospectively analysed a sample of the same data to explore these factors in the context of employment. Unmanageable debts, psychiatric illness and impulsivity were identified as risk factors for suicide in both the original sample and the sample of employed participants, but the interaction between these effects was not explored. Additionally Chen et al. (2006) found that social problem-solving skills were a risk factor in the original sample.

Hobfoll et al. (2003) looked at mastery and anger in the context of resource loss and depression in a sample of single women on low incomes living in inner cities. The study found that changes in mastery and material resource contribute significantly to depression and anger, with mastery identified as the primary mediator between material loss and depression and anger. This finding is borne out by Heilemann, Lee and Kury (2002) who also explored the effect of mastery, but in combination with resilience. Their sample of women of Mexican descent found that inadequate financial resource was associated with depression, and mastery and resilience significantly explained the variance in depression scores.

Norvilitis, Szablicki and Wilson (2003) explored the influence of impulsivity and money attitudes on stress in students. Their findings suggest an association between perceived financial wellness and mental health. They also identified associations with a more internal locus of control and lower levels of dysfunctional impulsivity. Associations were also found between stress and impulsivity and the tendency to use money to impress others.

1.3.10.2 Evaluation of Studies of Multiple Psychological Variables

The studies that investigated multiple psychological variables were predominantly cross-sectional in design, thus limiting conclusions about causation (Chen et al., 2006; Hobfoll et al., 2003; Law et al., 2014; Norvilitis, Szablicki & Wilson, 2003). The representativeness of the samples, and therefore generalisability of the findings, is questionable given the methods of sampling and the restricted nature of the populations chosen in most of the studies.

The assessment and analysis of financial hardship in the majority of the studies lacked validity and reliability, given the use of single item questions (Chen et al, 2006; Heilemann, Lee & Kury, 2002; Law et al., 2014), and the trichotomisation of scale scores (Hobfoll et al., 2003). The assessment of the internal consistency or reliability of ratings of mental health and the psychological variables was problematic in some of the studies (Chen et al., 2006, Law et al., 2014), and trichotomisation of scale scores using arbitrary cut-offs potentially limits the usefulness of the information gained (Hobfoll et al., 2003). The remaining studies did however use standardised measures of all variables, and assessed reliability (Heilemann, Lee & Kury, 2002; Norvilitis, Szablicki & Wilson, 2003).

Somewhat surprisingly, although multiple psychological variables were assessed, there was limited analysis of their interactions and relationships with one another, giving little information as to the way these variables may influence one another and, in combination, impact upon mental health.

Table 7

Studies of multiple psychological factors

Study	Design	Sample	Measures	Key findings	Confounds controlled for	Overall methodological quality rating
Chen et al (2006)	- Psychological Autopsy - Case controlled	- 150 suicide completers - 150 controls - Hong Kong	- Circumstances of death - ACQ on income, financial situation (1 item), social support, life event variables and healthy living styles - LEE - CTS-2 - SCID-1 - IRS - Compulsivity instrument - SPSI	Significant (all p<.001) independent contributors to suicide: - unemployment (OR=9.40) - debt (OR=8.03) - psychiatric diagnosis (OR=37.55) - impulsivity (OR=5.45) - social problem-solving skills (OR=0.46)	Age, gender, method of suicide and unemployment	Fair
Heilemann et al (2002)	Cross-sectional	- 315 Women - Mexican descent - USA	- Resilience Scale - Pearlin & Schooler Mastery scale - CES-D - ACQ on external resource variables (incl. 1 item on FH) and intrinsic strength variables	- Women reporting inadequate financial resources had significantly (p<.001) higher CES-D scores (M=20.5, SD=11.6) than women with adequate resources (M=14.9, SD=10). - Ma-stery (β =-.340, p<.001), Life Satisfaction (β =-.323, p<.001) and Resilience (β =-.203, p<.001) accounted for 31% of the variance in CES-D scores.	Acculturation, education level and marital/partner status.	Fair
Hobfoll et al (2003)	Prospective longitudinal	- 714 Inner-city Women - USA	- POMS depression scale, short form - SSQ-6 - Pearlin and Schooler Mastery Scale	- Changes in mastery significantly associated with changes in emotional distress (F(4, 1406)=17.961, p<.049). - Increased material loss increased anger and depressed mood (F(4,1388)=6.476, p<.000).	Age, anger, education and initial depressive mood.	Good

			- STAXI, State version - Conservation of Resources Evaluation	- Loss of mastery, social support and material resource has a larger impact on distress than the gain of these resources. - Mastery is the prime mediator between material loss and depressive mood/anger.		
Law et al (2014)	- Psychological Autopsy - Case controlled - Retrospective	- 63 suicide completers - 112 controls - Employed - Hong Kong	- Circumstances of death - Survey questions on income, financial situation (1 item), social support, life event variables and healthy living styles - LEE - CTS-2 - SCID-1 - IRS - Compulsivity instrument - SPSI	Suicide in employed workers significantly associated with: - psychiatric illness (OR=25.88, *p*<.001) - unmanageable debts (OR=7.25, *p*=.032) - impulsivity (OR=5.15, *p*=.013)	Psychiatric background	Poor
Norvilitis et al (2003)	Cross-sectional	- 227 students - USA	- ACQ on credit card use - Student Financial Well-Being Scale - MAS - Dickman Functional and Dysfunctional Impulsivity Scales - SWLS - DASS - Stress subscale - Internal-External Locus of Control Scale	- Debt to income ratio related to the perceived financial well-being scale (r= -.29, *p*<.01), but not money attitude and personality variables. - Perceived financial well-being associated with psychological well-being, lower levels of dysfunctional impulsivity and a more internal locus of control	None	Fair

Abbreviations: ACQ = Author Constructed Questions; CES-D = Centre for Epidemiologic Studies Depression Scale; CTS-2 = Revised Conflict Tactics Scales; DASS = Depression Anxiety Stress Scale; FH = Financial Hardship; IRS = Impulsivity Rating Scale; LEE = Level of Expressed Emotions; MAS = Money Attitude Scale; OR = Odds Ratio; POMS = Profile of Mood States; SCID-1 = Structured Clinical Interview for DSM-IV-TR Axis-I Disorders; SPSI = Social Problem Solving Inventory; SSQ = Social Support Questionnaire; STAXI = State-Trait Expression Inventory; SWLS = The Satisfaction With Life Scale.

Table 8

Study quality ratings using the Quality Assessment Tool for Observational Cohort and Cross-sectional Studies

	1. Objective clearly stated	2. Study pop.	3. Participation rate	4. Participant uniformity	5. Sample size justification	6. Exposure assessed pre outcome	7. Sufficient timeframe	8. Different exposure levels	9. Exposure measures	10. Repeated exposure assessment	11. Outcome measures	12. Blinding	13. Follow-up rate	14. Stats analyses	15. Overall rating
Burdette & Hale (2011)	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	YES	GOOD
Drentea &Reynolds (2015)	YES	YES	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	YES	YES	GOOD
Ennis et al (2000)	YES	NO	NR	YES	YES	NO	NO	YES	YES	NO	YES	NO	NA	YES	GOOD
Hill et al (2013)	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	YES	GOOD
Hobfoll et al (2003)	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES	NO	NO	YES	GOOD
Krause (2012)	NO	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	NO	NO	YES	GOOD
Wadsworth et al (2011)	YES	YES	NR	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	NO	GOOD
Wickrama et al (2011)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NA	YES	YES	GOOD
Braver et al (1989)	YES	NO	NR	YES	YES	NO	NO	YES	YES	NO	YES	NO	NA	NO	FAIR
Brown & Moran (1997)	YES	YES	CD	YES	YES	NO	YES	NO	YES	NO	NO	YES	YES	YES	FAIR
Cole et al (2003)	YES	YES	YES	YES	YES	NO	NO	YES	NO	NO	NO	NO	NA	YES	FAIR

Creed et al (2001)	YES	NO	NR	YES	YES	NO	NO	YES	YES	NO	YES	CD	NA	NO	FAIR
Creed & Muller (2006)	YES	NO	NR	NO	YES	NO	NO	YES	YES	NO	YES	CD	NA	YES	FAIR
Crowe & Butterworth (2016)	YES	YES	YES	YES	YES	NO	YES	NO	NO	YES	YES	NA	YES	YES	FAIR
Cole et al (2003)	YES	YES	YES	YES	YES	NO	NO	YES	NO	NO	NO	NO	NA	YES	FAIR
Heilemann et al (2002)	YES	YES	CD	YES	YES	NO	NO	NO	NO	NO	YES	NA	NA	YES	FAIR
Hughes et al (2014)	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO	YES	NO	NA	YES	FAIR
Hurwich-Reiss et al (2015)	YES	NO	NR	YES	YES	NO	NO	YES	YES	NO	YES	NO	NA	YES	FAIR
Jessop et al (2005)	YES	NO	YES	NO	YES	NO	NO	YES	YES	NO	YES	NA	NA	YES	FAIR
Kivimaki (2002)	YES	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	NA	YES	NO	FAIR
Lange & Byrd (1998)	YES	NO	NR	YES	NO	NO	NO	YES	NO	NO	YES	NA	NA	NO	FAIR
Marjanovic et al (2015)	YES	YES	NR	NO	YES	NO	NO	YES	NO	NO	YES	NA	NA	NO	FAIR
Meyer & Lobao (2003)	NO	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	CD	NA	YES	FAIR
Nelson (1989)	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	NO	NO	YES	NO	FAIR
Norvilitis (2003)	YES	NO	YES	YES	YES	NO	NO	YES	YES	NO	YES	NA	NA	NO	FAIR

Olsson & Hwang (1987)	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	YES	NA	NA	YES	FAIR
Ritter et al (2000)	YES	NO	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES	FAIR
Selenko & Batinic (2008)	YES	YES	CD	YES	YES	NO	NO	YES	YES	NO	YES	NA	NA	YES	FAIR
Vilhjálmsson et al (1998)	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	YES	NA	NA	YES	FAIR
Chen et al (2006)	YES	YES	NO	NO	YES	NO	NO	NO	NO	NA	NO	NO	NA	YES	POOR
Handley et al (2013)	YES	YES	NO	YES	YES	NO	YES	NO	NO	YES	YES	CD	NO	YES	POOR
Law et al (2014)	YES	YES	NO	NO	YES	NO	NO	NO	NO	NA	NO	NO	NA	NO	POOR
Lee et al (2000)	NO	YES	YES	YES	YES	NO	YES	NO	NO	NO	YES	NR	NO	NO	POOR
Renner et al (2015)	YES	YES	NO	YES	YES	NO	NO	NO	NO	NO	NO	NA	NA	YES	POOR

Key:

1. Was the research question or objective in this paper clearly stated?
2. Was the study population clearly specified and defined?
3. Was the participation rate of eligible persons at least 50%?
4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?
5. Was a sample size justification, power description, or variance and effect estimates provided?
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?
9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

10. Was the exposure(s) assessed more than once over time?
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?
12. Were the outcome assessors blinded to the exposure status of participants?
13. Was loss to follow-up after baseline 20% or less?
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?
15. Overall quality rating

Abbreviations: CD = Cannot Determine; NA = Not Applicable; NR = Not Reported

1.4 Discussion

1.4.1 Summary of Findings

The aim of this paper was to systematically review the literature which has explored the influence of psychological variables in the context of financial hardship and mental health, in order to establish which factors are most consistently and reliably implicated, and the mechanisms by which they operate. These factors have evidently been considered in a number of studies, and this review therefore encompasses research of a variety of designs, conducted with a diverse range of populations from around the world. Psychological factors linked with mental health difficulties in the context of financial hardship are listed in table 9.

Table 9

Psychological variables associated with financial hardship and mental health

Psychological Variables	
Global factor	Specific trait
Personal agency	Mastery
	Locus of control
	Self-efficacy
	Sense of coherence
Self-esteem	
Coping	Psychological flexibility
	Resilience
	Adaptive problem-solving skills
Personality traits	Neuroticism
	Impulsivity

Overall the studies in this review suggest that personal agency has an important role to play in the relationship between financial hardship and mental health. The evidence for the influence of mastery (Heilemann, Lee & Kury, 2002; Hughes, Kiecolt & Keith, 2014) is most compelling, its mechanism of action being frequently demonstrated as mediatory (Crowe & Butterworth, 2016; Drentea & Reynolds, 2014; Ennis, Hobfoll & Schröder, 2000; Hobfoll et al., 2003). Locus of control would also appear to be an important variable in understanding hardship and mental health (Krause, 1987; Lange and Byrd, 1998; Norvilitis, Szablicki & Wilson, 2003; Vilhjálmsson, Sveinbjarnardottir & Kristjansdottir, 1998) though there is also conflicting evidence of its significance (Jessop, Herberts and Solomon, 2005). The role

of personal agency is also indicated by evidence for an effect of self-efficacy (Marjanovic et al., 2015; Selenko & Batinic, 2011) and Sense of Coherence (Kivimäki et al., 2002; Olsson & Hwang, 2008), though with less clarity about the mechanism by which these forms of agency act. The studies of personal agency suggest that a sense of skill and control is important in ameliorating the detrimental effects of financial strain and protecting mental health as proposed by the stress buffer hypothesis (Wheaton, 1985).

In contrast, the research exploring the impact of self-esteem alone is inconsistent. Though the studies predominantly demonstrated no effect of self-esteem (Hill, Reid & Reczek, 2013; Waters & Muller, 2003; Ritter et al., 2000) the superior methodological quality of the studies which found either a predictive (Burdette & Hale, 2011) or mediatory effect (Wickrama et al., 2012) may give these findings more weight.

The studies looking at both personal agency and self-esteem demonstrated that both factors impacted upon mental health in the context of financial hardship, providing support for stress process theory (Pearlin et al., 1981). However methodological weaknesses in the measurement of financial hardship, and a lack of analysis of the way in which agency and self-esteem interact, impact upon the conclusions that can be drawn.

The studies in this review also indicate that the ability to cope with and adapt to financial difficulties may be protective of mental health, providing further support for the stress buffer hypothesis (Wheaton, 1985). Psychological flexibility (Renner et al., 2015) or resilience (Heilemann, Lee & Kury, 2002), or possessing adaptive problem-solving skills (Meyer and Lobao, 2003; Nelson, 1989; Chen et al., 2006), may make challenging economic conditions easier to tolerate. Furthermore Wadsworth et al. (2011) demonstrated that coping skills can be acquired through training, with positive consequences for mental health.

Personality traits would also seem to be a relevant variable to understanding financial hardship and mental health. Neuroticism (Creed, Muller & Machin, 2001; Handley et al., 2013; Lee et al., 2000), poor self-control (Cole, Logan & Walker, 2011) and impulsivity (Chen et al., 2006; Law et al., 2014; Norvilitis, Szablicki & Wilson, 2003) were identified as factors harmful to mental health. Though economic

difficulties were also recognised as predictive factors, analysis was largely restricted to considering them as parallel contributory factors rather than how personality and hardship may interact to influence mental health outcomes.

The review provides limited evidence for the negative impact of shame (Creed & Muller, 2006) and self-evaluation (Brown & Moran, 1997) on mental health in the context of economic challenges. Finally, studies exploring the effects of ethnic identity (Hurwich-Reiss et al., 2015) and interpersonal sensitivity (Braver et al., 1989) were inconclusive about their impact.

1.4.2 Limitations of the Literature Reviewed

The papers reviewed tended to be cross-sectional in design, limiting conclusions regarding causality. Though associations between financial hardship, mental health and a psychological variable may have been demonstrated, it cannot be known how these variables are interacting. Thus while variations in a psychological variable may seem to predict mental health difficulties in conjunction with hardship, such differences may also be a consequence of psychological distress and the impact it has on social and economic engagement.

A risk of bias in the studies in this review may come from the deliberate oversampling of certain populations, such as single women or disabled people; while the majority of studies sampled participants from communities known to be at risk of experiencing poverty or low-income. It is therefore difficult to say that many of the findings in this study could be generalised outside of these populations. Though it is of course important to understand how these disenfranchised groups may be suffering in times of hardship, and they clearly are bearing the brunt of such difficulties, there is a danger of neglecting other groups who, despite having higher incomes, may still be struggling to meet needs and expenses adequately.

The blinding of assessors is a limitation for many of the studies in this review. While those studies utilising online or paper surveys required no objective assessment of their experiences by a third party, the majority of studies used some form of one-to-one interview to complete the measures. In all but a small number of cases interviewers would therefore have been aware of participants' financial situations and associated difficulties, which may have biased the completion of measures pertaining to psychological variables or mental health.

There was much variation in the quality of assessment of financial hardship. Though standardised and validated measures were used in some studies, the assessment of financial hardship most frequently consisted of questions constructed by the author or based on pre-existing or previously used scales. While the use of self-ratings of financial hardship may introduce bias, this was partially ameliorated in studies which used comprehensive measures of economic strain as questions were related to the availability of tangible resources. Valid and/or reliable scales measuring hardship were consistent in the content of the questions asked, focussing on the presence of financial and material resource, and its sufficiency to meet their needs.

In contrast a significant number of studies used only one question to measure financial difficulties, did not assess the internal consistency of the scales used, or dichotomised the measurements into a simple distinction between 'hardship' and 'no hardship'. All of these factors have consequences for validity and reliability, given the uncertainty that financial hardship is the construct being assessed, whether this assessment is accurate, and therefore if it is acceptable to compare what is defined as financial hardship across different studies.

The studies in this review also predominantly used self-rated measures of mental health which may introduce bias. Furthermore, though they provide a good indicator as to global psychological distress, the frequent use of general measures of mental health reduces the conclusions that can be made as to what the nature of this distress is, and therefore the mechanisms by which psychological variables may influence it.

Participation rates were frequently unclear or unreported, as was information describing when data was collected. Though many studies assessed a range of confounding variables, a significant proportion either made no assessment or were very limited in the confounds that were accounted for.

1.4.3 Limitations of review

The search of only two databases may be considered a limitation of the search strategy. Given that the aim of this review was to consider all papers investigating the influence of any psychological factor in the context of mental health and financial hardship, a wide range of potentially relevant search terms could be

used. The search terms actually used aimed to encompass all those frequently used in research about mental health and economic strain, but it is perhaps inevitable that some studies were missed given the wide variety of descriptions and labels applied to these experiences. However the high volume of papers returned in the search, and the identification of only four additional papers in the hand search suggests the search was sufficiently thorough.

In terms of the quality assessment, this is inherently limited by an individual completing this in isolation. Also the tool itself was designed for cross-sectional and cohort studies. It was therefore perhaps unfairly applied to the two psychological autopsy studies and the randomised control trial. However, the consideration of bias in relation to the methods used to measure the exposure variable and outcomes remains highly relevant. In relation to the RCT the assessment tool may have insufficiently assessed potential bias outside of these key areas, such as that relating to procedure, analysis and the reporting of results.

1.4.4 Conclusions

While a number of psychological variables have been investigated for their impact on the relationship between financial hardship and mental health, the effect of personal agency and coping ability would seem to have the most compelling evidence in its favour. Studies demonstrating that feeling skilled and effective, and the ability to problem solve and tolerate difficulties, have been conducted with a variety of populations, across different countries of the world, and age groups across the life span, suggesting that such findings may generalise outside of these studies. The methodological quality of the research is variable however, with causation and the valid and reliable measurement of financial hardship being areas of particular concern.

1.4.5 Clinical Implications

The identification of psychological factors that may protect mental health from the detrimental effects of financial hardship has wide ranging clinical implications. While it remains of utmost important to tackle and reduce the societal factors that increase vulnerability to the experience of financial hardship in individuals and communities, understanding who may be at greater risk of developing mental health difficulties in response to economic stress by assessing for

the presence of identified risk factors, may facilitate more rapid referral to financial interventions that alleviate this stressor.

Furthermore, the possibility that enhancement of personal agency and coping skills may prevent or reduce mental health problems has exciting prospects for the development of coaching and training interventions that both empower and protect individuals from the effects of difficult contexts.

At a practical level the development of active problem solving skills could be facilitated through a CBT approach. Encouraging individuals to proactively engage with their difficulties in order to identify the content of their problem, with possible consequences for perceptions of the problem itself, and the advantages and disadvantages of possible solutions enhances practical skills that may contribute to the resolution of difficulties whilst also having positive consequences for the sense of personal agency and empowerment in the face of challenging situations.

At an emotional level the development of emotional coping skills, as taught in Dialectical Behaviour Therapy (Linehan, 2014), may allow individuals to regain some sense of control over their lives. Though control may be difficult to achieve on a financial level, feeling able to cope with the emotional consequences of these stressors may go some way to protect mental health.

1.4.6 Future Directions

Future research in this area should aim to address some of the limitations identified in the existing literature. There is a need for more longitudinal studies to address issues of causation in how financial strain, mental health and psychological factors relate to and impact upon one another. Thus the mechanisms by which these factors interact need to be explored, and in more detail. Studies should also be utilising standardised measures of financial hardship which adequately measure the nature and severity of impact this stressor causes. The paucity of good quality studies in the UK also needs to be addressed in order to understand the nuances of these relationships in the context of British culture. Future research should also investigate the effect of financial difficulties on mental health among clinical populations, given their greater vulnerability to these experiences.

Chapter 2: Empirical Paper: Do locus of control, self-esteem, hope and shame mediate the relationship between financial hardship and mental health?

2.1 Introduction

2.1.1 Poverty

Absolute poverty describes acute deprivation of food, safe water, sanitisation, shelter, health care and education, to a degree that causes premature death and suffering (Schwartzman, 2000). Such extreme poverty is predominantly evident in the least developed countries of the world (Gore, 2003). More familiar and prevalent in the developed world is the concept of relative poverty, in which the basic needs required to participate within one's social context cannot be fulfilled due to inadequate financial and material resources (Goulden & D'Arcy, 2014). In 2014/15 the UK government identified 21% of the population as living in relative poverty, having disposable income less than 60% of the median (McGuinness, 2016).

In the absence of financial means, access to material resources such as safe housing, energy and food is compromised. Insufficient resources also have social consequences from the limitations placed on activities and engagement within families and communities; and discrimination arising from negative perceptions of people experiencing poverty. These economic and social disadvantages have been demonstrated to have a detrimental impact on health (Wilkinson & Marmot, 2003).

The associations between poverty and illness are well established. Studies have indicated increased incidence of cancer in deprived areas (Li et al., 2012) and reduced survival rates (Patru et al., 2013). Mortality rates from stroke (Grimaud et al., 2014) and cardiovascular disease (Lee & Carrington, 2008) are elevated; obesity is more prevalent (El-Sayed, Scarborough & Galea, 2012); and diabetes' outcomes are worse (Grintsova, Maier & Mielck, 2014). Such evidence perhaps explains why, on average, men and women from the richest social class in the UK live more than seven years longer than those in the poorest (Department of Health, 2011), and people living in deprived areas are more at risk of experiencing disability and for longer (ONS, 2016).

2.1.2 Poverty and Mental Health

The effect of poverty on health extends beyond the physical realm. Mental health disorders have been consistently shown to have greater prevalence in lower SES groups (Fryers, Jenkins & Melzer, 2004). More specifically, rates of depression (Lorant et al., 2003), schizophrenia (Harrison et al., 2001) and admission to psychiatric hospital (Koppel & McGuffin, 1999) are increased.

The interaction between mental health and poverty is complex and influenced by a multitude of factors. Social drift proposes that downward social mobility as a consequence of mental health problems is at the root of these figures (Timms, 1998). However, though this has been acknowledged as a factor in increased prevalence rates, it does not tell the whole story. Social causation theory and the idea that poverty leads to emotional disturbance (Langner & Michael, 1963) has long been evidenced. Social causation hypotheses draw attention to the chronic stressors and social adversity faced by people living in low SES groups. A lack of economic resource (Salomon, Bassuk & Brooks, 1996), inadequate housing (Evans et al., 2000), exposure to violence and crime (Belle et al., 1981) and an absence of supportive relationships (Payne, 2000) may contribute to the increased risk of experiencing poor mental health. Unemployment, which may also exert a social drift effect, is related to increased rates of mental disorder, trebling the odds of developing phobias and psychoses and doubling the risk for anxiety disorders and depression (Melzer et al., 1995). Combinations of these factors experienced in childhood may increase the risk of developing psychoses in later life (Wicks et al., 2005).

2.1.3 Financial Hardship and Mental Health

Despite the challenges that people experiencing poverty face, a significant proportion will not suffer any detrimental effects to their mental health. Given individual variations in financial pressures and demands, income or SES group may not reliably reflect the amount of deprivation experienced (Layte et al., 1999). Indeed current economic strains are more closely associated than SES with later mental health difficulties (Lahelma et al., 2006).

An alternative concept which may address this issue is that of financial hardship. Financial hardship describes situations in which individuals have insufficient economic resources required to sustain a home, pay bills and debts, and meet

essential costs, such as food and transportation (Mirowsky & Ross, 1999). Such challenges do not exclusively exist among people who are poor. Just as some people on low incomes may still have sufficient funds to meet all their needs, people with seemingly high incomes may not. Measures of financial hardship ascertain the severity of deprivation by establishing the extent to which essential costs are being met (Mack & Lansley, 1985), and may therefore be a more reliable indicator of the relationship between financial disadvantage and mental health (Fryers, Melzer & Jenkins, 2003). Going without meals, seeking assistance from community organisations, and having to pawn or sell possessions have all been associated with depression (Butterworth, Olesen & Leach, 2012), just as deteriorations in mental health have been associated with the inability to meet housing costs (Mason et al., 2013) or heat the home (Butterworth, Rodgers and Windsor, 2009).

Financial hardship places individuals at an increased risk of developing mental health problems (Kiely et al., 2015). Indeed research suggests that hardship is a stronger predictor of moderate to severe mental disability than SES and household income (Crosier, Butterworth & Rodgers, 2007), and financial hardship is strongly associated with both the onset and duration of common mental disorders (Weich & Lewis, 1998). Depression (Mirowsky & Ross, 2001), self-harm behaviours (Barnes et al., 2016) and increased suicide rates (Branas et al., 2015) have been linked to the experience of financial hardship. Furthermore debt, with its intrinsic links to hardship, either as a contributor or a consequence, has also been associated with a greater prevalence of substance use, depression, psychosis and suicide (Richardson, Elliott & Roberts, 2013).

2.1.4 The Influence of Psychological Factors on Financial Hardship and Mental Health

Neomaterialism proposes that the suffering caused by deprivation and the lack of financial means to access resources that can counter its effects, is sufficient to create the conditions for the development of mental disorder (Lynch et al., 2000). Whilst plausible as an explanation, it does not account for the many people for whom the experience of economic strain does not cause emotional distress nor mental disorder. Theories relating to stress may offer some explanations as to the mechanisms by which financial hardship impacts upon mental health.

In the Conservation of Resources model (Hobfoll, 1989) the loss of financial resource prompts efforts to offset or regain what is lost. Loss is not restricted to the material resource, but extends to other domains of experience such as status and a sense of stability in life. Efforts to regain resources are harder and have reduced chances of success in the context of these material and psychological losses, with inevitable consequences for mental health.

Similarly, but with greater specificity, Stress Process theory (Pearlin et al., 1981) proposes that stress, in addition to its direct effects on mental health, also has an indirect effect through the erosion of social and psychological resources that would ordinarily serve a protective effect in the face of adversity. For example, social support may be weakened when finances are insufficient to facilitate contact with friends and family. Within such a model financial hardship acts as a chronic stressor, diminishing the very resources that may mitigate its harmful effects. However, resilience in these resources may buffer the effects of stress and protect mental health from the effects of economic strain.

Models such as the multilevel model of economic stress (Sinclair et al., 2010) acknowledge that psychological factors are implicated in the relationship between financial hardship and mental health. However they add an additional layer to the process proposing that the perception of financial difficulties mediates the relationship, and psychological factors, such as self-worth and the ability to tolerate ambiguity, moderate the relationship between both objective and subjective ratings of financial hardship, and between subjective perceptions and mental health. Research into the impact of debt supports the proposal that the appraisal of financial situations is of primary importance to mental health outcomes (Richardson, Elliott & Roberts, 2013).

2.1.4.1 Locus of Control

Locus of control describes the source from which an individual believes their life is determined. This may be perceived to be internal and therefore controlled by oneself, or external and at the mercy of others or from chance (Rotter, 1966). An externalised locus of control has been associated with schizophrenia (Goodman et al., 1994); and depression in low income populations (Laraia et al., 2006) and young adults exposed to economic adversity during childhood (Culpin et al, 2015). Conversely a more internalised locus of control may moderate or protect against the

detrimental effects of financial stress on mental health (Krause, 1987; Young, 2001). This evidence that having a sense of control over one's destiny serves a protective role on mental health, but is also sensitive to erosion through stress, is predicted by the Stress Process model (Pearlin et al., 1981).

Poverty by its very nature limits the strategies that individuals can use to manage and problem solve their difficulties; this absence of coping reduces the sense of being able to influence one's life with consequences for mastery, depression and subjective wellbeing (Lever, Piñol, & Uralde, 2005). In contrast the retention of control is empowering to the extent that it may alleviate psychological distress (Silverstein et al., 2010).

Economic locus of control is the degree of control experienced over financial and occupational aspects of life and may influence the attributions about the cause of financial difficulties. As people with a more internalised economic locus of control tend to blame individuals for their financial situation (Heaven, 1989), it may be that they are also more vulnerable to feelings of self-blame and shame when the financial situation in question is their own. Lange and Byrd (2012) found that a diminished internal locus of control was associated with increases in depression and anxiety. As such, perceptions of financial difficulties, as proposed by the multilevel model of economic stress (Sinclair et al., 2010), may be an important factor in understanding how psychological factors and mental health are impacted by financial hardship.

2.1.4.2 Self-esteem

Self-esteem describes a person's sense of value and worth based on self-evaluations (Rosenberg, 1965), and is regarded as a relatively stable psychological trait (Trzesniewski, Donnellan & Robins, 2003). It is considered to be an important source of coping in the context of social challenges, providing a sense of efficacy that encourages active problem-solving, and belief in the availability of social and emotional support (Thoits, 2010). Children have been demonstrated to show greater resilience to adverse experiences, such as poverty, when self-esteem is high (Buckner, Mezzacappa & Beardslee, 2003) and self-esteem has been found to moderate the effects of stress on life satisfaction and quality of life (Young, 2001).

As predicted by Stress Process theory (Pearlin et al., 1981) the erosion of self-esteem by deprivation and financial hardship, and the disempowerment and

humiliation that these experiences promote (Brown & Moran, 1997; Lange & Byrd, 1998), increases vulnerability to the development of depression across the life span (Schwab, 1976; Wickrama et al., 2012).

Self-esteem may also be susceptible to the level of threat individuals attribute to their financial situation (Marjanovic et al., 2015), indicating a potential role for models incorporating perceptions of stressors. However the research into the effects of self-esteem is limited and not entirely consistent, with some research finding no vulnerability to the effects of economic strain (Waters & Muller, 2003) or having no role in the protection of mental health (Ritter et al., 2000).

2.1.4.3 Hope

Hopelessness describes the sense of lacking hope and optimism regarding oneself and for the future, both in cognitions and felt sense. It can be a powerful experience, often accompanying depression and anxiety, and has been implicated as an important factor in suicide (Beck et al., 1985).

Low income has been associated with increased feelings of hopelessness (Fiscella & Franks, 1997). Psychological distress in welfare recipients has been attributed to feelings of hopelessness and such feelings mediate the relationship between low wages and depression (Petterson & Friel, 2001). Furthermore patients reporting debt and financial concerns admitted to a psychiatric ward following a suicide attempt were found to have greater suicidal intent, psychiatric symptomatology and increased hopelessness in comparison to those not experiencing economic difficulties (Hatcher, 1994).

Chronically inadequate financial resources may erode hope thus, as proposed by stress process theory (Pearlin et al., 1981), increasing vulnerability to mental health problems. Alternatively, the stigma of poverty and the comparisons that individuals inevitably make to others within their society (Marmot & Wilkinson, 2003), are additional and seemingly unassailable losses as conceptualised by the Conservation of Resources hypothesis, and may promote hopelessness about their ability and opportunity to effect change within their financial situation and contribute to the development of mental health problems.

2.1.4.4 Shame

Shame is described as a painful emotion powered by the belief that one is, or is perceived by others, to be inferior or inadequate as a consequence of their thoughts, actions or behaviours, or the failure to achieve goals and expectations (Lewis, 1971). Kempson's (1996) review of research on the effects of long-term low income draws attention to the qualitative experience of financial hardship. Individuals described feeling degraded, worthless and ashamed by some of the consequences of being on a low income.

These experiences of poverty, such as food insecurity (Piperata et al., 2016), stigma and discrimination (Davis & Hagen, 1996), and the utilisation of services to alleviate financial stress (Underlid, 2005), may prompt feelings of humiliation and negative self-evaluations that lead to shame. In addition people are inclined to compare themselves with others, and where personal failure against social norms is perceived, shame may follow (Marmot & Wilkinson, 2001).

Research on the relationship between shame, financial difficulties and mental health has been most prevalent in the study of unemployment, and has demonstrated an association with reduced mental wellbeing (Rantakeisu, Starrin & Hagquist, 1999). The finances-shame model proposes that unemployment causes financial hardship and shaming experiences, the latter consequent of self and others perceptions of the absence of purpose and status (Starrin, Rantakeisu & Hagquist, 1997). In two samples of unemployed people financial hardship and shame significantly contributed to psychological distress (Creed & Muller, 2006). The model has also been tested in the general population, providing evidence that increased financial stress, combined with a greater number of shaming experiences, reduced psychological wellbeing (Starrin, Åslund, & Nilsson, 2009).

2.1.5 Aims and Objectives

The evidence for the role of psychological factors in the development of mental health difficulties in people experiencing financial problems is accumulating. This research has predominantly considered the impact of poverty and low income, and as such has presumed that these experiences are universally stressful. While the detrimental impact of chronic poverty, low wages and benefits cannot be denied, it is inexact to presume that all individuals below an arbitrary cut-off are experiencing the

same level of financial strain, nor to presume that people who objectively appear to have a sufficient income do not face any financial difficulties at all. In modern times of easily accessible credit, consumer debt rates that have peaked in the last decade (Bunn & Rostom, 2014), increases in the prevalence of zero hours contracts (ONS, 2017) and stagnating wages despite increased inflation (Bank of England, 2017), it is clear that even those seeming to have sufficient financial resource may be facing complicated and debilitating financial stressors. The welfare state, which has historically sought to protect people from poverty, has been reined in more recently with the introduction of the Welfare Reform and Work Act (2016). Reductions and restrictions in key benefits, and the introduction of a benefit cap and a 'bedroom tax' has implications for those experiencing or at risk of poverty (All Party Parliamentary Group, 2016). Given this social and political context the steadily increasing use of food banks is perhaps unsurprising (The Trussell Trust, 2017).

This study focuses on the concept of financial hardship because of its emphasis on the ability to fund and sustain life's essentials and so add to the literature demonstrating the impact of financial hardship on mental health and the mechanism by which this occurs. In doing so this study aims to address some of the limitations evident in the existing literature. Many of the studies investigating these links are cross-sectional in design, limiting the conclusions that can be drawn regarding causation. Just as the erosion of psychological variables may increase vulnerability to mental health disorder, such difficulties themselves may cause changes in psychological factors such as self-esteem or hope. Some studies have been completed longitudinally. However, Butterworth, Rodgers & Windsor (2009) judged that a limitation of their own and other such studies is that the long intervals between points of data collection have not been sufficiently sensitive to the fluctuations and cumulative effects of socio-economic circumstances. In addition the methods of analyses have often neglected to fully investigate the mechanism by which psychological factors are implicated in the relationship, limiting conclusions about their role.

Perhaps the greatest concern in the existing literature is the lack of studies which have used valid and reliable measures of financial hardship. Studies have often used a single question to establish hardship or constructed a set of questions for the purpose of the investigation with no assessment of reliability (e.g. Hughes, Kiecolt & Keith, 2014; Lange & Byrd, 1998; Ritter et al., 2000). As such there is wide variety in

the types of assessments being made, which may not be consistently measuring the same construct across different pieces of research. The use of standardised measures of psychological variables and mental health has also been lacking (e.g. Bobak et al., 1998; Cuesta & Budría, 2015). Existing research also has a tendency to focus specifically on depression or use generalised measures of mental health that, while sensitive to overall psychological distress, do not explicitly describe the nature of the difficulties experienced thus limiting our understanding of the nature of the distress or deterioration in mental health.

This study aims to investigate the role of four psychological factors on the relationship between financial hardship and mental health: economic locus of control, self-esteem, hopelessness and shame. The inclusion of economic locus of control aims to explore whether it has a mediatory role like non-specific locus of control. It is hoped that the longitudinal design and the use of a standardised financial hardship measure will provide more clarity as to how financial hardship impacts upon self-esteem, and the mechanism by which it impacts upon mental health. While there is some preliminary evidence of the influence that hopelessness and shame have on mental health in the context of economic challenges, these psychological factors have largely been neglected. Given the wealth of anecdotal evidence of financial struggles promoting feelings of shame and hopelessness, these factors would seem important to understanding the development, or not, of mental health difficulties. Though research of shame in the area of unemployment reveals it may have an important role to play, the design of these studies cannot discriminate between the mental health effects that can be attributed to the shame of losing and being unable to attain employment, and what is related to a lack of financial resource, if indeed these two aspects can be separated at all.

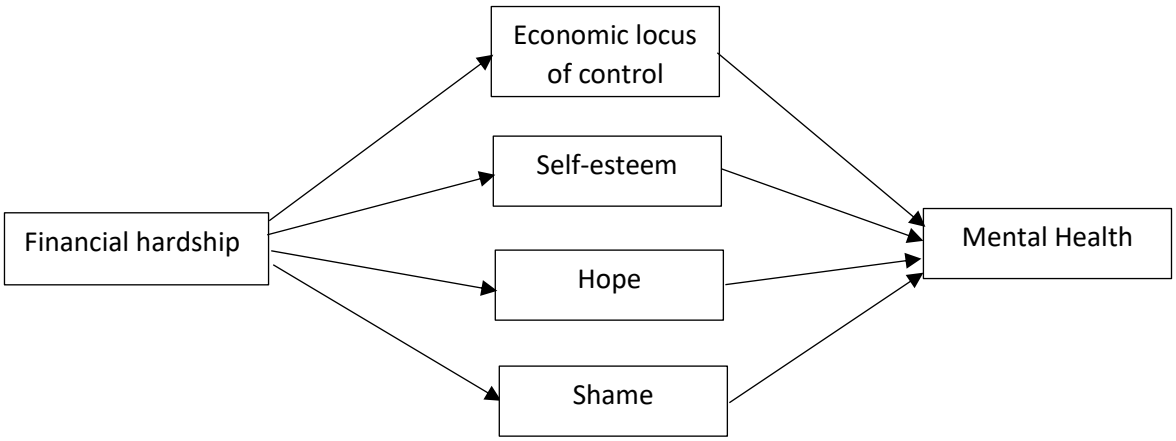
Given the limitations of the existing literature, it is the study's objective to establish causation and propose a model by which changes or resilience in psychological factors can be understood to impact upon mental health in the context of financial hardship. The use of standardised measures of objective and subjective financial hardship, psychological factors and specific mental health difficulties is also hoped to provide validity and reliability to the conclusions drawn.

2.1.6 Hypotheses

- Mental health difficulties will be significantly predicted by financial hardship and the psychological variables of economic locus of control, self-esteem, hopelessness and shame.
- The psychological variables of economic locus of control, self-esteem, hopelessness and shame will mediate the relationship between financial hardship and mental health difficulties.
- Financial hardship will negatively affect later mental health via the mediators of economic locus of control, self-esteem, hopelessness and shame.

Figure 2

Theoretical proposed mediational model of financial hardship and mental health



2.2 Method

2.2.1 Design

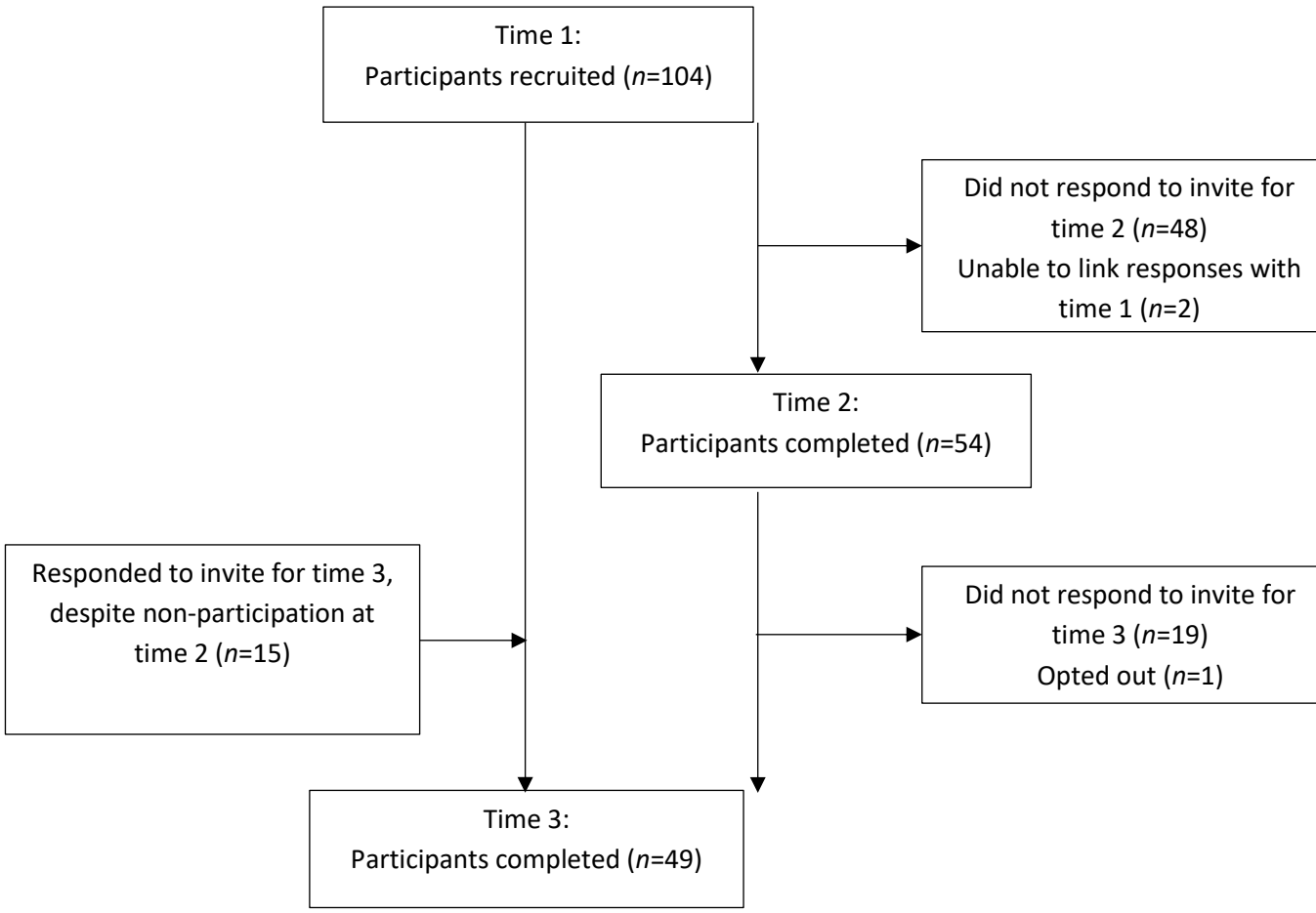
This is a longitudinal study, investigating the impact of financial hardship on mental health, via the mediating influences of economic locus of control, self-esteem, hopelessness and shame over three time points at three month intervals. The longitudinal design with three month intervals between data collection is hoped to be sufficiently sensitive to fluctuations in financial stress.

2.2.2 Participants

Participants were eligible to take part in the study if they were aged 18-65 and resident within the UK. Organisations offering support and advice to people experiencing financial difficulties, debt and receiving benefits, such as housing associations, debt support agencies, charities and food banks, were invited to assist in the recruitment of participants to the study. Participating organisations advertised the study through online platforms, using posters and leaflets within their premises, or both. The study was also advertised at student unions and those organisations with an interest in research into the relationship between money and mental health. In addition the study was advertised via social media and a website specifically designed for the purpose of recruitment. All advertisement materials contained the website address to access the study and additional information, and a link which directly accessed the study. Participants also had the option of completing a paper version of the study. Participants were advised that upon participating in the study they would be entered into a prize draw, with ten prizes of £50 each available.

Figure 3

Recruitment Flow Diagram



The nature and breadth of the methods of advertising the study (e.g. multiple social media platforms) prevent the calculation of an accurate response rate, as there is no means to calculate how many eligible people saw the study advert. At the initial data collection point the sample consisted of 104 participants. One participant did not complete the demographic information. Of the remainder, the average age of respondents was 40.7 years (range = 19-67, SD=12.70) and were mostly female (*n*=78 (75%)). The ethnicity of participants was predominantly white (*n*=94 (90.4%)). The marital status of most respondents was single (*n*=37 (35.6%)), living with a partner (*n*=26 (25%)) or married (*n*=24 (23.1%)). The majority of participants had achieved some level of university education (*n*=63 (60.5%)). Respondents reported living in private rented housing (*n*=33 (31.7%)), social rented housing (*n*=25 (24%)) or having a mortgage (*n*=25 (24%)). Full or part time work was held by 43.2% (*n*=30) of participants, and 27.9% (*n*=29) were unable to work. Participants mainly held, or had most recently worked, in intermediate managerial (*n*=33 (31.7%)) or supervisory positions (*n*=23 (22.1%)). A significant proportion were not working (*n*=25 (24%)).

Participants were divided into four groups, those who completed the survey at all three time points (*n*=34), time 1 only (*n*=35), time points 1 and 2 only (*n*=20) and time points 1 and 3 only (*n*=15), to explore whether attrition introduced any bias in to the results. Multivariate analyses confirmed that there were no significant differences in age or between scores on the financial, psychological or mental health variables: $\Lambda = .468$, $F\ (54,224)\ 1.21$, $p = .175$, $\eta^2\ .22$

2.2.3 Measures

2.2.3.1 Demographic Information

Participants were asked to provide demographic information (appendix F), describing their age, gender, ethnicity, marital status, highest level of education completed, housing and employment status, and nature of employment.

2.2.3.2 Financial Information

2.2.3.2.1 Index of Financial Stress (IFS, Siahpush & Carlin, 2006)

An eight item scale designed to elicit objective indicators of financial hardship, chosen to potentially differentiate between observed and perceived financial strain. The scale asks 'in the past 6 months did any of the following happen

to you because of a shortage of money?' and has previously been used in studies of financial difficulties and mental health (Richardson et al., 2016). Participants indicate 'yes' or 'no' if they have experienced such circumstances as 'went without meals'. The scale was modified for use in the UK by substituting £1000 for $1000 and the period of interest reduced to 3 months to match with the study's interval between time points. Higher scores indicate greater financial hardship. The authors report acceptable internal reliability of α = .76. Internal consistency in the current study at time one was acceptable at α = .74.

2.2.3.2.2 Personal Financial Wellness Scale (Prawitz et al., 2006a).

An eight question measure of perceived financial distress and financial well-being, chosen to contrast with the IFS's objective measure of financial strain (Appendix G). Questions such as 'how often do you worry about being able to meet normal monthly living expenses?' and 'what do you feel is the level of your financial stress today?' measure how an individual perceives the state of their finances. The questions are rated on a scale from 1 (negative feelings) to 10 (positive feelings). Higher scores indicate that the individual is experiencing greater financial wellbeing. The measure has excellent reliability (α = .96) and validity (Prawitz et al., 2006b). The scale was slightly modified for use in this study substituting £1000 for $1000. Internal consistency at time one in the current study was acceptable at α = .79.

2.2.3.3 Mental Health Measures

2.2.3.3.1 7-Item Generalized Anxiety Disorder Scale (Spitzer et al., 2006)

A seven item questionnaire measuring symptoms of general anxiety. Participants rate on a four point scale how frequently they have experienced specific anxiety symptoms in the previous fortnight, such as 'feeling afraid as if something awful might happen'. Scores range from 0-21 with higher scores indicative of greater anxiety. At time 1, 32.7% of participants scored in the severe range, 24% in the moderate range, 21.2% in the mild range and 20.2% did not reach clinical levels. The scale was chosen as it widely used in clinical and non-clinical populations, demonstrates good reliability (α = .83) and acceptable construct validity (α = .75) (Spitzer et al., 2006). Internal consistency in the current study was α = .94 at time one.

2.2.3.3.2 Centre for Epidemiological Studies Depression Scale (**CES-D**, Radloff, 1977)

A 20 item scale measuring depression in the general population. Participants indicate how frequently statements such as 'I felt hopeful about the future' have applied in the previous week on a four point scale. Scores range from 0-60, and higher scores indicate more severe symptoms. At time 1, 78.8% of participants scored above the cut-off indicative of depression. The measure is commonly used in epidemiological studies and demonstrates reliability in both general (α = .85) and mental health populations (α = .90). Internal consistency at time one in the current study was excellent at α = .95.

2.2.3.3.3 Suicidal Ideation Items (Roberts & Chen, 1995)

Four scale items developed as an addition to CES-D to measure suicidal ideation. Participants rate the frequency with which statements such as 'thoughts about death' have applied in the previous week on a four point scale, with higher scores indicating more frequent suicidal ideation. At time 1, 19.2% of participants reported some level of suicide ideation. The authors report good reliability at α = .85. Internal consistency in the current study was good at α = .88 at time one.

2.2.3.3.4 Perceived Stress Scale (**PSS,** Cohen, Kamarck, & Mermelstein, 1983)

A 10 item questionnaire measuring global perceived stress. Questions such as 'in the last month, how often have you felt that you were on top of things?' measures the extent to which individuals consider events over the previous month to have been stressful. Participants rate the frequency with which they have experienced each statement on a scale of 0 (never), to 4 (very often). The measure was chosen because it is widely used and has good reliability, being greater than α = .70 in twelve studies reviewed (Lee, 2012). Internal consistency in the current study at time one was excellent at α = .91.

2.2.3.3.5 Clinical Outcomes Routine Evaluation- General Population Version (CORE-GP) (Evans et al., 2005)

A measure of general mental health/wellbeing in the general population. Participants identify the frequency with which they experience 14 statements such as 'I have felt unhappy' on a five point scale. Scores range from 0-56 with higher scores representing worse global mental health. The CORE-GP has been shown to have excellent test-retest reliability (α = .90) and good validity in distinguishing a non-

clinical population from a clinical population. The scale items are low intensity and low risk items and in the main are positively stated which increases its acceptability within a non-clinical population, such as the current study. Internal consistency for the current study at time one was excellent at α = .93.

2.2.3.3.6 Alcohol Use Disorders Identification Test (AUDIT, Babor et al., 1989)

A ten item measure including statements such as 'how often during the last year have you had a feeling of guilt or remorse after drinking?'. Each statement is scored from 0-4 with higher scores indicating greater possible risk of alcohol dependence. At time 1, 31.7% of the participants had scores ranging from increased risk of alcohol dependence to possible dependence. The AUDIT accurately measures risk of alcohol use disorders across age, gender and cultures and the authors report good reliability (α = .86) and validity. Internal consistency in the current study was good at α = .87 at time one.

2.2.3.3.7 Drug Use Disorders Identification Test (**DUDIT,** Berman et al., 2003)

An eleven item scale including statements such as 'have you or anyone else been hurt (mentally or physically) because you used drugs?' Each statement response is scored from 0-4 with higher scores indicating greater risk of drug dependence. At time 1, 1% of the participants scored above the range indicating probable dependence on drugs. The DUDIT has good reliability (α = .90) and satisfactory validity for research and clinical populations (Hildebrand, 2015). Internal consistency in the current study at time one was excellent at α = .90.

2.2.3.4 Psychological Variables

2.2.3.4.1 Herth Hope Index (**HHI,** Herth, 1992)

A 12 item scale measuring hope, defined as the expectation that future goals are obtainable and current problems are temporary. Statements, such as 'I have a positive outlook toward life', are rated on a four point scale with higher scores indicating the presence of hope. The HHI has been used extensively in research and clinical applications with a variety of client groups (Frank-Stromborg & Olsen), and the author reports excellent reliability (α = .97) and validity (Herth, 1992). Internal consistency at time one in the current study was excellent at α = .91.

2.2.3.4.2 The Other as Shamer Scale (**OAS**, Goss, Gilbert, & Allan, 1994)

An 18 item scale measuring the extent to which one feels shamed by others. Participants indicate on a five point scale, from never to almost always, the frequency with which they believe others evaluate them with statements such as 'other people put me down a lot'. Higher scores indicate higher 'external shame'. The authors report excellent reliability (α = .92) and good validity (α = .81). Internal consistency in the current study was excellent at α = .96 at time one.

2.2.3.4.3 The Self-liking/Self-confidence Scale Revised (**SLCS-R**, Tafarodi & Swann, 2001)

A 16 item scale measuring self-esteem as consisting of two dimensions. Statements such as 'I never doubt my personal worth' indicate the extent of self-liking; and 'I perform very well at many things' reflects the extent of self-competence. The statements are rated from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate higher self-competence or self-liking. Reliability and validity are considered to be at least satisfactory for each subscale (Vandromme et al., 2006). Internal consistency at time one in the current study was excellent at α = .91.

2.2.3.4.4 Economic Locus of Control Scale (Furnham, 1986)

A 22 item measure assessing how much control an individual perceives to have over working and financial aspects of their life. A seven point scale, from strongly disagree to strongly agree, is used to rate agreement with statements such as 'there is little one can do to prevent poverty'. The scale is scored along four factors: Internal, Chance, External/Denial and Powerful Others. The author reports satisfactory reliability (α = .78) and validity. In the current study internal consistency at time one was acceptable at α = .65.

2.2.4 Procedure

Upon accessing the study online participants were provided with information about the study and a consent form (appendix D). To be eligible to participate in the study participants were required to confirm that they were over 18, under 65 and resident within the UK. Although the option of completing paper versions of the measures was offered, no participants chose this method.

Once consent had been given participants were given access to the survey. Demographic information was recorded at the first data collection point only and email address was taken as the identifying information to match responses over the course of the study. The email address was kept separate from the answers in the data set. Participants answered questions relating to their financial situation and completed standardised measures pertaining to financial strain, mental health difficulties and psychological variables. At three and six months after the initial completion of the measures, participants were invited by email to recomplete the survey. Emails reminding participants to compete the measures were sent one week later. As such participants completed the measures at three separate time points at three month intervals. Participants were debriefed after completing the measures at time 3 (appendix E).

2.2.5 Ethical Considerations

The study received ethical approval from the University of Southampton Ethics Committee (Appendix A). Five amendments were made to the original submission in an attempt to increase the recruitment rate to the study, and to promote retention of participants throughout the course of the study. The final confirmation of ethical approval is shown in Appendix B.

2.2.6 Statistical Analyses

Data was analysed using IBM SPSS 24.0 for Windows. Descriptive statistics and preliminary analysis of the data was performed. Issues related to missing data were resolved by substituting the whole sample mean for that item, and tests of parametric assumptions were completed.

Whilst there is some evidence of the relationship between financial hardship, psychological factors and mental health outcomes, it was unclear how those selected for the present study would be associated with one another. An exploratory approach was therefore taken, in which the initial broad consideration of all the variables, was progressively narrowed at each stage of analysis to reflect the emergence of the key variables. The exclusion of non-significant variables at progressive stages of analyses has been demonstrated in other studies within this field of research (for example: Ennis, Hobfoll & Schröder, 2000; Handley et al., 2013; and Hughes, Kiecolt & Keith, 2014)

Bivariate correlations were computed to establish associations between the variables. Those factors demonstrating an association with all other variables at a significance greater than .01 in order to compensate for multiple correlations and the risk of making a type II error were entered into hierarchical multiple regressions. Hierarchical multiple regressions were carried out using the enter method. Predictor variables were regressed on to each mental health measure separately (anxiety, depression, stress, wellbeing and suicide ideation). Age and gender were entered in the first block, objective financial hardship in block two, subjective financial hardship in block three, and the relevant psychological variables in block four.

A priori computation of the recommended sample size to generate a moderate effect (.15), with high power (.8) for the regression analysis was calculated in G* Power (Faul, 2014) as 118, in comparison with an actual sample size of 104. Assumptions of multicollinearity, homoscedasticity and independent errors were met. However collinearity was demonstrated between subjective and objective financial hardship, and self-liking and self-competence. There was no collinearity between either measure of financial hardship and the dependent variables. All the measures fell within acceptable limits for tolerance and variance inflation factors.

Regression analyses was not completed with data from later time points as attrition (48% at time 2 and 53% at time 3) resulted in a sample size substantially below that recommended in the G* Power (Faul, 2014) computation.

A separate mediation analysis was completed for each mental health outcome (anxiety, depression, suicide ideation, stress and wellbeing) because of the potential for variations in the mechanism by which the independent variable of financial hardship and mediators may act on the outcome. In keeping with the funnelling approach, only those variables identified as significant predictors by the regression analyses were included in a parallel multiple mediator model.

PROCESS version 2.16 (Hayes, 2013) was used to conduct the mediation analyses. Variables were entered into a parallel mediator model to enable the comparison of indirect effects through different mediators (Hayes, 2013). In this style of model no mediator is modelled as influencing another mediator, and as such are analysed independently, although Hayes (2013) acknowledges that mediators in a parallel model are likely to be correlated. To test whether the effect of financial hardship on mental health is mediated by hope and shame, subjective financial

hardship at time one was entered as the predictor variable; hope and shame scores at time two were entered as the mediator variables; and mental health scores at time three were entered as the outcome variables. This approach to analysis of mediation with longitudinal data was demonstrated in Witkiewitz and Bowen (2010). Despite the reduction in sample size at time points 2 and 3, Preacher and Hayes (2008) suggest that the use of bootstrapping (5000 in the analyses for this study) permits the use of smaller samples in mediation analysis.

2.3 Results

2.3.1 Preliminary Statistics

Analysis of the data was conducted using IBM SPSS 24.0 for Windows. Within the data there were minor amounts of missing data (<1%). Missing data was substituted with the mean for that item across the whole sample. Data was assessed at all time points for adherence to assumptions of normality. Visual inspection of histograms and measures of skewness and kurtosis (outside range of -1.5 to +1.5, Tabachnick & Fidell, 2013) of total scores at each time point, and scatterplots of all associations within and between time points, were completed for each standardised measure (full scale and subscales) to confirm both single and bivariate were normal, linear and without outliers. The suicidal ideation items, AUDIT and DUDIT did not meet assumptions of normality, therefore any analyses pertaining to these variables used non-parametric tests.

2.3.2 Descriptive Statistics

Descriptive statistics (mean, standard deviation, range and 95% confidence intervals) for the sample were calculated for each financial hardship, psychological and mental health variable at each time point, and are presented in table 10. Analysis of scores relative to clinical cut-offs (see section 2.2.3.3) indicates that a high proportion of participants were reporting clinically significant depression and anxiety scores.

2.3.3 Bivariate Correlations

Bivariate correlations were computed for age, and the financial hardship, psychological and mental health variables (see table 11) to see which variables were associated with the mental health outcomes for the purpose of the regression

analyses. The majority were assessed using Pearson's correlation as they were linear, normally distributed and there were no outliers. Spearman's Rho was used for the variables relating to suicide, and alcohol and drug use as these variables did not meet the assumptions for parametric data. The internal and external/denial dimension of locus of control, and alcohol and drug use showed fewer or no correlations with other variables, and were therefore excluded from further analysis. Aside from these all other financial, psychological and mental health variables demonstrated significant correlations with one another. Age was significantly correlated with subjective financial hardship, internal and chance dimensions of locus of control, stress and wellbeing.

Table 10

Descriptive statistics

	Time 1 (*n*=104)			Time 2 (*n*=54)			Time 3 (*n*=49)		
	Mean (SD)	**Range**	**95% CI**	**Mean (SD)**	**Range**	**95% CI**	**Mean (SD)**	**Range**	**95% CI**
Financial Variables									
IFS	2.49 (2.04)	0-7	2.07-2.92	2.15 (2.02)	0-7	1.44-2.54	2.18 (2.01)	0-6	1.57-2.78
PFWS	33.62 (19.71)	8-80	29.44-37.18	38.87 (22.67)	8-80	33.29-45.56	37.57 (21.65)	8-77	31.52-44.02
Psychological Variables									
Hope	18.85 (7.51)	0-36	17.11-20.11	19.45 (7.23)	3-34	17.25-21.33	19.45 (8.51)	1-35	16.72-21.52
Shame	33.76 (17.32)	2-72	30.71-37.63	31.6 (18.13)	0-72	27.36-37.23	34.46 (19.06)	4-72	28.46-38.72
Self-liking	12.13 (7.99)	0-32	10.29-13.45	11.92 (8.16)	0-31	9.44-13.77	11.94 (7.19)	0-32	10.02-14.11
Self-competence	12.75 (5.60)	0-29	11.53-13.82	13.06 (7.01)	0-32	10.71-14.54	11.81 (6.09)	0-26	10.24-13.59
LoC – Internal	23.69 (7.99)	10-49	21.94-25.10	25.51 (8.08)	13-49	23.27-27.92	24.27 (7.53)	11-49	22.41-26.74

LoC – chance	26.50 (7.37)	8-41	24.94-27.84	26.71 (7.67)	8-42	24.25-28.71	26.27 (7.06)	10-40	24.00-27.93
LoC – external/denial	29.25 (4.20)	15-35	28.39-30.07	27.61 (5.37)	5-35	26.15-29.25	27.54 (4.55)	19-35	26.44-28.89
LoC – powerful others	13.73 (6.04)	4-28	12.51-14.90	14.45 (6.49)	4-28	12.40-15.89	14.71 (6.12)	4-28	12.91-16.33
Mental Health Variables									
Anxiety	11.06 (6.81)	0-21	9.63-12.39	10.42 (6.60)	0-21	8.53-12.41	10.02 (6.71)	0-21	7.89-11.83
Depression	29.67 (15.08)	1-57	26.61-32.77	26.67 (15.60)	0-54	21.75-30.98	27.94 (16.83)	0-59	23.14-32.39
Suicide	2.46 (3.27)	0-12	1.74-3.00	2.33 (3.12)	0-12	1.46-3.23	2.33 (3.82)	0-16	1.22-3.28
Stress	24.94 (8.34)	3-39	23.28-26.72	18.47 (7.26)	3-32	16.57-20.58	18.81 (7.49)	2-32	16.57-20.72
Wellbeing	31.59 (12.65)	2-54	28.93-34.08	28.66 (13.45)	0-52	24.88-32.67	30.40 (14.34)	1-53	26.54-34.24
Alcohol Use	6.74 (6.69)	0-30	5.67-8.28	5.36 (5.68)	0-27	3.85-7.14	4.85 (5.03)	0-25	3.59-6.54
Drug Use	1.77 (4.54)	0-32	0.96-2.95	1.79 (5.25)	0-31	.56-3.67	1.58 (5.04)	0-29	.48-3.22

Table 11

Bivariate correlations at time 1 (n=104)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Age	---																	
2. IFS	0.15	--																
3. PFSW	-.29**	-.73**	--															
4. Hope	-0.15	-.40**	.47**	--														
5. Shame	0.01	.42**	-.43**	-.75**	--													
6. Self-liking	0	-.29**	.41**	.75**	-.74**	--												
7. Self-competence	0.04	-.30**	.40**	.68**	-.71**	.70**	--											
8. LoC – Internal	.37**	.21*	-.22*	-0.12	0.02	0	0.02	--										
9. LoC – chance	-.23*	-.39**	.43**	.35**	-.40**	.30**	.29**	-.20*	--									
10. LoC – external/denial	0.14	0.04	-0.17	.05**	-0.09	-0.09	-0.03	0.13	0.15	--								
11. LoC – powerful others	0.04	-.36**	.39**	.37**	-.43**	.40**	.36**	-.23*	.48**	-0.15	--							
12. Anxiety	0.18	.56**	-.63**	-.64**	.64**	-.51**	-.47**	0.18	-.39**	-0.04	-.29**	--						
13. Depression	0.19	.59**	-.65**	-.79**	.73**	-.58**	-.56**	.24*	-.41**	-0.01	-.40**	.84**	--					
14. Suicide[1]	0.08	.36**	-.43**	-.61**	.50**	-.32**	-.37**	0.11	-.31**	0.06	-.28**	.52**	.70**	--				
15. Stress	.20*	.54**	-.68**	-.74**	.68**	-.62**	-.58**	.21*	-.37**	0.03	-.40**	.81**	.89**	.56**	--			
16. Wellbeing	.25**	.57**	-.62**	-.81**	.71**	-.63**	-.59**	.21*	-.35**	0.04	-.35**	.79**	.93**	.59**	.88**	--		
17. Alcohol Use[1]	-0.11	0.06	-0.02	0.06	0	0.05	0.03	0.02	-0.01	-0.13	0.14	-0.08	-0.05	0.05	-0.17	-0.11	--	
18. Drug use[1]	-0.08	-0.08	0.17	0.09	-0.16	0.16	0.11	0	-0.05	-0.14	.21*	-0.14	-0.08	0.05	-0.17	-0.06	.25**	--

Abbreviations: IFS= Index of Financial Stress; PFSW= Personal Financial Wellness Scale; LoC= Locus of Control

Key: * Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

[1]Suicide, alcohol and drug use used spearman's rho

2.3.4 Regression analyses

Hierarchical multiple linear regressions were carried out on time one data (*n*=104) using the enter method to see whether objective and subjective financial hardship, and the psychological variables of hope, shame, self-liking, self-competence and the locus of control subscales of chance and powerful others were predictive of mental health outcomes.

Results of the regression analyses are shown in table 12 and show that the overall model was significant for each mental health outcome. Anxiety, depression, stress and reduced wellbeing were all separately associated with decreases in subjective financial wellbeing and hope, and increases in shame. Male gender was also associated with increased depression. The final model accounted for 60% of the variance in anxiety, 79% of the variance in depression, 71% of the variance in stress and 79% of the variance in wellbeing.

As the scores for the suicidal ideation items were not normally distributed, scores were dichotomised with a cut-off of 5, following the convention of previous research (Roberts & Chen, 1995), splitting participants into categories approximated to 'no ideation' and 'any ideation'. A logistic regression was carried out using the enter method to explore whether objective and subjective financial hardship, and the psychological variables of hope, shame, self-liking, self-competence and the locus of control subscales of chance and powerful others were predictive of suicidal ideation at time 1.

Results of the logistic regression analysis are shown in table 13 and show that the final model was able to explain between 23.2% and 39.4% of variance in suicidal ideation at time 1. The model was found to fit the data adequately (Hosmer & Lemeshow's $x^2 = 10.04$, $p = .262$), and was able to predict suicidal ideation ($x^2 = 25.89$, $p < .01$); overall the model was able to correctly predict 88.8% of all cases, though only hope successfully predicted suicidal ideation.

Table 12

Linear regression final models

	Anxiety *β*	Depression *β*	Stress *β*	Wellbeing *β*
Step 1 Demographics				
Age	-.03	-.01	.03	.11
Gender	.09	.12*	.04	.09
Step 2 Objective FH	.12	.12	-.01	.15
Step 3 Subjective FH	-.32**	-.28**	-.40***	-.22**
Step 4 Psychological Variables				
Hope	-.29*	-.51***	-.40***	-.53***
Shame	.36**	.32**	.22*	.27**
Self-liking	.03	.14	.01	.02
Self-competence	.08	.03	-.01	.03
LoC Chance	-.05	.03	.05	.10
LoC Powerful others	.11	-.01	-.03	.02
Total R^2	R^2 = .60, F (10,85) = 12.73***	R^2 = .79, F (10,87) 32.08***	R^2 = .71, F (10,87) = 21.66***	R^2 = .79, F (10,87) = 33.50***

Abbreviations: FH= Financial Hardship; LoC= Locus of Control

Key: * = p<.05; ** = p<.01; *** = p<.001

Table 13

Logistic regression final model of suicide ideation

	Cox & Snell R^2	Nagelkerlke R^2	Hosmer & Lemeshow x^2	Sig	β	SE	Wald	Odds ratio Exp(B)
Model	.232	.394	10.04	.262				
Predictor variable								
Age					-.02	.03	.32	.98
Gender					.44	.86	.26	1.55
Objective FH					-.14	.23	.38	.87
Subjective FH					-.02	.03	.50	.98
Hope					-.22**	.08	6.64	.81
Shame					.06	.04	2.80	1.06
Self-liking					.08	.08	.88	1.08
Self-competence					.11	.09	1.54	1.12
LoC Chance					.10	.06	2.97	1.10
LoC Powerful others					-.10	.07	1.84	.90

Abbreviations: FH = Financial Hardship; LoC = Locus of Control

Key: ***p* <.01

2.3.5 Mediation Analyses

Hope and shame were both identified as significant predictors of anxiety, depression, wellbeing and stress in the regression analyses; while only hope was identified as a significant predictor of suicide ideation. These factors were therefore considered for their mediatory effect on the relationship between financial hardship and mental health using the longitudinal data. Though objective financial hardship was initially significant in the hierarchical regression model, it became non-significant on inclusion of the measure of subjective financial hardship, which demonstrated a significant predictive effect of mental health outcomes in all subsequent models. Existing research on mental health and a range of financial difficulties has also identified that it is the perception of financial situation that has most influence on mental health outcomes (Richardson et al., 2013). Subjective financial hardship was therefore selected as the independent variable.

Bivariate correlations were computed for each time point for the variables included in the mediation analysis (Appendix H). Subjective financial hardship, hope, shame, anxiety, depression, stress and wellbeing were assessed using Pearson's correlation as they were linear, normally distributed and there were no outliers. Spearman's Rho was used for suicidal ideation as it did not meet the assumptions for parametric data. All the variables demonstrated significant correlations with one another within and across each time point.

PROCESS version 2.16 (Hayes, 2013) was used to explore whether hope and shame mediated the effect of subjective financial hardship on depression, anxiety, wellbeing and stress through a parallel multiple mediator model. Whether hope mediated the effect of subjective financial hardship on suicide ideation, was also explored, using a simple mediation model. To test whether the effect of financial hardship on mental health is mediated by hope and shame, subjective financial hardship at time 1 was entered as the predictor variable; hope and shame scores at time 2 were entered as the mediator variables; and mental health scores at time 3 were entered as the outcome variables. Table 14 details the parameter estimates for the indirect effects on the relationship between subjective financial hardship and the separate mental health outcomes, as mediated by hope and shame. The total indirect effect of hope was significant for depression, stress and wellbeing. The effect of shame was not significant for these mental health outcomes. The total indirect

effect of shame was significant for anxiety. The effect of hope was not significant for anxiety nor suicide ideation. Figures 4-8 show that for anxiety, depression, stress and wellbeing, subjective financial hardship was positively related to hope; and, for all but suicide ideation, negatively related to shame. Thus as subjective financial wellness improved, hope increased and shame decreased. In addition hope was negatively related to depression, stress and wellbeing. Therefore higher scores on these mental health outcomes were related to reductions in hope. Shame was positively related to anxiety, thus higher anxiety scores were related to increased shame. Figure 8 shows that hope was not related to suicide ideation.

Table 14

Indirect effects of subjective financial hardship on mental health through hope and shame

			95% BCa CI	
Mediator	***b***	**SE**	**Lower**	**Upper**
		Anxiety		
Total	-.14	.05	-.24	-.07*
Hope	-.06	.04	-.14	-.01
Shame	-.09	.04	-.18	-.01*
		Depression		
Total	-.40	.11	-.63	-.22*
Hope	-.30	.11	-.55	-.11*
Shame	-.10	.08	-.30	-.03
		Stress		
Total	-.15	.03	-.22	-.09*
Hope	-.13	.04	-.23	-.07*
Shame	-.01	.03	-.07	-.03
		Wellbeing		
Total	-.32	.08	-.52	-.20*
Hope	-.32	.09	-.54	-.17*
Shame	-.01	.06	-.14	-.11
		Suicide Ideation		
Total	-.08	.17	-.38	.05
Hope	-.10	.23	-.40	.08

Key: *p<.01

Figure 4

Mediational analysis of anxiety

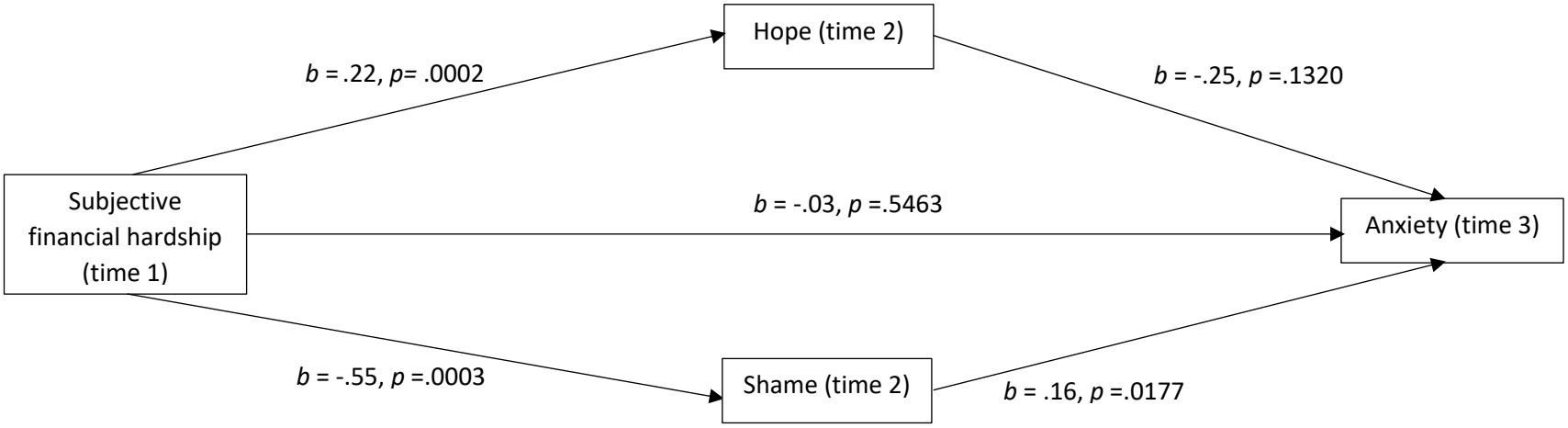


Figure 5

Mediational analysis of depression

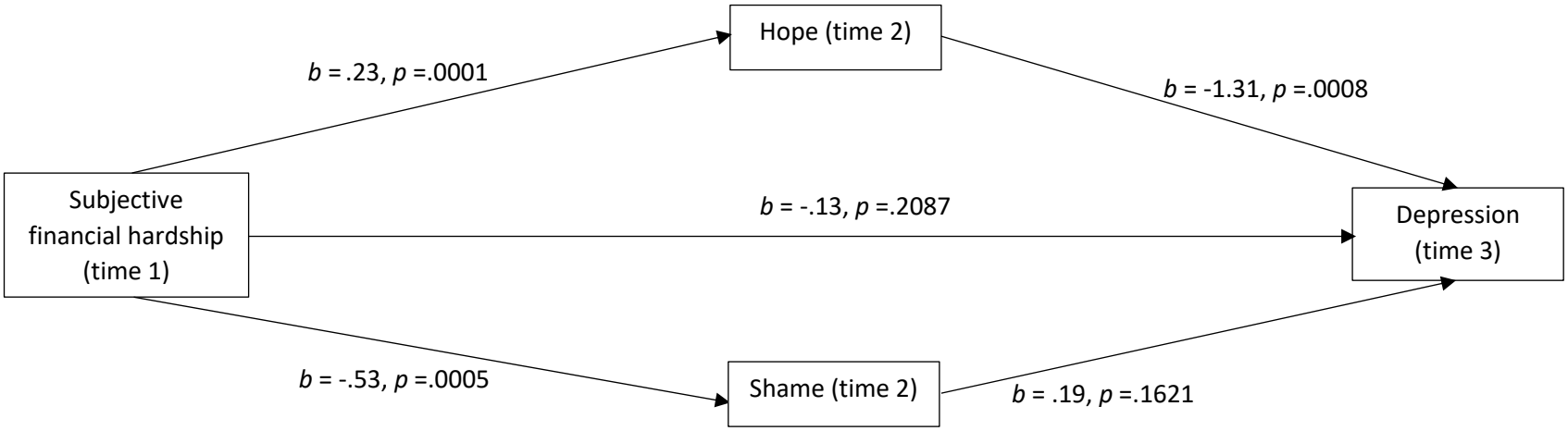


Figure 6

Mediational analysis of stress

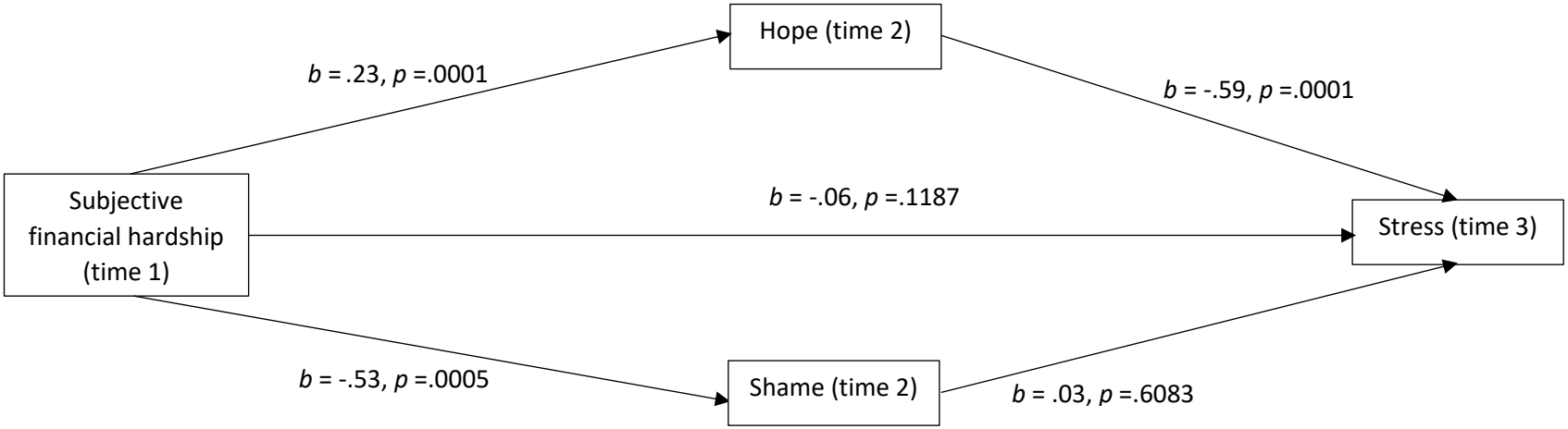


Figure 7

Mediational analysis of wellbeing

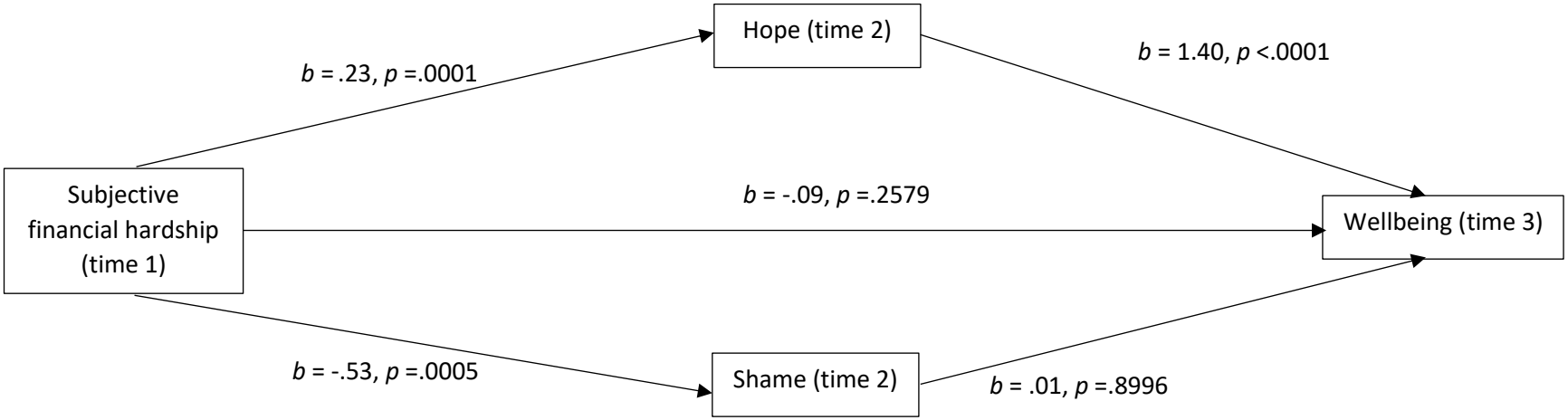
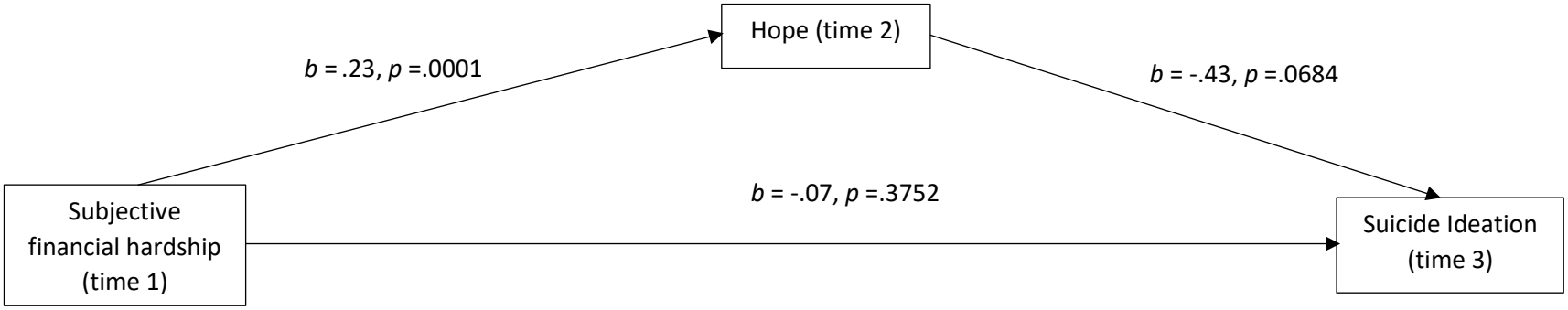


Figure 8

Mediational analysis of suicide ideation



2.4 Discussion

The present study hypothesized that financial hardship and the psychological variables of economic locus of control, self-esteem, hope and shame would significantly predict mental health outcomes. A hierarchal regression analyses indicated that only subjective financial hardship, hope and shame significantly predicted mental health outcomes. Objective financial hardship, self-esteem and economic locus of control did not predict mental health outcomes.

The finding that subjective financial hardship is a stronger predictor of mental health than objective financial hardship supports the work of Marjanovic et al. (2015) who found that financial threat mediated the relationship between financial situation and mental wellbeing. The importance of subjective ratings of financial difficulties is also highlighted in the multilevel model of economic stress (Sinclair et al., 2010), which positions perceptions of one's financial situation as mediating the relationship between actual finances and mental health.

Previous research exploring the effect of self-esteem on the relationship between financial hardship and mental health has been inconsistent (Burdette & Hale, 2011; Hill, Reid & Reczek, 2013; Wickrama et al., 2012). Whilst decreased self-liking and self-competence in the current study were significantly associated with increased objective and subjective financial hardship, these variables were not unique predictors of the mental health outcomes in the final regression model. The development and maintenance of self-esteem depends on a range of past and present life experiences, with financial wellness being just one of these. Self-esteem as measured in this study may therefore have been assessing a specific area of self-esteem. Individuals' global self-esteem may have been protected from the effects of hardship by specific self-esteem pertaining to other areas of their life, such as characteristics of employment (Tharenou, 1979), religiosity (Krause, 1995) and racial identity (Hughes, Kiecolt & Keith, 2014). Furthermore, specific self-esteem may only be detrimental to global self-esteem when it is highly valued (Rosenberg et al., 1995). Self-esteem may also be dependent on the extent to which economic difficulties impact on the sense of personal agency, with reductions in the sense of control and manageability of finances reducing self-esteem to a level at which vulnerability to mental health difficulties is increased (Lange & Byrd, 1998). As such the influence of

self-esteem on mental health in the context of financial hardship may have a complexity beyond that analysed in the current study.

The evidence for the role of locus of control has also been inconsistent, with research demonstrating evidence both for (Krause, 1987) and against (Jessop, Herberts & Solomon, 2005) an influence on the relationship between hardship and mental health. The current study specifically investigated the role of economic locus of control, finding that the internal, external/denial and powerful other dimensions of economic locus of control were significantly associated with objective and subjective financial hardship, but were not unique predictors of mental health outcomes in the final regression model. Findings related to economic locus of control may be impacted upon by the borderline acceptability of the reliability of the scale in the study population (α =.65) (Tavakol & Dennick, 2011).

In a parallel multiple mediator model subjective financial hardship at time 1 was associated with increased shame and hopelessness at time 2. Hope at time 2 was demonstrated to have a mediatory effect on the influence of subjective financial hardship on depression, stress and wellbeing at time 3, but not anxiety or suicide ideation. Shame at time 2 mediated the effect of subjective financial hardship at time 1 on anxiety at time 3, but not its effects on depression, stress or wellbeing. These findings partially support the hypothesis that financial hardship negatively affects mental health via the mediating variables. Stress process theory (Pearlin et al., 1981) might propose that the process of erosion of psychological factors such as hope and shame happens over an elongated time scale.

The finding of a role for shame in the development of anxiety in the context of financial hardship may reflect multiple levels of influence. On an individual level people may feel shame as a consequence of the difficulties they face in servicing the basic needs of themselves and their families, and their ability to engage in or live up to societal norms. The disruption of social bonds through the lack of resource to seek and share experiences and commonalities that enable conformity to cultural narratives and expectations (Scheff, 1988) may generate anxiety about the difficulties in meeting these expectations. Such shaming experiences may also breed anxiety about social inadequacy through a process of internalized inferiority (Bosma et al., 2015), and some researchers propose that individuals facing financial difficulties in societies in which meritocracy is championed may be particularly vulnerable to

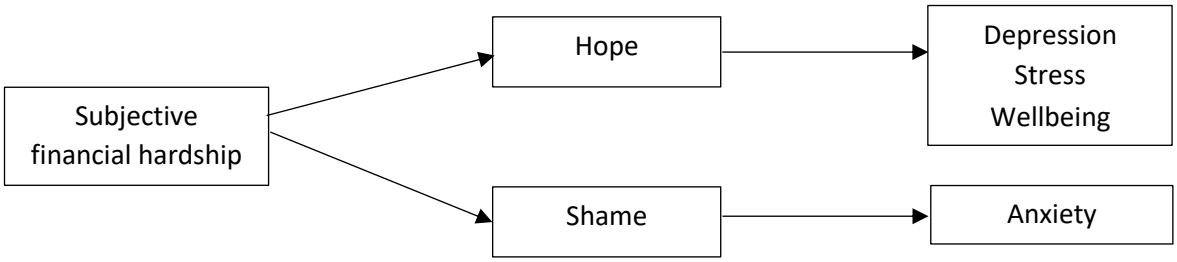
feeling stigmatized (Bosma et al., 2012), further fuelling a sense of shame and social inadequacy. At a political level, reductions in the value of benefits, restrictions on those entitled and increasing rhetoric about the need for work to pay, may compound a sense of inadequacy at the individual level whilst also serving as justification for the scaling back of the welfare state's social and financial interventions. These support mechanisms have historically served to alleviate or ameliorate the effects of financial hardship. The support mechanisms that remain, such as welfare benefits, may be stigmatised to the extent that some feeling shame about their need for financial support would be less likely to make a claim despite their need and entitlement (Baumberg, 2015), potentially compounding existing financial challenges. The perception that one is undeserving of state support may generate anxiety within individuals as to how they are perceived, their sense of entitlement and the utility and availability of these options to provide support at challenging times.

The findings of this study add weight to the small amount of existing evidence about the role of hopelessness in the relationship between mental health and economic challenges, such as debt (Hatcher, 1994) and reliance on welfare payments (Petterson & Friel, 2001), and financial hardship. The findings may be explained by stress process theory (Pearlin et al., 1981) which proposes that stressful life experiences erode psychological resources. In this case hope may protect mental health from stress by providing a sense that life stressors are temporary and amenable to resolution. In contrast the erosion of hope, and thus the presence of hopelessness, may create the sense of an interminable circumstance within which one is powerless, with deterioration in mental health as the consequence.

A proposed model of the mediatory influences of hope and shame is shown in figure 9.

Figure 9

Proposed model of factors mediating the association between financial hardship and mental health



2.4.1 Strengths of study

This study sought to address the limitations of previous studies in the area of financial hardship, psychological factors and mental health by measuring outcomes at three-monthly intervals. Much of the previous research has been cross-sectional in design, limiting the conclusions that can be drawn regarding causality. Some research that has been longitudinal in nature has been completed over time periods too long to be sensitive to changes in the variables. It has also been the case that research has been limited in its exploration of the relationship between variables and the mechanism by which they may act upon one another. The mediation analysis conducted in this study goes some way to address these issues and tentatively suggests a process by which an individual's internal experience may protect or increase vulnerability to mental health problems.

2.4.2 Limitations of Study

Whilst this study has attempted to address the issue of causation, the lack of change in scale scores over the six month course of the study may suggest that the time scales used were too frequent, making the whole study insensitive to changes in the variables. Measuring variables too frequently and therefore not identifying any change over time may in effect have replicated a cross-sectional design and therefore bring any conclusions regarding causation into question.

The sample size for the study was much less than anticipated and planned for during the design of the study, which has consequences for statistical power. The sample size at time 1 fell short of that recommended by G* Power (Faul, 2014) by 14. This means that the findings may be underpowered, though not to a degree that impacts upon the findings. The high rate of attrition means that the mediation analysis was conducted with a small sample size. The conclusions drawn may also be limited by the high number of correlations. The combination of these factors may have increased the risk of a type 1 error.

Generalisability of the findings to the general population may also be problematic given that participants were disproportionally female (75%) and white (90.4%). Evidence suggests that females are more likely to experience poverty (Tucker & Lowell, 2015) therefore its effects may also vary by gender. Consequently the findings of the present study may not accurately reflect male experiences of financial hardship. Similarly people from black and minority ethnic groups are more likely to experience financial difficulties (Kenway & Palmer, 2007). The high proportion of white people within this sample may therefore mean that the experiences of ethnic minority groups are also not represented by the findings. Analysis of scores relative to clinical cut-offs indicated that a high proportion of participants reported clinically significant depression and anxiety scores, which may also not be representative of the general population. This suggests that people with mental health difficulties may have been more likely to choose to participate in the study, affecting the generalisability of the study results to a general population. All participants were aged 18-65 and resident in the UK. Thus the findings may not be representative of an older population, nor people residing outside the UK.

In addition all the participants completed the online version of the study. Although paper versions of the study were provided, the greater ease of completing online, and the converse increased effort of completing the paper version, may have excluded people who did not want to fill in a lengthy form and return it to designated member of staff within the identified organisation. Also people who did not have access to a computer may have been excluded from the study. One might suppose that this group of people may have included those without the financial means to own a computer, and may therefore have constituted a recruitment bias.

2.4.3 Clinical Implications

The finding that financial hardship may generate feelings of hopelessness and shame that increase vulnerability to mental health disorders should serve as a warning at a societal and political level of the need to maintain the provision of effective and sufficient financial resource through statutory agencies. In times of austerity and increased use of food banks, findings such as these should highlight the potential long-term consequences for individuals and society as a whole if large numbers of people are at increased risk of developing mental health difficulties. Of course the development of appropriate resources can take time and even in optimum circumstances there may be a delay in experiencing their benefits. Understanding that difficult financial circumstances may be mediated by hopelessness and shame could enable interventions to be targeted at these psychological experiences.

Hope has been conceptualised as dependent on a sense of agency in the face of adversity and the sense that one is able to generate solutions to difficulties. Increases in both these aspects have been shown to increase hope (Snyder et al., 1991). Specific interventions have been developed with this concept in mind, in which individuals' barriers to hope are addressed, meaningful goals are identified and multiple possibilities for achieving those goals are generated; as well as drawing attention to and reflecting upon periods or events in which the individual has felt a sense of agency (Weis & Speridakos, 2011). Such an approach could be used to generate hope in individuals. Furthermore, many therapeutic models directly address problem-solving skills in therapy, with CBT being a notable example in which a structured approach to problem-solving is taught. Wadsworth et al. (2011) found that the teaching of skills to manage poverty related stress increased emotional regulation and problem solving with positive consequences for mental health.

Therapeutic interventions that have directly targeted hopelessness in the context of suicidal ideation could also be utilized. In a CBT informed model Ghahramanlou-Holloway et al., (2014) propose that hopelessness is related to an underdevelopment in the skill of optimism and overdeveloped catastrophisation. A lack of optimism could be addressed through the development of problem-solving skills as previously discussed; while CBT is also well equipped to manage the impact

of catastrophisation. The use of thought monitoring to identify triggers and responses in the context of financial hardship, and the developing of challenges to enable a person to consider these situations and thoughts from a more logical viewpoint may also be effective interventions.

The mediatory effects of shame could be targeted using Compassion Focused Therapy. Its role in increasing the functioning of soothing systems within the brain to counteract the threat systems which may be triggered by financial stressors and that breed feelings of blame and self-criticism (Gilbert, 2009) may be well placed to support individuals who feel responsible either for the financial situation they find themselves in or have a sense of inadequacy in coping with the consequences. As such the development of Emotional Coping Skills, as taught within DBT (Linehan, 2014), could also be utilised to support the development of the soothing systems to manage times of situational crisis and strong emotional reactions.

2.4.4 Future Research

Future research should continue to attempt to address the issue of causation, using longitudinal designs of sufficient length and frequency to be sensitive to changes in psychological and mental health variables. Research looking at the way in which psychological factors interact with mental health in the context of financial strain and the mechanisms by which change occurs needs further development. The current study was conducted with a general population sample, though anyone who wished to could take part. Given that a clinical mental health population may be particularly vulnerable to challenging financial circumstances and detriment to their mental health, it will be important to explore whether and how the experience of hope and shame is impacting on their mental health. Additional research should also be conducted with groups who are at particular risk of financial hardship, such as single parents, those on low-incomes and/or receiving benefits payments and people experiencing homelessness.

2.4.5 Conclusion

The results of the present study indicate that the experiences of hope and shame may mediate the relationship between financial hardship and mental health outcomes. The methodological limitations of how this study sought to measure

change, and limitations in sample size and representativeness means that the conclusions that can be drawn are limited. As such, there is a need for more research to understand these relationships and add to the evidence base. In times that provide considerable financial challenges to people throughout society, understanding the means by which economic strain may increase vulnerability to mental health disorders is of great importance to facilitate the prevention of difficulties and the development of resilience.

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Appendix A – Ethical Approval - initial

Your Ethics Submission (Ethics ID:18791) has been reviewed and approved

ERGO [ergo@soton.ac.uk]

To: Frankham C.

Submission Number: 18791
Submission Name: Does hopelessness, shame, self-esteem and locus of control mediate the relationship between financial hardship and mental health?
This is email is to let you know your submission was approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
None
Click here to view your submission
Coordinator: Charlotte Frankham

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Appendix B – Ethical Approval - final

Your Ethics Amendment (Ethics ID:24138) has been reviewed and approved

ERGO [ergo@soton.ac.uk]

To: Frankham C.

Submission Number 24138:
This email is to confirm that the amendment request to your ethics form (Does hopelessness, shame, self-esteem and locus of control mediate the relationship between financial hardship and mental health? (Amendment 4)) has been approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
1.Thank you for explaining the rationale for this statement.

Click here to view your submission
Coordinator: Charlotte Frankham

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Appendix C – Study Advert

UNIVERSITY OF Southampton

Research Advert (Version 6, 10/16; Ethics No. 24138)

How does financial hardship affect mental health?

A new research study looking at the effect of financial hardship on mental health is recruiting participants. Participants must be over 18 and under 65, and reside in the UK. You may take part in the research whether or not you are experiencing money worries.

The link between poverty and poor mental health is well established. While there is evidence of a link between financial hardship and mental health, it is much less clear what it is about these experiences that leads to poorer mental health.

This research study is therefore looking at the relationship between financial hardship and mental health; what effect being in financial hardship has over time; and what it is about hardship that increases the risk of developing mental health problems.

Participation in the research will require the completion of measures of the experience of financial difficulties and various aspects of their mental health. The measures will be completed at three time points, every three months, with the first time point occurring between April and October. This will take approximately 45 minutes at each time point. You will be sent an email with the link to the study 3 and 6 months after you first completed the measures to fill them in again. Therefore, if you were to complete the measures for the first time in June, you would complete them again in September and December.

This study is online and can be accessed https://www.isurvey.soton.ac.uk/19795. Further information can be found on the study website at www.welfareresearch.co.uk. On accessing the link participants will be given information about the study and asked to consent to participate, after which they will complete the first set of measures.

If you have any questions about the study, please contact the researcher at cf5g14@soton.ac.uk

Appendix D – Consent form

UNIVERSITY OF Southampton

Consent form (Version 6, 09/16; Ethics No. 24138)

Please read this information carefully before deciding whether to take part in this research. You will need to indicate that you have understood this information before you can continue. You must also be a UK resident and aged 18 and over and under 65 to participate. By ticking the box at the bottom of this page and clicking 'Continue', you are consenting to participate in this survey.

PROJECT TITLE

How does financial hardship affect mental health?

THE STUDY

You are being asked to take part in a research study looking at the relationship between financial hardship and mental health. The study aims to see how mental health is affected by financial hardship over a period of time. I am a Trainee Clinical Psychologist at the University of Southampton. This project has been approved by the University's Psychology Research Ethics Committee (reference number: 23623).

PARTICIPATION

In this study, you will be asked to complete a series of measures. These measures will ask you about your financial situation and how much control you feel you have over it; different aspects of your mental health; and how you feel about yourself and the future. There are 14 measures in total which should take you no longer than 45 minutes to complete.

We have tried to ensure that the questions in this study do not cause any distress. However, some people may experience some anxiety or concerns when completing questionnaires about mental health and financial difficulties, and support is available. If participating in this study raises any issues for you, we recommend that you contact one of the following resources:

- Talk to your GP
- Mind Infoline: Call 0300 123 3393 or text 86463
- Samaritans: Call 116 123 (free 24-hour helpline)
- Step Change Debt Charity: Call 0800 138 1111 or visit www.stepchange.org

TIME COMMITMENT

As this study wants to see how things change over time, you will be sent an email every 3 months asking you to complete the same set of measures. In total you will complete the measures on three occasions: now, and again in 3 months and 6 months. For example, if you complete the measures for the first time in June, you will complete them again in September and December.

In return for your participation you will be entered in to a prize draw after completing each set of measures. Over the course of the study 10 names will be drawn at random to win a prize of £50.

PARTICIPANTS' RIGHTS

You have the right to omit or refuse to answer or respond to any of the measures in the study. You may decide to stop being a part of the research study at any time without explanation. You may withdraw from the study by closing the webpage at any time during completion of the measures. You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

If you have any questions as a result of reading this information sheet, then please contact the researcher Charlotte Frankham at cf5g14@soton.ac.uk.

CONFIDENTIALITY

The data collected during this study will not contain any personal information about you except your demographic information. It will not be possible for anyone to link the data you provided to the identifying information you supplied (your email address) other than the study researcher. Access to email addresses linked to questionnaire responses will be password protected.

The data collected during the study may be written up for publication, presented at conferences and disseminated to the general public through appropriate sources. Your data will not be personally identifiable.

FOR FURTHER INFORMATION

This research project is being supervised by Dr. Thomas Richardson, Clinical Psychologist, and Dr. Nick Maguire, Clinical Psychologist.

After you have completed the measures you will be asked if you would like to be notified of the results of the study. Please indicate 'yes' if you wish to do so, and these will be provided to you when available.

STATEMENT OF CONSENT *(please tick to confirm)*

- I have read and understood the information about this study. ☐
- In consenting, I understand that my legal rights are not affected. ☐
- I also understand that data collected as part of this research will be kept confidential and that published results will maintain that confidentiality. ☐
- I finally understand that if I have any questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I may contact the chair of the Ethics Committee, Psychology, University of Southampton, SO17 1BJ, UK. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk ☐
- I certify that I am 18 years or older. I have read the above consent form and I give consent to participate in the above described research. ☐

Appendix E – Debrief Form

UNIVERSITY OF Southampton

Debriefing Statement (Version 5, 10/16; Ethics No: 24138)

Does hopelessness, shame, self-esteem and locus of control mediate the relationship between financial hardship and mental health?

The aim of this research was to look at how the experience of financial hardship impacts upon mental health over a period of time. This research also considered how feelings of shame and hopelessness, and people's self-esteem and sense of control over their finances, influenced the relationship between mental health and financial hardship.

Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish; and you can also have a summary of the research findings once the project is completed. Please select the appropriate boxes below to request this.

We have tried to ensure that the questions in this study do not cause any distress. However, some people may experience some anxiety or concerns when completing questionnaires about mental health and financial difficulties, and support is available. If participating in this study raised any issues for you, we recommend that you contact one of the following resources:

- Talk to your GP
- Mind Infoline: Call 0300 123 3393 or text 86463
- Samaritans: Call 116 123 (free 24-hour helpline)
- Step Change Debt Charity: Call 0800 138 1111 or visit www.stepchange.org

If you have any further questions please contact me (Charlotte Frankham) at cf5g14@soton.ac.uk.

Thank you for your participation in this research.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton,

SO17 1BJ. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk

I would like a copy of this statement

Please provide me with a summary of the research findings when the project is complete ☐

Appendix F – Demographics Questions

UNIVERSITY OF Southampton

Demographic Questions (Version 5, 10/16; Ethics No: 24138)

Please tick or complete the boxes which most appropriately describe your situation.

What is your email address? (so we can email you to complete these questionnaires again in a few mor

What is your age?

Please confirm you are a UK resident or citizen (tick here)

What is your gender?

Male
Female

What is your ethnicity?

White

English/Welsh/Scottish/Northern Irish/British
Irish
Gypsy or Irish Traveller
Any other White background, please describe

Mixed/Multiple ethnic groups

White and Black Caribbean
White and Black African
White and Asian
Any other Mixed/Multiple ethnic background, pl

Asian/Asian British

Indian
Pakistani

Bangladeshi
Chinese
any other Asian background, please describe

Black/ African/Caribbean/Black British

African ☐
Caribbean ☐
Any other Black/African/Caribbean background, please describe ☐

Arab ☐

Any Other ethnic group, please describe ☐

What is your marital status?

Divorced ☐
Living with partner ☐
Married ☐
Separated ☐
Single ☐
Widowed ☐
Would rather not say ☐

What is the highest level of education you have completed?

Did not complete secondary school ☐
Secondary school (GCSEs/'O' levels) ☐
College ('A' levels) ☐
Vocational/technical school ☐
Higher Education Certificate ☐
Diploma ☐
Bachelor's degree ☐
Master's degree ☐
Doctoral degree ☐
Professional degree ☐

How would you describe your housing situation?

Home owned outright ☐
Mortgage ☐
Social rented housing ☐
☐

Private rented housing

Temporary council-provided housing ☐

Living with family ☐

Sofa-surfing ☐

Other ☐

What is your employment status?

Full-time employment (over 30 hours per week) ☐

Part-time employment (less than 30 hours per week) ☐

Self-employed ☐

Full or part-time student ☐

Retired ☐

Unemployed and looking for work ☐

Looking after the home/caring for family ☐

Unable to work because of ill health or disability ☐

Other situation ☐

If you are working, how would you describe your occupation?

Higher managerial, administrative, professional e.g. Chief executive, senior civil servant, surgeon ☐

Intermediate managerial, administrative, professional e.g. bank manager, teacher ☐

Supervisory, clerical, junior managerial e.g. shop floor supervisor, bank clerk, sales person ☐

Skilled manual workers e.g. electrician, carpenter ☐

Semi-skilled and unskilled manual workers e.g. assembly line worker, refuse collector, messenger ☐

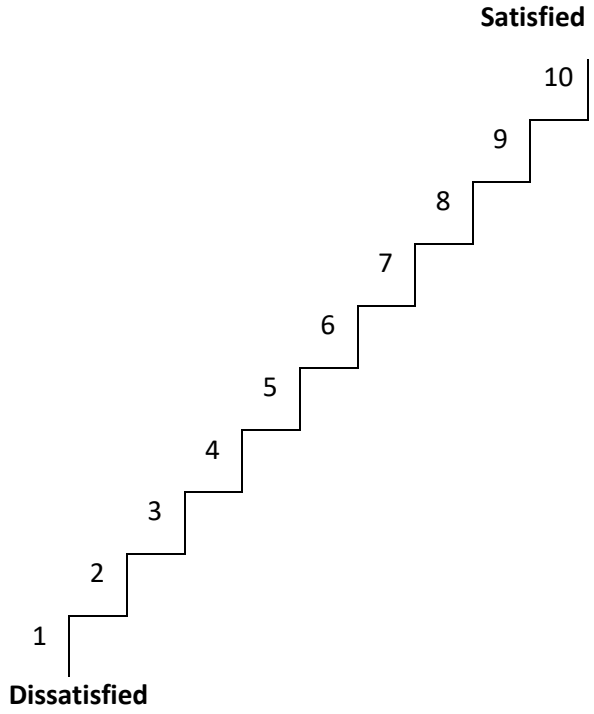
Appendix G – Personal Financial Wellness Scale

Directions: Circle or check the responses that are ***most appropriate*** for your situation.

1. What do you feel is the ***level*** of your ***financial stress today?***

1	2	3	4	5	6	7	8	9	10
Overwhelming Stress			High Stress			Low Stress			No Stress at All

2. On the stair steps below, mark (with a circle) how ***satisfied*** you are with your **present financial situation.** The "1" at the bottom of the steps represents complete dissatisfaction. The "10" at the top of the stair steps represents complete satisfaction. The more dissatisfied you are, the lower the number you should circle. The more satisfied you are, the higher the number you should circle.



3. How do you feel about your *current financial situation?*

1	2	3	4	5	6	7	8	9	10
Feel Overwhelmed			Sometimes Feel Worried			Not Worried			Feel Comfortable

4. How often do you worry about being ***able to meet*** normal monthly living expenses?

1	2	3	4	5	6	7	8	9	10
Worry All the Time			Sometimes Worry			Rarely Worry			Never Worry

5. How confident are you that you could find the money to pay for a ***financial emergency*** that costs about **$1,000**?

1	2	3	4	5	6	7	8	9	10
No Confidence			Little Confidence			Some Confidence			High Confidence

6. How often does this happen to you? You want to go out to eat, go to a movie or do something else

and ***don't go because you can't afford to***?

1	2	3	4	5	6	7	8	9	10
All the time			Sometimes			Rarely			Never

7. How frequently do you find yourself just getting by financially and living ***paycheck to paycheck***?

1	2	3	4	5	6	7	8	9	10
All the time			Sometimes			Rarely			Never

8. How *stressed* do you feel about your personal finances *in general?*

1	2	3	4	5	6	7	8	9	10
Overwhelming Stress **Stress**			High **Stress**			Low **Stress**			No **at All**

Appendix H – Correlations at each time point for mediation analysis

Correlations at time 1 (*n*=34)

Variable	1	2	3	4	5	6	7	8
1. PFSW	--							
2. Hope	.58**	--						
3. Shame	-.59**	-.72**	--					
4. Anxiety	-.65**	-.66**	.80**	--				
5. Depression	-.72**	-.85**	.80**	.85**	--			
6. Suicide[1]	-.48**	-.66**	.59**	.64**	.77**	--		
7. Stress	-.73**	-.78**	.74**	.82**	.91**	.62**	--	
8. Wellbeing	-.69**	-.90**	.80**	.79**	.93**	.63**	.87**	--

Abbreviations: PFSW= Personal Financial Wellness Scale

Key: ** Correlation is significant at the 0.01 level

[1]Suicide used spearman's rho

Correlations at time 2 (*n*=34)

Variable	1	2	3	4	5	6	7	8
1. PFSW	--							
2. Hope	.49**	--						
3. Shame	-.39*	-.73**	--					
4. Anxiety	-.39*	-.69**	.81**	--				
5. Depression	-.53**	-.82**	.84**	.85**	--			
6. Suicide[1]	-.37*	-.56**	.63**	.67**	.70**	--		
7. Stress	-.52**	-.77**	.83**	.74**	.82**	.58**	--	
8. Wellbeing	-.51**	-.89**	.79**	.81**	.81**	.63**	.83**	--

Abbreviations: PFSW= Personal Financial Wellness Scale

Key: ** Correlation is significant at the 0.01 level

[1]Suicide used spearman's rho

Correlations at time 3 (*n*=34)

Variable	1	2	3	4	5	6	7	8
1. PFSW	--							
2. Hope	.61**	--						
3. Shame	-.52**	-.70**	--					
4. Anxiety	-.55**	-.62**	.73**	--				
5. Depression	-.65**	-.80**	.77**	.87**	--			
6. Suicide[1]	-.56**	-.58**	.66**	.54**	.69**	--		
7. Stress	-.64**	-.76**	.71**	.70**	.85**	.57**	--	
8. Wellbeing	-.65**	-.87**	.75**	.79**	.95**	.68**	.86**	--

Abbreviations: PFSW= Personal Financial Wellness Scale

Key: ** Correlation is significant at the 0.01 level

[1]Suicide used spearman's rho

Correlations between time points (*n*=34)

Variable	1	2	3	4	5	6	7	8
1. PFSW time 1	--							
2. Hope time 2	.59**	--						
3. Shame time 2	-.58**	-.73**	--					
4. Anxiety time 3	-.53**	-.67**	.72**	--				
5. Depression time 3	-.64**	-.84**	.75**	.87**	--			
6. Suicide[1] time 3	-.50**	-.67**	.51**	.54**	.69**	--		
7. Stress time 3	-.66**	-.86**	.71**	.70**	.85**	.57**	--	
8. Wellbeing time 3	-.62**	-.86**	.69**	.79**	.95**	.68**	.86**	--

Abbreviations: PFSW= Personal Financial Wellness Scale

Key: ** Correlation is significant at the 0.01 level

[1]Suicide used spearman's rho